this bill would provide retroactive overtime pay for those who served extra hours during the recent May Day demonstrations.

I include these three WMAL editorials at this point in the RECORD for my colleagues' perusal:

POLICEMEN—A NATIONAL CONCERN

The plight of law enforcement officers in America is now a national scandal.

In Washington this year, four policemen have been shot to death. . . . double the number for all of 1970. And almost daily there are reports of assaults against officers here and elsewhere.

Our police departments are local agencies. . . . but our policemen's welfare is a legitimate matter of national concern. President Nixon has taken a proper initiative in calling a meeting Thursday of top police chiefs and officials of the Justice Department to see what the federal government can do.

An attack upon a law enforcement officer should be made a federal offense. . . . one that will bring speedy investigation by the FBI and other federal agencies . . . Penalties should be severe. A criminal who is capable of shooting or assaulting an armed officer of the law poses a special threat to society . . . and should be treated accordingly.

THANKS

The police deserve the thanks of every citizen for the job they do. Day after day, policemen risk their lives to protect others. But how many people have ever taken a moment to express thanks to the average policeman?

The residents of the Washington area have particular reason to praise the police . . . for their magnificent work during demonstrations. In recognition of their efforts, Police Chief Jerry Wilson was honored this week by the Touchdown Club. Here was his response:

"I don't deserve the honor. I'm only responsible for the things that went wrong. The men are responsible for the things that went right. If you want to do honor for the way things were done during Mayweek, the next policeman you meet on the street, you shake his hand."

If Chief Wilson's suggestion is followed by everybody who backs the D.C. Police handling of the Mayday disruptions, the police literally would have their hands full. It may not be a handshake—maybe just a smile, a wave or a thank-you—but let the police know they're appreciated. Thanks for a tough job well done.

DISRUPTING THE CAPITAL: V

President Nixon's defense of the Washington Police Department's Mayday tactics is welcome news to anyone who lives and works in this bullseye city.

Ever since Mayday, the second guessers have held the publicity spotlight with their critical remarks about police and court procedures.

And, as often happens, the essentials of the case have been obscured. What is central to the discussion of Mayday is that the police were facing a band of well-organized, determined insurgents capable of closing down the city and the government . . . capable, they showed us, of violent and dangerous behavior . . . and capable of doing almost anything once they got control of the streets.

It is in the nature of our systems . . . with its presumption of innocence . . . that *any* arrest can be found unconstitutional in the courts. But that is a matter to be determined by judges after the crisis has past. The police must act while the mob is still at the gates. And no one has proposed an acceptable alternative to the tactic they chose.

# SENATE—*Monday, June 28, 1971*

The Senate met at 10 a.m. and was called to order by the President pro tempore (Mr. ELLENDER).

The Chaplain, the Reverend Edward L. R. Elson, D.D., offered the following prayer:

Eternal God, Father of our spirits, we thank Thee for this quiet moment at the beginning of a new week. In this hushed and sacred time, wilt Thou separate our thoughts from all other thoughts that we may draw close to Thee and to one another. May our spirits be in tune with Thy spirit and our wills in harmony with Thy will, for Thy name's sake. Amen.

## REPORTS OF COMMITTEES SUBMITTED DURING ADJOURNMENT

Under authority of the order of the Senate of May 14, 1971, Mr. MCGEE, from the Committee on Appropriations, reported favorably, without amendment, on June 25, 1971, the joint resolution (H.J. Res. 744) making an appropriation for the fiscal year 1972 for the Department of Agriculture, and for other purposes, and submitted a report (No. 92–241) thereon, which was printed.

Under authority of the order of the Senate of May 14, 1971, Mr. ELLENDER, from the Committee on Appropriations, reported favorably, with amendments, on June 25, 1971, the joint resolution (H.J. Res. 742) making continuing appropriations for the fiscal year 1972, and for other purposes, and submitted a report (No. 92–240) thereon, which was printed.

Under authority of the order of the Senate of June 24, 1971, Mr. JACKSON, from the Committee on Interior and Insular Affairs, reported favorably, with an amendment, on June 25, 1971, the bill (S. 1116) to require the protection, management, and control of wild free-roaming horses and burros on public lands, and submitted a report (No. 92–242) thereon, which was printed.

## MESSAGE FROM THE HOUSE

A message from the House of Representatives by Mr. Berry, one of its reading clerks, announced that the House had agreed to the report of the committee of conference on the disagreeing votes of the two Houses on the amendment of the House to the amendment of the Senate to the text of the bill (H.R. 5257) entitled "An Act to amend the National School Lunch Act, as amended, to provide funds and authorities to the Department of Agriculture for the purpose of providing free or reduced-price meals to needy children."

The message also announced that the House had agreed to the amendment of the Senate to the bill (H.R. 7736) entitled "An Act to amend the Public Health Service Act to extend for 1 year the student loan and scholarship provisions of titles VII and VIII of such act."

The message further announced that the House had agreed to the amendments of the Senate to the bill (H.R. 6444) entitled "An Act to amend the Railroad Retirement Act of 1937 to provide a 10 per centum increase in annuities."

The message also announced that the Speaker had affixed his signature to the following enrolled bills:

H.R. 3094. An act for the relief of the estate of Capt. John N. Laycock, U.S. Navy (retired);

H.R. 4848. An act to amend the act of November 26, 1969, to provide for an extension of the date on which the Commission on Government Procurement shall submit its final report;

H.R. 6444. An act to amend the Railroad Retirement Act of 1937 to provide a 10 per centum increase in annuities; and

H.R. 7736. An act to amend the Public Health Service Act to extend for 1 year the student loan and scholarship provisions of titles VII and VIII of such act.

The enrolled bills were subsequently signed by the President pro tempore.

The message further announced that the House had passed the following bills in which the concurrence of the Senate is requested:

H.R. 1. An act to amend the Social Security Act to increase benefits and improve eligibility and computation methods under the OASDI program, to make improvements in the medicare, medicaid, and maternal and child health programs with emphasis on improvements in their operating effectiveness, to replace the existing Federal-State public assistance programs with a Federal program of adult assistance and a Federal program of benefits to low-income families with children with incentives and requirements for employment and training to improve the capacity for employment of members of such families, and for other purposes; and

H.R. 9272. An act making appropriations for the Department of State, Justice, and Commerce, the Judiciary, and related agencies for the fiscal year ending June 30, 1972, and for other purposes.

The message also announced that the House had agreed to the following concurrent resolution in which the concurrence of the Senate is requested:

H. Con. Res. 346. A concurrent resolution correcting the enrollment of H.R. 5257.

## HOUSE BILLS REFERRED

The following bills were each read twice by their titles, and referred as indicated:

H. R. 1. An act to amend the Social Security Act to increase benefits and improve eligibility and computation methods under the OASDI program, to make improvements in the medicare, medicaid, and maternal and child health programs with emphasis on improvements in their operating effectiveness, to replace the existing Federal-State public assistance programs with a Federal program of adult assistance and a Federal program of benefits to low-income families with children with incentives and requirements for employment and training to improve the capacity for employment of members of such families, and for other purposes; to the Committee on Finance; and

H.R. 9272. An act making appropriations

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for the Department of State, Justice, and Commerce, the Judiciary, and related agencies for the fiscal year ending June 30, 1972, and for other purposes; to the Committee on Appropriations.

## THE JOURNAL

Mr. MANSFIELD. Mr. President, I ask unanimous consent that the reading of the Journal of the proceedings of Thursday, June 24, 1971, be dispensed with.

The PRESIDENT pro tempore. Without objection, it is so ordered.

## WAIVER OF THE CALL OF THE CALENDAR

Mr. MANSFIELD. Mr. President, I ask unanimous consent that the call of the legislative calendar, under rule VIII, be dispensed with.

The PRESIDENT pro tempore. Without objection, it is so ordered.

## COMMITTEE MEETINGS DURING SENATE SESSION

Mr. MANSFIELD. Mr. President, I ask unanimous consent that all committees be authorized to meet during the session of the Senate today.

The PRESIDENT pro tempore. Without objection, it is so ordered.

## EXECUTIVE SESSION

Mr. MANSFIELD. Mr. President, I ask unanimous consent that the Senate go into executive session to consider nominations on the Executive Calendar, under New Reports.

There being no objection, the Senate proceeded to the consideration of executive business.

The PRESIDENT pro tempore. The nominations on the Executive Calendar beginning with New Reports will be stated.

## DEPARTMENT OF JUSTICE

The assistant legislative clerk read the nomination of James R. Laffoon, of California, to be U.S. marshal for the southern district of California for the term of 4 years.

The PRESIDENT pro tempore. Without objection, the nomination is considered and confirmed.

## U.S. PATENT OFFICE

The assistant legislative clerk read the nomination of John Stevens Lieb, of Wisconsin, to be an examiner in chief, U.S. Patent Office.

The PRESIDENT pro tempore. Without objection, the nomination is considered and confirmed.

Mr. MANSFIELD. Mr. President, I ask unanimous consent that the President be immediately notified of the confirmation of these nominations.

The PRESIDENT pro tempore. Without objection, it is so ordered.

## LEGISLATIVE SESSION

Mr. MANSFIELD. Mr. President, I move that the Senate resume the consideration of legislative business.

The motion was agreed to, and the Senate resumed the consideration of legislative business.

## THE CALENDAR

Mr. MANSFIELD. Mr. President, I ask unanimous consent that the Senate proceed to the consideration of Calendar Nos. 221, 224, 226, and 228.

The PRESIDENT pro tempore. Without objection, it is so ordered.

## CONVEYANCE OF CERTAIN PUBLIC LANDS IN WYOMING TO THE OCCUPANTS OF THE LAND

The bill (S. 137) to provide for the conveyance of certain public lands in Wyoming to the occupants of the land was considered, ordered to be engrossed for a third reading, read the third time, and passed, as follows:

S. 137

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the Secretary of the Interior is hereby authorized to convey to the successors in interest of Ferne M. McNeil all right, title, and interest of the United States, except right, title, and interest in deposits of oil and gas, in lands in resurvey lots 38C, 38D, and 38F (original survey southeast quarter southwest quarter, north half southeast quarter) section 25, township 52 north, range 103 west, sixth principal meridian, Park County, Wyoming, lying east and south of the Cody Canal. Such conveyance shall be made only upon application therefor within six months after the date of this Act, and upon payment of the fair market value of the land as of May 13, 1949, plus the administration costs of making the conveyance, as determined by the Secretary of the Interior, within one year after modification by the Secretary of the Interior of the amount due. In determining the fair market value of the land, the Secretary of the Interior shall not include any values added to the land by Ferne M. McNeil or her successors in interest or their heirs. Any conveyance made pursuant to this Act shall reserve to the United States all deposits of oil and gas in the lands, together with the right to mine and remove the same, under applicable laws and regulations established by the Secretary of the Interior.

SEC. 2. Acceptance by Ferne M. McNeil or her successors in interest of any conveyance made hereunder shall constitute a waiver and release by them of any and all claims against the United States arising out of the operation, maintenance, or construction of the Buffalo Bill Reservoir as now or hereafter authorized, including, without limitation, by reason of enumeration, claims for seepage, wave action, blowing silt, or increase in ground water level.

Mr. MANSFIELD. Mr. President, I ask unanimous consent to have printed in the RECORD an excerpt from the report (No. 92–227), explaining the purposes of the measure.

There being no objection, the excerpt was ordered to be printed in the RECORD, as follows:

PURPOSE

The legislation would authorize conveyance of a portion of land near the Buffalo Bill Reservoir upon payment of fair market value in 1949.

BACKGROUND

These lands were originally conveyed to the State of Wyoming by the Government under the Carey Act on June 21, 1900. The area surrounding these tracts was withdrawn for reclamation purposes on April 21, 1903. On July 31, 1913, the State of Wyoming reconveyed to the United States for "overflowage purposes" the lands in question.

The State of Wyoming deeded the lands to Ferne M. McNeil on May 13, 1949, 36 years after its conveyance to the United States, in the belief it held title. Ferne M. McNeil had entered upon the property, made improvements, irrigated and raised crops, and otherwise complied with the requirements of the Carey Act. Her successors in interest, having carried out extensive improvements by way of leveling, surveying, fencing, and building of houses, now seek clear title to the land.

LEGISLATIVE HISTORY

This bill, S. 137, is identical to S. 2735, as amended and approved by the committee and passed by the Senate last year, but which did not reach House action. The final version of S. 2735 constituted acceptance of a departmental draft proposal, with a change to fair market value as of May 13, 1949, and minor technical amendments.

COMMITTEE RECOMMENDATIONS

The Senate Interior and Insular Affairs Committee favorably reports S. 137 and urges its early passage.

## SALMON FALLS DIVISION, UPPER SNAKE PROJECT, IDAHO

The Senate proceeded to consider the bill (S. 432) to authorize the Secretary of the Interior to construct, operate, and maintain the Salmon Falls division, Upper Snake project, Idaho, and for other purposes which had been reported from the Committee on Interior and Insular Affairs with amendments on page 2, after line 2, insert a new section, as follows:

SEC. 4. The interest rate used for computing interest during construction and interest on the unpaid balance of the reimbursable costs of the Salmon Falls division shall be determined by the Secretary of the Treasury, as of the beginning of the fiscal year in which construction on the extension is commenced, on the basis of the computed average interest rate payable by the Treasury upon its outstanding marketable public obligations which are neither due nor callable for redemption for fifteen years from date of issue.

On page 3, at the beginning of line 4, change the section number from "4" to "5"; at the beginning of line 8, change the section number from "5" to "6"; and, at the beginning of line 19, change the section number from "6" to "7"; so as to make the bill read:

S. 432

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That, for the primary purposes of providing irrigation water supplies and the enhancement of fish and wildlife resources, and other purposes, the Secretary of the Interior, acting pursuant to the Federal reclamation laws (Act of June 17, 1902, 32 Stat. 388, and Acts amendatory thereof or supplementary thereto), is authorized to construct, operate, and maintain the Salmon Falls division, Upper Snake River project, Idaho. The principal works of the division shall consist of the Milner pumping plant, the Milner-Salmon Falls Canal, relift pumping stations, water distribution facilities, wells to provide supplemental water, drainage facilities, and related works.

SEC. 2. Irrigation repayment contracts shall provide, with respect to any contract unit, for repayment of the irrigation construction costs assigned to the irrigators for repayment over a period of not more than fifty years, exclusive of any development period authorized by law. Construction costs allo-

cated to irrigation beyond the ability of irrigators to repay shall be charged to and returned to the reclamation fund in accordance with the provisions of section 2 of the Act of June 14, 1966 (80 Stat. 200), as amended by section 6 of the Act of September 7, 1966 (80 Stat. 707).

SEC. 3. The provision of land, facilities, and project modifications which furnish fish and wildlife benefits in connection with the Salmon Falls division shall be in accordance with the Federal Water Project Recreation Act (79 Stat. 213).

SEC. 4. The interest rate used for computing interest during construction and interest on the unpaid balance of the reimbursable costs of the Salmon Falls division shall be determined by the Secretary of the Treasury, as of the beginning of the fiscal year in which construction on the extension is commenced, on the basis of the computed average interest rate payable by the Treasury upon its outstanding marketable public obligations which are neither due nor callable for redemption for fifteen years from date of issue.

SEC. 5. Power and energy required for irrigation water pumping for the Salmon Falls division shall be made available by the Secretary from the Federal Columbia River power system at charges determined by him.

SEC. 6. Any exchanges of water which may be required in connection with the operation of the division authorized by this Act shall be made in conformity with applicable State law and shall in no way jeopardize, diminish, or otherwise alter contractual rights and obligations now in existence or water rights acquired under State law, and shall be without prejudice to, but in enjoyment of, the rights of the appropriator participating in the exchange as a use under his original appropriation. Existing water users shall bear no additional costs as a consequence of any exchange in their service area.

SEC. 7. There is hereby authorized to be appropriated for construction of the works herein authorized and for the acquisition of the necessary land and rights the sum of $47,252,000 (January 1969 prices), plus or minus such amounts, if any, as may be required by reason of changes in the cost of construction work of the types involved therein as shown by engineering cost indexes. There are also authorized to be appropriated such sums as may be required for the operation and maintenance of said division.

Mr. JORDAN of Idaho. Mr. President, S. 432, which I introduced on behalf of my colleague, Mr. CHURCH, and myself, would authorize construction of the Salmon falls divisions as part of the Upper Snake River reclamation project near Twin Falls, Idaho.

The lands of the Salmon Falls division lie on the south side of the Snake River in southern Idaho. The landowners have worked long and hard for years to earn a living from farming these fertile but dry lands. To solve the overwhelming problem of inadequate water supply, the landowners have tried to provide their own irrigation facilities. They have drilled wells and utilized the limited surface runoff, as much as they could. While the Snake River flows through the area, existing water rights and needs have absorbed the flows of this part of the river.

But under the Snake River plain north of the river is a large, highly productive groundwater aquifier which can provide the water needed to make the Salmon Falls lands fully productive. To use this aquifier, the Bureau of Reclamation developed, in cooperation with State and local interests, the project plan which is the subject of this morning's hearing. It is more fully described in a feasibility report sent to the Congress last year by the Secretary of the Interior and printed as House document 91–359. We have also received a reevaluation statement dated August 1970 describing some possible modifications in the project.

The plan for the division contemplates irrigation of about 64,000 acres of land, in two adjacent units on the south side of the Snake River, of which about 49,000 acres are now irrigated. Water would be supplied from three major sources: First, existing ground and surface water in the service area; second, Snake River flows when available; and third, groundwater pumping from an auxiliary well field in the aquifier north of the Snake River. In addition to the auxiliary well field, the new facilities required for operation of the project include a pumping plant near Milner Dam and a main canal and distribution system.

I am pleased to note that under the Bureau's plan the Division would enhance the ecologic and environmental resources of the area in addition to providing substantial social and economic benefits. Some indication of the possibilities of the Salmon Falls Division are indicated I think by what has already been accomplished elsewhere in the Upper Snake River basin. The reclamation and irrigation projects there are widely recognized as some of the most successful in the Nation.

Mr. President, the Senate Water and Power Resources Subcommittee on June 9 conducted a hearing on this project and I am pleased to report that it was one of the most harmonious sessions that I have participated in during my years on the subcommittee. More than a score of witnesses responded, most of them making a 5,000-plus-mile round trip from Idaho to testify.

Several of them were water-users in the project area. They told of their own experiences in trying to cope with an inadequate supply of irrigation water and ground water levels sinking as much as 20 to 30 feet per year. One of the units of the project has been declared a "critical ground water area," since 1962, a State classification which prohibits further development of ground water wells. In the early 1950's, the water users even made an attempt to improve snowpack and runoff by cloud seeding, but without noticeable beneficial results. Some of the witnesses were of retirement age and reported they were unable to find young farmers to take over their property because of the uncertainties and increasing expense of the deficient water supplies in the area.

The proposed development has the unqualified support of the Governor and the State legislature, the Idaho Water Resource Board, and the Idaho Reclamation Association. The Department of the Interior recommended authorization of the project, which has a benefit-to-cost ratio of 1.42 to 1.

Mr. President, I join my colleague in urging approval of this bill.

The amendments were agreed to.

The bill was ordered to be engrossed for a third reading, read the third time, and passed.

The title was amended, so as to read: "An act to authorize the Secretary of the Interior to construct, operate, and maintain the Salmon Falls division, Upper Snake River project, Idaho, and for other purposes."

Mr. MANSFIELD. Mr. President, I ask unanimous consent to have printed in the RECORD an excerpt from the report (No. 92–230), explaining the purposes of the measure.

There being no objection, the excerpt was ordered to be printed in the RECORD, as follows:

PURPOSE OF THE MEASURE

The purpose of S. 432, introduced by the Senators from Idaho, is to authorize construction, operation, and maintenance of the potential Salmon Falls division of the Upper Snake River reclamation project in south-central Idaho. The division would supply irrigation water to 64,110 acres of which 49,380 are now irrigated but have inadequate supplies. It would also provide minor fish and wildlife conservation benefits.

BACKGROUND

The lands of the proposed Salmon Falls division lie south of the Snake River near the city of Twin Falls. Just to the north of the division are extensive and successful irrigation developments dating from 1905.

The division includes the Salmon tract and the Milner-Cottonwood units. The Salmon tract was developed for irrigation by the Salmon River Canal Co. in 1911. The water supply, which is obtained from a storage reservoir on Salmon Falls Creek, has never been adequate for the lands served.

The company has an approved loan under the small reclamation loan program for the improvement of its system scheduled for initiation with fiscal year 1971 funds.

Irrigation of the Milner-Cottonwood area began in 1947. The lands are supplied from groundwater, and the source is presently being overdrawn.

The Secretary of the Interior's feasibility report on the Salmon Falls division was transmitted to the Congress on June 29, 1970, and was printed as House Document No. 91–359. A companion bill, H.R. 2474 (Hansen and McClure) has been introduced in the House.

The Subcommittee on Water and Power Resources held a hearing on S. 432 on June 9, 1971. The Department of the Interior by letter of June 8, 1971, recommended enactment of the bill. The Office of Management and Budget advises it has no objection to enactment.

PLAN OF DEVELOPMENT

The proposed Salmon Falls division would involve the construction of the Milner pumping plant above the existing Milner Dam on the Snake River (a feature of the Minidoka project), the major Milner–Salmon Falls canal, the Hollister pumping plant and Hollister Pump canal to serve higher lands, and other distribution works. Existing facilities which would continue in use include the Salmon Falls Dam and Reservoir, canals, laterals, and drains in the Salmon tract and wells in the Milner–Cottonwood unit.

Water for fish and wildlife development would be delivered to ponds in nonirrigable lands through the project's distribution system and wasteways.

The water supply for the Salmon Falls division will be derived from continued pumping of ground water in the Milner-Cottonwood area, surplus flows of Rock Creek, continued use of Salmon Falls Creek storage, and Snake River flows. The project also contemplates the use of uncommitted flows of the Snake River which would be regulated in three upstream reservoirs as follows:

1. Storage space, allocated to the unit in the Bureau's existing Palisades Reservoir.

2. Storage space allocated to irrigation use in the Ririe Reservoir which is under construction by the Corps of Engineers.

3. Storage space in the existing American Falls Reservoir of the Bureau's Minidoka project which is presently used for power flow regulation by the Idaho Power Company under contractual rights (the Company would be compensated).

Testimony before the subcommittee indicated that the Idaho Power Co. does not intend to relinquish its rights to the American Falls storage, however, operating arrangements for joint use of the space might be negotiated.

In years of low flow, the available Snake River water will not be sufficient for the division's needs. Wells would be developed in the Snake Plain aquifer north of the Snake River to provide the necessary supplemental supplies. The plan of development in the feasibility report contemplates developing groundwater in the Wendell-Jerome-Dietrich area to serve users in the North Side Canal Co. service area in exchange for Snake River water which would be diverted to the Salmon Falls division. In response to objections of water users north of the Snake River to this plan, the Bureau has investigated an alternative in which groundwater from the Snake Plain aquifer would be delivered to the river and thence to the Salmon Falls division without exchanges. This alternative plan is feasible and can be constructed within the total estimated cost of the original plan.

Section 5 of S. 432 as introduced provides assurances that any exchange which may be negotiated will not impair the existing rights of water users. The committee notes, however, the testimony before the subcommittee indicated a strong preference on the part of local interests for the alternative plan. The committee does not intend, by the language of the bill, to employ any preference for exchanges but merely wishes to provide latitude for further negotiations. If the local preference for the alternative plan continues, the committee expects the Bureau to construct that development.

The major project physical data is as follows:

PROJECT LANDS

| | Salmon tract | Milner-Cottonwood | Total |
|---|---|---|---|
| Presently irrigated | 31,060 | 18,320 | 49,380 |
| Presently dry | 8,880 | 5,850 | 14,730 |
| Total | 39,940 | 24,170 | 64,110 |

CANALS

| | Length (miles) | Capacity (cubic feet per second) |
|---|---|---|
| Milner-Salmon Falls | 47 | 1,140 |
| Others | 20 | 90-640 |

PUMPING PLANTS

| | Capacity (cubic feet per second) | Lift (feet) |
|---|---|---|
| Milner | 1,165 | 115 |
| Hollister | 490 | 170 |

*Fish and wildlife facilities*

| | Acres |
|---|---|
| Cover areas | 1,000 |
| Ponding areas | 40 |

FINANCIAL AND ECONOMIC ANALYSIS

The total construction cost of the Salmon Falls division is estimated to be $47,252,000 (January 1969 price levels). The total project cost, which also included $292,000 assigned costs of upstream storage and $4,154,000 of assigned costs of the Federal Columbia River Power System, is allocated among the project purposes as follows:

| | Amount (in thousands) | Percent |
|---|---|---|
| Irrigation | $51,524 | 99.7 |
| Fish and wildlife | 174 | .3 |
| Total | 51,698 | 100.0 |

The annual operation and maintenance cost is estimated to be $638,000. The irrigators will repay the assigned costs of the Columbia River Power system (through pumping power charges) and all operating costs. They will also repay $13,117,000 or 28% of the irrigation obligation. The remaining irrigation costs will be repaid from power revenues from the Federal Columbia Basin Power System.

The costs allocated to Fish and Wildlife will be shared under the provisions of the Federal Water Projects Recreation Act (79 Stat. 213).

The ratio of total benefits to total costs over a 100-year period of analysis and using a discount rate of 4⅞ percent is 1.4 to 1.0.

NEED FOR THE PROJECT

The Salmon Falls division offers opportunities to provide supplemental water to two existing irrigation developments which have suffered from inadequate supplies throughout their history. The problem was well outlined by Mr. R. Keith Higginson, director, Idaho Department of Water Administration in the following excerpts from his testimony before the subcommittee:

*Salmon tract unit*

The Salmon tract unit of the project area was originally developed under provisions of the Carey Act in the early 1900's. Initially the Twin Falls Salmon River project, as it was known at that time, consisted of 127,707 acres of land. However, because of the extremely short water supply, only 32,968 acres were eventually developed and state patents issued under the act. In low runoff years, only about 14,000 acres of the present service area of 35,000 acres is cropped, and that with an inadequate water supply. Original project design studies using inadequate streamflow data were based upon an estimated water yield of approximately 400,000 acre-feet annually from Salmon Falls Creek. Later streamflow information indicates that the average yield is only about 96,000 acre-feet, or one-fourth of the amount upon which the project was based. The main source of water is storage in Salmon Falls Reservoir, with an active capacity of 182,700 acre-feet. *This reservoir has never filled in its history.* After deducting losses, an average of only 41,000 acre-feet of the inflow to the reservoir is available for use on the lands. The water shortage has been responsible for much litigation and disagreements. In 1924 the present operating company, the Salmon River Canal Company, took over the project. The facilities have been developed to the maximum extent to take advantage of all available water.

On a number of occasions, I have had the privilege of attending the annual spring meeting of the Salmon River Canal Company at which the landowners are advised of the amount of water they can expect to receive during the ensuing irrigation season. The amount varies from as low as ⅓ or less to about 1 acre-foot of water per project acre per season. Since the on-farm irrigation requirement for full irrigation is about 3.5 acre-feet of water per acre, it is obvious that the water-users must severely curtail their land use in order to have sufficient water with which to produce crops.

*Milner-Cottonwood unit*

The Milner-Cottonwood Unit is also in need of a supplemental water supply. However, here the history and problems of development was successful in the area beginning in the late 1940's and continuing until 1962 when my predecessor closed the area to further groundwater development by designation of a "Critical Ground-Water Area". We have prohibited further withdrawals of groundwater in excess of that developed or under the permits which had been issued as of 1962. We have contracted for studies of these basins with the U.S. Geological Survey, and their findings have substantiated our actions. Any additional withdrawal of ground water in these areas would seriously deplete the remaining resource and injure the prior right holders.

Water levels have continued to decline throughout the unit. *Our latest information shows that declines of 3 to 5 feet were common throughout the area again last year.* The U.S.G.S. report concludes that "Estimated annual withdrawals (30,000 acre-feet) are several times larger than the estimated average annual recharge of 11,000 acre-feet to the Idavada Volcanics. So long as the present annual rate of withdrawal continues, no decrease in the rate of water-level declines can be expected until water levels are lowered enough to stop natural discharge and induce recharge from the overlying aquifers in the discharge areas. It is known how much the water levels would need to be lowered to accomplish this and there is no assurance that the total of salvaged discharge and induced recharge would be adequate to stabilize water levels." It is clear that some outside water source must be found to alleviate the problems in the area. (Emphasis added.)

COMMITTEE AMENDMENTS

The committee made two amendments to the bill as follows:

1. A new section 4 was inserted to provide the usual formula for establishment of an interest rate for the repayment of the interest bearing, reimbursible costs of the division. It is estimated that $89,800 of the fish and wildlife conservation costs of the project will be repaid with interest by a non-Federal public body. Furthermore, the provision will provide a basis for repayment of project water supply costs with interest if a portion of the supply should be converted to municipal and industrial use at some later time.

2. The title has been corrected to include the word "river" in the name of the project.

COMMITTEE RECOMMENDATION

The Committee on Interior and Insular Affairs by unanimous vote, with a quorum of members present in executive session on June 16, 1971, recommends that S. 432, as amended, be enacted.

## NATIONAL SCIENCE FOUNDATION AUTHORIZATIONS

The Senate proceeded to consider the bill (H.R. 7960) to authorize appropriations for the activities of the National Science Foundation, and for other purposes which has been reported from the Committee on Labor and Public Welfare with an amendment to strike out all after the enacting clause and insert:

That this Act may be cited as the "National Science Foundation Authorization Act of 1972".

SEC. 2. (a) There is hereby authorized to be appropriated to the National Science Foundation, to enable it to carry out its powers and duties under the National Science Foundation Act of 1950, as amended, and under title IX of the National Defense Education

Act of 1958, out of any money in the Treasury not otherwise appropriated, $703,516,215 for the fiscal year ending June 30, 1972, and $900,000,000 for the succeeding fiscal year.

(b) Of the sums appropriated pursuant to subsection (a) of this section for each fiscal year—

(1) not less than $34,500,000 shall be available only for institutional support for science; and

(2) not less than $104,316,215 shall be available only for science education support.

If the amount appropriated pursuant to subsection (a) of this section is less than $703,516,215 for the fiscal year ending June 30, 1972, the Director of the National Science Foundation is authorized to reduce ratably the amounts set aside under clauses (1) and (2) of this subsection.

SEC. 3. Appropriations made pursuant to authority provided in sections 1 and 5 shall remain available for obligation, for expenditure, or for obligation and expenditure, for such periods as may be specified in Acts making such appropriations.

SEC. 4. Appropriations made pursuant to this Act may be used, but not to exceed $7,500 for official reception and representation expenses upon the approval or authority of the Director of the National Science Foundation, and his determination shall be final and conclusive upon the accounting offices of the Government.

SEC. 5. In addition to such sums as are authorized by section 2 hereof, not to exceed $3,000,000 is authorized to be appropriated for the fiscal year ending June 30, 1972, and $7,000,000 for the succeeding fiscal year, for expenses of the National Science Foundation incurred outside the United States to be paid for in foreign currencies which the Treasury Department determines to be excess to the normal requirements of the United States.

Mr. KENNEDY. Mr. President, as chairman of the Special Subcommittee on the National Science Foundation, I have a bill, the National Science Foundation authorization, which authorizes funds for the National Science Foundation for fiscal years 1972 and 1973.

SUPPORT FOR EDUCATION IN THE SCIENCES

The National Science Foundation authorization, as amended, differs in several important respects from the administration's budget request. First of all, it maintains authorization for all of the agencies' science education programs at their fiscal year 1971 levels. The administration had proposed eliminating several of the education programs and reducing the level of support for others. The overall cutback would have amounted to approximately 35 percent of the total education budget, or a total of over $49 million, below the level obligated during fiscal year 1971. The agency's education programs consist of two major budget categories; institutional support for science and science education support. The institutional support for science program consists in turn, of two major components. The first, institutional grants for science, provides discretionary funds to colleges and universities engaged in federally assisted research in order to enable them to maintain the quality of their science education programs. The second component, the science development program, assists colleges and universities in upgrading their graduate programs. The administration proposes discontinuing this program entirely. We have heard testimony from leading educators in the field of science that reduction or discontinuation of these programs below their present level would seriously impair the quality of science education programs at many institutions.

The second large budgetary category in the National Science Foundation's education programs is science education support. This program includes three major subcategories—student development, instruction personnel development, and instructional program development.

The student development program has provided extensive support for students at the undergraduate and graduate levels, to enable them to pursue educational programs in science. The instructional personnel development program consists of several types of programs directed toward improving the knowledge and proficiency of instructional personnel. We have heard testimony, Mr. President, concerning the importance of these programs in maintaining the excellence of the teaching capability of faculty from secondary schools, colleges and universities. This program often offers the only opportunity for these instructors to renew their skills in science. The third component of this budget category, Mr. President, instructional program development and educational research, has been increased by $1.7 million overall. Most of the increases were in the college science improvement program—COSIP—largely in the area of predominantly black colleges. However, other specific programs within the activity have been cut back. Although the committee supports the COSIP program and recommends continuing support for it, we have heard convincing testimony and received extensive correspondence which indicates the importance of continuing each of these valuable activities at their 1971 levels at minimum, in order to maintain educational quality at many colleges and universities across the country. H.R. 7960, as amended, provides restoration of authorizations for all these important programs to fiscal year 1971 levels. In most cases this represents a reduction in levels of funding for these programs from their maximum levels in previous years.

Mr. President, the overriding issue in this area is whether or not it is in the long-term national interest to cut back on our capability for educating scientists and for maintaining programs of the highest quality. Reductions in these programs at the present time will have their effects 10 to 20 years hence. Many of the proponents of cutbacks in these areas argue that a surplus of scientists and engineers exists. However, there is much disagreement among experts in this field. Many contend that the current unemployment among some categories of scientists and engineers is a problem of maldistribution of skilled personnel rather than absolute oversupply. They maintain that more, not fewer, scientists and engineers will be needed to help solve the problems of the cities, pollution, energy supplies, and many other critical areas. Moreover, a reduction in the level of support for these programs would, in many instances, result in a "tooling down" of programs which would take many years in some cases to reinstitute. It seems unwise to me to risk that until all of the evidence regarding our supply of scientific personnel is in.

RESEARCH APPLIED TO NATIONAL NEEDS

Second, Mr. President, we have authorized the full amount requested by the Foundation for its program of research applied to national needs.

Mr. President, the committee views the authorization of the full budget request for the program of research applied to national needs—RANN—as being of paramount importance.

In 1968, the Congress passed the amendments to the National Science Foundation Act, which greatly expanded the authority of the Foundation to support research efforts aimed at solving complex problems in the areas of physical, environmental, biological, and social sciences. At a time when new problems of increasing complexity and importance are facing our society every day, we must adequately support programs such as RANN designed to generate new knowledge and apply old knowledge to their solution. I feel that it is the responsibility of the Federal Government to create the circumstances necessary for the solution of these important problems and the RANN program is one important way of doing that. It is designed to help focus scientific knowledge on environmental, technological, social, and other problems of concern to society. In mid-fiscal year 1971, the NSF merged its programs on earthquake engineering, enzyme engineering, weather modification, interdisciplinary research relevant to problems of our society and institutional problem support designed to give colleges and universities interdisciplinary problem-focused research capabilities into the single program of research applied to national needs.

As noted in the committee report, NSF is in a particularly advantageous position to help focus the scientific resources of the Nation on selected problems of national concern. The committee believes that the provisions made by the National Science Foundation for the active participation of other agencies in the planning and executive stages of RANN research efforts, together with other existing and planned arrangements for interagency cooperation. A special committee has been established within the Office of Science and Technology to coordinate RANN research programs with other Federal programs. Reductions in the RANN programs could jeopardize the effectiveness of important research undertakings, such as studies related to the Nation's future energy requirements and environmental studies.

SUPPORT FOR SCIENTIFIC RESEARCH PROJECTS BEING DROPPED BY OTHER AGENCIES

Third, Mr. President, H.R. 7960 differs from the administration budget request in that it authorizes an additional $35 million to enable the National Science Foundation to support a higher proportion of the meritorious basic research projects which have been dropped as a result of section 203 of Public Law 91–121, signed into law on November 19, 1969, which required a fundamental change in the funding of basic research by the Department of Defense, limiting it to sup-

port of projects closely related to defense needs. This section, known as the Mansfield amendment, has been interpreted as a mandate by other mission-oriented agencies, such as NASA, AEC, and others. As a result of this shift in emphasis by other agencies, the NSF has been under increasing pressure to fund projects no longer supported by them. They have so far been able to identify $100 million worth of projects which will have been dropped by mission-oriented agencies, including DOD, AEC, and NASA, by the end of fiscal year 1972. The Director of the Foundation has testified that at least 75 percent of these projects are worthy of support. The administration budget request would enable the Foundation to pick up approximately 40 percent of the projects which have been dropped. The authorization contained in H.R. 7960, as amended, would enable the agency to pick up 75 percent of those projects.

TWO-YEAR AUTHORIZATION

Finally, H.R. 7960, as amended, Mr. President, authorizes funds for the National Science Foundation for 2 years. The authorization for the second fiscal year, ending June 30, 1973, totals $907 million, including $7 million in excess foreign currency. This figure was estimated based upon the following assumptions:

First. That the overall Federal research effort at academic institutions remains at approximately the same level of effort as authorized for fiscal year 1972.

Second. That there will be a continuing ongoing need for NSF to assume certain basic research programs being relinquished by other agencies with a consequent increase in the Foundations' share.

Third. A continuing growth of approximately 5 percent per year in the gross national product; and that

Fourth. The Foundation supports development of new approaches to science education with particular emphasis on computer-assisted instruction and system approaches.

Mr. President, a 2-year authorization will allow the Foundation to plan its programs in such a way as to insure the continuity and stability of support for science programs which are essential to the continued health of American science. The biennial authorization would also enable the institutions with which the NSF deals to plan for longer term programs on a more rational basis. Science policy in this country must be formulated with a long-term view in mind.

To that end, H.R. 7960, as amended, provides for continued adequate support for science education, scientific research projects, research applied to national needs, and constructs a framework within which rational long-range planning for science policy can be undertaken. I would like to urge the passage of this bill by the Senate.

Mr. President, I ask unanimous consent to have printed in the RECORD an excerpt from the report (No. 92–232), explaining the purposes of the measure.

There being no objection, the excerpt was ordered printed in the RECORD, as follows:

I. SUMMARY

The purpose of H.R. 7960 as amended by the committee is to authorize appropriations to the National Science Foundation for fiscal year 1972 in the amount of $703,516,215, and for fiscal year 1973 in the amount of $900,000,000 out of money in the Treasury not otherwise appropriated, and in foreign currencies which the Treasury Department determines to be in excess to the normal requirements of the United States, $3,000,000 for fiscal year 1972 and $7,000,000 for fiscal year 1973.

II. BACKGROUND

The National Science Foundation operates under a mandate from the Congress "to promote the progress of sciences; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes". To meet this responsibility, National Science Foundation provides support for a broad range of research in the physical sciences, engineering, mathematics, biology, and the environmental and social sciences and for programs designed to improve science education, to upgrade the capabilities of academic institutions to conduct research, to improve the dissemination of science information and to foster the interchange of scientists between the U.S. and foreign countries.

In 1968, the National Science Foundation Act of 1950 was amended to authorize the Foundation to initiate and support applied research at academic and other non-profit institutions and, when so directed by the President, to support, through other appropriate organizations (including industrial organizations), applied scientific research relevant to national problems involving the public interest. In past years, the committee has recognized the Foundation's long involvement in problem-oriented research, through the support of such programs as Weather Modification and Earthquake Engineering, and has urged the Foundation to take an aggressive role in coupling the science sources of this Nation more effectively to the needs of society.

The National Science Foundation enabling legislation provides a broad Congressional mandate for National Science Foundation to help to insure continued U.S. scientific strength in all areas of science. It fulfills this responsibility through various types of science support programs designed to increase our scientific knowledge, to stimulate the improvement of the capabilities of academic institutions to carry out research and science education programs, and to help insure that adequate numbers of scientists, engineers, and science technologies are trained to meet the needs of the nation.

The administration request to the Congress provided $622,000,000 for NSF, including $3,000,000 in excess foreign currencies, for fiscal year 1972. On March 10, 1971, Senator Prouty introduced S. 1168, which authorized $622,000,000 as included in the administration budget request for fiscal year 1972. On May 26, 1971, Senators Kennedy, Prouty, Pell, Eagleton, and Cranston introduced S. 1968, which called for an authorization of $688,516,215 plus $3,000,000 in excess foreign currencies which is $49,000,000 above the total administration request for fiscal year 1972 of $622,000,000. S. 1968 included provisions for science education and institutional science programs, as well as other special provisions that differed from S. 1168. In addition, S. 1968 authorized $900,000,000 for fiscal year 1973. On June 8, 1971, a bill passed by the House of Representatives, H.R. 7960, authorizing a total of $622,000,000 for fiscal year 1972, was referred to the Senate Committee on Labor and Public Welfare.

The authorization for fiscal year 1972 contained in H.R. 7960, as amended by the committee, is $706,516,215 including $3,000,000 in excess foreign currencies which is $35,000,000 above the $671,516,215 total included in the original S. 1968 and $84,516,215 above the administration request of $622,000,000. In effect, the authorizations for fiscal year 1972 provides the level of funding necessary to permit National Science Foundation to meet the high priority requirements for research projects no longer supported by mission agencies, to restore the Foundation's Science Education Support and Institutional Support for Science programs to essentially their fiscal year 1971 levels, and to meet other high priority research requirements. The committee also recognizes the importance of providing stability and continuity in science support and therefore recommends that an authorization in the amount of $900,000,000 be provided for fiscal year 1973 plus $7,000,000 in excess foreign currencies.

The Committee on Labor and Public Welfare reached its favorable recommendation regarding H.R. 7960, as amended, after careful consideration of the extensive public record prepared on S. 1168 and S. 1968 by the Special Subcommittee on the National Science Foundation. Appearing as witnesses before the subcommittee on June 2, 1971 were Dr. William D. McElroy, Director, National Science Foundation; Dr. Raymond L. Bisplinghoff, Deputy Director, of NSF; Mr. Bernard Sisco, Assistant Director for Administration; Dr. Edward Creutz, Assistant Director for Research; Dr. Thomas Owen, Assistant Director for National and International Programs; Dr. Lloyd Humphreys, Assistant Director for Education; Dr. Louis Levin, Assistant Director for Institutional Programs; and Dr. Alfred Eggers, Assistant Director for Research Applications, for NSF. Dr. Robert Fuller, President of Oberlin College, and Dean Harrison Shull of Indiana University, non-NSF witnesses, were also heard. In addition to testimony provided during the hearings, members of the committee submitted 23 detailed follow-up questions to the Foundation, for which NSF supplied extensive replies. The Senate record also includes letters and statements from various interested parties within the academic and scientific communities which illuminated important issues, particularly, the actions proposed by the administration for the National Science Foundation programs in science education and institutional science support.

Based on this entire record, the committee recommends and urges enactment of H.R. 7960, as amended. In recommending this action, the committee has determined, from the testimony provided by NSF witnesses and from other sources, that (1) the NSF budget presented to the Congress provided only $40 million to meet research support requirements for important projects being discontinued by other Federal agencies due to mission relevancy considerations, whereas the actual minimum amount needed is $75 million; (2) the NSF proposes to discontinue the Student Science Training Program for outstanding high school students, its Undergraduate Research Participation Program, other science education support programs, and institutional support programs that are considered to be important to efforts to improve the quality of the research and science education programs of academic institutions throughout the country; and (3) the research programs of the Foundation—particularly its program of Research Applied to National Needs (RANN), which is designed to utilize more fully the science resources of the nation to help resolve environmental, technological, social and other problems of national concern—are of critical importance and, therefore, should be supported in the full amount requested by the administration.

The authorization in H.R. 7960, as amended, will enable the Foundation to provide essential stability and continuity to federal support programs for fundamental research at our nation's academic and other appropriate research institutions, to insure the vital-

ity of science education and institutional science programs, and to continue its efforts to couple more effectively the science resources of the nation to the needs of society.

III. NATIONAL SCIENCE FOUNDATION PROGRAMS

NSF program plans as included in the Administration's Budget were as follows:

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|---|---|
| Scientific research project support | $257,800,000 |
| Specialized research facilities and equipment | 5,800,000 |
| National and special research programs | 166,600,000 |
| National research centers | 40,200,000 |
| Computing activities in education and research | 17,500,000 |
| Science information activities | 9,800,000 |
| International cooperative scientific activities | 4,000,000 |
| Intergovernmental science program | 1,000,000 |
| Institutional support for science | 12,000,000 |
| Science education support | 77,300,000 |
| Planning and policy studies | 2,700,000 |
| Program development and management | 24,300,000 |
| Subtotal, S. & E. appropriation | 619,000,000 |
| Special foreign currency program | 3,000,000 |
| Total | 622,000,000 |

Brief description of each of these areas follows below:

*Scientific research project support*

| | |
|---|---|
| Actual, fiscal year 1970 | 161,715,761 |
| Estimate, fiscal year 1971 | 175,900,000 |
| Estimate, fiscal year 1972 | 257,800,000 |
| Estimate, fiscal year 1973 | 340,000,000 |

Funds in the amount of $257.8 million are included in the budget for Scientific Research Project Support. It is estimated that 5,300 grants averaging $48,000 will be awarded to about 450 institutions which will involve the research efforts of approximately 7,700 faculty scientists and about 7,200 graduate science students.

This program provides support for the development of fundamental knowledge in all scientific fields and disciplines. This knowledge and basic capability are needed to meet the challenges of a growing technologically-based society.

The increase of $81,900,000 over fiscal year 1971 requested for Scientific Research Project Support will permit the Foundation to provide strong support for the Nation's core program of scientific research including biological, physical and environmental research, and research on man, his societies, and the institutions created by him. New initiatives, in selected areas where new knowledge and understanding can lead to opportunities for solution of social, environmental, and engineering problems, will utilize about $27 million.

In addition, about $40.0 million is allocated to increase the NSF share of Federal support for fundamental research. This will permit NSF to support important research no longer supported by other Federal agencies because of changes in program priorities. NSF estimates that fundamental research efforts totaling more than $100 million will have been dropped by other Federal agencies due to mission relevancy considerations by the end of FY 1972. The scientists involved in these efforts are turning to NSF for support and thus far the agency has been provided with only $10 million to meet these growing requirements. Many of the investigators no longer being supported by these agencies are extremely well qualified and can be productive in nondefense, nonspace areas which are supported by the National Science Foundation. Increases are also provided for the National Magnet Laboratory ($1.8 million) and the Materials Research Interdisciplinary Laboratories ($12.8 million), which have previously been funded by the Department of Defense.

Within the sub-activities of this program, preferential emphasis has been given to increasing fundamental research in the biological sciences, engineering, chemistry, oceanography, and the social sciences. Particular attention will be given in the biological sciences to biology of human cells, to broaden our understanding of diseases, genetic damage, and fundamental life processes. Physics research funding is being increased, principally to provide for additional operating cost requirements of new facilities such as the Indiana cyclotron, and for the increasing number of physics investigators turning to NSF for support as other agencies redirect their research programs. In the social sciences, emphasis will be given to the study of the basic factors underlying social change and economic productivity, and to social science data collection and analysis. Engineering research will stress work on superhard materials and material processing, areas in which the United States appear to be falling behind the technological achievements of other nations; bio-medical materials; and the effects of wind and other natural phenomena on buildings and structures. Chemistry research will emphasize analysis and instrumentation techniques in the areas of molecular processes and configuration, chemical dynamics, and enzymes. Oceanography research projects will concentrate on ocean dynamics, currents, salinity and ocean ecology.

*Specialized research facilities and equipment*

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|---|---|
| Actual, fiscal year 1970 | $6,504,411 |
| Estimate, fiscal year 1971 | 5,800,000 |
| Estimate, fiscal year 1972 | 5,800,000 |
| Committee estimate, fiscal year 1973 | 35,000,000 |

The Foundation also makes grants to institutions for Specialized Research Facilities and Equipment required to conduct advanced scientific investigations. Foundation support is provided in those instances where a special item of equipment or a research facility is required to permit scientists to conduct highly advanced research. Often, such equipment or facilities are beyond the capability of an institution to procure or support. Although cost-sharing is not mandatory, experience shows that the institutions provide a significant share of the cost of most of the items supported under this program. The proposed budget for this activity will permit the Foundation to help universities and colleges to obtain a wide range of research instruments and equipment such as mass spectrometers, electron microscopes, seismic recording equipment and accessories, X-ray crystallographic equipment.

*National and special research programs*

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|---|---|
| Actual, fiscal year 1970 | $39,064,163 |
| Estimate, fiscal year 1971 | 82,900,000 |
| Estimate, fiscal year 1972 | 166,600,000 |
| Committee estimate, fiscal year 1973 | 209,000,000 |

These programs are established when a coordinated national research effort is required to achieve a particular set of research objectives, when the research requires international cooperation, when a project requires an unusual amount of management, or when a major coordinated research effort has a high probability of contributing to the solution of pressing social and environmental problems. A brief summary of each of these programs appears in the paragraphs that follow:

An amount of $10,000,000 is included for the International Biological Program. The Foundation is responsible for coordinating the U.S. participation in this international research effort, which is designed to greatly expand our understanding of environmental influences on plants and animals, including man. The principal emphasis of the Foundation-supported IBP research to date has been on studies of large-scale ecosystems—the total complex of living and non-living components within a unit of the landscape. More than 80 senior scientists from 20 states representing about 30 institutions and Federal agencies, are already participating in the Grasslands Biome Study, and ecosystem research study taking place in the State of Colorado. The Deciduous Forest Biome Project, studying the ecology of the region east of the Mississippi River, will be intensified. Increased emphasis will be given to biome studies of coniferous forest, desert, and tundra areas. The Tundra Research will be coordinated with the U.S. Arctic Research program.

An amount of $2,500,000 is included for the Global Atmospheric Research Program (GARP). This is an international research effort designed to improve the capabilities of making long-range weather predictions. The major part of the funds proposed for FY 1972 will be used for research projects dealing with the analysis of data collected during the Barbados Oceanographic and Meteorological Experimental (BOMEX), trade wind inversion, and boundary layer experiments. Planning will begin for a tropical Atlantic experiment.

NSF is the lead Federal agency for the International Decade of Ocean Exploration (IDOE), and an amount of $20,000,000 is requested for the total U.S. effort in the IDOE. The purpose of the IDOE is to accelerate the understanding of the oceans and to encourage and enable nations, cooperatively, to make wise use of the ocean environment to better utilize ocean resources. In FY 1972, research projects funded under the IDOE will be focused on environmental quality, environmental forecasting, and seabed assessment.

An amount of $8,500,000 is included for the Ocean Sediment Coring Program. Studies of core samples of sediment layers underlying the deep seas, obtained under this program, have confirmed theories on sea floor spreading and continental drift. Other geological facts of worldwide significance are becoming evident; for example, the Northwest Pacific appears to comprise a remnant of the oldest ocean extant. In FY 1972, expanded operational capabilities will include the employment of a recently developed bore-hole reentry system. Also precise surveying of some drill sites will allow correlation of core samples with geophysical data from the same area.

NSF is the lead Federal agency for the Arctic Research Program. The objective of this program is to acquire the environmental data and scientific understanding necessary to evaluate the complex interrelationships of man and his activities with the Arctic environment. An amount of $3,500,000 is included for this program. In FY 1972, priority will be given to research efforts on the effects of man's intrusion into the Arctic ecosystem and the problems of coping with sea ice, perma-frost, and other aspects of the harsh Arctic environment.

NSF is also the principal Federal agency for the development, coordination, and management of all U.S. scientific activities in Antarctica. The objectives of this program are to encourage the peaceful development of Antarctica through scientific research; to advance international scientific cooperation; to improve environmental monitoring and prediction; to promote the free exchange of scientific personnel in Antarctic research; and to encourage the free exchange of information data, and results of Antarctic research work. An amount of $26,800,000 is proposed for support of this program. This includes $19.3 million to fund logistic support to be provided by the Department of Defense

(Navy). Logistics support was funded in prior years by the Department of Defense. The Department of Transportation (Coast Guard) will continue to budget for and provide icebreakers in support of the resupply program at McMurdo and Palmer Stations in FY 1972.

During FY 1971, NSF grouped together oceanographic ship operations and related oceanographic facilities support from other NSF programs under the support heading entitled Oceanographic Research Operations and Facilities. The amount of $14,300,000 requested for this activity in FY 1972, includes funds to construct one replacement oceanographic vessel and to develop a joint oceanographic laboratory system to provide for more effective utilization and management of academic oceanographic facilities.

During FY 1971, NSF brought together under the heading Research Applied to National Needs (RANN) several major coordinated research efforts aimed at selected environmental, social, and technological problems. The objectives of this effort are to focus and stimulate the application of science and technology to major national, regional, and local problems; to increase societal benefits from research; to exploit scientific and technological opportunities; and to advance national economic productivity. The major ongoing research efforts which were brought together to form RANN included Weather Modification; Earthquake Engineering; Interdisciplinary Research Relevant to Problems of Our Society (IRPOS); and a number of other concentrated research efforts, formerly funded under Scientific Research Project Support.

The National Science Foundation's program of Research Applied to National Needs (RANN) is a major effort in helping focus the science resources of the Nation on environmental, social, and other problems of concern to society.

The Committee on Labor and Public Welfare considers the objectives and the research proposed under RANN as being vital to the national interest. The program is designed to focus the presently available scientific knowledge to the development of solutions to problems of national concern as well as to identify and support new fundamental investigations essential to add to the base of fundamental knowledge required for the solution of such problems. The committee is convinced that the NSF has a unique capability to focus both basic and applied research efforts on selected problems and that full advantage should be taken of that capability.

The committee believes, further, that the provisions made by NSF for the active participation of other agencies in the planning and execution stages of RANN research efforts, together with other existing and planned arrangements for interagency cooperation, to coordinate RANN research programs with the action program of other Federal agencies, will insure that the research efforts supported by NSF under RANN augment and do not duplicate those of other agencies.

*National research centers*

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|---|---|
| Actual, fiscal year 1970 | $27,086,202 |
| Estimate, fiscal year 1971 | 36,800,000 |
| Estimate, fiscal year 1972 | 40,200,000 |
| Committee estimate, fiscal year 1973 | 50,000,000 |

The NSF provides support for the development and operation of five National Research Centers which have been established to meet national needs for research in specific areas of science. These areas require facilities, equipment, staffing, and operational support beyond the capabilities of private institutions and which could not appropriately be provided a single institution. These centers are operated and managed by nonprofit organizations or universities under contract with the NSF. A brief summary of each of these centers follows.

Funding in the amount of $4,000,000 is requested for the Arecibo Observatory, a radio/radar astronomy and aeronomy facility located in Puerto Rico. The Foundation assumed management responsibility for this observatory from the Department of Defense in October 1969. The requested funding includes $1,800,000 to be added to the $3,800,000 requested in FY 1971 for resurfacing the 1,000-foot antenna, to greatly increase its usefulness as a research instrument. Also included is a total of $2,200,000 for the support of scientific research operations and maintenance and administration of the observatory.

An amount of $7,700,000 is requested for the Kitt Peak National Observatory, an optical astronomy observatory atop 6,875-foot Kitt Peak, in Pima County, Arizona. The requested funding includes a total of $7,175,000 for continued support of stellar, solar, and planetray astronomy research activities, for operation and maintenance of the observatory research instruments and physical plant, and for administrative activities. Also included is $545,000 for construction of a diffraction grating ruling facility beneath the existing Tucson headquarters building and a small observatory building to house a 12-inch Schult-Belton Schmidt telescope.

An amount of $2,500,000 is requested for the Cerro Tololo, Inter-American Observatory, an optical astronomy observatory which is under development in the Andes, about 250 miles north of Santiago, Chile. The requested funding includes $2,096,000 for support of scientific research activities in stellar and planetary astronomy and for the costs of observatory operations, maintenance, and administration. Also included is an amount of $404,000 for continued site development, improving the mountain road, adding one wing each to the La Serena Office and the technicians' dormitory to provide needed space for visiting scientists, and some advanced planning for future buildings and facilities.

The National Radio Astronomy Observatory (NRAO) will require an estimated $7,000,000 in FY 1972. NRAO provides very advanced radio astronomy instruments for use by research astronomers to detect, measure, and identify radio waves which come from many objects in outer space. The requested funding will provide for continued direct support of research projects in radio astronomy; continued improvement of the performance of existing telescopes through the development of improved and increasingly advanced auxiliary electronic instrumentation for use with the research telescopes; and operation, maintenance, and administration of the observatory.

NSF is requesting an amount of $19,000,000 for the National Center for Atmospheric Research (NCAR), at Boulder, Colorado. The requested funding will permit NCAR staff scientists and visiting researchers to continue to attack scientific problems that present important obstacles to a full understanding of the earth's atmosphere. The amount requested includes funding for scientific support provided directly by NCAR, which, in turn, includes the computer for NCAR's high priority atmospheric modeling programs. An amount of $700,000 is included for restoration of the roof of NCAR's permanent laboratory, an amount which is expected to be recovered from the architect and the general contractor through legal proceedings.

*Computing activities in education and research*

| | |
|---|---|
| Actual, fiscal year 1970 | $16,918,585 |
| Estimate, fiscal year 1971 | 15,000,000 |
| Estimate, fiscal year 1972 | 17,500,000 |
| Committee estimate, fiscal year 1973 | 25,000,000 |

This program includes research to develop a national base of computer science knowledge which will make possible innovative approaches for the use of computers in education and research.

In FY 1972, increased emphasis will be given to Computer Innovation in Education. This will be done because it is believed that, for most students and for others outside of the formal education system, the computer can effectively accomplish selected educational functions. For example, computer-assisted instruction has the potential for reducing the learning time of students and for the rapid assessment of individual performance levels, and numerous other factors which can increase productivity of educational systems.

*Science information activities*

| | |
|---|---|
| Actual, fiscal year 1970 | $11,433,279 |
| Estimate, fiscal year 1971 | 11,000,000 |
| Estimate, fiscal year 1972 | 9,800,000 |
| Committee estimate, fiscal year 1973 | 15,000,000 |

The program within this activity are designed to improve the exchange of science information through the development of improved information systems, making translation of foreign science publications available to U.S. scientists, and the conduct of research on science information to provide improved methods and techniques. The Science Information Exchange, formerly funded by NSF, has been transferred to the Smithsonian Institution.

*International cooperative scientific activities*

| | |
|---|---|
| Actual, fiscal year 1970 | $1,712,426 |
| Estimate, fiscal year 1971 | 2,200,000 |
| Estimate, fiscal year 1972 | 4,000,000 |
| Committee estimate, fiscal year 1973 | 9,000,000 |

This program will enable the Foundation to increase its support of international cooperative scientific activities. These activities include facilitation of U.S. participation in important science-oriented organizations, encouragement of scientist-to-scientist communication across international boundaries, and professional collaboration between U.S. and foreign scientists.

*Intergovernmental science program*

| | |
|---|---|
| Actual, fiscal year 1970 | $460,960 |
| Estimate, fiscal year 1971 | 400,000 |
| Estimate, fiscal year 1972 | 1,000,000 |
| Committee estimate, fiscal year 1973 | 2,000,000 |

The Intergovernmental Science Program for FY 1972 will enable the Foundation to expand its efforts to stimulate State and local governments to utilize science and technology. This program was initiated in FY 1969 as a planning effort, and the grantee organizations (State and local governmental units and their regional organizations, legislatures, law schools, and academic and non-profit organizations) have demonstrated their interest in the program by investing their own funds in an amount almost equal to the NSF support.

*Institutional support for science*

| | |
|---|---|
| Actual, fiscal year 1970 | $44,701,397 |
| Estimate, fiscal year 1971 | 34,500,000 |
| Estimate, fiscal year 1972 | 12,000,000 |
| Committee estimate, fiscal year 1973 | 60,000,000 |

This activity includes two programs, the Science Development Program and Institutional Grants for Science.

NSF proposes to discontinue the Science Development Program in FY 1972. This program is designed to significantly upgrade the quality of research and science education programs of our colleges and universities in all parts of the Nation. NSF believes this program has largely achieved its objectives. However, testimony given the subcommittee

by non-NSF witnesses as well as many statements and letters received from responsible members of the academic scientific community provided evidence that U.S. science capabilities, would be seriously impaired by the discontinuation of the NSF institutional science development programs.

NSF has proposed that the level of support for Institutional Grants for Science be reduced for FY 1972. These grants assist institutions engaged in Federally sponsored research in maintaining flexibility in their science programs by providing a limited amount of funds for local discretionary use. More than one-fourth of the Nation's colleges and universities have participated in this program each year. Universities find the funds especially valuable for small research grants to new Ph. D.s who have recently joined their faculties, for summer support of research by graduate students, and for continuance of research experiments during lapses in outside funding.

*Science education support*

| | |
|---|---|
| Actual, fiscal year 1970 | $120,179,865 |
| Estimate, fiscal year 1971 | 100,640,215 |
| Estimate, fiscal year 1972 | 77,300,000 |
| Committee estimate, fiscal year 1973 | 115,000,000 |

NSF proposed to curtail its direct student support programs in FY 1972.

The total amount proposed for Science Education Support in FY 1972 is $77,300,000, including $22,000,000 for Student Development, $26,800,000 for Instructional Personnel Development, and $28,500,000 for Instructional Program Development. This is $23,340,215 below the FY 1971 level.

NSF Science Education programs are designed to improve the quality of science teaching and to improve the course curriculum for science and engineering programs at the college and pre-college levels. In addition, through fellowship and traineeship programs, NSF helps insure that the science manpower requirements of the nation will be met. NSF proposes to make reductions in its FY 1972 Science Education program amounting to $23,340,215 below the FY 1971 program level of $100,640,215. The total amount proposed by NSF for Science Education Support in FY 1972 is $77,300,000 including $22,000,000 for Student Development, $26,800,000 for Instructional Personnel Development, and $28,500,000 for Instructional Program Development.

*Planning and policy studies*

| | |
|---|---|
| Actual, fiscal year 1970 | $2,065,356 |
| Estimate, fiscal year 1971 | 2,400,000 |
| Estimate, fiscal year 1972 | 2,700,000 |
| Committee estimate, fiscal year 1973 | 4,000,000 |

Through its Planning and Policy Studies program, the Foundation identifies and analyzes programs and science policy issues and helps provide the data base necessary for science program planning.

The FY 1972 budget estimate of $2,700,000 represents a $300,000 increase over the FY 1971 level. A net decrease of $400,000 in the amount budgeted for Studies of Science Resources reflects primarily the discontinuation of the National Register of Scientific and Technical Personnel in its present form. However, $375,000 is requested for FY 1972 to allow for the development of alternative mechanisms for obtaining required information on scientists and engineers.

*Program development and management*

| | |
|---|---|
| Actual, fiscal year 1970 | $19,675,785 |
| Estimate, fiscal year 1971 | 21,311,269 |
| Estimate, fiscal year 1972 | 24,300,000 |
| Committee estimate, fiscal year 1973 | 36,000,000 |

All administrative costs of the National Science Foundation, including management of the various program activities and the executive direction and administrative management of the Foundation are included in this activity. The amount requested, $24,300,000, is 3.9 percent of the total FY 1972 agency appropriation request of $622,000,000 and is an increase of $2,988,731 over the amount planned for the activity in FY 1971. Funds requested will provide for an average of 1,065 employees. The proposed increase will be used to meet additional salary requirements and related costs, and higher costs for equipment, rents and communications, supplies and materials, and printing.

*Scientific activities (special foreign currency program)*

| | |
|---|---|
| Actual, fiscal year 1970 | $2,000,000 |
| Estimate, fiscal year 1971 | 2,000,000 |
| Estimate, fiscal year 1972 | 3,000,000 |
| Committee estimate, fiscal year 1973 | 7,000,000 |

A separate appropriation for $3,000,000 for payment in foreign currencies excess to the normal requirements of the United States is requested for FY 1972. These funds will be used for the support of scientific research projects; the collection, translation and dissemination of foreign scientific publications; and science education programs, which are mutually beneficial to the U.S. and the participating excess currency country.

IV. ACTION BY THE COMMITTEE ON LABOR AND PUBLIC WELFARE

A. SUMMARY

The purpose of H.R. 7960 as amended by the committee is to authorize appropriations to the National Science Foundation for fiscal year 1972 in the amount of $703,516,215, and for fiscal year 1973 in the amount of $900,000,000 out of money in the Treasury not otherwise appropriated, and in foreign currencies which the Treasury Department determines to be in excess to the normal requirements of the United States, $3,000,000 for fiscal year 1972 and $7,000,000 for fiscal year 1973.

B. ADDITION TO AUTHORIZATION AMOUNT REQUESTED ($84,516,215)

The Foundation requested $622,000,000 for fiscal year 1972 including $3,000,000 of excess foreign currency. The testimony and prepared statements for the record provided compelling reasons for the committee to recommend that the Senate authorize an appropriation to the National Science Foundation for fiscal year 1972 of $703,516,215, plus $3,000,000 in excess foreign currencies, and $900,000,000 for FY 1973 plus $7,000,000 for excess foreign currency. In addition the committee recommends mandatory minimum support requirements for the institutional support for science and science education programs. These actions are discussed in the following paragraphs:

*1. Scientific research project support and the dropout problem*

The Foundation requested $257,800,000 in fiscal year 1972 for Scientific Research Project Support. This was an increase of $81,900,000 over the fiscal year 1971 appropriation level for this activity. The increase provides $40,000,000 for important fundamental research projects no longer funded by Department of Defense, National Aeronautics and Space Administration, Atomic Energy Commission and others; $27,300,000 for new research initiatives in the environmental, social, and life sciences and in engineering; and $14,600,000 for 12 Materials Research Interdisciplinary Laboratories located throughout the United States, and the National Magnet Laboratory which were formerly funded by the Department of Defense. The Committee believes that the increases proposed by the Foundation for new research initiatives and the amounts for the 12 Materials Research Interdisciplinary Laboratories and the National Magnet Laboratory are the minimum amounts that should be provided for these programs. The committee believes that the proposed budget does not adequately provide for important research no longer funded by mission agencies.

Since fiscal year 1970, the National Science Foundation has received an increasing volume of research proposals from investigators who were formerly funded by the Department of Defense, the National Aeronautics and Space Administration, the Atomic Energy Commission, and other mission agencies. These investigators were engaged in very fundamental research efforts which were determined by the mission agencies not to be sufficiently mission-oriented to qualify for support under the criteria established for their programs. On November 19, 1969, the Military Procurement Authorization for fiscal year 1970 was signed into law by the President as P.L. 91–121. Section 203 of that law required a fundamental change in the funding of research by the Department of Defense. This section limited the research that could be sponsored by the Department of Defense to projects that were clearly related to defense needs. Although this requirement has been modified somewhat, the guidelines incorporated in this section, which has been commonly referred to as the "Mansfield Amendment", have as a matter of policy been adopted by the Department of Defense and other Federal mission agencies. Increasingly these agencies are concentrating their research support in those areas of science that can be identified as mission related and have discontinued their support for a large number of high quality fundamental research projects. As a consequence, many scientists engaged in fundamental research at academic institutions in all 50 states have been notified that support for their research efforts is being discontinued or diminished and that they should seek support from the National Science Foundation.

From testimony provided by the National Science Foundation witnesses as well as from extensive data supplied by the agency on this problem, the Committee has learned that the Foundation has identified almost $100,000,000 in fundamental research projects that will have been dropped by the mission agencies by the end of fiscal year 1972. This is a cumulative amount and represents investigators who have been notified in fiscal years 1970 and 1971 that their projects will be discontinued at the end of the current grant period, which in most instances will occur in the last part of fiscal year 1971 or in fiscal year 1972.

A state by state survey of the fundamental research support being dropped by mission agencies during fiscal year 1971 and fiscal year 1972 is included in the following table:

*Mission agency research support reductions*

| State | Amount |
|---|---|
| Alabama | $186,000 |
| Alaska | 513,000 |
| Arizona | 626,000 |
| Arkansas | 10,000 |
| California | 12,606,000 |
| Colorado | 1,163,000 |
| Connecticut | 2,146,000 |
| Delaware | 102,000 |
| Florida | 2,815,000 |
| Georgia | 664,000 |
| Hawaii | 239,000 |
| Idaho | 35,000 |
| Illinois | 3,264,000 |
| Indiana | 494,000 |
| Iowa | 787,000 |
| Kansas | 77,000 |
| Kentucky | 484,000 |
| Louisiana | 173,000 |
| Maine | 42,000 |
| Maryland | 2,388,000 |
| Massachusetts | 12,473,000 |
| Michigan | 1,773,000 |
| Minnesota | 825,000 |
| Mississippi | 30,000 |

*Mission agency research support reductions—* Continued

| State | Amount |
|---|---|
| Missouri | 803,000 |
| Montana | 165,000 |
| Nebraska | 100,000 |
| Nevada | 349,000 |
| New Hampshire | 260,000 |
| New Jersey | 4,650,000 |
| New Mexico | 1,734,000 |
| New York | 7,857,000 |
| North Carolina | 1,429,000 |
| North Dakota | 40,000 |
| Ohio | 726,000 |
| Oklahoma | 515,000 |
| Oregon | 664,000 |
| Pennsylvania | 2,668,000 |
| Rhode Island | 786,000 |
| South Carolina | 220,000 |
| South Dakota | 376,000 |
| Tennessee | 563,000 |
| Texas | 2,182,000 |
| Utah | 839,000 |
| Vermont | 310,000 |
| Virginia | 655,000 |
| Washington | 435,000 |
| West Virginia | 140,000 |
| Wisconsin | 1,580,000 |
| Wyoming | 115,000 |
| District of Columbia | 1,220,000 |
| Subtotal, United States | 75,298,000 |
| Foreign | 114,000 |
| Subtotal | 75,412,000 |
| Additional projects being dropped by mission agencies, not yet identified by State: | |
| Department of Defense | 15,000,000 |
| Atomic Energy Commission | 9,000,000 |
| Total | 99,412,000 |

The administration budget for the National Science Foundation, as submitted to the Congress, provided only $40,000,000 to meet the support requirements that will result from these other agency "dropouts." The Director of the National Science Foundation, in testimony given to the subcommittee, stated that the Foundation experience thus far indicates that a minimum of 75 percent of the projects being discontinued by the mission agencies are of such high quality as to merit National Science Foundation support. Many of these projects are being conducted by research teams which represent some of the finest science expertise in the nation. Moreover, much of the research involved is at the cutting edge of science, and its termination could result in a serious disruption in the nation's progress in the basic sciences. The committee, therefore, believes that there is at least a $35,000,000 deficit in the amount requested by the administration for this purpose in fiscal year 1972 and has amended H.R. 7960 accordingly to provide for the funding necessary to meet this important research requirement.

*2. Support of research on environmental, technological, social, and other problems of society*

The National Science Foundation requested $81,000,000 for Research Applied to National Needs (RANN). This program represents a major effort on the part of the National Science Foundation to help focus the science resources of the Nation on environmental, technological, social, and other problems of concern to society. Through its long experience with support of problem-oriented research, the National Science Foundation found it necessary to bring together its problem-focused efforts under a single coordinated and centrally managed program. Therefore, midway in fiscal year 1971, the National Science Foundation merged its programs of Earthquake Engineering, Enzyme Engineering, Weather Modification, Interdisciplinary Research Relevant to Problems of Our Society, and institutional program support designed to give colleges and universities interdisciplinary, problem-focused research capabilities into the single program of Research Applied to National Needs.

The committee views the objectives and individual problem-focused research efforts proposed under RANN as being vital to the national interest. The RANN program represents a specific response by the National Science Foundation to recommendations made by this committee, as well as by other committees of Congress which have purview over National Science Foundation programs, that the National Science Foundation fully utilize the Nation's science resources in efforts to help provide the scientific basis for solving pressing problems of society, including environmental pollution. The committee holds the view that problem-oriented research should, where feasible, be supported by appropriate mission agencies. However, the committee is convinced that the Nation must take the fullest possible advantage of the unique capabilities of NSF to focus the science resources of the Nation on selected problems of national concern and that, with adequate provision being made for interagency cooperation and participation in these activities, the National Science Foundation can make a significant contribution to the Nation's efforts to resolve environmental and other societal problems. The committee believes, further, that the provisions made by the National Science Foundation for the active participation of other agencies in the planning and execution stages of RANN research efforts, together with other existing and planned arrangements for interagency cooperation, including the establishment of a special committee within the Office of Science and Technology, chaired by Dr. Edward David, Director, Office of Science and Technology, to coordinate RANN research programs with the action programs of other Federal agencies, will insure that the research efforts supported by the National Science Foundation under RANN augment and do not duplicate those of other agencies.

The critical nature of the problem-focused research being addressed under the RANN program in fiscal year 1972, such as studies related to the Nation's future energy requirements and environmental studies of major estuaries such as the Chesapeake Bay, areas of the Gulf coast, and parts of the Tennessee Valley, requires that NSF be permitted to make the funding commitments required to insure their success. Reductions in this program could jeopardize the effectiveness of these important research undertakings, especially since a large percentage of the program involves the bringing together of research teams and required equipment and facilities and the development of special institutional capabilities to mount these major societally-oriented efforts.

The committee also believes that the Foundation and the Congress should have the flexibility to permit NSF to make prompt and appropriate science responses to emerging problems of national concern, as they develop.

The committee, therefore, recommends that the full amount of $81 million included in the NSF budget for this program be authorized and that no specific limitation on RANN be included in the authorization legislation.

*3. Institutional support for science*

The Foundation requested $12,000,000 for this program activity. This amount was entirely for the program of Institutional Grants for Science, and the program of Institutional Science Development was recommended to be discontinued.

The committee is concerned regarding the termination of the Foundation's Institutional Science Development program. The statements and letters provided the subcommittee indicate that the National Science Foundation Institutional Science Development programs are essential to the continued upgrading of academic research and science education of universities throughout the United States and that much remains to be done in this area in order to ensure continued excellence of the programs at these institutions and continued U.S. scientific strength. Therefore, the committee recommends an increase of $22,500,000 above the amount of $12,000,000 included in the Foundation's request for the Institutional Support for Science program, for a total authorization of $34,500,000 for this program

*4. Science education support*

The Foundation requested $77,300,000 for the Science Education Support program. This is a decrease of $23,300,000 from the fiscal year 1971 appropriation level and reflects the decision of the administration to deemphasize programs that provide direct support for science students, as well as other important National Science Foundation Science Education Support programs, such as Undergraduate Research Participation, the Student Science Training Program for outstanding high school students, and others. The committee believes that these programs have had a very beneficial impact on the quality of science education in the United States.

The committee added $27,016,215 to the $77,300,000 included in the Foundation request, bringing the total amount authorized for science education support for FY 1972 to $104,316,215, or slightly above the fiscal year 1971 appropriation level of $100,600,000.

This action by the committee, based on the subcommittee hearing, is considered necessary to provide for the maintenance of quality science education in the United States. It would provide for:

The restoration of funds for practical science research experiences for about 5,000 high shool juniors and seniors during the summer;

Additional support for in-the-laboratory research experience for college students;

Increased support for pre-college teacher institutes. The National Science Foundation is experimenting with a number of new approaches such as teacher programs on a statewide or area basis;

About 200 small college faculty members to update their education through the Science Faculty Fellowships program;

The development of new course materials, courses and curricula for use at all levels.

The committee supports the new initiatives under the College Science Improvement Program (COSIP) program, which has the potential of aiding some of 85 or so long-neglected institutions.

C. COMMITTEE AMENDMENTS TO H.R. 7960

The Committee has amended H.R. 7960 by striking all after the enacting clause, and substituting therefor the language of S. 1968, as amended. S. 1968, as amended, provided for a total authorization of $706,516,215 for the fiscal year ending June 30, 1972, including $3,000,000 in excess foreign currency. It also provides for specific lower limitations on the amounts of money to be obligated for Institutional Support for Science and Science Education Support programs.

To the extent that the amount actually appropriated may be less than $703,516,215 (exclusive of excess foreign currency) the Director of the National Science Foundation was authorized by S. 1968, as amended, to reduce ratably the specific amounts for the Institutional Support for Science and Science Education support programs. This provision will provide the Director with needed flexibility to make adjustments in program allocations as necessitated by appropriation action but will, at the same time, insure that the adjustments are made equitably in compliance with the intent of the Committee's action, in increasing the Science Education

and Institutional Science Development programs.

In addition, the Director's fund for official reception and representation expenses was authorized not to exceed $7,500. It had been $2,500 in recent years.

A second year authorization of $907,000,000, including $7,000,000 in excess foreign currencies, was provided by S. 1968, as amended, for the fiscal year ending June 30, 1973. The same lower limits for Institutional Support for Science and Science Education Support programs were provided for the fiscal year ending June 30, 1973 as for the fiscal year ending June 30, 1972. No provisions for reduction of those lower limits for fiscal year 1973 were included.

The complete text of the Senate substitute amendment follows:

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That this Act may be cited as the "National Science Foundation Authorization Act of 1972".

SEC. 2. (a) There is hereby authorized to be appropriated to the National Science Foundation, to enable it to carry out its powers and duties under the National Science Foundation Act of 1950, as amended, and under title IX of the National Defense Education Act of 1958, out of any money in the Treasury not otherwise appropriated, $703,516,213 for the fiscal year ending June 30, 1972, and $900,000,000 for the succeeding fiscal year.

(b) Of the sums appropriated pursuant to subsection (a) of this section for each fiscal year—

(1) not less than $34,500,000 shall be available only for institutional support for science; and

(2) not less than $104,316,215 shall be available only for science education support.

If the amount appropriated pursuant to subsection (a) of this section is less than $703,516,215 for the fiscal year ending June 30, 1972, the Director of the National Science Foundation is authorized to reduce ratably the amounts set aside under clauses (1) and (2) of this subsection.

SEC. 3. Appropriations made pursuant to authority provided in sections 1 and 5 shall remain available for obligation, for expenditure, or for obligation and expenditure, for such period or periods as may be specified in Acts making such appropriations.

SEC. 4. Appropriations made pursuant to this Act may be used, but not to exceed $7,500 for official reception and representation expenses upon the approval or authority of the Director of the National Science Foundation, and his determination shall be final and conclusive upon the accounting officers of the Government.

SEC. 5. In addition to such sums as are authorized by section 2 hereof, not to exceed $3,000,000 is authorized to be appropriated for the fiscal year ending June 30, 1972, and $7,000,000 for the succeeding fiscal year, for expenses of the National Science Foundation incurred outside the United States to be paid for in foreign currencies which the Treasury Department determines to be excess to the normal requirements of the United States.

D. AUTHORIZATION FOR 2 YEARS

The committee is convinced that it is advisable to provide NSF authorizations on at least a biennial basis. It is essential that NSF be permitted to program its activities in such a way as to insure the stability and continuity of science support programs which are central to the continued health of American science. In addition, such an extended authorization would greatly assist the academic institutions and other organizations which participate in Foundation programs by providing them with a more firm basis for future program planning.

Therefore, the committee recommends $703,516,215 be authorized for the Salaries and Expenses Appropriation and $3,000,000 for the Special Foreign Currency Appropriation in fiscal year 1972 and that the amount of $900,000,000 be authorized for the Salaries and Expenses Appropriation and $7,000,000 for the Special Foreign Currency Appropriation in fiscal year 1973.

V. COMMITTEE VIEWS

The committee is deeply concerned by the sharp reductions proposed by NSF in the Science Education Support and Institutional Support for Science programs. The committee also considers the allowance of $40 million provided within Scientific Research Project Support to offset reductions of at least $100 million in fundamental research support by mission-oriented agencies to be an unrealistically low increase. The added $35 million for the support of fundamental research being dropped by mission-oriented agencies is a minimum to insure continuation of the most meritorious projects. The ability of the United States to remain scientifically strong, to resolve some of its most pressing environmental, technological, and other societal problems, to maintain a strong and healthy economy, and to provide jobs for its people and markets for its products depends on the continued advancement of our science and technology. These advances, over the long term, are under-pinned to a large degree by the support activities of the National Science Foundation, which continually expand our scientific understanding.

The committee fully appreciates the reasons why mission-oriented agencies, such as the Department of Defense, the Atomic Energy Commission, and the National Aeronautics and Space Administration, are concentrating their resources on activities that are clearly and directly mission relevant and why NSF is being called upon to undertake a larger share of the Federal support for research in the basic sciences. The committee believes that it is appropriate for NSF to assume a larger role in the total Federal support of science in keeping with the intent of its enabling legislation.

The committee strongly endorses the Foundation's actions in pulling together its major problem-focused research efforts in a coordinated and centrally managed program of Research Applied to National Needs (RANN). The committee has, in recent years, encouraged NEF to take a more active role in marshalling the resources of science to help resolve some of the pressing environmental, technological, and social problems facing the nation. Our ability to find solutions to these problems hinges to a large degree on the extent to which we apply the nation's science capabilities to the complex array of factors which underlie and give rise to these problems.

After evaluating the testimony concerning the NSF proposal to reduce its Science Education and Institutional Support for Science programs, the committee is convinced that there is a continuing need to improve the quality of the science education programs being offered by our colleges and universities and to upgrade the capabilities of colleges and universities to conduct advanced research programs. The testimony of witnesses from the academic community and correspondence received from science educators from all parts of the nation indicate that it is important for NSF to continue to support the science education and institutional programs, such as the Student Science Training Program for outstanding high school students, the Undergraduate Research Participation Program, and the Institutional Science Development program, which contribute to the improvement of the quality of science education and research programs in our academic institutions.

The committee believes that the Science Education and Institutional Support programs proposed to be phased out or terminated by NSF in fiscal year 1972 have made important contributions to the improvement of science education in the U.S. Over the long term, there will be an increased demand for science and engineering professionals to meet the needs of our technologically based society. Consequently, the committee does not believe that it would be in the best interest of the nation to make precipitous reductions in the science education ad institutional science support programs of NSF in order to compensate for short-term fluctuations in the employment market.

The committee believes that it is essential that NSF be allowed flexibility to adjust its programs to meet changing science requirements. Historically, NSF has kept the relevant committees of the Congress fully informed of transfers of funds between major program activities. In view of NSF's record in this regard and of the proven need to permit NSF to respond quickly to the changing requirements for science support, the committee believes that the NSF authorization for the Salaries and Expenses should be made as a single amount, as in previous years, subject only to the specifications regarding support that must be provided for the Science Education and Institutional Support for Science Programs, as stated in the body of the report.

The committee believes that stability of support for U.S. science can be improved by providing NSF authorizations on a biennial basis. Such action will greatly facilitate the planning and execution of programs by the agency and it will enable recipients of Foundation support to plan their programs in a more orderly manner.

The amendment was agreed to.

The amendment was ordered to be engrossed and the bill to be read a third time.

The bill was read the third time, and passed.

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## PROHIBITION OF HYDROELECTRIC PROJECTS ON THE MIDDLE SNAKE RIVER

The Senate proceeded to consider the bill (S. 488) to prohibit the licensing of hydoelectric projects on the Middle Snake River below Hells Canyon Dam at any time before September 30, 1978.

Mr. CHURCH. Mr. President, today we consider S. 488, a bill declaring a moratorium against dam construction on the Hells Canyon section of the Snake River. This bill, introduced by Senator JORDAN and myself, would prevent the licensing of any hydroelectric projects on this magnificent Hells Canyon stretch of the Snake River for a 7-year period. It would give us an opportunity to complete the studies necessary to determine the highest public use for this section of the Snake River.

The Senate has considered this bill before. Extensive hearings on S. 488 were held by the Committee on Interior and Insular Affairs in February 1970. It was passed by voice vote last year. Unfortunately, the House of Representatives did not take action on the bill. Reintroduced this year, the bill has the support of both Senators from Idaho, Governor Cecil Andrus of Idaho, and the unanimous backing of the Senate Committee on Interior and Insular Affairs. The administration also endorses this

moratorium bill. As a measure that has already received, on an earlier occasion, the approval of the Senate, I would hope that the Senate will again approve it.

I should state, at the beginning, that I strongly believe that this section of the Snake River, a magnificent stretch of gushing water passing through the deepest canyon on the American Continent—appropriately known as Hells Canyon—should be preserved in its natural free-flowing state. I have held this belief for a long time.

Others in Idaho believe that the Hells Canyon stretch of the Snake River should be used for power generation; still others see a potential for upstream irrigation.

On February 23, 1971, Federal Power Commissioner Examiner William C. Levy recommended that two dams be licensed by the Commission in the Hells Canyon stretch of the Middle Snake—the Pleasant Valley Dam which would be 550 feet high and would create a 6,350 acre reservoir 34.3 miles long, and the Mountain Sheep Dam which would be 275 feet high and would back up a reservoir extending 20.5 miles upstream.

Although Examiner Levy recommended that construction of these dams not begin before September of 1975, there is no assurance that the Federal Power Commission would follow this recommendation. We are continually reminded that the United States suffers from an electric power crisis that can only be met by getting on with the construction of new power generation facilities of every type, including hydroelectric dams. In light of this pressure, I believe there is real danger that the FPC may issue a license for immediate construction of the Pleasant Valley and Mountain Sheep Dams. If we are to prevent this preemption of the river, we need a moratorium on the FPC's licensing authority.

The principal purpose of obtaining a moratorium is to allow time for completion of studies on alternate uses to which the Hells Canyon section of the Snake River might be put. I have recently written to Secretary Morton of the Department of the Interior and to Secretary Hardin of the Department of Agriculture to ask whether they have begun studies to determine whether this section of the river might be included in the Wild Rivers System. The Secretaries of Interior and Agriculture had previously, last September, placed the Middle Snake on a list of rivers having wild and scenic values. At that time, the then Governor of Idaho, Don Samuelson, had objected to this designation. Since then, our new Governor of Idaho, Cecil Andrus, has reversed the earlier objection and has notified the Secretaries that he wants the Middle Snake included on the list. This should make it possible to proceed with studies on the merits of including the Hells Canyon section of the Middle Snake in the Wild Rivers System.

I should point out that one of the values of initiating wild river system studies of this section of the river is that it constrains any Federal agency from taking any step that would change the scenic or wilderness character of the river before the study is completed. This means that the Corps of Engineers, for example, may not license a boat dock or other man-made obstruction. It means that the Federal Power Commission may not license any electric power line through the area. This should help preserve the natural character of the river until we can settle on a permanent management plan.

I have done all that I can to bring this moratorium bill, S. 488, to the Senate, because I believe that it now stands the best chance of passage by both Houses of Congress in time to forestall the issuance of a license by the FPC. I have said publicly, however, that if the moratorium is not passed by both Houses of Congress this year, I will have to look for some alternative solution. I am hopeful that this bill will pass the Senate again this year and that it will be favorably acted on by the House of Representatives.

Mr. JORDAN of Idaho. Mr. President, I speak in support of S. 488, a bill which would declare a moratorium through September 30, 1978, on the granting of a Federal Power Commission license for any dam on the Snake River between the existing Hells Canyon Dam and the authorized Asotin Dam.

The bill is cosponsored in the Senate by my colleague, Mr. CHURCH and by the senior Senator from Oregon, Mr. Hatfield. A companion bill is sponsored in the House by my colleague, Mr. ORVAL HANSEN.

This bill is an updated version of a Jordan-Church bill in the 91st Congress, S. 940, which was approved without opposition by the Senate on May 15, 1970.

Mr. President, this bill is designed purely and simply to keep open the options on the development of the future water supplies in the Snake River, the Idaho-eastern Oregon regions' major source of surface water. The Snake River at Clarkston, Wash., has an average flow of 33 million acre feet of water annually, an outflow roughly equal to twice the annual flow of the Colorado River.

As an Idaho Senator and a former Governor of Idaho, I feel strongly that the access to this vital surface water supply should not be encumbered by major hydroelectric requirements or by other barriers to future water development until the two border States have had an opportunity to complete State water plans and devise acceptable engineering plans to meet future requirements for water for communities, industry, farms, and fish and wildlife.

Hence, I have supported this moratorium legislation to preserve the status quo and to permit completion of extensive planning programs now being pursued by the States of Idaho and Oregon and by the Pacific Northwest River Basins Commission.

This State and regional planning was accelerated in the late 1960's after proposals were made to divert water from the Snake or the main Columbia to the water-short Pacific Southwest. At the insistence of Members of the Congress from the Pacific Northwest, a 10-year moratorium on such interbasin water diversion planning was incorporated in the Colorado River Basin Act of 1968. The moratorium on development of the Middle Snake River originally was proposed to cover this same period of time, and the now 7-year moratorium will terminate with the diversionary planning ban.

Mr. President, a vote for this bill is a conservation action, in every sense of the word. If enacted, this bill can forestall licensing of a large hydroelectric development in the Middle Snake. Enactment also will maintain options for water resource planning for a large two-State, semiarid area.

A vote for this bill is not a vote for damming the Middle Snake. No damming of the Middle Snake is authorized by this legislation; on the other hand, the immediate construction of a large hydroelectric dam will be postponed for 7 years.

At the end of this 7-year period, after essential planning information is in, long-range management plans can be considered and authorized for this stretch of the river. The decision on future use or preservation does not have to be made now. The bill merely postpones the decision, and the delay called for is only 3 years longer than the planning delay proposed in the recommendations of the FPC examiner.

Mr. President, this legislation is important to the economic future of Idaho and eastern Oregon. I hope that the Senate will uphold its unanimous approval by the Senate Interior Committee and expeditiously vote to approve this urgently needed measure.

The bill was ordered to be engrossed for a third reading, was read the third time, and passed, as follows:

S. 488

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That, unless authorized by Congress, no license or permit shall be issued nor shall any application for a license or permit be accepted for filing under the Federal Power Act (41 Stat. 1063; 16 U.S.C. 791–823), as amended, with respect to that reach of the Middle Snake River running between Idaho and Oregon and Idaho and Washington extending from Hells Canyon Dam to a point at river mile 146.5 above the mouth of the Snake River where the Asotin Dam project was authorized by the Flood Control Act of 1962, at any time before September 30, 1978: *Provided,* That nothing herein shall change or affect, for the purposes of any action which may be taken subsequent to such period, the present status, equities, positions, rights, or priorities of any party or parties to an application for license or permit pending before the Federal Power Commission on the date of enactment of this Act: *And provided further,* That nothing herein shall preclude the completion of any hearing or the completion of the record of any proceedings pending before the Federal Power Commission on the date of enactment of this Act.

Mr. MANSFIELD. Mr. President, I ask unanimous consent to have printed in the RECORD an excerpt from the report (No. 92–235) explaining the purposes of the measure.

There being no objection, the excerpt was ordered to be printed in the RECORD, as follows:

PURPOSE OF THE MEASURE

The purpose of this legislation is to suspend the authority of the Federal Power Commission to accept applications or grant licenses or permits under the Federal Power Act (41 Stat. 1063 as amended) for the con-

struction of hydroelectric power projects on the reach of the Middle Snake River extending along the Idaho-Oregon and Idaho-Washington borders for 100 miles between the existing Hells Canyon Dam and the authorized Asotin Dam.

BACKGROUND

Between the existing Hells Canyon Dam of the Idaho Power Co. and the site of the Asotin Dam which is authorized for construction by the Corps of Engineers, the Snake River runs through one of the deepest gorges on this continent. Three major tributaries enter the Snake within this 100-mile reach, the Imnaha, Salmon, and Grande Ronde Rivers. Topographic relief in the area varies from peaks above 9,000 feet above sea level to less than 800 feet along the Snake River at Asotin. The canyon is about 3,500 feet from rim to bottom at some locations.

The narrow rocky gorge and rapid fall of the stream which contribute to the scenic value of the area also provide a number of excellent sites for hydroelectric dams. A number of dams and combinations of dams have been studied and proposed by Federal and non-Federal entities over the years. From Hells Canyon Dam downstream, the more significant dams which have been discussed are:

| Dam: | *River-mile (from Columbia River)* |
|---|---|
| Hells Canyon | 247 |
| Pleasant Valley | 213 |
| Appalossa | 198 |
| Low Mountain Sheep | 192 |
| High Mountain Sheep | 189 |
| Nez Perce | 186 |
| China Gardens | 172 |

HISTORY OF DEVELOPMENT

Studies of this reach of the Snake River have been undertaken intermittently since the early 1900's for recreational, navigation, and multiple purpose development. A comprehensive plan encompassing studies by both the Department of the Interior and the Corps of Engineers was completed in 1948. The report identified the Mountain Sheep site just above the mouth of the Salmon River as an alternative to the Nez Perce site below the Salmon which had been studied by the Corps of Engineers but which would seriously affect the anadromous fish runs in the Salmon River.

Another joint report was prepared in 1954 which proposed construction of the Mountain Sheep and Pleasant Valley Dams by the Bureau of Reclamation.

The Federal Power Commission granted a license in 1955 to the Idaho Power Co. to construct a low Hells Canyon Dam as well as the Brownlee and Oxbow Dams upstream on the Snake River.

The Corps of Engineers was authorized to construct the Asotin Dam by the Flood Control Act of 1962. Construction funds have not yet been appropriated. The feasibility of including a navigation lock in the initial construction of the Asotin Dam is presently being studied.

PENDING FPC ACTION

In 1954, the Pacific Northwest Power Co. (PNP); a subsidiary of Pacific Power & Light, Portland General Electric, Montana Power, and Washington Water Power; filed for a preliminary permit to develop a combination of low Mountain Sheep and Pleasant Valley Dams. The FPC granted the permit (project 2173) in 1955.

Later in 1955, the company filed a license application. Hearings were held in 1956, the examiner recommended licensing in 1957, but the Commission denied the license in 1958 (19 FPC 126). The Commission's denial was based upon a determination that the Nez Perce project would be better adapted to a comprehensive regional development plan and would have more flood control and power benefits. The Commission was then of the view that the fish passage problem presented by the Nez Perce high dam below the Salmon River could be solved.

Later in 1958, the company filed application for license to construct a High Mountain Sheep Dam (project 2243). Also in 1958, the Corps of Engineers completed a report on the Columbia River and tributaries which recommended a number of alternatives for development of the Middle Snake River including High Mountain Sheep and Nez Perce Dams.

In 1960, the Washington Public Power Supply System (WPPS), a joint operating agency composed of 17 public utility districts and one city in the State of Washington, filed application for the Nez Perce project (project 2273). The FPC consolidated the two applications for hearings which opened in November 1960 and closed in September 1961.

The Secretary of the Interior commented to the Commission that because of the fishery problems and because of the power which would become available from the Columbia River treaty with Canada, "we believe that it is unnecessary at this time and for some years to come to undertake any project in this area."

In April of 1962, a Corps of Engineers report was transmitted to the Congress on "Water Resources Development of the Columbia River." It reflected negotiations among the Federal agencies and concluded that High Mountain Sheep Dam or an alternative should be authorized for construction by the Bureau of Reclamation. The Secretary of Army similarly recommended to the FPC that, because of Federal interests in the area, the Commission should recommend Federal construction of the High Mountain Sheep Dam.

The opinion of the presiding examiner issued in 1962, and the Commission's decision of February 1964 (31 FPC 247), nevertheless granted PNP a license to build High Mountain Sheep Dam and denied a license to WPPS for either site. Following a re-hearing on intervention by the Secretary of the Interior, the Commission on April 30, 1964, affirmed granting of the license. The High Mountain Sheep Dam was considered by the Commission to be the best comprehensive development which would avoid fish passage problems to the Salmon River.

The license was appealed to the U.S. Court of Appeals for the District of Columbia by the Secretary and WPPS. The court affirmed the FPC decision on March 24, 1966. A petition for writ of certiorari was granted and the Supreme Court announced its decision on June 5, 1967. (387 U.S. 428). In a divided decision, the Court demanded the project to FPC.

The court's decision was based upon the following general points.

Refusal of the Commission to take testimony of the Secretary of Interior regarding Federal development.

Lack of adequate consideration of fisheries and recreation aspects by the Commission.

Interior's recommendation of deferral for fishery studies.

Lack of determination by FPC of the public interest as opposed to benefit to the license and lack of consideration of all aspects of public concern rather than only the regional ability to use the power.

In July of 1967 the FPC ordered hearings which were convened in Lewiston, Idaho, and in Portland, Oreg., in September 1968 and in Washington, D.C., beginning in January of 1970.

In 1967, PNP and WPPS entered into an agreement to undertake joint development of the High Mountain Sheep project and amended their applications to be treated as single joint application.

In May 1968, Secretary of the Interior Udall presented the Department's position to the FPC. He opposed the licensing of High Mountain Sheep Dam and proposed instead Federal construction of a combination of a dam at the Appaloosa site and a Low Mountain Sheep Dam—both above the confluence of the Snake and Imnaha Rivers. The Secretary's position was based upon the impact on fisheries, the need for power, and the Federal interest in operation of the Columbia River system.

In February 1969, the Secretary and the applicants filed a joint motion for continuance of FPC proceeding to permit time for the Secretary to seek congressional authorization of Federal construction of a multiple purpose development including a plan for financial participation by the Pacific Northwest utilities interested in power development. Successive motions led to a continuance until August of 1969 to permit the present administration to review the proposal.

On August 12, 1969, Secretary Hickel notified the FPC that he concluded that it is in the public interest to oppose construction of any project at this time. He called for a moratorium of 3 to 5 years for studies of the highest and best future development of the Middle Snake.

The Federal Power Commission presiding examiner, on February 23, 1971, issued an initial decision which would conditionally license PNP and WPPS to construct a project consisting of dams at the Pleasant Valley (river-mile 213) and Mountain Sheep (river-mile 192.5) sites. The examiner, however, would condition the license to provide that construction of the project could not begin until September 11, 1975. The delay is intended to permit time for consideration of scenic river designation under the 1968 Wild and Scenic Rivers Act.

PRESENT LEGISLATION

S. 488, introduced by the Senators from Idaho, would prohibit the Federal Power Commission from issuing any license or permit or from accepting any application for a license or permit concerning the reach of the Snake River from Hells Canyon Dam (river-mile 247) to river mile 146.5 (approximately the Asotin damsite). The measure would impose the prohibition for a period extending until September 30, 1978.

The bill further provides that the present status and rights of applicants would remain unaffected after the moratorium and that the EPC may complete its pending hearings.

The reach of the Snake River which is included within the prohibition extends downstream to approximately the location of the proposed Asotin damsite. The provisions of the measure would have no effect, however, upon the status of the Federal Asotin Dam which was authorized by the Flood Control Act of 1962 (76 Stat. 1193).

The Subcommittee on Water and Power held a hearing on a similar bill (S. 940, 91st Cong.) on February 16, 1970. S. 940 subsequently passed the Senate but was not acted upon in the House of Representatives.

The Department of Agriculture and the Department of Interior recommended enactment of S. 498. The Office of Management and Budget expressed no objection to enactment.

COMMITTEE RECOMMENDATION

The Committee on Interior and Insular Affairs by unanimous vote, with a quorum of members present in executive session on June 16, 1971, recommends that S. 488 be enacted.

## CONVENING OF SUPREME COURT ON PENTAGON PAPERS

Mr. MANSFIELD. Mr. President, the Supreme Court is now in the process of determining whether there is a Government right to preempt publication under the first amendment. It is right and proper that the Supreme Court has con-

vened in extraordinary session to make this determination without delay. Protracted delay cannot be tolerated, especially when the issue involved is whether the Constitution permits even a temporary delay.

The responsibilities of the Congress are closely allied with the freedom of the press. It is not enough that Congress have access to information. The focus of the attention of Members of Congress is greatly determined by the information commonly available to the electorate. In this way, the daily judgments of the Congress in exercising its responsibilities are affected by the availability to the public of information upon which the great national decisions are based. A swift Court decision on the public availability of this information will be most welcome.

Whatever the outcome of the Court proceeding, it would be my hope that there will not be a mad rush on the part of every Senate committee having some possible degree of jurisdiction to conduct hearings on this matter. This would be both haphazard and irresponsible. I, personally, would have preferred a House-Senate committee to undertake this responsibility, but that suggestion seems out of the question, as does a Senate select committee.

I would hope, therefore, that on the basis of a tentative agreement—and I stress the word "tentative"—it would be possible for a joint committee of the Senate Foreign Relations Committee and the Armed Services Committee to undertake this job. It will not be an easy one because there is always the danger of politics and personalities. It would be my hope that, whoever conducts the Senate inquiries, personal feelings would be shoved into the background, that personal publicity would be avoided, and that the dominant factor would be based on responsibility—on a high sense of responsibility—and the need to learn from the past.

It is not necessary to search for scapegoats and devils, because all of us who shared in these decisions on Southeast Asia in some degree or another, must by necessity bear a share of the blame. What we should seek to establish for the future is a closer and more open working relationship between the Congress as a whole, and the Executive, in determining national policy. It must be based on equality and understanding of each others' responsibilities. The purpose would be to reestablish our credibilities with each other and with the country.

What must be done as well is to go more deeply into the question of classification of documents, which, without question in my mind, has exceeded sensible limits, and to speed up the declassification of documents which have previously met a valid criteria of classification.

Perhaps the need is for a 20th Century Stamp Act, which would define more precisely who has the right to stamp the various classifications, and under what circumstances, and to require a justification by originator of the classification as to his selection and how public dissemination would compromise national security.

In these matters I am certain that President Nixon is moving to achieve the necessary reformation, and I commend him for moving in that direction. He shall have the Senate's full cooperation.

The hearings to be conducted by the Senate will not be an easy responsibility. Those who have been named in the Documents, or will be named, must be given the right to explain or defend their participation in the preparation of these papers. I understand in many cases the papers represent only tentative positions, and are not the final position papers. The hearings should be conducted in neither haste nor at leisure. I would envision a most careful preliminary study of the Documents involved. It would be important to maintain a keen appreciation of the interests of third countries who may have been acting in our behest in a private way to find the road to peace, and it must be undertaken with the national security of our country kept uppermost in our mind.

The investigations will call on all Senators to rise above parties or prejudices, to act calmly in a way which will bring credibility to what they do, and in a manner which will restore a greater degree of confidence in the Government and its processes.

Mr. SCOTT. Mr. President, I have discussed this statement with the distinguished majority leader. I agree with it. I think it is desirable that a responsible investigation be conducted. I understand the difficulties of other ways to conduct it, including some suggestions which were discussed by various Senators, including myself.

A joint investigation by the Senate Foreign Relations and Armed Services Committees would seem to be a fair way in which to secure representation of the widely varying points of view. I would hope that these two committees would work out the composition of the membership and the manner in which the hearings are to be conducted, and arrive at a determination as to what, if anything, should be conducted in closed session. Preferably, most of it should be conducted, in my opinion, in open session.

Mr. President, I agree, as the distinguished majority leader has said, that the purpose of this joint investigation would be to reestablish our credibilities with each other and with the country. And I would add with other countries because I have just returned from a visit with government officials in the United Kingdom. I have discussed the international reaction with the Commonwealth leaders.

There is no question whatever that the controversy over these papers has shaken some of our credibility in high quarters in other countries of the world.

The right to know and the right to publish a free press is the safest guarantee of our liberties. The manner in which papers are obtained ought to be carefully considered, and we ought always to be careful to observe the first amendment. But we should also observe the more relevant of the Ten Commandments and by combining a faithful respect for the Constitution and due dedication to the relevant Commandments, perhaps we can work with a modus operandi in the future whereby the press, the public, and the government would not be forced into undue or irrational confrontations.

Mr. President, I welcome this decision and will be very glad to do what I can to assist in the establishment of the investigation.

## ORDER OF BUSINESS

The PRESIDENT pro tempore. Under the order previously entered, the distinguished Senator from Connecticut (Mr. RIBICOFF) is recognized for 15 minutes.

## TRIBUTE TO FORMER SENATOR DODD OF CONNECTICUT

Mr. RIBICOFF. Mr. President, previously, at the time of his retirement and on the day he died, a number of Senators joined with me in paying tribute to Senator Thomas J. Dodd. The full Senate honored Senator Dodd officially on May 24, 1971.

Some of the Senators who were not present on the previous occasions have requested an opportunity to also pay tribute to their former colleague this morning.

Tom Dodd served Connecticut and this Nation well during a difficult, but exciting, period in American history. He spent nearly all his adult life in public service—as an FBI agent, the Connecticut Director of the National Youth Administration, assistant chief of the civil rights section of the Department of Justice, and as the chief trial counsel at the Nuremberg trials. In 1955 Tom was elected to the first of two terms he spent in the House of Representatives and in 1959 was elected to the Senate.

During the 16 years he spent in the Congress, Tom labored hard and long for the issues he believed in—issues often considered too controversial by others.

I believe that when the history of this era is written, Tom Dodd will be remembered—and honored—for his courageous efforts to reform our inadequate gun-control laws. As a former law-enforcement officer, he knew firsthand the need to regulate firearms in this Nation. Although his efforts were opposed by one of the most virulent lobbying campaigns ever witnessed, he succeeded in seeing the first comprehensive gun-control law passed in 1968.

I know that Connecticut, the Nation, and all my colleagues who served with Tom are going to miss him.

Mr. President, I ask unanimous consent to have printed at this point in the RECORD a copy of Senate Resolution 127 and a few of the many messages of sympathy Tom's lovely wife Grace received from friends around the world.

In addition, Senators WEICKER and HANSEN, who could not be here his morning, have prepared statements and I ask unanimous consent that their statements be printed in the RECORD.

There being no objection, the material

was ordered to be printed in the RECORD, as follows:

S. RES. 127

Relative to the death of former Senator Thomas J. Dodd

*Resolved*, That the Senate has heard with profound sorrow and regret the announcement of the death of Honorable Thomas J. Dodd, who served in the United States Senate from the State of Connecticut from 1959 to 1971.

*Resolved*, That the Secretary of the Senate communicate these resolutions to the House of Representatives and transmit a copy thereof to the family of the deceased.

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AUSTIN, TEX.

Mrs. THOMAS DODD,
*Old Lyme, Conn.:*

We are so very sorry. Lady Bird and I are thinking of you with deepest sympathy. Our hearts and our prayers go out to you.

LYNDON B. JOHNSON.

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WASHINGTON, D.C.,
*May 25, 1971.*

Mrs. THOMAS J. DODD,
*Old Lyme, Conn.*

DEAR MRS. DODD: It is with deep regret that I have learned of the death of your beloved and distinguished husband, a close and valued friend, whom I admired and respected very much.

Mrs. McCormack joins with me in expressing and extending to you and your loved ones our profound sympathy in your bereavement, in your great loss and sorrow.

Very sincerely yours,

JOHN W. MCCORMACK.

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WASHINGTON, D.C.,
*May 25, 1971.*

Mrs. THOMAS J. DODD,
*Old Lyme, Conn.:*

I was most grieved to hear of the passing of Senator Dodd. Mrs. Rabin and I extend to you our heartfelt condolences in your bereavement.

Y. RABIN, Lt. Gen.,
*(Res) Ambassador of Israel.*

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WASHINGTON, D.C.,
*May 25, 1971.*

Mrs. THOMAS DODD,
*Old Lyme, Conn.:*

The faculty and Jesuit community of Georgetown join me in sending heartfelt sympathy on the death of Senator Dodd. I am saying mass for him and will remember you Tom Junior and all the family.

R. J. HENLE, S.J.,
*President, Georgetown University.*

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JERUSALEM,
*May 27, 1971.*

Mrs. THOMAS DODD,
*Old Lyme, Conn.:*

It was with deep sorrow that I learnt of the death of your husband whom we all mourn. Senator Dodd had won our admiration, respect, and gratitude for his unswerving friendship and consistent support for Israel all through the years of his senatorial career and Jewry entire will never forget the central compassionate and decisive role that he played on its behalf in the Nuremberg trials. I pray that you may find comfort and condolence in the proud memory of his lifetime of enlightened and selfless service to all his fellowmen.

ABBA EBAN,
*Minister for Foreign Affairs.*

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WETHERSFIELD, CONN.,
*May 24, 1971.*

Mrs. THOMAS J. DODD,
*Old Lyme, Conn.*

DEAR GRACE: Mary and I shocked to learn of the untimely death of Tom, his long distinguished public career was marked by his great concern for America and her people. He devoted his life to the causes of justice and freedom. Our thoughts and prayers are with you and your family with deepest sympathy.

JOHN DEMPSEY.

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WASHINGTON, D.C.,
*May 25, 1971.*

Mrs. THOMAS DODD,
*Old Lyme, Conn.*

Tom understood the central challenge of our times and he was a courageous cold warrior. We were good friends. Francesca joins me in sending you, dear Grace, and yours our deepest sympathy at this sad time.

JOHN LODGE.

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NEW YORK, N.Y.,
*May 26, 1971.*

Mrs. THOMAS J. DODD,
*Old Lyme, Conn.*

I wish to express to you and your family the heartfelt condolences of the officers, directors, and staff of the International Rescue Committee on the loss of your husband. As a dedicated member of our board and through countless other activities, he made outstanding contributions to the cause of refugees and human freedom. He will be greatly missed by his many friends and associates. May I also express to you my deepest personal sympathies.

LEO CHERNE,
*Chairman, International Rescue Committee.*

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NEW YORK,
*May 26, 1971.*

Mrs. THOMAS J. DODD,
*Old Lyme, Conn.*

DEAR MRS. DODD: It was with deep regret that I heard the announcement of your distinguished husband's death. As you know, I knew him intimately down through the years and it was always a delight when our paths crossed. Our contacts were particularly frequent during my activities on behalf of the Democratic Party and its nominees.

I realize how hard it is to give a loved one up and that there is some consolidation in the knowledge that the good Lord will give us courage to carry on. Also, the memory of your wedded life will be a source of some comfort to you with the passing of the days. I want you and the other members of the family to know that you have my heartfelt sympathy in the great loss you have suffered.

Sincerely yours,

JAMES A. FARLEY.

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STATEMENT OF SENATOR WEICKER

Today we honor Thomas Dodd, a sincere, compassionate, dedicated man who devoted his life to the people of his nation and beloved state of Connecticut.

Our hearts go out in sympathy to Tom's widow, Grace, and his family.

We are all well aware of the sacrifices that a man must make when he chooses a career of public service. Tom Dodd made these sacrifices willingly for as he said on many occasions, there is no greater reward than the feeling that you have helped a fellow man.

In 1938, when few people thought about or cared about the rights of the blacks, Tom Dodd was in Mississippi prosecuting civil rights cases.

After World War II, he prosecuted with vigor the war criminals who had committed the most heinous crimes against humanity. Yet one of his last public efforts was to try to free Rudolf Hess, one of the men convicted at the Nuremberg Trials.

In the House of Representatives and in the Senate, he fought against drug abuse and warned against the influence of television violence on the young. He fought for prison reform and for social legislation.

When I first came to Washington as a Congressman, it was Tom Dodd who threw away the partisan and prestige rule book to be of assistance when called upon—which, due to my newness on the job, was frequently.

Tom Dodd reacted the same way to the people of his state. He was never too important to help the average man. He was never too Democrat to help a Republican.

He served his fellow man well. And thus he honored his country.

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STATEMENT OF SENATOR HANSEN

I would like to express my sorrow at the death of one of our esteemed former colleagues, Senator Thomas Dodd of Connecticut. Senator Dodd was a great American who had a distinguished career in public service. His many contributions to his nation surely left it better than he found it. Senator Dodd's long career working for his countrymen began when he graduated from Yale Law School in 1933 and became a special agent for the FBI. He built a fine reputation as a law enforcement official. He later went on to be a special assistant to five successive Attorneys General. In 1935, with the country in the grips of a severe depression, Senator Dodd organized the National Youth Administration programs in Connecticut, which provide education and employment for young people. His work was so successful that it was used as a model all over the country.

Senator Dodd's long interest in national security began in World War II when he was instrumental in protecting the nation's internal security and set precedents with his prosecution of sabotage and subversion cases. After the war, he earned the Medal of Freedom and a Presidential Citation for his efforts as excutive trial counsel for the United States at the Nuremburg Trials.

The Senator returned to private law practice in 1947 but never relaxed his efforts to work for his country. In 1952, Senator Dodd was elected to the first of two terms in the House of Representatives. He served the people in Connecticut until 1956 and moved to the upper house in 1959. His four years in the House and twelve years in the Senate were characterized by Senator Dodd's concern about the American people.

Senator Dodd worked diligently to protect our nation from the threat of Communism and strongly believed that the U.S. should build a strong military "to make it invincible." The Senator was known for his work in civil rights. Starting with his days in the Justice Department, Senator Dodd helped form the civil rights division and prosecuted cases involving the Ku Klux Klan. In the Senate, he was one of the most consistent advocates for civil rights legislation. Senator Dodd was also persistent in his call for new social legislation, including housing for the poor, Medicare, unemployment compensation and Social Security programs.

Few Senators can match his work in sponsoring drug-control legislation. He is personally responsible for much of the work now effective in this area.

Senator Dodd leaves behind him a long and proud legacy of service to his country. Senator Dodd was an especially great American because he believed in his country and loved his country, and spent his life making it greater. Few have accomplished as much as he did. He will be missed.

Mr. RIBICOFF. Mr. President, I yield to the distinguished minority leader.

Mr. SCOTT. Mr. President, Thomas Dodd was an eloquent and thoughtful man whose personal sacrifices and understanding of human problems made him a Senator to whom many looked for guidance.

His unrelenting search for and stress

on individual and national freedom characterized his own lifestyle. His constant insistence on national unity made him a Senate leader.

I remember well many of Senator Dodd's speeches and statements on foreign policy issues. They were memorable in the annals of the Senate for their scope and their scholarship, their philosophical consistency and their nonpartisan nature. But most of all, they were unique because he addressed himself to the issues as they were unfolding and while our policy was still being formulated.

His projects in the Senate were many—urging for more stringent gun and narcotic controls, prohibition of violence on television, and pursuit against community influences in our Government.

The death of Senator Dodd leaves me personally saddened. His love of the Senate was obvious and his contributions to it were many. His philosophy of life can be summed up by a statement he made several years ago.

We must decide where we have erred and where we have failed and what we might have done to avoid these failures. We must all be brutally frank with ourselves: nothing less than this will suffice.

Mr. RIBICOFF. Mr. President, I yield now to the distinguished Senator from New Hampshire.

TOM DODD—HIS ORDEAL WAS GREAT

Mr. McINTYRE. Mr. President, it is with personal sadness that I rise today to pay my respects to the late Tom Dodd, of Connecticut.

Forceful, controversial, warm, human, charming, sincere, and tragic might be words to describe Tom. He was a complex man dedicated to serving his country, his State. He had great love for his family.

When I came to the Senate nearly a decade ago I was new to Washington and new to the Congress. Tom Todd, a fellow New Englander who had attended school in New Hampshire, gave me advice and counsel on committee assignments and other problems which face a new Member of the Senate. I found his advice most useful.

In 1963, Mrs. McIntyre and I had a chance to take a trip to Mexico with Tom and his lovely and devoted wife, Grace. We saw on this trip the warm, human, charming side of Tom and his devotion to his wife. We learned to love Grace who was his strong right arm throughout his life.

Tom served in the Congress for 16 years. Much important legislation bears his imprint.

I never had a chance to serve on a committee with him. I regret this because he was diligent in his committee work and his activities on gun control, juvenile delinquency, and subversive activities received national attention. He was among the first to point to the problems faced by our youth and to suggest solutions for juvenile delinquency.

He received many honors for his accomplishments in this field.

He was honored as well for the years he devoted to fighting the enemies of our Nation. He served as an FBI agent. He was an assistant to five U.S. Attorneys General.

He was a leader in the prosecution of the Axis criminals at Nuremberg. Few people knew more about the threat of the foreign enemy and their cohorts at home. Few people were more dedicated to exposing the enemy and fighting his attempts to undermine our way of life.

It was a saddening chain of events that occurred during the closing months of Tom Dodd's service in the Senate. He became enmeshed in the net of campaign financing, which is one of the burdens which all those who follow public service as a vocation find most difficult, cumbersome, and hard to handle.

I know personally what an ordeal those trying times were to Tom. He felt more deeply than any will ever know the hurt which was his during the days and weeks this was a front page story and a subject for the columnists. He suffered during the time of the hearings, and during the period of debate and decision here in the Senate.

The hurt was deep but Tom Dodd kept his head high and moved steadily ahead. He continued to try in his way to work for his State and his Nation. He continued his devotion to his family. His family remained loyal to him throughout his trials.

But, I know that whatever front Tom presented to the public he was so deeply hurt that he never recovered from the ordeal. What he went through hastened his untimely end.

I regret Tom Dodd's passing from the political scene, and I regret his passing from this life.

To his beloved Grace and to the other members of his family, Mrs. McIntyre and I offer our condolences and our expression of sorrow that Tom is no longer with us.

Mr. President, I ask unanimous consent to have printed in the RECORD a statement by the distinguished senior Senator from Mississippi (Mr. EASTLAND).

There being no objection, the statement was ordered to be printed in the RECORD, as follows:

STATEMENT OF SENATOR EASTLAND

I want to pay a few words of tribute to the memory of the late Senator Thomas J. Dodd of Connecticut, who died at his home in Connecticut on May 24.

It was my privilege to enjoy the cooperation of the Senator from Connecticut on the two Senate Committees which I chair—the Judiciary Committee and the Subcommittee on Internal Security. Thanks to an extraordinarily broad background in the fields of law and law enforcement and political subversion, he made outstanding contributions to the work of both committees.

There were issues from time to time on which I differed with the Senator from Connecticut. But whether one differed with him or agreed with him, it was impossible not to respect his courage and independence, his patriotic dedication, and his implacable opposition to communism and all forms of totalitarianism.

I recall that at the time of Khrushchev's ultimatum on Berlin in November 1958, many voices were raised calling for a compromise rather than face up to the threat of nuclear war. In his maiden speech in the Senate, in February 1959, Senator Dodd took the floor to urge that the United States refuse to yield to Khrushchev's missile blackmail. His speech made a very great impression on the Senators who heard it, and I do not think it is an exaggeration to say that the positive reaction to it enormously strengthened the American position and helped our Government to face down the Khrushchev ultimatum.

I recall, too, that Senator Dodd was one of the first members of the Senate to warn that Fidel Castro planned to implant a Communist dictatorship in Cuba. On this warning, as on so many other warnings, the Senator from Connecticut was proved right by the course of events.

I recall his warning in 1960 against the imposition of a coalition government in Laos. The Senator from Connecticut, who had just returned from a visit to Southeast Asia, informed the Senate that the so-called coalition government was a trap, that the Communists would continue to nibble away militarily at what was left of free Laos, that they would use the coalition government to inactivate us, but that they would not hesitate to break with it whenever they considered it to be to their advantage. The Senator also warned that one of the immediate consequences of the agreement we were about to sign in Laos would be an intensification of the communist guerilla warfare in Vietnam. Once again, his warning turned out to be prophetic.

The Senator from Connecticut raised his voice repeatedly and eloquently in support of the American commitment to the defense of South Vietnam and in support of President Johnson's intervention against the attempted communist takeover in the Dominican Republic.

In December of 1969, the Senator was instrumental in defeating a Foreign Relations Committee amendment which would have eliminated military aid to Greece. "We cannot afford to undermine NATO's Mediterranean defenses," said Senator Dodd, "in order to indicate our displeasure with certain practices of the present Greek government."

These are but a few random items from the long and impressive record that Senator Dodd built up in the field of foreign policy.

As Vice-Chairman of the Senate Subcommittee on Internal Security, The Senator from Connecticut also played a leading role in the fight against subversion on the national plane. He chaired many of the Subcommittee's most important hearings on Communist subversion through the Carribean, on State Department Security, on the Communist murder apparatus, and on other subjects. He also took the initiative in having many special studies prepared at his direction for the Subcommittee. Among these studies were "The Anti-Vietnam Agitation and the Teach-In Movement: The Problem of Communist Infiltration and Exploitation"; "Church and State Under Communism"; "A Study of the Communist Party and Coalition Governments in the Soviet Union and in Eastern European countries;" "The Tricontinental Conference of African, Asian and Latin American Peoples"; and, most recently, "The Human Cost of Soviet Communism" by famed British sovietologist, Robert Conquest.

Looking back on the past, and surveying the present, I can only say that Senator Dodd's strong voice is sorely missed in the United States Senate, and the stilling of this voice represents a grievous loss to the cause of freedom and the national security of the United States.

Tom Dodd was a great United States Senator. Whatever his faults—and who among us does not have faults?—I know that he will be accorded high marks by future generations of Americans.

Mr. RIBICOFF. Mr. President, I yield now to the distinguished senior Senator from Kentucky (Mr. COOPER).

The PRESIDING OFFICER (Mr.

JORDAN of North Carolina). The Senator from Kentucky is recognized.

Mr. COOPER. Mr. President, this is an important meeting that we hold today to pay tribute to the service and the memory of a former colleague, the late Senator Thomas J. Dodd of Connecticut.

I am very conscious today that the Senate voted to censure Thomas Dodd and that at that time I was a member of the committee that recommended censure, and, of course, that resolution stands. But this fact does not prevent me from referring to the contributions that former Senator Dodd made to our country.

Former Senator Dodd had a very unusual and busy career as an FBI agent, trial counsel at the Nuremberg trials, and a Member of the House and the Senate. Some aspects of his career at the Nuremberg trial have appealed to me because of similar personal experiences.

I recall that from his experience as chief trial counsel at Nuremberg, he learned of and spoke of the desperation of thousands of Russian war prisoners and forced laborers who, because of the agreement at Yalta, were forced to return to the Soviet Union without their non-Russian spouses and children—a desperation which caused many to kill themselves. I knew of this as a member of the 3d U.S. Army in Germany at the close of World War II, and I was glad to learn that Thomas Dodd had protested the inhumane and cruel treatment of those Russians who were torn from their families.

I recall also his constant interest and fight for civil rights, for equality under the law for all people. We joined together in 1963 and in 1964 in introducing civil rights bills, antedating the bills of the administration in 1964. There never was a time in which he did not continue his work to help assure all people in our country equal rights under the law.

He was one of the first who took up the work of attempting to help solve problems of juvenile delinquents. What better or more important cause was there, or is there today?

He was one of those who initiated the politically unpopular, but correct effort to apply some legislative sanctions against the spread of firearms in our country.

As a result of his record in private and official life, I recall that in 1964, when he was a candidate for reelection to the Senate, over 1,000 outstanding citizens of our country placed an advertisement in the New York Times urging his election.

During the difficult time to which I have referred, and in which I participated as a member of the Committee on Ethics, I remember that Senator Dodd maintained a position of dignity and understanding toward his colleagues. I shall not forget his love and concern for his wife and family and their concern and love for him.

Mr. President, all I can say is that considering the mores of the past and the times, he may have borne upon his shoulders as well, the blame for others.

Mr. President, I join others in this hour dedicated to the memory and work of Thomas Dodd. I appreciated his friendship.

Mr. RIBICOFF. I thank the Senator.

I yield to the Senator from Alabama.

Mr. ALLEN. I thank the distinguished Senator from Connecticut for yielding to me.

It was not until January 1969, when I came to the U.S. Senate, that I first met Senator Thomas J. Dodd, of Connecticut, then a Member of this body.

Senator Dodd had already had a distinguished career of public service before I had the pleasure of meeting him.

He was a graduate of Yale University Law School, special agent for the Federal Bureau of Investigation, Connecticut director of National Youth Administration, assistant to five successive U.S. Attorneys General, vice chairman, Board of Review, and later executive trial counsel, Office of the U.S. Chief of Counsel for the prosecution of axis criminality at Nürnburg, Germany, and was the recipient of several awards for his work, served 4 years in the House and 12 years in the U.S. Senate.

Senator Dodd while a member of the Senate waged relentless war on communism and the evil forces of communism.

He fought unceasingly against crime, drug addiction, juvenile delinquency, and in behalf of gun control legislation.

So outstanding was his public service that there was much speculation in 1964 that he would be asked by President Johnson to be his running mate in the 1964 presidential election.

His ability was outstanding and his appearance was striking. With the dignity of his bearing and the gray of his hair and his booming, resonant voice he made an impressive figure on the Senate floor. Truly, he looked the part of a Senator.

I found him to be a most attractive person, friendly, loyal, gentle, and kind but with great courage, strength, determination and faith. I was proud to have him for a friend and to be numbered among his friends.

Mrs. Allen and I were saddened by news of his death and extend condolences to Mrs. Dodd and other members of his family.

I thank the distinguished Senator from Connecticut for yielding.

Mr. RIBICOFF. I yield to the Senator from New York.

Mr. BUCKLEY. I thank the Senator from Connecticut for yielding.

Mr. President, I wish to join my colleagues in paying tribute to the memory of Thomas J. Dodd. Unlike most of my colleagues, I did not have the privilege of serving in the Senate with Tom Dodd. But I did observe his career in this body with the greatest interest, and I respected and admired his knowledge and perseverance in areas affecting our national security.

During his tenure in the Senate Tom Dodd acquired a well-deserved reputation as an eminent analyst of cold war strategy and as a forceful and highly skilled spokesman in behalf of a sound and thoughtful strategic defense posture. Some of his critics accused Senator Dodd of being a crusader against communism. Tom Dodd was a crusader, and he did indeed relentlessly oppose any weakening of our moral resolve or practical ability to deter communist aggressions. I am reminded of an example of Tom Dodd's crusading spirit which was cited by Eugene Methvin in an article published in the Reader's Digest, September 1964, under the title, "Crusader from Connecticut":

> President John F. Kennedy looked around the White House dining table on February 14, 1961, at the 19 Cabinet and legislative leaders assembled for the first joint breakfast meeting of his administration. The bacon and eggs finished, he raised a touchy question.
>
> "We have this request to let a Vermont manufacturer ship ball-bearing machines to Russia," he said. "Senator Dodd asked President Eisenhower to hold it up, pending Senate investigation. Now he says the shipment will harm our national security. What about it?
>
> "The Russians can buy the same kind of machines from European manufacturers," said Secretary of Commerce Luther Hodges. "If we bar the shipment we only cheat our own businessmen out of the profits."
>
> "I wouldn't jump to a conclusion so lightly," said Vice President Lyndon Johnson. "Tom Dodd has a habit of being right."
>
> Two weeks later, Senator Dodd discovered that the machines were going to be shipped despite his protests. Whereupon he strode into President Kennedy's office and handed him a seven-page report of the Senate Internal Security Subcommittee, of which Dodd is vice chairman. Twelve of the most eminent technical experts in the field, the President read, agreed to a man that not one of the European machines cited by the Commerce Department approached the capabilities of the American machine. The latter was a unique product representing the pooled expertise of many companies; 72 of these machines had been enough to supply the entire U.S. military and space effort with the tiny precision bearings that enabled us to miniaturize equipment and so offset the Soviet rocket-thrust advantage. Yet we were about to hand 45 of the machines to the Russians.
>
> When he finished reading, President Kennedy ordered the shipment to Russia canceled.

Many of us recall another crusade of Senator Dodd's—his protest against the visit of Mr. Khrushchev in 1959. Senator Dodd said:

> Let there be no cheers for the Red dictator, no crowds assembled to greet him, no flattery or flowers. Let our people be civil but silent.

An examination of the speeches and writings of Tom Dodd reveals a keen understanding of the nature of international communism and a thorough and perceptive appreciation of the most subtle foreign policy questions. His presentations were always marked by a myriad of relevant data and facts, interwoven in argumentation meeting the most exacting standard of reason, and concluding persuasively in favor of the points he was raising.

No area of the world was out of Tom Dodd's scrutiny. His searching probes encompassed the prominent, often rotating list of world trouble spots—sometimes Berlin, or Southeast Asia, Cuba, the Congo. More often than not Tom Dodd anticipated the changing course of world

events and the possibility of the next international crisis.

The recent heightened interest in the plight of Soviet Jewry points to the continued relevance of Tom Dodd's writing. For many years Senator Dodd addressed himself to the broad issue of communism and religion, and to the more particular issues of Soviet religious persecution, especially his informed and lucid analysis of Soviet anti-Semitism.

Mr. President, I appreciate having this opportunity to salute a man with whom I did not have the privilege of serving, but a man I respected from afar—a Senator who contributed so much to the Nation—Senator Thomas J. Dodd.

Mr. RIBICOFF. Mr. President, I yield to the Senator from Alaska.

Mr. GRAVEL. Mr. President, I am not fortunate enough to be able to claim a long professional association with Senator Thomas Dodd. However, I did know him some 10 years. I met him in the late 1950's when I had occasion to come to Washington, and he was a Senator then of some renown. He was most generous in his courtesies toward me and a most sensitive person.

From that period to the time I became a Member of this Body this association blossomed, and those same two characteristics, the characteristic of sensitivity and the characteristic of personal kindliness, were repeatedly reaffirmed.

I can candidly say that in many areas of policy we disagreed, and sometimes our disagreements were vitriolic. But more importantly I can say that as a human being and as a person who held my affection there was no other Senator in this Chamber for whom I had a higher personal regard.

I mourn his passing with his family and with his colleagues who had longer and probably closer associations.

I can only say that he accomplished what is probably the ideal of any person in public life: that is, to pass through this life and to make all that it is possible to make—footprints on the sands of time.

Mr. RIBICOFF. I thank the distinguished Senator from Alaska.

Mr. President, I now yield to the distinguished Senator from Alabama.

Mr. SPARKMAN. Mr. President, I join Senators in paying tribute to Tom Dodd. I had the privilege of serving with him in the Senate during the entire time he was a Member. I knew of his record prior to his coming to the Senate and of the honors that had come to him—all those things that were enumerated by my colleague from Alabama (Mr. ALLEN.)

I served with Tom Dodd on the Committee on Foreign Relations. I, of course, observed his work there and was aware of his other committee activities.

I knew of his strong stand against Communist activities and threats to our country. I knew of his work with respect to juvenile delinquency, crime, and gun control.

I found him always to be a man who was easy to work with. I enjoyed my service with him on the Committee on Foreign Relations.

I want to say something else about Tom Dodd. I think that often a man's character and integrity are put to the test in adversity.

I know the unpleasant situation that arose in the Senate, and I watched Tom Dodd to see how he took it. I walked over to his seat in the Chamber. I believe it is the seat where the senior Senator from Connecticut (Mr. RIBICOFF) is now standing.

The PRESIDING OFFICER (Mr. JORDAN of North Carolina). The time of the Senator from Connecticut (Mr. RIBICOFF) has expired. The Senator from New Hampshire (Mr. MCINTYRE) is recognized for the next 15 minutes.

Mr. RIBICOFF. Mr. President, the distinguished Senator from New Hampshire (Mr. MCINTYRE) will control the time now; and after the senior Senator from Alabama has concluded his remarks, the Senator from New Hampshire will yield to the Senator from South Carolina (Mr. THURMOND). The Senator from New Hampshire and I have divided the time between us, so the eulogies of Senator Dodd will be continued under the time controlled by the Senator from New Hampshire.

Mr. SPARKMAN. Mr. President, I shall be brief.

The PRESIDING OFFICER. The Chair did not mean to shut off the Senator from Alabama.

Mr. SPARKMAN. I understand. I am sorry I did not know about the allocation of time.

I walked over to Tom and said, "I want you to know that I admire you. I admire the way you stood up and showed yourself to be the man you are in the attitude you take."

I want to pay this tribute to Mrs. Dodd: I never saw anyone stand by her partner in a better and stronger way than she did through it all.

Both Mrs. Sparkman and I extend to her and to her family our condolences.

Mr. RIBICOFF. Mr. President, I wonder if the Senator from New Hampshire will yield for a unanimous-consent request?

Mr. McINTYRE. I am glad to yield.

RECORD OPEN UNTIL JULY 14

Mr. RIBICOFF. Mr. President, I ask unanimous consent that the RECORD be kept open until July 14, that Senators be allowed to submit statements, and that the statements concerning the late Senator Thomas J. Dodd be printed as a Senate document.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. McINTYRE. Mr. President, I am pleased to yield now to the distinguished Senator from South Carolina (Mr. THURMOND).

Mr. THURMOND. Mr. President, the man we are gathered here to honor today had a public career marked by great distinction and also by great tragedy. As a member of this body for 17 years, he was renowned for his great patriotism and for the intellect and ability to express that patriotism effectively. His record as a liberal in domestic matters was complemented by a sincere and incisive anti-Communist position in foreign affairs.

He was known throughout his life for his interest in young people and he served with distinction as chairman of the Subcommittee on Juvenile Delinquency. Outside of his Senate career, his most well-known public service was to serve as chief prosecutor of Nazi war criminals in the Nuremberg trials in 1945 and 1946.

Mr. President, his exceptional talent placed him among those reported to have been seriously considered for the Democratic nomination for Vice President in 1964. The high regard in which he was held in the Senate was shared by the President of the United States, Lyndon Johnson.

Most of us in this body are familiar with the great tragedy which befell our colleague when he was censured by the Senate. It has been said, "To err is human, to forgive divine." In my judgment, the action of the Senate in this matter was a prime example of human error. This was a sad example in which the Senate did not show the necessary courage to exonerate this man. The evidence showed clearly that Senator Dodd obtained no personal gain whatsoever and that he, in fact, had expended much greater sums of his personal funds than he received. His was a trial by the press that was degraded by a serious lapse of loyalty on the part of those he should have been able to trust. I am proud that I stood with him then, when his need was so great.

Mr. President, Tom Dodd was not a man to admit defeat. He continued to represent his home State of Connecticut with diligence and ability. He offered for reelection last year and, when it became clear he would be denied his party's nomination, he showed unusual courage and campaigned energetically as an independent. Although he was not elected, I have always felt his action showed a quality of strength in the man that deserves our notice and our praise.

It can often be easy to display qualities of courage and honor when everything is going well. The test of a man is his ability to show these qualities in the darkest hours. Tom Dodd met that test.

Mr. President, Tom Dodd was a man of honor, a man of courage, and a man of capacity. He was an astute lawyer, an able Senator, a distinguished statesman, a brave soldier, a true patriot, and a great American. He was a fine citizen and a good friend.

Mr. President, I would be remiss if I did not say that his wife, Grace, is one of the loveliest, most charming, and finest ladies I have ever known. She stood by him at all times. She was an inspiration to him. She assisted him in his work and deserves the highest commendation. A great deal of what he accomplished, I am sure, was due in large part to his capable and devoted wife. I wish for her all happiness and good health in future years.

Mr. CANNON. Mr. President, the career in public service of Thomas Dodd covered almost four decades. We who have had the opportunity to work with

Tom Dodd during his two terms in the Senate know that the list of causes he championed during his service is long and impressive. The issues he chose to tackle were often controversial, yet he never hesitated to stand alone if necessary for the causes for which he believed.

His crusades first focused nationwide attention on such issues as juvenile delinquency, civil rights, crime, and drug abuse. As chairman of the Senate Subcommittee on Juvenile Delinquency, his vast knowledge helped formulate omnibus legislation to stem delinquency and drug abuse.

An internationalist, proud of America's constructive postwar foreign aid works, Tom Dodd was also keenly aware of the historical value and modern necessity to maintain America's balance of strength in arms and in diplomacy. He worked for the nuclear test ban treaty because he though that treaty to be in the Nation's and the world's best interest, but he also worked to guard against erosion of our military strength.

His fame, justly earned as a Nuremberg prosecutor, was a further highlight of Tom Dodd's distinguished and dedicated public service. As chief trial counsel at Nuremberg in 1945–46, Tom Dodd said that he was privy to "an autopsy of history's most horrible catalog of human crime." He was one of the few to witness firsthand the totalitarian terrors of both the Nazi's and the Communists, and the memory of this momentous event in history imprinted upon him the necessity to fight totalitarianism in all its forms.

Tom Dodd served the Nation with great dedication and his death is a sad loss.

Mrs. Cannon joins me in extending condolences and sympathy to his widow, Grace, and his family.

Mr. HOLLINGS. Mr. President, I am pleased that the Senate is today providing us with the opportunity to pay tribute to the former Senator from Connecticut, Thomas J. Dodd. And I am honored to participate.

As a Member of this Chamber, Senator Dodd built a record of solid achievement, a record in which he could take pride, and for which his fellow citizens should express real gratitude. Senator Dodd was a sentinel of national security. He understood full well the requirements of a sound defense, and he fought gallantly for them. An acknowledged expert on communism and a vigilant advocate of internal security, Tom Dodd appreciated the fact that disorder and dissolution can come from within as easily as from without.

His colleagues knew him as a fervent patriot, and his friends as a man of rare personal courage. Nowhere was his resolve better evidenced than in his campaign for reelection in 1970. He ran against great odds to vindicate the conduct of his office. His countrymen can only admire such tenacity.

Today, Mr. President, we mourn his passing. America has lost an effective defender of its interests abroad and its liberty and well-being at home. I join the Members of the Senate, and his legion of friends everywhere, in the belief that the record of Thomas J. Dodd will endure the test of time.

Mr. COTTON. Mr. President, when I think of the late Senator Thomas Dodd, I remember primarily the years during which we worked together as colleagues on the Senate Judiciary Committee and especially the honor of serving under him on the Subcommittee on Juvenile Delinquency.

If more of the restrictions and precautions advocated by the late distinguished senior Senator from Connecticut had been adopted and put into practice, we might well have prevented some of the drug abuse problems which confront us today.

Tom Dodd was devoted to the cause of preventing drug abuse, just as he was devoted to the cause of combating all those individuals—both those from within our Nation as well as those from without—who sought to weaken the power of a strong America.

In my mind I shall always remember him for his ability and his achievements, and thus will he be remembered in history.

Mr. WILLIAMS. Mr. President, I join my colleagues today in paying tribute to the memory of a devoted public servant and former Member of Congress, Senator Thomas J. Dodd.

I was privileged to serve in the House with Tom Dodd during the 83d and 84th Congresses, and we were both elected to the Senate in the same year as members of the "Class of 1958." During the 15 years that we served in Congress together, I came to know Senator Dodd as a dedicated and hard-working public servant.

Very few men in American history have devoted their lives so completely to the service of their country as did Tom Dodd. While still in law school, he campaigned in support of President Roosevelt's "New Deal," and shortly thereafter he joined the Federal Bureau of Investigation. He helped organize the Justice Department's Civil Rights Division and in 1945 was sent to Nuremberg where he became chief trial counsel at the Nazi war crimes trials.

Senator Dodd was well known for his vigorous and unrelenting crusade against communism, yet he was one of the few people who dared to speak out against the irresponsible, anti-Communist demagoguery of the McCarthy era. During his service in Congress, Tom Dodd became widely recognized for his scrupulous fairness. Senator Paul Douglass once remarked about him:

> Although Tom Dodd is a vigorous anti-Communist, I know personally that he has many times stood up for those unfairly accused by the far right.

In the Senate, Tom Dodd will long be remembered for the outstanding work he did as a member of the Foreign Relations Committee, the Committee on the Judiciary, and the Committee on Aeronautical and Space Sciences.

Mr. President, perhaps the finest tribute that can be paid to Senator Dodd is to point out that he was admired even by those who frequently disagreed with him on philosophical or ideological grounds. This is probably so because Tom Dodd himself recognized that in a democracy like ours, these differences are unavoidable and necessary. That belief which he held is expressed very well in a quotation from one of his speeches which I should like to recall here:

> The differences that exist within our society are important, inevitable and, indeed, proper. But we all share the same basic beliefs in freedom and justice, in the God-given nature of man's rights, in the destiny of our country. And these basic beliefs that unite us are ten thousand times as important as the controversies that divide us.

Mr. President, I am very glad to have this opportunity to honor the memory of a former colleague who will long be remembered by us who knew him and worked with him as one of our Nation's most dedicated and tireless public servants.

Mr. McGEE. Mr. President, it is with a sense of personal loss that I pay tribute to our late former colleague, Senator Thomas Dodd. I say this because Senator Dodd made significant and lasting contributions in the area of prison reform and as chairman of the Subcommittee on Juvenile Delinquency. He was a strong crusader against drugs and organized crime. As a member of the Committee on Foreign Relations, he was always a steadfast supporter of a strong foreign policy posture on the part of the United States.

Senator Dodd's death was a particularly personal one for me. He was a member of the freshman class of 1958 in the Senate, as was I. It is only fitting that the Members of the Senate set aside a moment from their duties to honor the memory of the last former Senator from Connecticut.

Mr. McINTYRE. Mr. President, a parliamentary inquiry.

The PRESIDING OFFICER. The Senator will state it.

Mr. McINTYRE. Is my understanding correct that the record will remain open until July 14 for any other Senators who might wish to make statements?

The PRESIDING OFFICER. The Senator is correct.

Mr. McINTYRE. With that understanding, I yield the floor.

## TRANSACTION OF ROUTINE MORNING BUSINESS

The PRESIDING OFFICER (Mr. JORDAN of North Carolina). Under the previous order, the Senate will proceed to the transaction of routine morning business, with statements therein limited to 3 minutes.

## QUORUM CALL

Mr. ALLEN. Mr. President, I suggest the absence of a quorum.

The PRESIDING OFFICER. The clerk will call the roll.

The second assistant legislative clerk proceeded to call the roll.

Mr. PERCY. Mr. President, I ask unanimous consent that the order for the quorum call be rescinded.

The PRESIDING OFFICER. Without objection, it is so ordered.

## LEGISLATIVE RESPONSIBILITY AND THE DRUG ABUSE PROBLEM

Mr. PERCY. Mr. President, on Friday of last week I introduced S. 2097 to establish a Special Action Office for Drug Abuse Prevention within the Executive Office of the President which will concentrate the resources of the Nation in a crusade against drug abuse. I am deeply gratified that the senior Senator of Connecticut (Mr. RIBICOFF), who is chairman of the Senate Subcommittee on Executive Reorganization, is the principal cosponsor of this legislation and that 19 of my distinguished colleagues from both sides of the aisle have joined in that most important and urgent effort. I look forward to prompt hearings on this legislation.

In any listing of national priorities, the insidious problem of drug abuse must be listed near the top. An editorial in the June 23 Washington Post, referring to the President's message on drug abuse, succinctly reminds us of our overriding responsibility to help those afflicted by this epidemic, among them those serving in our Armed Forces. The editorial notes:

> The public responsibility for their plight, because they became addicted while serving in the armed forces, is merely more apparent although not a great deal more direct than the public responsibility for victims of the same epidemic in civilian life. In either case, anyway, the public interest is more likely to be served by cure than by punishment.

Noting that some 30,000 to 40,000 American troops in Vietnam are said to be on hard drugs, the Post editorial concludes:

> The problem is more likely to be solved by exterminating its causes than by attacking its symptoms. The aim must be to bring all these unfortunates, soldiers and civilians alike, back into the community.

At this time, Mr. President, I ask unanimous consent that this editorial entitled "Help for the Addicted" be printed in its entirety in the RECORD. I also ask unanimous consent to have printed an editorial entitled "Braking Speed," appearing in the Washington Post of June 22, 1971, which deals with the paramount need to restrict distribution and use of the more than 8 billion amphetamine pills manufactured each year in this country.

There being no objection, the editorials were ordered to be printed in the RECORD, as follows:

[From the Washington Post, June 23, 1971]

HELP FOR THE ADDICTED

The salient feature of the President's promised major attack on the drug problem among American servicemen overseas is that the government's hand is held out not to strike the victims but to help and sustain them. White House spokesmen promised that servicemen who are found to be on drugs or who voluntarily apply for treatment will not be prosecuted or punished. These are sick people, victims of a kind of epidemic. The public responsibility for their plight, because they became addicted while serving in the armed forces, is merely more apparent although not a great deal more direct than the public responsibility for victims of the same epidemic in civilian life. In either case, anyway, the public interest is much more likely to be served by cure than by punishment.

There was a recognition of this in the President's message to Congress last week on drug abuse control. "The threat of narcotics among our people," he said, ". . . is a problem which demands compassion, and not simply condemnation, for those who become the victims of narcotics and dangerous drugs." Moreover, the President has put at the head of the proposed new Special Action Office of Drug Abuse Prevention an admirably compassionate psychiatrist, Dr. Jerome Jaffe, whose approach to the problem in Illinois where he headed a program for Governor Otto Kerner was primarily one of treatment, not retribution. Mr. Nixon's message also laid stress, however, on "increased enforcement and vigorous application of the fullest penalties provided by law." No wonder Rep. James H. Scheuer, who has been trying for nearly a year to get an Office of Drug Abuse Control established in the White House and who congratulated President Nixon on last week's action, said that his major reservation about the President's new agency "concerned its lack, of jurisdiction over law enforcement programs run by the Federal Bureau of Narcotics and Dangerous Drugs . . ."

The harsh fact that has suddenly made the drug addiction in our armed forces a matter of urgent national concern is an acknowledgment by the Provost Marshal's office in Saigon that something like 30,000 to 40,000 American troops in Vietnam are on hard drugs. The country drafted those young men and sent them to fight in circumstances under which narcotics—easily and cheaply obtainable—afforded an easy and welcome escape from the realities of life. Responsibility for their illness is too obvious to be evaded. But is the causation of domestic addiction really so very different? It, too, is a method of seeking escape from reality.

The problem is more likely to be solved by exterminating its causes than by attacking its symptoms. The aim must be to bring all these unfortunates, soldiers and civilians alike, back into the community.

[From the Washington Post, June 22, 1971]

BRAKING SPEED

Narcolepsy and hyperkinesis are considered rare diseases, the first causing brief attacks of drowsiness and the second causing overactive behavior disorders in children. Neither is of general public interest, except for the coincidental way in which they are related to the spreading abuse of drugs. Both diseases are treated by amphetamines, with a legitimate medical need measurable in the thousands of pills. Yet, according to the National Institute of Mental Health, some eight billion amphetamine-type pills—known as speed or pep pills—are manufactured legitimately every year, not counting dope world producers. This would supply about 40 doses for every American; more than 8 per cent of U.S. prescriptions are for this stimulant. With so little genuine need for these pills—they can be as addictive and harmful as heroin—it is no surprise they are abused. A useful report of the House Select Committee on Crime says that one way amphetamines and methamphetamines find their way into the illicit drug market is through over-prescription by doctors, especially as long term diet pills and psychic energizers.

Recent moves by medical societies and groups of doctors around the country suggest that many physicians are not only aware of the problems but are acting responsibly to control it. A majority of doctors in Huntington, Long Island, for instance, signed a pledge to prescribe amphetamines only for genuine medical needs. The medical society of Utah recently passed a similar resolution; and the issue may be raised at this week's meeting of the American Medical Association. These signs of positive action can only be for the common good. Dr. David C. Lewis, an associate in medicine at Beth Israel Hospital and Harvard Medical School in Boston told the committee that in his survey of 50 speed users who shot speed intravenously, more than 90 per cent had previously experimented with it in tablets or capsules. "The majority of these tablets or capsules were not purchased illicitly on the street, but were obtained from home medicine cabinets, a testimony to their availability."

Although the Food and Drug Administration last year accused drug companies of encouraging the illegal and unhealthy use of amphetamines, it has no authority to restrict production of the drug. This is why the self-controls of the doctors in Huntington and other places are worthwhile; it is also why a larger speed embargo should be encouraged by cooperative doctors. This would be both a credit to the medical profession and a service to the public. Dr. George R. Edison, director of student health services at the University of Utah, told the committee that the development of more effective and less toxic drugs has made amphetamines virtually useless. "It turns out that amphetamines really do not conform, in my opinion, to the standards that we attempt to apply to every drug. That is, we need to show that there is a need for the drug, that the drug is effective, and that it is safe. On all three counts, I really do not feel that amphetamines qualify."

## QUORUM CALL

Mr. PERCY. Mr. President, I suggest the absence of a quorum.

The PRESIDING OFFICER. The clerk will call the roll.

The second assistant legislative clerk proceeded to call the roll.

Mr. BYRD of West Virginia. Mr. President, I ask unanimous consent that the order for the quorum call be rescinded.

The PRESIDING OFFICER. Without objection, it is so ordered.

## ORDER FOR RECOGNITION OF SENATOR HUGHES ON WEDNESDAY

Mr. BYRD of West Virginia. Mr. President, I ask unanimous consent that on Wednesday next, immediately following the recognition of the two leaders under the standing order, the distinguished junior Senator from Iowa (Mr. HUGHES) be recognized for not to exceed 15 minutes.

The PRESIDING OFFICER. Without objection, it is so ordered.

## QUORUM CALL

Mr. BYRD of West Virginia. Mr. President, I suggest the absence of a quorum.

The PRESIDING OFFICER. The clerk will call the roll.

The second assistant legislative clerk proceeded to call the roll.

Mr. ALLEN. Mr. President, I ask unanimous consent that the order for the quorum call be rescinded.

The PRESIDING OFFICER. Without objection, it is so ordered.

## COMMUNICATIONS FROM EXECUTIVE DEPARTMENTS, ETC.

The PRESIDENT pro tempore laid before the Senate the following letters and communications, which were referred as indicated:

PROPOSED AMENDMENT TO THE BUDGET, 1972, FOR THE COMMUNITY RELATIONS SERVICE, DEPARTMENT OF JUSTICE (S. DOC. NO. 92–26)

A communication from the President of the United States, transmitting a proposed amendment to the request for appropriations transmitted in the budget for the fiscal year 1972, in the amount of $735,000, for the Community Relations Service of the Department of Justice (with an accompanying paper); to the Committee on Appropriations, and ordered to be printed.

PROPOSED AMENDMENTS TO THE BUDGET, 1972, FOR CERTAIN COMMISSIONS (S. DOC. NO. 92–27)

A communication from the President of the United States, transmitting proposed amendments to the request for appropriations transmitted in the budget for the fiscal year 1972, in the amount of $770,000 for the National Commission on Fire Prevention and Control, and $700,000 for the National Tourism Resources Review Commission (with an accompanying paper); to the Committee on Appropriations, and ordered to be printed.

NOTICE OF INTERCHANGE OF JURISDICTION

A letter from the Secretary of the Army and the Secretary of Agriculture giving notice, pursuant to law, of the intention of the Department of the Army and the Department of Agriculture to interchange jurisdiction of civil works and National Forest lands; to the Committee on Agriculture and Forestry.

REPORT ON VALUE OF PROPERTY PROVIDED BY THE BERLIN MAGISTRAT

A letter from the Assistant Secretary of Defense transmitting, pursuant to law, a report on the value of property, supplies, and commodities provided by the Berlin Magistrat for the quarter January 1, 1971, to March 31, 1971; to the Committee on Appropriations.

PROPOSED AMENDMENT OF THE ATOMIC ENERGY ACT

A letter from the Chairman of the Atomic Energy Commission submitting proposed legislation to modify the present requirement for mandatory review by the Commission's Advisory Committee on Reactor Safeguards (with accompanying papers); to the Joint Committee on Atomic Energy.

PROPOSED LEGISLATION REQUIRING AUTHORIZATION FROM THE AEC

A letter from the Chairman of the Atomic Energy Commission submitting proposed legislation requiring applicants for licenses to construct and operate production or utilization facilities obtain a site authorization from the Commission (with accompanying papers); to the Joint Committee on Atomic Energy.

REPORT OF THE COMMUNICATIONS SATELLITE CORPORATION

A letter from the Chairman of the Communications Satellite Corporation transmitting, pursuant to law, the annual report on activities and accomplishments of the Corporation (with accompanying report); to the Committee on Commerce.

## PETITIONS

Petitions were laid before the Senate and referred as indicated:

By the PRESIDENT pro tempore:

A joint resolution of the legislature of the State of Alabama; ordered to lie on the table:

"RESOLUTION MEMORIALIZING AUDIE MURPHY

"Whereas, On May 31, 1971, Audie Murphy met an untimely death in an aircraft accident; and

"Whereas, It is ironic that his death occured on Memorial Day, a day when America honors its fallen combat heroes; and

"Whereas, Audie Murphy, the most decorated serviceman in the history of the military of the United States of America, was a patriot in the true sense of the word, believing in and living the ideal that freedom and democracy are worth dying for; and

"Whereas, On July 20, 1968, Audie Murphy delivered the dedicatory address at dedication ceremonies of the Alabama War Memorial and Hall of Honor honoring Alabama's fallen sons, and at that time, in referring to this memorial, said: 'May it be an inspiration for other states to follow . . . that one day there will be fifty war memorials.'; and

"Whereas, On other visits to Alabama, Audie Murphy expressed his affection for the State of Alabama saying, 'On my one-time visit, I feel in love with this State, and its people have shown me great southern hospitality.'; and

"Whereas, Audie Murphy had consented to participate in the Spirit of America Fourth of July celebration in Decatur, Alabama, to help revitalize the spirit of patriotism in Alabamians, and although his body is enshrined in Arlington, we know his spirit will be with us; and

"Whereas, Audie Murphy's bravery, courage, devotion to and love of country and concern for his fellowman have been and will continue to be an example for all Americans to follow both in time of war and in time of peace; and

"Whereas, The Legislature of Alabama wishes to express its profound sadness and sense of loss upon the death of Audie Murphy; now therefore

"Be it resolved by the Legislature of Alabama, both Houses thereof concurring, That the death of Audie Murphy has saddened the hearts of Alabamians, and that America has lost one of her true patriots.

"Be it further resolved, That the Legislature requests that a place of honor be reserved for Audie Murphy in the Hall of Honor at American Legion Headquarters in Montgomery, with a copy of this resolution to be displayed there to show the world Alabama claims his as her own.

"Be it further resolved, That the Legislature hereby requests that certain of his personal articles be collected by the Alabama Department of Archives and History there to be kept until duly dedicated to the State of Alabama.

"Be it further resolved, That a copy of this resolution be sent to his widow and children who reside at 1201 Toluca Road, North Hollywood, California; the President of the United States; and to both Houses of the Congress of the United States."

A joint resolution of the Legislature of the State of California; to the Committee on Banking, Housing and Urban Affairs:

"ASSEMBLY JOINT RESOLUTION NO. 19

"Relative to mortgage assistance

"Whereas, Senator Alan Cranston has introduced legislation regarding home ownership conservation loan insurance; and

"Whereas, The purpose of this legislation is to prevent widespread mortgage defaults and the distress sale of homes by persons whose employment has been terminated or whose income has been drastically reduced as a result of adverse economic conditions prevailing in an industry or area and who require a reasonable period of time to make the necessary adjustment; and

"Whereas, Such legislation would be of great assistance to unemployed or underemployed homeowners in various economically distressed areas of this state; now, therefore, be it

*"Resolved by the Assembly and Senate of the State of California, jointly,* That the Legislature of the State of California respectfully memorializes the President and the Congress of the United States to enact legislation providing for home ownership conservation loan insurance at the earliest possible time; and be it further

*"Resolved,* That the Chief Clerk of the Assembly transmit copies of this resolution to the President and Vice President of the United States, to the Speaker of the House of Representatives, and to each Senator and Representative from California in the Congress of the United States."

A concurrent resolution of the legislature of the State of Louisiana; to the Committee on Interior and Insular Affairs:

"HOUSE CONCURRENT RESOLUTION NO. 515

"A concurrent resolution to memorialize the U.S. Congress to enact appropriate legislation to resolve the tidelands conflict

"Whereas, for decades there has been a genuine dispute between the federal government and some thirty states, whose shores touch on the Atlantic Ocean, the Pacific Ocean, the Gulf of Mexico or the Great Lakes, over the distribution or revenues derived from off-shore mineral production; and

"Whereas, large royalties and bonuses from off-shore production have gone to the federal treasury or to an escrow fund, the ownership of which has long been contested and the amount of which now exceeds $1,700,000,000.00; and

"Whereas, the state of Louisiana has expended millions of dollars over the years in building highways necessary for access to transportation facilities to off-shore rigs and platforms, and in educating the workers of this important industry, and in providing many valuable public services for such workers and their families and yet the state of Louisiana does not impose an ad valorem tax on the drilling equipment nor a sales tax on supplies delivered to off-shore sites and receives no severance tax revenue from most of the off-shore mineral production; and

"Whereas, such circumstances have led to an expansion of off-shore exploration and development to the prejudice of inland operations; and

"Whereas it is apparent that decades of litigation in the courts and hearings before special masters and commissions have failed to resolve these important disputes and ever-increasing inequities, and the matter has now reached an impasse; and

"Whereas, it is incumbent upon the United States Congress to enact appropriate legislation to effect an equitable solution to this serious problem, since it involves the welfare of a majority of the States and a majority of the population; and

"Whereas, in the light of recent debate over revenue sharing, prompt action by Congress to determine the rights of the several states to share in revenues from off-shore production is entirely consistent with such proposals and is long overdue.

"Therefore, be it resolved by the House of Representatives of the Louisiana Legislature, the Senate thereof concurring, that the Congress of the United States of America is hereby memorialized to take prompt action to resolve the tidelands dispute and to enact appropriate legislation providing for the sharing of off-shore mineral revenues with the several states.

"Be it further resolved that copies of this Resolution shall be transmitted forthwith to the presiding officers of and to each member of the Louisiana delegation in the Senate and House of Representatives of the United States Congress."

A joint resolution of the General Assembly of the State of Maryland; to the Committee on the Judiciary:

"HOUSE JOINT RESOLUTION No. 112

"House Joint Resolution ratifying a proposed amendment to the Constitution of the United States extending the right to vote to citizens eighteen years of age or older

"Whereas, The 92nd Congress of the United States has passed a Joint Resolution proposing an amendment to the Constitution of the United States extending the right to vote to citizens of the United States who are eighteen years of age or older; and

"Whereas, This Joint Resolution passed the Senate of the United States on March 10, 1971, passed the House of Representatives of the United States on March 23, 1971, and now has been submitted to a vote of the States; and

"Whereas, The State of Maryland wishes to ratify this proposed amendment to the Constittuion of the United States which, when ratified by the legislatures of three-fourths of the several states, shall be valid to all intents and purposes as part of the Constitution of the United States, viz:

" 'Article —

" 'Section 1. The right of citizens of the United States, who are eighteen years of age or older, to vote shall not be denied or abridged by the United States or by any State on account of age.

" 'Section 2. The Congress shall have power to enforce this Article by appropriate legislation.' Now, therefore be it

*"Resolved by the General Assembly of Maryland,* That the foregoing proposed amendment to the Constitution of the United States is ratified by the State of Maryland to all intents and purposes as a part of the Constitution of the United States; and be it further

*"Resolved,* That the Governor of the State of Maryland is requested to forward authentic copies of this Resolution, under the Great Seal of the State of Maryland, to the Secretary of State of the United States, to the presiding officer of the Senate of the United States, to the Speaker of the House of Representatives of the United States, and to the Administrator of General Services of the United States."

A joint resolution of the General Assembly of the State of Maryland; to the Committee on Veterans' Affairs:

"SENATE JOINT RESOLUTION No. 64

"Senate Joint Resolution requesting the Department of Defense to acquire additional land within the State for use as a National Cemetery

"Whereas, many citizens of Maryland are veterans or relatives of veterans and hereby entitled to burial in a National cemetery; and

"Whereas, National cemeteries are rapidly becoming overcrowded, thereby necessitating a curtailment of the honor of being laid to rest on government property; and

"Whereas, it is unfortunate that many qualified persons within this State will be denied their privilege to be buried in a National cemetery by reason of a shortage of available space set aside for use as a National cemetery; and

"Whereas, there are several veterans' organizations which would probably be willing to donate land for this use if requested; now, therefore be it

*"Resolved by the General Assembly of Maryland,* That the Department of Defense be requested to acquire additional land in Maryland for use as a National cemetery; and, be it further

*"Resolved,* That the Secretary of State send copies of this Resolution to the United States Department of Defense, President Richard M. Nixon, Vice-President Spiro T. Agnew, the Maryland Congressional Delegation and the Maryland Veterans Commission."

A joint resolution of the General Assembly of the State of Ohio; to the Committee on the Judiciary:

"JOINT RESOLUTION

"An application to the Congress of the United States pursuant to Article V of the Constitution of the United States to call a convention for the purpose of proposing to the several states a constitutional amendment to make available to the states and their subdivisions a portion of the taxes on income levied by Congress

*"Be it resolved by the General Assembly of the State of Ohio,*

"Whereas, A resolution of our nation's myriad and diverse problems is contingent upon a viable partnership between the federal government and strengthened state governments, and

"Whereas, The federal government, by its extensive reliance on the graduated income tax as a revenue source, has virtually preempted the use of this source from state and local governments, thereby creating a disabling fiscal inbalance between the federal government and the state and local governments, and

"Whereas, Increasing demands upon state and local governments for essential public services have compelled the states to rely heavily on highly regressive and inelastic consumer taxes and property taxes, and

"Whereas, Federal revenues based predominantly on income taxes increase significantly faster than economic growth, while state and local revenues based heavily on sales and property taxes do not keep pace with economic growth, and

"Whereas, the fiscal crisis at state and local levels has become the overriding problem of intergovernmental relations and of continuing a viable federal system, and

"Whereas, The evident solution to this problem is a meaningful sharing of federal income tax resources, and

"Whereas, The United States Congress, despite the immediate and imperative need therefor, has failed to enact acceptable revenue sharing legislation, and

"Whereas, In the event of such Congressional inaction, Article V of the Constitution of the United States grants to the states the right to initiate constitutional change by applications from the legislatures of two-thirds of the several states to the Congress, calling for a constitutional convention, and

"Whereas, The Congress of the United States is required by the Constitution to call such a convention upon the receipt of applications from the legislatures of two-thirds of the several states; now therefore be it

"Resolved, By the General Assembly of the State of Ohio that, pursuant to Article V of the Constitution of the United States, the General Assembly of the State of Ohio does hereby make application to the Congress of the United States to call a conventiton for the sole and exclusive purpose of proposing to the several states a constitutional amendment which shall provide that a portion of the taxes on income levied by Congress pursuant to the sixteenth amendment of the Constitution of the United States shall be made available each year to state governments and political subdivisions thereof, by means of direct allocation, tax credits, or both, without limiting directly or indirectly the use of such moneys for any purpose not inconsistent with any other provision of the Constitution of the United States, and be it further

"Resolved, That this application shall constitute a continuing application for such convention pursuant to Article V until the Legislatures of two-thirds of the states shall have made like applications and such convention shall have been called by the Congress of the United States unless previously rescinded by this General Assembly, and be it further

"Resolved, That certified copies of this resolution be presented forthwith to the President of the Senate and the Speaker of the House of Representatives of the United States and to the Legislatures of each of the several states attesting the adoption of this resolution by the General Assembly of the State of Ohio.

A resolution of the House of Representatives of the State of Ohio; ordered to lie on the table:

"H.R. No. 74

"A recommendation to the President of the United States that he sign into law United States Senate Bill 31, the Emergency Employment Act

*"Be it resolved in the House of Representatives of the State of Ohio:*

"Whereas, Unemployment has just reached 6.2% and our Nation faces its worst summer unemployment crisis in recent history, and

"Whereas, State and local agencies desperately need Federal assistance to maintain their most basic functions, and

"Whereas, The public service employment concept has been officially endorsed by the National Governors' Conference, National League of Cities, U.S. Conference of Mayors, and the National Association of Counties, and many governors, mayors, and county executives have come to Washington to endorse this measure, and

"Whereas, The President has indicated acceptance of transitional public service employment, and Congress has offered the President firm assurances that they will report out within the next few months comprehensive manpower reform legislation, giving state and local government new resources and new responsibilities for manpower programs, and

"Whereas, There is an immediate need for jobs, with ninety to one hundred percent Federal funding, as provided by Senate Bill 31, the Emergency Employment Act, and

"Whereas, Both Houses of Congress have now passed the Emergency Employment Act, which would enable cities, counties and states to put an estimated 150,000 to 200,000 unemployed persons to work immediately in necessary jobs, and

"Whereas, Senate Bill 31 passed the United States Senate April 1 by a vote of sixty-two to ten, and the United States House of Representatives on June 2 by a vote of two hundred and forty-four to one hundred and forty-two, in each case with strong bipartisan majority, and minor differences in the Senate and House bills are being resolved and the final measure should reach the President shortly after June 21, 1971, now therefore be it

"Resolved, By the House of Representatives of the State of Ohio that, we strongly support United States Senate Bill 31, the Emergency Employment Act, and be it further

"Resolved, That we urge the President of the United States to sign this measure into law when it is presented to him by the Congress of the United States, and be it further

"Resolved, That certified copies of this Resolution be presented forthwith to the President of the United States, the President of the Senate and the Speaker of the House of Representatives of the United States Congress, and the majority and minority leaders of both parties in each House of Congress, attesting to the adoption of this Resolution by the House of Representatives of the State of Ohio.

"Adopted June 17, 1971."

A concurrent resolution of the General Assembly of South Carolina; to the Committee on Finance:

"CALENDAR NO. S. 582

"A concurrent resolution memorializing the President and the Congress to exercise extreme caution in opening trade relations with Communist China and to immediately make provisions for establishing potent safeguards to prevent further erosion of domestic textile markets by still another low-wage nation

"Whereas, the President of the United States has lifted restrictions on trade with Communist China in forty-seven categories, including textile products and machinery; and

"Whereas, it is believed that Communist China has a large textile industry, and the President's action simply opens another source of low-wage textile imports that further imperil the wages and jobs of thousands of Americans; and

"Whereas, there seem to be no reliable indications at this time that substantial exports can be sent to Red China so far as textiles are concerned; and

"Whereas, the importation of textiles and apparel from foreign nations has seriously undermined the entire economic structure of the State of South Carolina; and

"Whereas, the revenues of the State Government, county governments and municipal governments of South Carolina are down by millions of dollars causing mandatory cutbacks in all agencies of State Government thereby affecting every citizen of this State; and

"Whereas, thousands of South Carolinians have lost their jobs or are on short time that causes them to earn below average wages; and

"Whereas, the foreign competitors who flood our market and force thousands of our citizens completely out of work or onto shorttime, manufacture and market their textiles and apparel under conditions that are illegal in the State of South Carolina and in the United States; and

"Whereas, the textile markets of the United States are virtually wide open to foreign imports while many of the major exporters to this country tightly protect their own markets against our textile exports; and

"Whereas, our government has imposed upon the American industry numerous regulations and cost factors that are not required of our foreign competitors; and

"Whereas, the textile industry of South Carolina and the entire nation has invested billion of dollars in recent years in new plants and equipment, making it the most efficient in the world; and

"Whereas, the American textile industry pays its employees approximately two dollars an hour more than the industry of Japan, with the gap being even wider between this country and some other Asian Nations; and

"Whereas, the Legislature and the people of South Carolina are not willing to see these terribly unfair conditions continue to weaken their most important industry which together with its supply and related industries over the years have been good, responsible corporate citizens; and

"Whereas, the opening of trade with Red China adds still another competitive burden on the American textile industry and its employees. Now, therefore,

*"Be it resolved* by the Senate, the House of Representatives concurring:

"That the General Assembly of South Carolina respectfully memoralizes the President of the United States and the Congress of the United States to immediately take steps necessary to safeguard the American textile industry against further serious inroads into its markets by placing appropriate restrictions on all such items that might be imported into this country.

*"Be it further resolved* that copies of this Resolution be forwarded to the President of the United States, to each United States Senator and each member of the House of Representatives from South Carolina, the Clerk of the United States Senate, the Clerk of the House of Representatives of the United States, to the Secretary of Commerce and the Secretary of State of the United States."

## EXECUTIVE REPORTS OF COMMITTEES

As in executive session,

The following favorable reports of nominations were submitted:

By Mr. SPARKMAN, from the Committee on Banking, Housing and Urban Affairs:

Carl O. Kamp, Jr., of Missouri, to be a member of the Federal Home Loan Bank Board.

By Mr. ERVIN, from the Committee on Armed Services:

Robert F. Froehlke, of Wisconsin, to be Secretary of the Army.

By Mr. BENTSEN, from the Committee on Armed Services:

Vice Adm. Bernard M. Strean, U.S. Navy, and Vice Adm. Arnold F. Schade, U.S. Navy, for appointment to the grade of vice admiral, when retired.

Lt. Gen. Richard P. Klocko (major general, Regular Air Force), and Lt. Gen. Robert H. Warren (major general, Regular Air Force) to be placed on the retired list in the grade of lieutenant general.

Mr. BENTSEN. Mr. President, from the Committee on Armed Services I report favorably the nominations of four flag and general officers in the Navy and Air Force. I ask that these names be placed on the Executive Calendar.

In addition, I report favorably 2,073 appointments and promotions in the Army in the grade of lieutenant colonel and below, and 1,681 promotions in the Air Force in grade of colonel and below. Since these names have already been printed in the CONGRESSIONAL RECORD, in order to save the expense of printing on the Executive Calendar, I ask unanimous consent that they be ordered to lie on the Secretary's desk for the information of any Senator.

(The nominations ordered to be placed on the Secretary's desk were printed at the end of the Senate proceedings on June 11, 1971, and June 21, 1971.)

## INTRODUCTION OF BILLS AND JOINT RESOLUTIONS

The following bills and joint resolutions were introduced, read the first time and, by unanimous consent, the second time, and referred as indicated:

By Mr. ELLENDER:

S. 2159. A bill for the relief of Surinder Kumar Arora. Referred to the Committee on the Judiciary.

By Mr. HARTKE:

S. 2160. A bill to provide supplements to salaries of State and local law enforcement personnel who have achieved certain educational levels, and for other purposes. Referred to the Committee on the Judiciary.

By Mr. HARTKE (for himself, Mr. THURMOND, Mr. CRANSTON, Mr. WILLIAMS, Mr. STEVENS, and Mr. RANDOLPH):

S. 2161. A bill to amend chapters 31, 34, and 35 of title 38, United States Code, to increase the vocational rehabilitation subsistences allowances, the educational assistance allowances, and the special training allowances paid to eligible veterans and persons under such chapters. Referred to the Committee on Veterans' Affairs.

By Mr. DOMINICK:

S. 2162. A bill to provide for the striking of medals in commemoration of the bicentennial of the American Revolution. Referred to the Committee on Banking, Housing, and Urban Affairs.

By Mr. MATHIAS (for himself, Mr. CASE, Mr. CHURCH, Mr. INOUYE, and Mr. KENNEDY):

S. 2163. A bill to amend title 38, United States Code, to provide for the payment of tuition, subsistence and educational assistance allowances on behalf of or to certain eligible veterans pursuing programs of education under chapter 34 of such title, and for other purposes. Referred to the Committee on Veterans' Affairs.

By Mr. MATHIAS:

S. 2164. A bill for the relief of Nymphia C. A. Cyrus. Referred to the Committee on the Judiciary.

By Mr. GRIFFIN:

S. 2165. A bill to provide a program of tax adjustment for small business and for persons engaged in small business. Referred to the Committee on Finance.

By Mr. SCOTT (for himself and Mr. EASTLAND):

S.J. Res. 120. A joint resolution designating the week of August 1, 1971, as "American Trial Lawyers Week". Referred to the Committee on the Judiciary.

By Mr. WILLIAMS:

S.J. Res. 121. A joint resolution to authorize and request the President to issue a proclamation designating the period from July 19, 1971, through July 24, 1971, as "National Drum and Bugle Corps Week." Referred to the Committee on the Judiciary.

## STATEMENTS ON INTRODUCED BILLS AND JOINT RESOLUTIONS

By Mr. HARTKE:

S. 2160. A bill to provide supplements to salaries of State and local law enforcement personnel who have achieved certain educational levels, and for other purposes. Referred to the Committee on the Judiciary.

THE POLICE SALARY SUPPLEMENT AMENDMENT OF 1971

Mr. HARTKE. Mr. President, it has been estimated that our Nation's police forces are, on the average, operating at least 10 percent below their authorized strength. If the problem of lawlessness is to be met, a vital first step must be to dramatically enlarge the number of officers available to meet the threat. To that end, I introduce legislation today which would increase the starting salaries of police officers who have achieved certain educational levels.

Existing pay scales have proved generally incapable of attracting men who can meet the high standards our times require. For not only do we need more police today but we also need a new breed of officer with specialized knowledge in everything from the law to crowd psychology.

Currently, police salaries account for almost 90 percent of the cost of State and local law enforcement. Yet the Law Enforcement Assistance Administration, through which the bulk of Federal crime fighting funds are channeled to the States and cities, is not now authorized to supplement police salaries through its grant process. My legislation would lift



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this prohibition and permit LEAA to provide up to a 10-percent salary supplement to all the officers in a police department who have degrees from an accredited 2-year institution of higher education; a 15-percent increase to those who have degrees from a 4-year institution; and a 20-percent supplement to those who hold graduate degrees. In addition, a supplement would be paid to those officers who are currently enrolled in a post-high-school program of higher education, in proportion to the progress they have made toward their degree or certificate.

It is my belief that if the Federal Government is to play a serious role in combating crime, supplementing the presently inadequate salaries of police officers must be part of that role.

Our fiscally hard-pressed cities and States are in no position, generally, to effect the increases in police salaries which must be made if we are to attract more and better qualified men into the law enforcement profession. The Federal Government must play a role in this process if it is to succeed. This legislation would remove the prohibition against such a role and would serve as a vital tool in the struggle against crime.

Mr. President, I ask unanimous consent that the text of this bill be printed in the RECORD immediately following these remarks.

There being no objection, the bill was ordered to be printed in the RECORD, as follows:

S. 2160

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the Omnibus Crime Control and Safe Streets Act of 1968 (82 Stat. 197) is amended by adding after section 406 thereof the following new section:

"SEC. 407. (a) The administration is authorized to make grants under this title to any State or unit of general local government for the purpose of supplementing the salaries of officers of any publicly funded law enforcement agency who have completed courses of instruction at institutions as described in subsection (c) of this section.

"(b) Any State or unit of general local government seeking a grant under this section must file an application therefor with the administration, setting forth the number of officers who will be eligible for each class of supplement as defined in subsection (c) below, and the amount of the grant to be awarded to each class. The application shall also describe any existing or proposed program of the State or unit of general local government making the application to supplement existing salary schedules on the basis of the educational level achieved by the recipients. If there is no such program, the application shall set forth the reasons that one has not been implemented.

"(c) The administration may make grants under this section which will result in salary increases, based on present rates, of up to:

"(1) 10 per centum for those who hold or obtain a degree from an accredited two-year institution of higher education;

"(2) 15 per centum for those who hold or obtain a degree from an accredited four-year institution of higher education; and

"(3) 20 per centum for those who hold or obtain a graduate degree from an accredited institution of higher education.

"(d) The administration may, under such rules as it may establish, make grants under this section for the purpose of supplementing the salaries of persons in the process of working toward any of the degrees described in subsection (c). In no case, however, shall the amount received by any individual under this subsection be greater than the percentage arrived at by multiplying the total percentage available under subsection (c) of this section for completion of the degree on which the recipient is working by the percentage, in terms of semesters, of the total number of semesters required for completion of the degree which will have been achieved when the current semester is completed.

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By Mr. HARTKE (for himself, Mr. THURMOND, Mr. CRANSTON, Mr. WILLIAMS, Mr. STEVENS, and Mr. RANDOLPH):

S. 2161. A bill to amend chapters 31, 34, and 35 of title 38, United States Code, to increase the vocational rehabilitation subsistences allowances, the educational assistance allowances, and the special training allowances paid to eligible veterans and persons under such chapters. Referred to the Committee on Veterans' Affairs.

THE VETERANS EDUCATION AND TRAINING ASSISTANCE ACT OF 1971

Mr. HARTKE. Mr. President, today I introduce legislation to increase the GI educational allowance in a bill to be cited as the Veterans Education and Training Assistance Act of 1971. I am pleased that I am joined in this bipartisan effort by the ranking minority member of the Veterans' Affairs Committee, Senator THURMOND, together with Senators CRANSTON, WILLIAMS, STEVENS, and RANDOLPH.

Today, we are constantly confronted with the question of what can and should the young veteran expect upon return to civilian life. One thing is certain, he does not expect bands playing, nor does he demand preferential treatment. But what he does expect is a decent education, job, and an environment in which to live. In short, he wants an even break. But is he getting this even break? I think not. Since 1952, when the Korean war veteran was receiving a $110 a month for educational benefits, the average cost of education has doubled. Adjustments in the rate of allowance, however, have lagged far behind, and the result has been shown in the participation rates. Following World War II, some 50 percent of those eligible took advantage of the educational benefits; 42 percent did following the Korean conflict. But during the first years of the Vietnam era, from 1966 to 1969 only 20.7 percent took advantage of the GI rates. That the participation rate is directly tied to the costs of education, and the benefits available is shown by what happened last year. In the past session, due in large part to the able leadership of Senator CRANSTON, who has also been helpful in the preparation of this bill, Congress increased the basic rate of entitlement to $175. The percentage of those using their educational allowance has now increased to some 35 percent, and for the first time since 1952 over 1 million persons are currently in training under the GI bill. Yet the rate still lags, and as I have previously noted the cost of education has risen much more rapidly than the allowance to pay for it. Because I am concerned that the young veteran gets an even break, I am pleased to introduce this legislation which increases the basic rate by over 31 percent. The basic entitlement under this proposed legislation will now increase from $175 a month to $220 a month. The average cost of education is, of course, hard to figure since there are differences between public and nonpublic schools. According to our figures, however, the education costs averaged between public and nonpublic schools on an adjusted basis will be covered by this basic entitlement so that today's veteran should be at least on a par with his Korean war counterpart.

My bill further provides for a 50-percent increase in the first dependent allowance to $45. Second dependent allowance would be increased from $25 to $40 or 60 percent. Finally, an additional $20 is allowed for third and other dependents. Anyone who has tried to raise a family while going to school knows from firsthand experience that these increases are long overdue. Of course, the basic PREP entitlement would also be increased from $175 to $220. On-the-job training and vocational rehabilitation rates, which were raised substantially last year, and which are not directly tied to the rapidly rising cost of education, have been increased by 5.5 percent to cover the general increase in the cost of living. This is, I believe, a realistic program. The net cost of this increase would be approximately $380 million for the next year, and it is money that is both well-invested and long overdue.

I urge my colleagues to join me in this important effort so that we may act quickly on it prior to the beginning of the September school term.

Mr. THURMOND. Mr. President, I am happy to join with Senator VANCE HARTKE in the introduction of this legislation which is necessary if we are to stay abreast of the costs of education.

The purpose of this bill is to provide educational assistance to the returning veteran on an equitable basis, and even though an increase was allowed during the last session of Congress, the amounts are still not commensurate with current costs.

Mr. President, despite several increases in educational benefit payments to the veteran or his dependents, they have not kept pace wih the rising costs of education, food, housing, medical care, and other necessities. These increased costs make many veterans forego their eduction benefits or pursue a program which leaves them in debt, creating a hardship on their families.

If this increase is allowed, more veterans will pursue a course of higher education at percentages equal to the veterans of World War II. No greater assistance can be given to enable the veteran to earn a living under today's standards than a good education.

Mr. President, I urge prompt consideration and passage of this bill.

Mr. CRANSTON. Mr. President, it is with great pleasure that I join with the distinguished chairman of the Veterans Affairs Committee, Mr. HARTKE, in introducing S. 2161, the Veterans Education and Training Assistance Act of 1971. The other cosponsors of this bill to in-

crease GI bill benefits are the distinguished ranking minority member of the Veterans Affairs Committee, the Senator from South Carolina (Mr. THURMOND); the distinguished chairman of the Labor and Public Welfare Committee, the Senator from New Jersey (Mr. WILLIAMS) who has long been a strong supporter and advocate for veterans' programs and under whose leadership I am privileged to serve on the Labor Committee; and my distinguished colleague from Alaska (Mr. STEVENS), alo so member of the Veterans Affairs Committee.

PURPOSES OF THE BILL

The purposes of this bill are:

First, to provide comparability between the current GI bill benefits and those paid veterans under the Korean conflict GI bill; and second, to provide a more adequate level of dependency allowances for veterans with family responsibilities. Achievement of these purposes should have a twofold effect:

First, to ease the financial burdens of our young veterans, especially those with families, who are struggling to obtain an education; and

Second, to provide reasonable dependency allowance rates which will encourage more veterans with families to use their education benefits.

This bill would accomplish these results by increasing the allowance for full-time institutional postsecondary training from the present $175 to $220 a month. This is a 25.7-percent increase in the basic allowance. Comparable increases are provided for war orphans and widows under chapter 36 of title 38.

The additional amounts for dependency allowances under the GI bill would be increased as follows: First dependent, $45 instead of $30; second dependent, $40 instead of $25; and $20 instead of $13 for each additional dependent.

The bill also provides a 5-percent cost-of-living increase for the vocational rehabilitation, farm cooperative and on-the-job training programs. This increase was computed on the April 1971 cost-of-living index, which showed a 5.4-percent increase since February, 1970, when the present allowance rates became effective. The recent, startling, 0.5 percent 1-month increase for May 1971, has almost outdated the proposed increase as of the day of introduction. I intend to introduce an amendment, as the time the Veterans Affairs Committee actually acts upon this bill, to provide for the most up-to-date percentage increase based upon the cost-of-living index at that time.

GI BILL PARTICIPATION

Mr. President, more than a million persons—1,095,000—were training under the GI bill as of the end of April 1971. There has been a 33-percent increase in the number of persons in training during the last 12 months. I am convinced that a large part of this very desirable increase in participation can be attributed to the much-needed benefit increase enacted in Public Law 91–219 and made effective as of February 1, 1970.

While this growth in participation is encouraging, the latest figures show that only 30.7 percent of all eligible post-Korean conflict veterans—those who served after January 31, 1955—have participated under the current GI bill. The participation rate for Vietnam-era veterans—those who served since August 5, 1964—is somewhat higher—34.8 percent—but it is still far too low in a society which places such a great premium on post-secondary education and academic credentials.

I say this despite the fact the great increase in GI bill participation during the past year has brought current participation more into line with participation after a comparable 59-month period of operation for the World War II—39.8 percent—and Korean conflict—36.7 percent—programs.

The administration will doubtless point to this fact as support for its predictable opposition to this measure, which would cost about $380 million in the first full year of operation. I wish candidly to acknowledge and applaud the recent GI bill participation increase, and I will not mix apples and oranges by comparing the present rate after only 5 years of operation of the program with total participation in the prior two programs for their entire periods of operation.

The essential point is, however, that the employment situation, the education and training world, and the whole economy have changed markedly in the last 20 to 25 years since these other programs began.

In view of the ever-increasing level of educational attainment in the Nation, and the resultant competitive advantage of trained people in the labor market, we owe it to ourselves and to our too often maligned, misunderstood, and forgotten Vietnam veterans to make the current GI bill attractive enough to encourage far greater participation than the 50 percent which was achieved in the World War II program.

Mr. President, despite the 33-percent increase in GI bill participation since public Law 91–219 was enacted, GI bill participation among those who need education and training the most—high school dropouts—has been the least; only an appalling 9 percent now use their GI bill training or education benefits, and dropouts comprise anywhere from 15 to 23 percent—depending on whose figures are used—of enlisted men leaving service. The higher allowance proposed in this bill along with enactment of S. 740, which I will discuss at the end of this statement, should help increase GI bill participation among high school dropouts.

There are over 8 million—8,095,000—veterans eligible to take advantage of the current GI bill, and nearly 5 million—4,975,000—of these are Vietnam-era veterans.

In my own State of California there are 537,000 Vietnam-era veterans, and I am most pleased that 277,128 of these men have participated in GI bill training, a rate of 51.6 percent, well above the national average of 34.8 percent. A total of 390,392 California veterans, dependents and survivors—including the 277,128 Vietnam-era veterans—have utilized the current GI bill. I am hopeful that the benefit increases proposed in this bill will encourage an even greater number to undertake further training upon their return from service to their country.

The cost of this bill is estimated at $380 million. Of the total veterans who have trained under the current GI bill 15.7 percent reside in California. Assuming that this percentage is applicable to current trainees, this means that under this bill, approximately 175,000 California veterans in the first year alone would receive an estimated $60 million more in GI bill benefits than they now receive. During fiscal year 1971, California's share of GI bill educational benefits for veterans, eligible dependents and survivors, and those receiving vocational rehabilitation was probably about $292 million, using the 15.7 percent participation figure.

COMPARABILITY INCREASE

Mr. President, the increase to $220 in the basic monthly allowance for full-time institutional training is necessary to achieve comparability with the allowance provided to Korean conflict veterans. On October 9, 1969, the Senate voted unanimously—by a vote of 77 to 0—to approve a 46-percent increase to $190. The current $175 rate was the result of a necessary compromise with the other body which had voted an increase of 27 percent to $165.

Since January 1969, when former Senator Ralph Yarborough, that great champion of veterans' needs, introduced the bill to increase benefits—S. 338 in the 91st Congress—the costs of obtaining an education have increased far more rapidly than the general cost of living. Indeed this has been the trend over the last 20 years. Office of Education figures show that estimated average charges for tuition, board, and room have roughly doubled since 1952, whereas the cost of living since then has risen by only about 52 percent.

The average yearly cost of a college education—public and nonpublic combined—was $968. This cost has leaped to an estimated $1,940 for the 1971–72 school year.

The monthly allowance available to the Korean conflict veteran in 1952 was $110. In order to obtain the same coverage for the school year 1971–72, the allowance should by now have risen to $220, as proposed in this bill.

COMPARISON TO OTHER READJUSTMENT PROGRAMS

Mr. President, this increase in the GI bill educational allowance is clearly justified on the basis of comparability with the Korean conflict allowance. However, an additional comparison is enlightening to demonstrate the need for Congress to consider the impact of our various programs to assist the returning veteran in his readjustment to civilian life, and to determine whether they operate to encourage our young men to undertake the arduous but rewarding road to higher education or other education or training.

Consider the situation of a young single Vietnam-era veteran returning home to California. If he wants to begin or return to college full-time, the Government will provide him $175 a month to cover tuition, room, board, and other living expenses. However, if he simply becomes unemployed—which is very likely today

in California which is experiencing a 6.9-percent unemployment rate—the Government will provide him up to $273 a month under the ex-servicemen's unemployment compensation program—UCX—or as long as 9 months.

The amount of UCX benefits is determined by the laws of each State. Most veterans who serve a single tour of duty are discharged at pay grades of E–4—48.3 percent—or E–5—35.9 percent. The California UCX benefit for the E–4 is $58 a week, or $251 a month; and the E–5 is entitled to $65 a week or $273 a month. The average weekly UCX benefit on a nationwide basis is over $52 a week, or about $225 a month.

I feel very strongly that if we intend to influence the undecided veteran—particularly the economically or educationally disadvantaged—to decide in favor of additional training and education, rather than entering an already saturated job market, then the financial assistance we offer must be more adequate to meet his needs in terms of other available assistance programs.

Let me hasten to add that my point is not that UCX benefits are adequate, for they are not, especially for the lower pay grades. For that reason, I introduced, with Chairman HARTKE, S. 2091, the proposed Veterans' Education and Readjustment Act of 1971, which would among other things, raise UCX payments for veterans in the lower pay grades.

DEPENDENCY ALLOWANCES

Most Vietnam era veterans who enter training under the current GI bill are young and single. Their median age is 24.5 years, and 61.6 percent do not receive a dependency allowance. However, a significant number do have dependents; 17.7 percent are paid for one dependent, and 20.7 percent are paid for two or more.

While there are many factors bearing on the married veteran's decision as to whether to attempt to improve his education or training, and thus temporarily limit his ability to provide for his family, in my opinion the present dependency allowances have the effect of actually discouraging the married veteran from further educational achievement.

The present structure of dependency allowances is an improvement over prior programs because it provides additional amounts for each dependent. The World War II program provided only for one dependent, and the Korean conflict program provided additional amounts only for up to two dependents.

However, the amounts provided under each program and their 1971 dollar equivalencies indicate the need to increase the present dependency allowances to a more reasonable level.

Allowance for first dependent under GI bills Year, 1944, 1948, 1952, 1966, 1970, Amount, and 1971 Dollars

| | |
|---|---|
| $25 | $56.83 |
| $30 | 49.85 |
| $25 | 37.67 |
| $25 | 30.81 |
| $30 | 32.73 |

If we wish to implement a policy of encouraging married veterans to obtain an education—and who needs it more than a man with family responsibilities?—I believe it is time to evaluate the present cost of subsistence, as well as looking back to the level of support in prior GI bill programs.

One measure of subsistence existence in the United States is the amount paid in aid to families with dependent children. Figures from November 1970 show a national average of $58.35 per month for each recipient.

Another, and probably better, measure is found in H.R. 1, which passed the other body on June 22, 1971. That bill would institute the widely discussed family assistance plan and provides for a basic Federal payment level for all needy families with children. A family of four would receive $2,400 a year, based on an allowance of $800 for the first two members of a family and $400 for the next two members.

On a monthly basis, this would provide an allowance of $66.66 for a man's wife, and $33.33 for each of his two children. A veteran trying to go to school now receives an allowance of only $30 for his wife, $25 for his first child, and $13 for the second, a total of only $68 a month for his dependents, or about one-half of the basic Federal subsistence level proposed in H.R. 1 as passed by the other body.

The Bureau of Labor Statistics prepares a study of consumption costs for urban families. The study estimates that an urban family of four, in which the wife and husband are under 35 years of age with two children both under 6, needs $3,998 at the lowest level of consumption.

The lowest level budget can be compared to current GI bill dependency allowances by determining the increase between the estimated family budgets for one, two, three, and four persons. On a monthly basis, the comparison is as follows:

| | Present GI bill | BLS study |
|---|---|---|
| Wife | $30 | $65 |
| 1st child | 25 | 60 |
| 2d child | 13 | 46 |
| Total | 68 | 161 |

Thus, the married GI bill trainee with two children now receives $93 less per month for dependents than the Bureau of Labor Statistics estimates is necessary for the lowest level of family consumption.

Under the reasonable increases provided in this bill, the married veteran with two children would receive $105 for his dependents in addition to his basic educational allowance of $220.

Mr. President, I wish to emphasize that even with the increases provided in this bill, dependency allowances would still be lower than both the Bureau of Labor estimates for the lowest level of consumption and the family assistance plan subsistence level. The allowances under each of these for a wife and two children would be as follows: Bureau of Labor Statistics lowest level budget, $161 FAP as proposed in H.R. 1, $133.32; GI bill as we propose to increase it, $105.

Thus, although the proposed dependency allowances would be much more realistic and reasonable for the veteran and his family in comparison to the present allowances, we continue to be faithful to the policy that GI bill allowances are only intended "to meet, in part, the expenses of his subsistence, tuition, fees, supplies, books, equipment and other educational costs"—as expressed in section 1681(a) of title 38, United States Code. Each veteran who wishes to pursue a program of education will still have to utilize his own resources and make sacrifices in order to obtain his educational objective. But we hope that these increases will serve the purpose of requiring a little less sacrifice on the part of the veteran's wife and children and make it possible for more veterans with dependents to undertake GI bill training and education.

PRESENT INCONSISTENCIES IN PATTERN OF DEPENDENCY ALLOWANCES

Finally, Mr. President, I wish to point out my concern over the adequacy of dependency allowances under the vocational rehabilitation program—chapter 31—the farm cooperative program—section 1682(d)—and the apprenticeship or other on-job training programs—section 1683. The disparities of dependency allowances among these programs and in comparison with the institutional program in section 1682(a) seem inexplicable to me. For example, whereas the institutional, vocational rehabilitation, and the farm cooperative programs provide an additional dependency allowance for each dependent, the apprenticeship program provides only a flat amount for two or more dependents.

Another apparent inconsistency is that whereas the vocational rehabilitation program provides higher dependency allowances—$46 for the first and $29 for the second dependent—than the regular institutional program—$30 for the first and $25 for the second dependent—the former program provides only $6 per dependent in excess of two, whereas the latter provides $13 in that situation. This is further muddled by the farm cooperative program which provides $10 for each dependent over two.

There are a whole range of other puzzling comparisons I could make—for example, why does the farm cooperative program provide for full-time and three-quarter-time trainees a greater dependency allowance for the second—$25 and $19—dependent than for the first—$24 and $18—and then why does the half-time trainee receive more—$18—for his first dependent than for his second—$13? But suffice it to say I am unable at this point to unravel these mysteries. I have, therefore, requested the Department of Veterans' Benefits of the Veterans' Administration to prepare a comprehensive study for me of the dependency allowances under these four programs to determine if these apparent disparities can be explained historically or otherwise and to provide a basis for a possible amendment in committee to bring the dependency allowances generally into some kind of consistent pattern.

IMPACT ON PREP PROGRAM

This bill will have one other important effect I wish to highlight. It would raise to $220 the maximum educational assistance allowance for the predischarge education program—Prep—under subchapter VI of chapter 34 of title 38. This is one of the programs to assist educationally disadvantaged veterans—enacted into law last year in Public Law 91–219—which I am very proud to have authored as chairman of the Veterans' Affairs Subcommittee last Congress. I spoke about the Prep program at some length on the floor on June 17, 1971, outlining some of the difficulties those schools trying to establish such programs have been experiencing and the enormous potential of Prep for helping with the positive readjustment of returning servicemen who are educationally disadvantaged.

The increase in the basic Prep allowance this bill proposes would resolve one of the main impediments facing the 36-percent Prep programs and those schools interested in starting them and should make it possible for more high school dropout veterans to enter GI bill training after service. There are, however, several other basic problems in starting and running Prep programs which have emerged—some as a result of what I believe to be restrictive interpretations of the new law by the Veterans' Administration—in the actual operation of the program since we enacted the law in March of 1970. And I will shortly introduce—as amendments to this bill—amendments to the Prep program to resolve these operational difficulties.

ADVANCE PAYMENT AND WORK-STUDY

The rest of my veterans' education and training program for the 92d Congress is included in S. 740, the proposed Veterans' Advance Educational Payment and Work-Study Act of 1971, which I reintroduced in this Congress on February 10, 1971. All the provisions of this bill passed the Senate on September 25, 1970, in my bill, S. 3657, but, unfortunately died in the House with the expiration of the last Congress. The major features of this bill are described in the report—No. 91–1231—as follows at pages 11–16, 18–19:

(1) To provide for advance payment of the GI bill educational assistance allowance at the start of a school term and prepayment of the allowance on the first of the month thereafter.

(2) To establish a student-veterans' work-study program whereby GI bill trainees would receive a $250 advance work-study allowance for performing various services in Veterans' Administration programs.

* * * * *

[3] To combine basic provisions relating to payment of allowances and general administration of the GI bill program, now contained in chapter 34, "Veterans' Educational Assistance," and chapter 35, "War Orphans' and Widows' Educational Assistance," and enact them in chapter 36, "Administration of Educational Benefits," as applicable to both chapters 34 and 35. . . .

[4] To clarify and expand action taken by the Congress on April 13, 1970, in enacting P.L. 91–320—the Elementary and Secondary Education Act Amendments of 1970—to provide for NDEA student loan cancellation based on military service; by permitting GI bill entitlement to be applied to repay prior Federal direct or guaranteed education loans.

* * * * * *

ADVANCE EDUCATION ASSISTANCE ALLOWANCE

The present system of assisting veterans who are attending school operates as follows:

In order to establish eligibility for GI bill benefits under title 38, United States Code, a veteran must first submit an application together with proof of separation from the armed services—form DD–214—and, when dependencies are claimed, other supporting documents, to the Veterans' Administration. If these papers are in order, the VA mails the veteran a certificate of eligibility.

The veteran presents the certificate of eligibility to his college or university registrar, who verifies the veteran's actual enrollment and provides details regarding it, so certifies on the certificate of eligibility, and mails it to the VA. Upon receipt of that certification, the VA is then authorized to issue an educational assistance allowance payment to the eligible veteran, and an account for him is then established at the VA's computerized payment center in Hines, Illinois. From this point, the check should reach him within 10 to 15 days.

There are two points at which the system may in many cases break down, causing financial and emotional hardship for the veteran and his family. One is during the processing of enrollment certificates at colleges and universities, which occurs during the first month of school when the school administration has an unusually heavy registration workload anyway.

The second difficulty may occur when the Veterans' Administration receives these hundreds of thousands of enrollment certificates in the space of a few weeks. Using maximum authorized overtime—because of inadequate augmentations of staff over the last three years—the VA must process these certificates and authorize the release of the first month's educational assistance allowance payment. Prior to this past fall, it was not all uncommon for the first check to reach the collegiate veteran in mid- or late-November, or even December.

In testimony in the summer of 1969 before the Veterans' Affairs Subcommittee, the VA announced the initiation of an accelerated payment procedure increasing from five to nine per month the number of check processing cycles at the Hines Data Processing Center. It was hoped that this procedure would approximately halve the timelag in getting checks out to veterans.

Unfortunately, the new system, helpful as it has been in expediting the issuance of checks by the computer, cannot rectify delays which arise before an authorization for payment can be relayed to the Hines Center. And under that system the earliest that the first check reaches the veteran is mid- or late October; and it may well not arrive until November. Even then, the first check generally covers only a partial month's payment, since the first college month is usually abbreviated. For veterans beginning a new school year, this is too little, too late.

The committee substitute seeks to overcome the delay in receipt of GI bill payments by providing (in the new section 1780 (b) added by section 201 of the committee substitute) for payment of the first and second months' allowances in one lump sum in advance and prepayment on the first of the month for months thereafter (new section 1780 (c)). This advance system would apply to all post-secondary courses other than those on less-than-half-time basis or by correspondence. Thus far, this is essentially the system proposed in S. 3683.

However, as proposed in S. 3657, advance payment would be made to a veteran, without any action by his educational institution, based upon receipt of evidence of eligibility, as defined in section 1652(a) (1) of title 38, United States Code (a discharge paper—form DD–214—showing that he served for at least 180 days of active duty and was discharged under conditions other than dishonorable or that he was discharged for a service-connected disability), and certification by the veteran of the basic prerequisites to eligibility under the GI bill. He would certify that he intends to enroll and has been accepted for enrollment, or has enrolled, in a specified educational institution to pursue a specified approved course of education during that school year, and the number of semester hours or equivalent he intends to pursue. Unless the local office files contain conclusive evidence contradicting the facts so certified, the VA would not be authorized to examine into the veteran's actual GI bill eligibility. Notwithstanding the advance payment made on the eligible veteran's certification, the Veterans' Administration would, as it now does, develop each case to assure entitlement and the marital and dependency status of each payee. Upon receipt of the enrollment papers from the educational institution, any necessary adjustments would be made in the educational allowance payment.

Thus, an eligible veteran would be given the advance on the basis of his good faith in truthfully certifying the above facts and intentions. There would be no time-consuming processing by the educational institutions, which is now responsible for much of the delay in processing regular GI bill payments.

The committee recognizes that this good faith certification procedure may be subject to some abuse, and that some payments may thus be made to ineligible recipients. But it is satisfied that any abuses would be small, and notes that the VA has a 95-percent record of collecting regular GI bill overpayments.

This program of advance payments at the beginning of a school year should provide a vital source of funds, at a time when none are now available under the GI bill and when the veteran-student's needs are probably the greatest, to meet the many expenses involved in beginning a school year, as well as such living expenses and initial charges as deposits and initial payments for rent, heat or telephone. This system should thus help prevent a veteran from being placed in a precarious financial situation vis-a-vis his schooling or his personal life as a result of a delay, justified or not, in receipt of the first regular educational assistance allowance check.

And the prepayment system in new subsection 1780(c) should continue the veteran's solvency. Under the new system a veteran enrolling in college on September 15 could expect to receive by November 1 two and one-half months' allowance (one and one-half months' payment on September 1—if he applied about August 15—and one month's payment on November 1).

Although neither S. 3657 or S. 3683 originally contemplated application of the advance and prepayment of allowance procedures to war orphans, wives, and widows training under chapter 35, of title 38, United States Code, the committee substitute would make the same payment system uniformly applicable to both chapters 34 and 35 of that title.

These provisions have been closely coordinated with the Veterans' Administration which advises that they can be programmed into the computer within about 60 days of enactment. This program was generally endorsed (with a somewhat different mechanism) by the President's Committee on the Vietnam Veteran in its report submitted in late March. The report stated:

"The GI Bill provides monthly allowances for veterans enrolled in and attending approved programs of education. These payments do not begin, however, until after the veteran has enrolled, and completed each month of training. The effect of this after-the-fact method of payment can be to discourage program participation by the veteran who cannot afford the initial outlay required tuition, books, and the necessary money for by most schools for prepayment of fees, subsistence for himself and his family until the first payment is received. The intent of the program is thus jeopardized. Even for the financially more fortunate veteran, the prepayment of tuition and other costs constitutes a burden since the educational allowance is partial assistance rather than a full subsidy.

"The proposal would authorize an advance payment to help the veteran enroll in school. This would be done on an individual application basis. The amount advanced can be gradually recouped over the whole period of enrollment."

VETERANS' WORK-STUDY PROGRAM

The proposed work-study program (new section 1687 added by section 203 of the committee substitute) would enable full-time GI bill post-secondary trainees with a financial need to perform 100 hours of services needed by the VA (on campuses or at VA regional offices or medical facilities) pursuant to agreement with the VA under which the veteran then becomes entitled to receive, in advance, a work-study educational assistance allowance of $250. The committee believes that this program will be of substantial benefit to individual veterans and their families, while at the same time contributing to the improvement of the entire GI bill program through increased efficiency and speed in certificate and claims processing and through outreach work performed by these student veterans. Work-study trainees could also perform various non-professional, badly-needed tasks in VA hospitals, especially assisting the most severely disabled patients and cleanup and general maintenance work. There seems little doubt that such services could be very effectively used in many VA medical facilities. Students would be limited to performing 100 hours of services over a semester or other enrollment period.

This program should be particularly helpful for the almost 50 percent of GI bill post-Korean trainees with families and for the 27 percent who enroll in nonpublic schools. The rate increase recently enacted in Public Law 91–219 would provide $1,575 over a full nine-month period. Although this is sufficient to cover average tuition, room and board charges at a public institution, it is far less adequate in meeting the average costs at nonpublic institutions.

One key aspect of the work-study program would be veterans performing outreach services under subchapter IV of chapter 3 of title 38 also enacted in P.L. 91–219. Using GS–12's or 13's to "pound the pavement" in search of educationally disadvantaged veterans is highly questionable on a cost-effectiveness basis. But this provision would make it possible and very economical for the VA to improve substantially its existing program of contact and outreach.

The present outreach program has not done the necessary job to reach the large numbers of high school dropouts and other educationally disadvantaged veterans who are separated from service each year. Whereas 20 percent of those separated during fiscal year 1970 were high school dropouts, only about 8 percent of that target population have been taking advantage of their education and training entitlements. In many cases, this serious lack of participation by those who desperately need to take advantage of their GI bill benefits can be remedied through more effective dissemination of information and more personalized and intensive counseling of potential trainees about the great advantages of the benefits available to them.

As was stressed in section 241(c) of the outreach services program originally passed by the Senate on October 23, 1969 (H.R. 11959), the most effective outreach worker is one with whom the potential trainee can identify most immediately and fully. Veterans who are themselves pursuing an education should fit this prescription perfectly.

In carrying out this new work-study program, the A would be expected to establish equitable guidelines for determining financial need and need for the services and for selecting and using the services of veterans. Appropriate guidance for determining financial need should be sought in the Office of Education's regulations for its work-study program under the Higher Education Act of 1965, as amended.

Veterans would perform such services under agreements with the Veterans' Administration. They would not be considered VA employees for purposes of Federal employment laws administered by the Civil Service Commission—such as those governing application and selection for Federal employment, retirement and other length-of-service Federal employment benefits, and Federal employment fringe benefits such as group health and life insurance programs. Also, work-study allowances, as all other GI bill allowances, would be exempt from taxation as a "payment of a benefit under any law administered by the Veterans' Administration," as provided in section 3101(a), of title 38, United States Code.

It should also be noted that several witnesses at the hearings referred to the desirability of permitting the VA to contract with colleges and universities (under its general contract authority in section 213 of title 38) to supervise veteran work-study trainees in carrying out outreach activities in a particular locale. The committee strongly endorses this idea which would be particularly useful if applied in areas where there is no Veterans' Administration Regional Office or Veterans' Assistance Center.

This program differs somewhat in detail from the proposed in S. 3657 but retains the same basic concept which was endorsed by the VA. At the hearing, the Administrator of Veterans' Affairs, in supporting in principle the desirability of a veterans' work-study program, agreed to staff discussions to iron out program details. Those discussions produced the provisions in the committee substitute which the VA has advised is administrable for a relatively small administrative cost ($250,000). It is estimated that the services of 56,000 student-veterans might be effectively utilized in the program in the first full year of its operation.

* * * * *

REPAYMENT OF FEDERAL EDUCATION LOANS USING GI BILL ENTITLEMENT

Under this new provision (in a new section 1688 which would be added to title 38 by section 203 of the committee substitute), a veteran would be given the option of using GI bill entitlement (earned by service after July 1, 1970) to repay, in whole or in part, an education loan—taken (after April 13, 1970) in connection with education prior to his military service—which was made or guaranteed by the Federal Government. This provision arises out of the NDEA loan cancellation provision based on military service enacted in the ESEA extension act on April 13, 1970 (P.L. 91–230). The new provision is substantially broaded in scope than the loan cancellation provision it would replace in the NDEA (see section 306 of the committee substitute). There would be no GI bill cost under this provision until at least FY 1973, and then that cost would be partially offset by NDSL loan funds not being depleted and Federal interest subsidies not paid. It is very difficult to estimate the precise cost of this provision because of the uncertainty about whether a veteran would otherwise use his full GI bill entitlement on post-service education rather than to repay a pre-service loan. However, potential repayments for the major Federal education loan programs are provided under "COST ESTIMATE," below.

To understand the genesis of this new program more fully, especially its effective dates, it is necessary to explain in more detail the amendment in section 501 of P.L. 91–230 to provide for loan cancellation at a 12½ percent rate per year for up to four years of consecutive active military service after June 30, 1970 (that is, up to 50 percent of the total loan amount) for NDEA loans made after the date of enactment of that act, which was April 13, 1970. After this provision was enacted, considerable disenchantment with it was brought to the subcommittee's attention, principally by education groups. The two basic objections were: (1) That, in time, this provision promised a substantial depletion of the NDSL student loan fund, and thus a reduction in NDEA loans, without a commensurate fulfillment of any of the purposes of the original loan cancellation provision—developing teachers for our country, especially for poverty areas; and (2) it unfairly discriminated against veterans who had not taken education loans or pursued education prior to service since a veteran who did take an NDEA loan could use *both* NDEA loan cancellation and GI bill entitlement earned by the same period of military service. The argument was forcefully presented: if this is really a veterans' benefit, it should be part of the GI bill.

The committee believes that no adequate basis exists for permitting acceleration of allowance to repay only loans made under the NDEA program; thus, the provision covers all Federal direct or guaranteed loans, as to which approval criteria regarding the institutions and loan terms involved have already been applied by the government. The new GI bill program effective dates are geared to those governing the NDEA cancellation provision which would be repealed retroactively by section 306 of the committee substitute so that it never really became effective (see discussion under *"Section 306."* below).

Here is how the new program would work as compared with the present NDEA loan cancellation provision (added by P.L. 91–230). Given the average NDEA total loan of about $1400, a veteran with qualifying service could, under the present provision, cancel $700 worth of such a loan after *four* years of military service. Under the proposed new section 1688 in title 38, United States Code, he could repay the full $1400, using up, at a maximum, only eight of his 36 months' GI bill entitlement (8×$175=$1400), or less than one school year's entitlement (For Higher Education Act loans, the average is $2100, so the same general analysis would apply for such loans.)

The maximum NDEA loan that any one student can receive is $10,000 (for graduate students), so that under the present loan cancellation provision, he would be able to cancel only a maximum of $5,000 (for four years' service) whereas, at a minimum (if he has no dependents) GI bill accelerated entitlement could be used to pay off $6000 of the loan amount; and if he had, for example, four dependents ($256 per month), he could pay off almost the full loan—$9,216 ($26 x 36).

It thus becomes clear that virtually any veteran who took an NDEA loan after April 13, 1970, and served after July 1, 1970, would be substantially more benefitted by the proposed new repayment provision than the existing loan cancellation provision; to say nothing of all those veterans with Higher Education Act loans and all other Federal direct or guaranteed education loans, which are not now eligible for similar cancellation

based on military service. The only instance where a veteran with qualifying service and a qualifying NDEA loan might be somewhat worse off under the new program would be a person who had received a very high NDEA loan ($10,000), then served four consecutive years of active duty in the military and then wanted to undertake substantially more schooling (four years) for which he would like to use his full GI bill entitlement. But such situation demonstrates very clearly the very inequity, which the new provision is designed to correct, of the NDEA loan cancellation provision based on military service: for there seems virtually no justification for the government's paying one veteran for four years of education ($6300) and another veteran with the same service for eight years ($11.300; $6300 plus cancellation of half of a $10,000 NDEA loan).

The main purpose of S. 740—to provide a system to get GI bill allowances into the hands and pockets of Vietnam-era veterans at the time they need it most—when they are actually beginning a school year—remains an urgent priority today. My office continues to be literally inundated by communications from GI bill trainees still complaining of delays of 3 and 4 months after school registration before they receive their first educational allowance checks.

CONCLUSION

Mr. President, the bill we introduce today to increase GI bill rates is a logical extension of the rate increase I managed through the Senate and House-Senate conference in Public Law 91–219. That 35-percent increase—a compromise with the figure originally adopted by the other body—was based on 1969–70 education costs. Although this was then a substantial raise—the basic allowances at that time were only slightly higher than those set in 1952 for the Korean conflict program—the allowances set in Public Law 91–219 still fell about 25 percent short of restoring comparability to Korean conflict coverage. Our bill will finish the job we began last year.

I know Senator HARTKE, who chairs the Subcommittee on Education, Employment, and Readjustment of the Veterans' Affairs Committee, will proceed to the most rapid possible consideration of this bill and S. 740 in order to do what needs to be done to provide the most sympathetic and effective assistance for the readjustment to civilian life of the men who have sacrified at least 2 years of their lives and often parts and functions of their bodies to carry out our national military and foreign policies in the service of their country.

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By Mr. DOMINICK:

S. 2162. A bill to provide for the striking of medals in commemoration of the bicentennial of the American Revolution. Referred to the Committee on Banking, Housing, and Urban Affairs.

Mr. DOMINICK. Mr. President, I introduce a bill to provide for the striking of medals in commemoration of the bicentennial of the American Revolution.

The bill would add luster and specificity to an earlier bill introduced by the distinguished chairman of the Banking, Housing, and Urban Affairs Committee, Senator SPARKMAN, by requiring that the commemorative medals struck contain quantities of silver. Whereas Senator SPARKMAN's bill provides for the striking of "medals of suitable sizes and metals," my bill would require that save for the Awards Medal, at least for varieties of each medal shall be struck: a large and small medal struck from .925 fine silver and a large and small less expensive version of the same medal struck from bronze. Also, the bill would allow the Bicentennial Commission the discretion of striking any of the medals in gold.

Mr. President, in patterning my bill after Senator SPARKMAN's bill and the recommendations of the Bicentennial Commission's Advisory Panel on Coins and Medals, I determined that it would be wise for Congress to indicate their preference for the metal used in at least half of the medals struck. Not only has silver been historically used in the minting of prestige coins, but it has also played an integral part in the development of our country the past 200 years. Silver medals would command the dignity and respect which our country deserves on her 200th birthday without pricing the medals beyond the means of our citizens.

Mr. President, I ask unanimous consent that the text of my bill be inserted in the RECORD at this point.

There being no objection, the bill was ordered to be printed in the RECORD, as follows:

S. 2162

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That in commemoration of the bicentennial of the birth of the United States and the historic events preceding and associated with the American Revolution, there is hereby authorized to be struck metals of suitable sizes, each with suitable emblems, devices and inscriptions to be determined by the American Revolution Bicentennial Commission (hereafter referred to as the "Commission"), subject to the approval of the Secretary of the Treasury (hereafter referred to as the "Secretary"), which shall be known as the "United States Bicentennial Medal Series" (hereafter referred to as the "Series").

SEC. 2. (A) A National Medal be struck commemorating the year 1776 and its significance to American independence.

(B) An Awards Medal may be struck as a Commission presentation piece in recognition of outstanding service, leadership or support of bicentennial programs.

(C) A maximum of thirteen medals each of a different design may be struck to commemorate specific historical events of great importance, recognized nationally as milestones in the continuing progress of the United States of America toward life, liberty, and the pursuit of happiness.

(D) Each state may cause to be struck and issued a medal subjct to the approval of the Commission and the Secretary.

SEC. 3. Each medal with the exception of the Awards Medal shall be of four or more different varieties: one shall be struck in .925 fine silver, one shall be struck in bronze, and two shall be struck in .925 fine silver and bronze respectively and be of such size so as to be an inexpensive facsimile of the more costly medals authorized under this Act. The Awards Medal shall be struck in .925 fine silver and be of only one size which shall be determined by the Commission. In addition, the Commission, in consultation with the Secretary, may direct that any of the medals authorized in Sec. 2 be struck in gold.

SEC. 4. The Secretary is authorized and directed to strike the National Medal authorized in Sec. 2(A) and the commemorative medals authorized in Sec. 2(C) of this Act. The Awards Medal authorized in Sec. 2(B) and the State medals authorized in Sec. 2(D) of this Act shall be struck by private mints.

SEC. 5. The Secretary shall strike and furnish to the Commission such quantities of National Medals and Commemorative Medals as may be necessary, with a minimum order of 2,000 medals of each design and size. They shall be made and delivered at such times as may be required by the Commission, but no medals may be made after December 31, 1983. The medals shall be furnished by the Secretary at a price equal to the cost of the manufacture, including labor, materials, dies, use of machinery, and overhead expenses.

SEC. 6. The medals authorized under Sec. 2(A) and (C)) of this Act are national medals within the meaning of section 3551 of the Revised Statutes (31 U.S.C. 368).

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By Mr. MATHIAS (for himself, Mr. CASE, Mr. CHURCH, Mr. INOUYE, and Mr. KENNEDY):

S. 2163. A bill to amend title 38, United States Code, to provide for the payment of tuition, subsistence, and educational assistance allowances on behalf of or to certain eligible veterans pursuing programs of education under chapter 34 of such title, and for other purposes. Referred to the Committee on Veterans' Affairs.

VIETNAM VETERANS ACT OF 1971

Mr. MATHIAS. Mr. President, it is with great pleasure that I introduce today the "Vietnam Veterans Act of 1971," a bill which I believe will establish the most comprehensive veterans educational benefits program in the history of our Nation. The fact that our Vietnam-era veterans are not receiving adequate educational benefits under current veterans educational programs has been a cause for great worry and alarm to me. It is indeed unfortunate that those who have given so much have been given so little in return. Compared to veterans who received benefits under the old "GI bill," Vietnam-era veterans, as well as others discharged after 1955, have been shortchanged in terms of educational benefits. My bill will rectify this wrong.

As a veteran myself, I recall the benefits which veterans received under the old GI bill whereby tuition and fees were paid directly to the educational institution by the Veterans' Administration. Furthermore, under that program, the veteran received a monthly subsistence allowance to help meet other expenses. Under the current program, the veteran only receives a mere $175 per month as an "educational assistance allowance" which is insufficient when one considers the rise in educational costs at our public and private institutions. I have received many letters and countless other communications from veterans complaining of the inadequacy of the current program.

EDUCATIONAL BENEFITS

It is for this reason that I am introducing my bill which would:

First, provide for direct payment by the Veterans' Administration to the educational institution for any eligible vet-

eran not on active duty and enrolled on a half-time or more basis to $1,000 per school year for the cost of tuition, required fees, books, and supplies;

Second, direct the Veterans' Administration to pay such eligible veterans a subsistence allowance of $175 per month with a sliding scale based upon the current assistance plan for those veterans with dependents;

Third, retain the current educational assistance allowance for individuals on active duty pursuing a program of education, or for those veterans pursuing a program of education on less than a half-time basis, or for those pursuing a program of education on less than a half-time basis, or for those pursuing exclusively a correspondence course, so that they would be entitled to the lesser of either the cost of tuition and fees or $175 per month;

Fourth, would have potential benefit for any veteran discharged after January 31, 1955, who has not used up his entitlement benefits, with those discharged prior to June 1, 1966, having 8 years from that date to complete their program of education and those discharged subsequent to June 1, 1966, having 8 years from the date of discharge to complete their program;

Fifth, and provide that eligible veterans enrolled in schools for refresher courses at the high school level or who need courses as a prerequisite for postsecondary education would receive the following benefits: Tuition and fees up to $1,000 per school year and a $175 per month subsistence allowance if enrolled on a half-time basis or an educational assistance allowance as already provided in my bill based on the current program of the lesser of either $175 per month or the cost of fees and tuition, if enrolled on a less than half-time basis.

Under the old GI bill, the payment could not exceed $500 and the payment of the cost of books, supplies, and equipment was not mandatory as it is under my bill. Furthermore, the old GI bill's subsistence allowance reached a ceiling of only $75 per month, whereas my bill provides for a $175 per month payment. In preparing this bill, I contacted the U.S. Office of Education to ascertain just how much the cost of public and private education at the postsecondary level had increased over the past 13 years. It has skyrocketed. In the 1957–58 school year, the cost of tuition and required fees for public institution full-time undergraduate studies was $182. For private institutions it was $684. In the 1970–71 school year the cost for public and private study was $339 and $1,627 respectively.

Furthermore, the cost of room and board has also markedly increased. In the 1957–58 school year, the total cost for room and board was $587 for the public institutions and $677 for private ones. In the 1970–71 school years the total room and board costs at public and private institutions were $920 and $1,053 respectively. It is very clear that the current educational assistance allowance of $175 per month, alone, is insufficient to meet these rising costs.

EMPLOYEE RAMIFICATIONS

I believe that my bill will have a collateral effect on another great problem facing veterans today—unemployment. I have already written to the President commending him on his effort to find jobs for veterans and offering my assistance. I have also written to the Secretary of Labor requesting a meeting with him and appropriate representatives of the Jobs for Veterans Committee and the National Alliance of Businessmen. It has been estimated that there are nearly 400,000 Vietnam veterans unemployed. My bill would allow many of these veterans to return to school and by doing so would help relieve the already tight labor market situation. Also, since the unemployment situation hits hardest at the black veteran, my bill would have an important effect on helping those black veterans who, in many instances, come from poverty areas where schools are of poor quality and do not give adequate preparation, as well as those who have dropped out of school.

LET US ALL UNITE TO HELP OUR VETERANS

Abraham Lincoln, over 100 years ago, stood on the battlefield at Gettysburg and urged that—

> We give increased devotion to that cause for which they gave the last full measure of devotion.

He was speaking of those dead who fought in the Civil War and was reminding his fellow Americans not to forget what that generation of veterans had done. Today, we have a new generation of veterans, but we, as the people were urged in Lincoln's time, must not forget what they have done and what they have sacrificed for us all. We must now "give increased devotion" to devote ourselves to helping those who have given so much in the service of their Nation. I think that my bill is a good start and a good downpayment toward providing our veterans with all that they are due. I believe that this is a cause behind which all of us, black and white, rich and poor, northerner and the southerner, easterner and westerner, hawk and dove, can and must unite. We certainly can do no less for those who have given so much.

In conclusion, I would like to express my deep appreciation to the following veterans' organizations who were represented this morning at my press conference announcing the introduction of this bill: National Veterans of Foreign Wars, National American Legion, Vietnam Veterans Against the War, the American Veterans Committee, as well as the Maryland Veterans of Foreign Wars, and American Legion. In addition, I have received supportive communications from the National Association of Collegiate Veterans and the Vietnam Veterans for a Just Peace, the latter whose letter of support I am including in the RECORD.

Mr. President, I ask unanimous consent to have printed in the RECORD at this point, the bill and the following materials:

First, a brief outline comparing my bill with benefits under the old GI bill and under the current educational assistance allowance program;

Second, a copy of letters I received from two Baltimore veterans—Mr. Stephen Campbell and Mr. David Thomas—outlining the problems of returning veterans;

Third, a copy of an editorial from the February 21, 1970, Baltimore Afro-American newspaper concerning the inadequacy of the current educational benefits program for veterans; and

Fourth, copies of letters of support for my bills initiated from the Vietnam Veterans for a Just Peace, and the Vietnam Veterans Against the War.

There being no objection, the bill and materials were ordered to be printed in the RECORD, as follows:

S. 2163

A bill to amend title 38, United States Code, to provide for the payment of tuition, subsistence and educational assistance allowances on behalf of or to certain eligible veterans pursuing programs of education under chapter 34 of such title, and for other purposes

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That this Act may be cited as the "Vietnam Veterans' Act of 1971".

SEC. 2. Subchapter IV of chapter 34 of title 38, United States Code, is amended by inserting immediately before section 1861 the following new section:

"§ 1680. Tuition and subsistence assistance allowances for institutional training

"(a) In the case of an eligible veteran not on active duty who is pursuing a program of education or training at an approved educational or training institution on a half-time or more basis, the Administrator shall pay directly to the educational or training institution on behalf of such eligible veteran the customary cost of tuition, and such laboratory, library, health, infirmary, or other similar fees as are customarily charged, and shall pay for books, supplies, equipment, and other necessary expenses, excluding board, lodging, other living expenses, and travel, which similarly circumstanced non-veterans enrolled in the same courses are required to pay.

"(b) In no event shall the payment authorized by subsection (a) of this section exceed $1,000 for an ordinary school year. If the educational or training institution has no customary cost of tuition, a fair and reasonable rate of payment for tuition, fees, or other charges for such course or courses shall be determined by the Administrator.

"(c) In the event a veteran fails to complete his program of education after a tuition assistance allowance has been paid to the educational or training institution on his behalf, the Administrator shall, pursuant to such regulations as he may prescribe, require a pro rata refund of the tuition assistance allowance based upon the uncompleted portion of the school year for which the allowance was paid.

"(d) While pursuing an approved program of education or training, other than cooperative or non-farm training, a veteran eligible for tuition assistance benefits under subsection (a) of this section shall be paid a monthly subsistence allowance as set forth in column II, III, IV or V (whichever is applicable as determined by the veteran's dependency status) opposite the basis shown in column I:

| "Column I | Column II | Column III | Column IV | Column V |
|---|---|---|---|---|
| Basis | No dependents | One dependent | Two dependents | More than two dependents |
| | | | | The amount in column IV, plus the following for each dependent in excess of 2: |
| Full-time | $175 | $205 | $230 | $13 |
| Three-quarter-time | 128 | 152 | 177 | 10 |
| Half-time | 81 | 100 | 114 | 7 |

"(e) (1) An eligible vetern entitled to tuition assistance under subsection (a) of this section and who is enrolled in an educational institution for a 'farm cooperative' program consisting of institutional agricultural courses prescheduled to fall within 44 weeks of any period of 12 consecutive months and who pursues such program on—

"(A) a full-time basis (a minimum of 12 clock hours per week),

"(B) a three-quarter-time basis (a minimum of 9 clock hours per week), or

"(C) a half-time basis (a minimum of 6 clock hours per week) shall be eligible to receive a subsistence allowance at the appropriate rate provided in the table in paragraph (2) of this subsection, if such eligible veteran is concurrently engaged in agricultural employment which is relevant to such institutional agricultural courses as determined under standards prescribed by the Administrator.

"(2) The monthly subsistence allowance of an eligible veteran pursuing a farm cooperative program under this chapter shall be paid as set forth in column II, III, IV, or V (whichever is applicable as determined by the veteran's dependency status) opposite the basis shown in column I:

| "Column I | Column II | Column III | Column IV | Column V |
|---|---|---|---|---|
| Basis | No dependents | One dependent | Two dependents | More than two dependents |
| | | | | The amount in column IV, plus the following for each dependent in excess of 2: |
| Full-time | $141 | $167 | $192 | $10 |
| Three-quarter-time | 101 | 119 | 138 | 7 |
| Half-time | 67 | 79 | 92 | 4 |

"(f) An eligible veteran, entitled to tuition assistance under subsection (a) of this section, who is enrolled in a 'cooperative program', other than 'farm cooperative' program, shall be paid a monthly subsistence allowance at the same rate paid for full-time 'farm cooperative' training as provided in subsection (e) of this section. For the purpose of this subsection, the term 'cooperative program', other than a 'farm cooperative' program, means a full-time program of education which consists of institutional courses and alternate phases of training in the business or industrial establishment with such training being strictly supplemental to the institutional portion."

SEC. 3. Section 1681 of title 38, United States Code, is amended to read as follows:

"§ 1681. Educational assistance allowances

"(a) An educational assistance allowance shall be paid to each eligible individual pursuing a program of education while on active duty, or to an eligible veteran pursuing a program of education on less than a half-time basis or exclusively by correspondence, as follows:

"(1) The educational assistance allowance of an individual pursuing a program of education—

"(A) while on active duty, or

"(B) on less than a half-time basis, shall be computed at the rate of (i) the established charges for tuition and fees which the institution requires similarly circumstanced nonveterans enrolled in the same program to pay, or (ii) $175 per month for a full-time course, whichever is the lesser. Notwithstanding provisions of section 1682 of this title, payment of the educational assistance allowance provided by this subsection may, and the educational assistance allowance provided by section 1696(b) shall, be made to an eligible veteran in an amount computed for the entire quarter, semester, or term during the month immediately following the month in which certification is received from the educational institution that the veteran has enrolled in and is pursuing a program at such institution.

"(2)(A) The educational assistance allowance of an eligible veteran pursuing a program of education exclusively by correspondence shall be computed on the basis of the established charge which the institution requires nonveterans to pay for the course or courses pursued by the eligible veterans. The term 'established charge' as used herein means the charge for the course or courses determined on the basis of the lowest extended time payment plan offered by the institution and approved by the appropriate State approving agency or the actual cost to the eligible veteran, whichever is the lesser. Such allowances shall be paid quarterly on a pro rata basis for the lessons completed by the veteran and serviced by the institution, as certified by the institution.

"(B) The period of entitlement of any eligible veteran who is pursuing any program of education exclusively by correspondence shall be charged with one month for each $175 which is paid to the veteran as an educational assistance allowance for such course.

"(b) (1) The educational assistance allowance of a veteran pursuing a program of flight training (except as provided in section 1673(b) of this chapter), shall be paid in accordance with the provisions of section 1677 of this chapter.

"(2) The educational assistance allowance of a veteran pursuing a program of apprenticeship or other on-job training shall be paid in accordance with the provisions of section 1683 of this chapter.

"(c) The tuition and subsistence allowances payable under section 1680 of this chapter and the educational assistance allowance payable under this section shall be paid as soon as practicable after the Administrator is assured of the veteran's enrollment in and pursuit of the program of education for the period for which such allowance is to be paid."

SEC. 4. Section 1682 of title 38, United States Code, is amended to read as follows:

"§ 1682. Educational certifications and limitations

"(a) No tuition assistance allowance shall be paid to an educational or training institution on behalf of an eligible veteran under section 1680 of this chapter until the Administrator shall have received from such institution a certification of the actual enrollment of the eligible veteran at such institution, the number of semester or clock hours of attendance he is to pursue, the customary cost of tuition, the customary cost of books, supplies, equipment and related expenses, the customary charges for laboratory, library, health, infirmary or other similar fees, and such other information as the Administrator, by regulation, may require.

"(b) The subsistance and educational assistance allowances of an eligible veteran provided in sections 1680 and 1681 of this chapter shall be paid only for the period of his enrollment as approved by the Administrator, but no such allowance shall be paid—

"(1) to any veteran enrolled in a course which leads to a standard college degree for any period when such veteran is not pursuing his course in accordance with the regularly established policies and regulations of the educational institution and the requirements of this chapter, or of chapter 36;

"(2) to any veteran enrolled in a course which does not lead to a standard college degree (excluding programs of apprenticeship and programs of other on-job training authorized by section 1683 of this title) for any day of absence in excess of thirty days in a twelve-month period, not counting as absences weekends or legal holidays established by Federal or State law during which the institution is not regularly in session; or

"(3) to any veteran pursuing his program exclusively by correspondence for any period during which no lessons were serviced by the institution.

"(c) No subsistence or educational assistance allowance shall be paid to an eligible veteran enrolled in a course in an educational institution which does not lead to a standard college degree for any period until the Administrator shall have received—

"(1) from the eligible veteran a certification as to his actual attendance during such period or where the program is pursued by correspondence a certificate as to the number of lessons actually completed by the veteran and serviced by the institution; and

"(2) from the educational institution, a certification, or an endorsement on the veteran's certificate, that such veteran was enrolled in and pursuing a course of education during such period and, in the case of an institution furnishing education to a veteran exclusively by correspondence, a certificate or an endorsement on the veteran's certificate, as to the number of lessons completed by the veteran and serviced by the institution.

"Notwithstanding the foregoing, the Administrator may pay an educational assistance allowance representing the initial payment of an enrollment period, not exceeding one full month, upon receipt of a certificate of enrollment.

"(d) The Administrator may, pursuant to such regulations as he may prescribe, determine enrollment in, pursuit of, and attendance at, any program of education or course by an eligible veteran for any period for

which a tuition assistance allowance is paid on his behalf or for which he receives a subsistence or educational assistance allowance under this chapter for pursuing such program or course."

SEC. 5. Section 1661 of title 38, United States Code, is amended by—

(a) inserting in subsection (a) immediately after the words "entitled to" the following: "tuition; subsistence or"; and

(b) inserting in subsection (c) immediately after the word "receive" the following: "tuition, subsistence or".

SEC. 6. Section 1662 of title 38, United States Code, is amended by—

(a) inserting in subsection (a) immediately after the word "No" the following: "tuition, subsistence or"; and

(b) inserting in subsection (c) immediately after the words "date for which an educational" the following: ", tuition or subsistence".

SEC. 7. Section 1663 of title 38, United States Code, is amended by inserting immediately after the words "eligible for" the following: "tuition, subsistence or".

SEC. 8. Section 1671 of title 38, United States Code, is amended by inserting in the second sentence thereof immediately after the words "entitled to the" the following: "tuition, subsistence or".

SEC. 9. Section 1674 of title 38, United States Code, is amended by inserting immediately after the words "shall discontinue the" the following: "subsistence or".

SEC. 10. Section 1676 of title 38, United States Code, is amended by inserting in the second sentence thereof immediately after the words "deny or discontinue the" the following: "subsistence or".

SEC. 11. Section 1687 of title 38, United States Code, is amended by inserting immediately after the words "may discontinue the" the following: "subsistence or".

SEC. 12. Section 1691 of title 38, United States Code, is amended by striking out in subsection (b) thereof the words "an educational assistance allowance as provided by sections 1681 and 1682(a) and (b) of this title" and inserting in lieu thereof the following: "a tuition assistance and subsistence allowance under the provisions of section 1680 of this chapter if he is enrolled on a half-time basis or an educational assistance allowance under the provisions of section 1681(1)(B) of this chapter if he is enrolled on less than a half-time basis".

SEC. 13. Section 1693 of title 38, United States Code, is amended to read as follows:

"The tuition, subsistence and educational assistance allowances authorized by section 1691(b) of this chapter and the cost of individualized tutorial assistance authorized by section 1692(b) of this chapter shall be paid without charge to any period of entitlement the veteran may have earned pursuant to section 1661(a) of this title."

SEC. 14. Section 1781 of title 38, United States Code, is amended by inserting immediately after the word "No" the following: "tuition, subsistence or".

SEC. 15. Section 1789 of title 38, United States Code, is amended by striking out the words "an educational assistance" and inserting in lieu thereof the following: "a tuition, subsistence or educational assistance allowance on behalf of or".

SEC. 16. The table of sections at the beginning of chapter 34 is amended by

(a) striking out:

"1681. Educational assistance allowance.
"1682. Computation of educational assistance allowances.";

and

(b) inserting in lieu thereof:

"1680. Tuition and subsistence allowances for institutional training.
"1681. Educational assistance allowances.
"1682. Educational certifications and limitations.".

SEC. 17. This Act shall become effective September 1, 1971.

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COMPARISON OF EDUCATIONAL BENEFITS OF THE MATHIAS GI BILL—VIETNAM VETERANS ACT OF 1971—WITH THOSE UNDER THE OLD GI BILL OF 1944 AND CURRENT LAW AS AMENDED

OLD GI BILL

*Veterans Administration Direct payment to schools*

Direct payment for tuition, fees; payment for books not mandatory.

CURRENT PROGRAM

*Veterans Administration Direct payment to schools*

No current payment to schools.

MATHIAS BILL

*Veterans Administration Direct payments to schools*

Direct payment to school for tuition and fees; mandatory payment for books & related supplies.

OLD GI BILL

*Amount of payment by VA to schools*

Up to $500 per school year.

CURRENT PROGRAM

*Amount of payment by VA to schools*

No payment as such.

MATHIAS BILL

*Amount of payment by VA to schools*

Up to $1,000 per school year.

OLD GI BILL

*Subsistence Allowance*

$50 per month, later increased to $75 per month, plus additional amounts for dependents.

CURRENT PROGRAM

*Subsistence Allowance*

None as such.

MATHIAS BILL

*Subsistence Allowance*

$175 per month for eligible veterans not on active duty who attend school on half-time or more basis; additional amounts for dependents; pro-rated for less than half-time students.

OLD GI BILL

*Educational Assistance Allowance*

None as such.

CURRENT PROGRAM

*Educational Assistance Allowance*

$175 per month to eligible veterans for tuition and related expenses if enrolled in education course on more than half-time or full-time basis; if active duty or enrolled less than half-time, the lesser of $175 per month or cost of tuition and fees.

MATHIAS BILL

*Educational Assistance Allowance*

Tuition & fees paid directly to institution by VA; plus subsistence allowance if not on active duty & enrolled in education course on more than half-time basis; full time in lieu of current allowance; If active duty, or less than half-time, same as law benefits.

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DEAR SENATOR MCC. MATHIAS: I presently am attending a local university under the G.I. Bill, I also was fortunate enough to receive a grant in order to pursue my education. If it was not for the grant, I would not be able to continue my education; I still have to work as I am self-supporting.

Unfortunately, many of my fellow veterans have not been as fortunate as I in receiving financial assistance to supplement their G.I. Bill benefits. I know of many capable, young veterans interested in pursuing their education but are unable to do so under the present benefit system. ($175 is the maximum entitlement for a single man attending an institution full-time, which in many instances barely meets tuition, not to mention books, food, lodging.

I ask you Senator McC. Mathias what can be done to update the present G.I. Educational Benefit system to a more realistic level?

Thanking you in advance for your speedy and considerate reply.

Sincerely,

STEPHEN A. CAMPBELL.

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Senator CHARLES MCC. MATHIAS,
*U.S. Senate,*
*Washington, D.C.*

SIR: Being a Viet Nam War veteran, I have been following your concern over the lack of jobs available for veterans, with great interest. And, being a constituent, I decided to put forth another opinion on several more current issues in the news today, namely drugs and the SST.

For veterans returning and hunting for full employment is bad enough, with some of my friends waiting two or more months before finding a job opportunity. Luckily, Bethlehem Steel, the Shipyards and other large industries around Baltimore can accommodate most of these job seekers. For those like myself who decided to return back to college, the situation becomes a little tighter. With the current attitudes towards college youth (badly generalized) jobs become even harder to find, even if you are a veteran. Thus, we must depend entirely or paritally on the G.I. Bill education checks that come monthly. Of course we can usually fall back on parents which creates a very touchy problem for both parents and students especially if the student, as I, has spent four years in the military and suddenly finds himself at 24 or 25 years old once again dependent upon his parents. It can become a very depressing situation.

The monthly checks do help, but figure total expenditures into the monthly allowance and the $175.00 suddenly looks very small. I have some approximations of a typical semester to further exemplify my point. A normal semester usually lasts about three and one half months. Thus, total G.I. Bill checks amount to approximately $621.00. Now, at the beginning of each semester there are certain mandatory fees, namely tuition, books, activities fees, parking fees etc. Tuition at the University of Maryland, Baltimore Campus is $321.00; books for all courses total about $100.00; parking fees are $10.00, for a total of approximately $431.00. Subtract this from the check total of $621.00 and you have $190.00 left to cover expenses for three and one half or four months (since you still have expenses whether you are in school or not, and you only get paid for those months actually in classes). Thus, you are left with approximately $50.00 per month! That is you have $50.00 left per month if you don't pay rent, don't eat, don't put gas in your car, or tires or licenses, don't buy any clothes and so on—ad infinitum. It is impossible to continue higher education under the persent G.I. Bill educational allowances. What can be done? This is the main reason so many of the Viet Nam War veterans do not go back or start college after military service. It is practically impossible under existing circumstances. Needless to say those of us that do not return to studies, ultimately end up in the ranks of the unemployed and become part of the rising unemployment figures that seem to be plaguing this administration. New legislation must be passed that will help us not only pay tuition, but also room and board and the other pressing expenditures as offered to returning World War II veterans. If the Congress is unable to legislate more money directly, perhaps they could work out partial payments to cover room and board through Welfare channels.

While the new SST debate takes shape in

the Congress, it might be well to note that there are other more pressing matters domestically. Summer jobs add to our income, but with the steel labor strike imminent this summer, another large possibility for employment is lost. Clearly, as veterans we are in a "limbo" situation. Too old to return "home", and unprepared financially to make it without some sort of government help, we are in trouble, especially if we try to return to college.

It is very distressing to many of us in the Baltimore area, that this administration is so concerned with the SST as opposed to so many other pressing economic matters. For us the notion of travel on a supersonic transport aircraft seems very far away from reality, but to ask the tax payers to underwrite the costs of an aircraft that will only be used by the world "jet set" and the very rich, is absurd. We hear quotes of over one billion dollars just to get the craft into production again, not counting the many "unforseen" expenditures that usually end up doubling the costs of government supported projects. Couple this with the fact that the SST will only be able to pay for itself if *every* flight is booked full (a definite improbability), and the notion to pursue this old matter becomes doubtful to say the least. Many of us feel that the SST has become more of a matter of national "prestige" than an economic reality. To claim the French or Russians will have one first is not enough to finish our SST. With the position of the United States in world economics, we could easily put up barriers for environmental reasons and effectively curb all the foreign SST's, since the U.S. is obviously the main intended market. This might not be fair to the Europeans, but why should we keep taking part in economic "one-upmanship" for no logical reason. Since the aircraft industry is obviously in trouble unless there are in some war-time production capacity, perhaps you should suggest to the SST people that their industry should be "nationalized" if they are to insist on government financial support. If there is a genuine problem as encountered by the Lockheed people, then perhaps the government should offer financial help. But, these industries should not be allowed to extend themselves without controls and expect the American taxpayers to pay for their mistakes.

And with mistakes, I will offer another opinion on drugs, When one hears mention of the "drug problem" it has come to mean anything from aspirin to heroin. And as we learn more about the social problems (i.e. addiction, crime, and re-habilitation) drug abuse comes to be "heroin". Heroin is the real threat to society, and there aren't many people, young people included, that will deny that it is heroin and not marijuana that is the problem. From Viet Nam veterans to high school students, they all agree that there is a direct correlation between a crackdown on marijuana control and the rise of heroin. This can be seen in Viet Nam today, as marijuana fields are burned, heroin smuggling increases.

The government has had ample time to study the long range effects of marijuana through their research programs, yet, we have not heard of a single serious side effect of marijuana. Other than the "possible psychological" problems voiced by a few, there are no serious drawbacks. As a matter of fact, I have even read of marijuana extract (THC) being used to ease the suffering of terminal cancer patients and increasing their appetites. Also, doctor's from Bethesda Naval Hospital have found that asthma sufferers have found relief from throat and bronchial constriction after smoking it. These are just a few examples that I have read, and I'm sure that the government investigators must not have found too many detrimental effects or they would not be undertaking their fact-finding mission to some of the nations universities. Now, this "commission" has stated that they will be honest in their approach and not "white wash" the issue, however, they intend to visit only two universities in their study. These are Southern Methodist University in Texas, and the University of Virginia. If the commission intends to receive a true picture of the marijuana situation, why are they visiting only these two universities. I cannot help but feel that in a state where the penalty for possession is ten years or more (Texas), the investigators will receive a very biased and prejudiced outlook on the issue. The same is true for Virginia, as the South is not exactly known for their liberal attitudes. If a *true* picture of marijuana use is to be obtained and a "white-wash" avoided, then the commission should consider some of the large state universities in the East, and at least two state universities in the West in their investigation. Interviews with returning Viet Nam Veterans would definitely aid in a dramatic manner to show the dis-similarity between marijuana and the narcotic, heroin.

While the alcohol industry has been a great contributor to the political treasuries of the nation, we still must realize that marijuana is not going to disappear in the near future, and steps must be taken to bring it under government control and out of the hands of organized crime. Legalization, would certainly put a dent in the alcohol industry, but I don't feel that it would seriously effect the industry over a long period of time. It would, however, bring the billions of dollars spent illegally for marijuana into the government treasury, and add control to a seemingly uncontrollable situation. The paranoia over marijuana should end. I trust and hope the government will stop treating marijuana as the villian, when it is heroin that is the true social menace.

While obviously much of what I have written is common knowledge to some, many of us do not take the time to write our feelings down. If the "system" is to continue to work we must all be responsive to the needs of others, and I trust you will feel my sincerity in writing.

Thank you,

D. J. THOMAS.

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[From the Afro-American, Feb. 21, 1970]

VETS DESERVE BETTER DEAL FOR STUDY UNDER GI BILL

It's time the federal government admits it made a mistake when it stopped paying tuition and book costs for veterans who attend school on the GI Bill.

This charge accounts for an important part of the fact fewer veterans are going to school under the Post Korean GI Bill, signed into law by President Johnson in March, 1966, than went under the previous law.

Thangs became so bad that in 1967 President Johnson ordered the Veterans' Administration to start recruiting veterans to study under the GI Bill.

Until the Congress meets its responsibility to restore the payment of tuition and book costs, the GI Bill will fail to attract the number of veterans it should and leave an unnecessarily heavy burden on those who use it.

This is particularly distressing at a time when most of the Servicemen going into the military prior to completing college work come from low-income families. They desperately need to better themselves. Many turned to the service as a step up the ladder.

This is true whether the young men are black or white, draftees or enlistees. The draftees, incidently, are carrying a heavy share of the combat duties.

Under present draft regulations, young men who can afford to stay in college, are exempted from the draft until they graduate.

Those young men who don't have the money or don't have good grades, are the ones who in large numbers are called upon to shoulder the burden of defending the nation's security.

When they leave the service, more than any other veterans the nation has had, these young men deserve every possible consideration, not only in picking up life where they left off, but in achieving a better position.

Under the present GI Bill, they are being shortchanged, in comparison to what other veterans got.

Before, veterans got their tuition paid, books paid for and certain college fees, along with a monthly subsistence check.

All they get now is the monthly subsistence check, larger than before, but considering the costs of everything today, still most inadequate.

A single man gets $130 a month. A married veteran with two dependents gets $175. For extra dependents, there is $10 more for every month.

Realizing how inadequate this is, the Congress now is considering increases. The House has recommended a hike of up to 31 per cent and the Senate, 46 per cent. They still have to reach a compromise, keeping in mind that President Nixon has recommended a 15 per cent increase.

Even if they settled on a 40 per cent hike, that would give a single veteran $182 monthly or about $45 weekly; and provide a married veteran with a wife and child $245 monthly, or about $61 weekly.

Now, consider the following figures in relation to getting an education; they are about as cheap as you can find and get a good education.

A veteran interested in going to Morgan State College in Baltimore would need $378 for tuition and fees. An estimated $75–100 for books. If he stayed on campus, room and board would come to about $98.50 monthly. If he lives in the city and commutes, it would not be much better. If he commutes from out of the city, and many veterans are from small rural areas, it would be worse.

It adds up to more money than the veteran now gets. There would be other costs, laundry, etc. The University of Maryland would run over $450 more.

Going to an out-of-state school or a non-public one would be even more.

So even with the proposed raise, without the tuition grants and book expenses, the veteran still would be shortchanged.

The system was changed because it was found that some officials at certain schools defrauded the government, the VA says. It reports now that it is having problems with some correspondent schools.

The AFRO feels the need in this area is so great that the government cannot fail in its great responsibility for that reason. It means there must be better checks and legal action where necessary to curb frauds.

But there is an undeniable need for the tuition grants and book expenses if more GIs from low-income families are to have a fair chance at bettering their education.

It certainly is odd enough to say that a veteran can borrow funds for college. Fellows from low-income families who may or may not be expected to finish college, are not considered the best of credit risks.

The Afro-American Newspaper is launching a campaign to have tuition grants and book expenses restored as part of the veteran's GI Bill.

This newspaper is not the only organization which has seen the need of such action. Others include the National Urban League and the American Veterans Committee.

The Congress may find it necessary to set a ceiling on the amount of tuition grants and fees payable, maybe to that necessary for attending the average publicly supported institution.

But a change is necessary and it should be in effect by this September.

VIETNAM VETERANS FOR A JUST PEACE,
*Brooklyn, N.Y., June 24, 1971.*

DEAR SENATOR MATHIAS: Vietnam Veterans For A Just Peace is most pleased at your initiative in proposing an addition to the present GI Bill for education of up to $1,000 towards tuition and fees. We believe that no better investment could be made in the future of a free America than that young Americans who have honorably served their country be aided in furthering their education so that they can continue serving America as responsible, productive, informed citizens. The need is great and the hour late, and even much more is called for than can be contained in one piece of legislation, but we hope that your veterans Bill will be only the first of many leading to full parity for Vietnam era veterans with the benefits afforded veterans of other wars, in addition to new legislation meant to deal with the unique problems of Vietnam veterans.

With our thanks and best wishes,

Most Sincerely Yours,

BRUCE KESLER,
*National Coordinator.*

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STATEMENT OF SKIP "G. D." ROBERTS, NATIONAL EXECUTIVE COMMITTEE, VIETNAM VETERANS AGAINST THE WAR

The Vietnam Veterans Against the War is gratified to see concrete action being taken in regards to enacting our legislative proposals. We applaud the actions of Senator Mathias and his colleagues.

The principle of his amendment is one of equity for the contemporary veteran. Senator Mathias' amendment would do much to restore the benefits utilized by both World War II and Korean veterans. That there is a need for such legislation, there can be no doubt. While over a third of earlier veterans used the G.I. Bill, currently only a quarter of Vietnam Era veterans can manage to survive on the pitiful small amount provided today.

Vietnam Veterans Against the War calls for the speediest possible enactment of the principles embodied in the Mathias Amendment to allow veterans to use it for the coming fall school term.

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By Mr. WILLIAMS:

S.J. Res. 121. A joint resolution to authorize and request the President pro tempore to issue a proclamation designating the period from July 19, 1971, through July 24, 1971, as "National Drum and Bugle Corps Week." Referred to the Committee on the Judiciary.

NATIONAL DRUM AND BUGLE CORPS WEEK

Mr. WILLIAMS. Mr. President, today I introduce, for appropriate reference, a joint resolution that would authorize the President to proclaim July 19, 1971, through July 24, 1971, as "National Drum and Bugle Corps Week."

The numerous young men and women across the country who belong to the several thousand drum and bugle corps have demonstrated a deep dedication to this worthy activity. The hours of time offered by these talented people deserve appropriate recognition.

I am, therefore, hopeful that the Senate will act quickly and favorably on this resolution so that the American people may set aside this specific week in honoring our many drum and bugle corps.

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## ADDITIONAL COSPONSORS OF BILLS AND JOINT RESOLUTIONS

S. 23

At the request of Mr. SCHWEIKER, the Senator from Maine (Mr. MUSKIE) was added as a cosponsor of S. 23, the "Ethnic Heritage Studies Centers Act of 1971."

S. 364

At the request of Mr. Moss, the Senator from Illinois (Mr. PERCY) was added as a cosponsor of S. 364, a bill to strengthen enforcement of the Flammable Fabrics Act and to authorize appropriations for fiscal years 1971, 1972, and succeeding fiscal years in order to carry out the purposes of the act.

S. 1828

At the request of Mr. DOMINICK, the Senator from New Mexico (Mr. ANDERSON), the Senators from Indiana (Mr. HARTKE and Mr. BAYH), the Senator from Texas (Mr. TOWER), the Senator from Nevada (Mr. BIBLE), the Senators from Massachusetts (Mr. KENNEDY and Mr. BROOKE), the Senator from North Dakota (Mr. BURDICK), the Senators from West Virginia (Mr. RANDOLPH and Mr. BYRD), the Senators from New Jersey (Mr. CASE and Mr. WILLIAMS), the Senator from Idaho (Mr. CHURCH), the Senator from Mississippi (Mr. EASTLAND), the Senators from Alaska (Mr. STEVENS and Mr. GRAVEL), the Senators from Wyoming (Mr. MCGEE and Mr. HANSEN), the Senators from Oregon (Mr. HATFIELD and Mr. PACKWOOD), the Senator from Iowa (Mr. HUGHES), the Senator from Washington (Mr. JACKSON), the Senator from New York (Mr. JAVITS), the Senator from Oklahoma (Mr. BELLMON), the Senator from North Carolina (Mr. JORDAN), the Senator from Montana (Mr. MANSFIELD), the Senator from South Dakota (Mr. MCGOVERN), the Senator from Minnesota (Mr. MONDALE), the Senator from Utah (Mr. Moss), the Senator from Maine (Mr. MUSKIE), the Senators from Rhode Island (Mr. PASTORE and Mr. PELL), the Senators from Illinois (Mr. PERCY and Mr. STEVENSON), the Senator from Connecticut (Mr. RIBICOFF), the Senators from Pennsylvania (Mr. SCOTT and Mr. SCHWEIKER), the Senator from California (Mr. TUNNEY), the Senator from New Hampshire (Mr. PROUTY), the Senator from Ohio (Mr. TAFT), the Senator from Hawaii (Mr. FONG), and the Senator from Alabama (Mr. ALLEN) were added as cosponsors of S. 1828, the Act To Conquer Cancer.

S. 1848

At the request of Mr. HARTKE, the Senator from Indiana (Mr. BAYH), the Senator from Minnesota (Mr. HUMPHREY), and the Senator from New York (Mr. JAVITS) were added as cosponsors of S. 1848, the Truth-in-Savings Act.

S. 2050

At the request of Mr. SCHWEIKER, the Senator from Illinois (Mr. STEVENSON) was added as a cosponsor of S. 2050, a bill to provide for agreements for broader State control and to confer certain powers on the Administrator of the Environmental Protection Agency.

S. 2135

At the request of Mr. KENNEDY, the Senator from Indiana (Mr. BAYH) was added as a cosponsor of S. 2135, a bill to amend title V of the Social Security Act to extend for 5 years—until June 30, 1977—the period within which certain special project grants may be made thereunder.

## EMERGENCY LOAN GUARANTEE ACT OF 1971—AMENDMENT

AMENDMENT NO. 234

(Ordered to be printed and referred to the Committee on Banking, Housing, and Urban Affairs.)

Mr. STEVENSON. Mr. President, I send to the desk for appropriate reference an amendment to S. 1891, the administration's loan guarantee bill for the Lockheed Aircraft Corp.

The administration's proposal raises at least two sets of questions. One set has to do with the transcendent issue of whether the public interest is served by Federal intervention to save a large commercial project in a competitive industry. The other set has to do with the specific features of the proposed transaction, and with the question of whether the proposal as it now stands provides the Government with a reasonable degree of protection.

I introduce this amendment in the belief that S. 1891 lacks a number of basic safeguards, and that the Congress should not pass upon the larger questions until such safeguards are added. To do otherwise is to announce to the world that the U.S. Government is a soft touch for big businesses in trouble—and for whatever reason they are in trouble—their creditors and suppliers, included.

The economic climate is such that before long other large corporations may find themselves in trouble, especially in the aerospace industry. I fear that if we do not subject this proposal to rigorous analysis, provision by provision, a procession of weak sisters will make their way to our doorstep—all looking for a better deal than they could get in the private money market. A bad precedent can be created not only by our ultimate decision, but by how we consider the proposal prior to arriving at that decision.

This amendment seeks to increase the Government's protection in three important ways:

Greater access to information about the borrower;

Increased collateral; and

More gradual exposure to risk.

ACCESS TO INFORMATION

Section 5 of S. 1891 empowers the Secretary to inspect pertinent documents after the guarantee is made. It does not require that the Secretary be furnished with any financial information in the crucial period before the guarantee is made, nor does it require the borrower to take the initiative in providing pertinent information after the guarantee is entered into.

This amendment seeks to correct both of these deficiencies. It requires that prior to making any guarantee, the Secretary shall be furnished with the borrower's financial statements and with all other pertinent documents which the borrower has given to the banks. Since the whole purpose of this guarantee is to shift the risk from the banks to the taxpayer, it is only fair to give the taxpayers at least as much information as the banks have.

The amendment specifically requires that the Secretary receive the borrower's most recent annual financial statement, the accuracy of which is certified by independent public accountants, before

the guarantee is entered. In the case of Lockheed's most recent financial statement, the independent accountants, after a searching audit which consumed 23,000 man-hours, took the highly unusual step of refusing to express an opinion on the accuracy of the statement. In testimony before the Senate Committee on Banking, Housing, and Urban Affairs, however, the accountant in charge of the Lockheed audit stated that his firm might be willing to certify the financial statement if the Congress authorizes the guarantee. If the accountants persist in their refusal to certify the accuracy of the financial statement even after the Congress acts favorably, it would in my judgment be imprudent for the Secretary to make the guarantee. My position is supported by no less an authority than Mr. William H. Moore, chairman of the Board of the Bankers' Trust Co. Banker's Trust and the Bank of American lead the consortium which has loaned $400 million to Lockheed. In June 14 appearance before the Senate Banking Committee, Mr. Moore was asked the following question:

Would it be wise to amend the bill to provide that the Secretary of the Treasury should see a certified audited account before proceeding with the loan?

His response was "Yes, I think it would be prudent."

If the guarantee is made, this amendment also insures that the Secretary will be provided with financial statements and other pertinent documents as they are issued.

INCREASED COLLATERAL

Under the existing security agreement between Lockheed and the banks, assets of Lockheed have been pledged as collateral to secure the loan. In the event that Congress authorizes a guarantee, it is undisputed that the Secretary and the banks plan to enter into an agreement giving the Government a first and prior lien with respect to all the collateral listed in the security agreement.

In the event that Lockheed defaults or goes bankrupt, however, the banks are not limited to the assets listed in the security agreement. They can also look to another important asset—cash. Under section 68 of the Bankruptcy Act and a long line of court cases, sums which a borrower has deposited in a bank may be offset against the debt which the borrower owes the bank. For this reason, cash on deposit is the best possible form of collateral a bank can have.

In this case, Lockheed has a total of about $50 million on deposit in the 24 banks which have loaned Lockheed the $400 million now outstanding. Because the banks look to the $50 million as collateral, the Government should be able to do so as well, and this amendment so provides. The proposal now before us calls for the Government to take all the risk and the banks to take none of the risk with respect to the new loan. If we are asked to take all the risk, it is only fair that we get first crack at all the collateral.

Secretary Connally has told the Senate Committee on Banking, Housing, and Urban Affairs that—

The Government's claim will be paid off first from whatever assets are in the collateral pool at the time of bankruptcy.

This amendment simply makes it clear that the sums Lockheed has on deposit with lender banks are to be part of the "collateral pool."

MORE GRADUAL EXPOSURE TO RISK

Under S. 1891, as it now stands, the Secretary is authorized to guarantee loans of up to $250 million for 10 years, even though Lockheed's projections show that in the middle of next year, only $100 million of the $250 million loan will have been drawn down.

Usually when a bank makes a commitment to loan a large amount of money over a period of time, it will police the agreement closely to make sure that the lender is not in default during the loan period. If the bank discovers a default, it can cut its losses by refusing to make additional outlays under the loan agreement. In this case, if the Secretary guarantees the full $250 million at the outset, the banks will have far less incentive to police the loan carefully. By the same token, they may be willing to approve additional advances no matter how badly Lockheed's financial condition becomes—because it is the Government which is bearing all the risk.

In my judgment, the blanket guarantee at the outset of the transaction should be expressly prohibited, because it creates excessive and unnecessary hazards for the Government, and this amendment does so. In place of the blanket guarantee, the amendment establishes a serial guarantee system, under which each 90-day portion of the loan is guaranteed separately. Prior to guaranteeing any portion of the loan, the Secretary must receive the assurance of the banks that the borrower is not then in default under the loan agreement, and any waiver by the banks is not effective against the Government unless the Secretary gives his written consent to the waiver. In the event that the banks assure the Secretary that the borrower is not in default and it is subsequently determined that the borrower was in fact in default, the guarantee is nullified.

These provisions give the banks a strong incentive to police the loans as carefully as they would if there were no guarantee.

In addition, the amendment provides that when the borrower is in default, the Secretary has the right to refuse guarantees of further loans. There is no reason why the Secretary should be locked into a position whereby he is forced to guarantee a loan to a borrower who has not lived up to the terms of the loan.

Finally, the amendment requires that the loan agreement between the banks and the borrower contain the usual and customary protective provisions, and that any modification of the loan agreement between the banks and Lockheed must be approved by the Secretary.

Mr. President, I ask unanimous consent that the text of this amendment be printed at this point in the RECORD.

There being no objection, the amendment was ordered to be printed in the RECORD, as follows:

AMENDMENT No. 234

On page 5, strike everything in lines 1 through 66 and substitute the following:

SEC. 6. (a) No advance shall be guaranteed under this Act unless the Secretary first receives—

(i) the borrower's most recent annual financial statement, the accuracy of which is certified by independent public accountants in accordance with Securities and Exchange Commission Regulation S–X, Rule 2.02(c);

(ii) the borrower's quarterly financial statements issued subsequent to the issuance of the most recent annual report, the accuracy of which are certified by the borrower's president or chief financial officer; and

(iii) all other documents which the borrower has provided to the private lenders whose commitment is being guaranteed under this Act.

(b) Any guarantee agreement entered into under this Act shall contain a requirement that the borrower shall furnish the Secretary with—

(i) financial statements as described in subsections (a)(i) and (a)(ii) above and which are issued subsequent to the effective date of the guarantee; and

(ii) copies of all reports and documents which the borrower files with the lenders and with Federal, State, and local governmental agencies.

SEC. 2. COLLATERAL. At the end of section 6 add a new subsection as follows:

(c)(i) Any guarantee agreement entered into under this Act shall contain a requirement that as between the guarantor and the lenders, the guarantor shall have a first and prior lien with respect to all collateral held by the lenders under the loan to be guaranteed and all earlier outstanding loans, and the Secretary shall take all necessary steps to perfect such lien against all persons.

(ii) for purposes of this subsection the term "collateral" shall include all assets pledged under loan agreements and all sums of the borrower on deposit with the lenders and subject to offset under Sec. 68 of the Bankruptcy Act.

SEC. 3. Gradual Exposure to Risk. On page 4, following line 19, add a new subsection as follows:

(g)(i) Prior to making any guarantee under this Act, the Secretary shall satisfy himself that the underlying loan agreement on which the guarantee is sought contains all the affirmative and negative covenants and other protective provisions which are usual and customary in loan agreements of a simliar kind, including previous loan agreements between the lenders and the borrower, and that it cannot be amended, or any provisions waived, without his prior consent.

(ii) On each occasion when the borrower seeks an advance under the loan agreement, the guarantee authorized by this Act shall be in force as to the funds advanced only if—

(A) the lender gives the Secretary at least ten days notice in writing of its intent to provide the borrower with funds pursuant to the loan agreement; and

(B) the lender certifies to the Secretary before the advance that as of the date of the notice provided for in paragraph (A) of this subsection, the borrower is not in default under the loan agreements and no event of default has occurred; provided that no waiver by the lender of defaults by the borrower shall be effective against the guarantor unless the Secretary gives his express, written consent to the waiver.

(C) the borrower certifies to the Secretary that the amount being advanced is to be expended within 90 days of the date on which the draw down occurs, and provides the Secretary with a plan setting forth the expenditures for which the advance will be used.

(iii) In the event that the Secretary guarantees an advance based on the lender's certification required by subsection (ii)(A) of this section, and the borrower was in default on the date specified in subsection (ii)(B) of this section, the guarantee shall be deemed null and void from its inception.

## ADDITIONAL STATEMENTS

### IS IT OLD FASHIONED TO BE PATRIOTIC?

Mr. ERVIN. Mr. President, the Sterling Laundry, which has operated in the Washington area for more than a half century, does not believe it to be old fashioned to be patriotic.

Sometime ago it forwarded to its customers flags suitable for placing upon their automobiles, accompanied by a statement urging them to display such flags on their automobiles. It seems to me that this organization merits commendation for this activity on its part.

A copy of the statement of the Sterling Laundry to its customers has been furnished to me by one of them. I ask unanimous consent that such statement be printed the RECORD.

There being no objection, the statement was ordered to be printed in the RECORD, as follows:

Is it old-fashioned to be patriotic? In some quarters it seems to be. Some would have us believe anyone who shows respect for our nation's heritage, and appreciation of the opportunity this land offers, is definitely out of step.

Those with this kind of attitude comprise only a small minority, yet the news coverage they get would seem to indicate otherwise. At times, it would seem they threaten the very foundations of our political and economic system.

Perhaps it's time for our side to stand up and be counted. Those who appreciate our great nation and the sacrifices of those who have gone before us. The United States is not perfect, certainly, but Americans today have an abundance unknown and undreamed of in the history of the world.

The brilliant Henry Ward Beecher once said: "A thoughtful mind when it sees a nation's flag sees not the flag, but the nation itself. And whatever may be its symbols, its insignia, he reads chiefly in the flag the government, the principles, the truths, the history that belong to the nation that sets it forth. The American Flag has been a symbol of Liberty and men rejoiced in it . . ."

I invite you, as an American, to display the enclosed Flag on your automobile.

### ELEANOR ROOSEVELT AND THE CONVENTION ON THE POLITICAL RIGHTS OF WOMEN

Mr. PROXMIRE. Mr. President, the late Eleanor Roosevelt served the Nation in many capacities. She was our First Lady longer than any other woman; she represented the United States at the United Nations during that body's infancy; and she was a good-will ambassador for America wherever she traveled.

This courageous woman advocated passage of the Convention on the Political Rights of Women. She believed U.S. ratification would place the moral force of this great Nation on the side of political equality.

The Senate should heed the words of Mrs. Roosevelt delivered before the Third Committee of the General Assembly in December 1952 and ratify this convention. I ask unanimous consent that an excerpt of her speech be printed in the RECORD.

There being no objection, the excerpt was ordered to be printed in the RECORD, as follows:

As most of you know, the subject of this convention—equal suffrage for women—is very close to my heart. I believe in active citizenship, for men and women equally, as a simple matter of right and justice. I believe we will have better government in all of our countries when men and women discuss public issues together and make their decisions on the basis of their differing areas of experience and their common concern for the welfare of their families and their world.

In the United States, and in most countries today, women have equal suffrage. Some may feel that for that reason this convention is of little importance to them. I do not agree with this view. It is true, of course, that the first objective of this convention is to encourage equal political rights for women in all countries. But its significance reaches far deeper into the real issue of whether in fact women are recognized fully in setting the policies of our governments.

* * * I do not expect that there will ever be as many women political leaders as men, for most women are needed in their homes while their children are small, and have fewer years in which to gain public recognition. But if we are honest with ourselves, we know that all countries have a long way to go on these matters * * *

This convention on political rights of women is not in itself an answer to the problems of modern government. But it points up, I believe in useful ways, how governments can expand their resources by taking full advantage of the energy and experience of their women citizens. * * *"

### DOCUMENTS RELEASED TO THE NEW YORK TIMES CONCERNING U.S. PARTICIPATION IN THE VIETNAM WAR

Mr. BUCKLEY. Mr. President, in the past several days, discussion surrounding the publication of classified Government documents concerning the Vietnam war has tended to obscure the vital significance of the events.

The most serious aspect of the publication of documents relating to the evolution of the U.S. participation in the Vietnam war is not related to the revelations contained therein, nor even the issue of the suppression of their publication—at least temporarily suspended through the action of the courts—even though these issues are important.

The critical issue involves the fact that a major document carrying the highest security classification, top secret, was stolen by an individual who was presumably in a privileged position of trust, and given or sold to a major newspaper. It has been suggested that there should be no prosecution of the individual responsible for the theft of this top secret document because its publication has been described by the newspaper in which it was published as being "in the public interest."

To accept this line of reasoning is to place the security of the United States in the gravest danger, for the failure to prosecute the individual responsible would suggest that henceforth, any individual can steal the most sensitive Government documents and claim immunity from prosecution because he has determined that revelation of the documents is in the public interest.

There can be no substitute for visiting swift and severe punishment on the individual responsible for the theft if we are to prevent entrepreneurs in the distribution of critical defense information from achieving legitimacy. To permit or condone such theft by the failure to vigorously prosecute the individual responsible will forever inhibit the free flow of ideas within the executive branch of Government and between governments.

This sorry episode suggests that the system for safeguarding sensitive information is in serious need of review. No information should be inappropriately classified—but information that is classified should be protected by a mechanism which insures swift and severe punishment for those who violate the trust that has been placed in them as custodians of the Nation's security.

### ELECTRIC POWER IN THE SEVENTIES

Mr. ERVIN. Mr. President, on June 18, 1971, Shearon Harris, who has been recently chosen chairman of the Edison Electric Institute, made an illuminating address entitled "Electric Power in the Seventies" before the National Press Club in Washington, D.C.

Mr. Harris is one of the most knowledgeable men in the power generating and distributing industry in the United States, and his remarks upon the occasion stated merit wide dissemination.

For this reason, I ask unanimous consent that they be printed in the RECORD.

There being no objection, the remarks were ordered to be printed in the RECORD, as follows:

"ELECTRIC POWER IN THE SEVENTIES"

(Remarks of Shearon Harris)

President Louviere, honored guests, and members of the National Press Club:

The invitation to address so many distinguished representatives of various communications media provides an opportunity which I sincerely appreciate. I hope the information I will share with you during the next 20 minutes, and in response to your questions, will bring a better understanding of the largest industry in America.

At the outset, let me anticipate one question with this emphatic assurance:

There is no nationwide or national power crisis.

We expect reserves this summer to be either about the same as last summer or somewhat improved and we are capable of greater mutual assistance.

Even before this luncheon adjourns, the lights may go out somewhere in this vast land; but I assure you it will be a local matter. Intervals of extreme temperatures raise the possibility of local power interruptions, but any such outages should be limited in area and duration.

"Reliability"—as the term has become known since November of 1965—is not one of our industry's major problems.

Following the 1965 Northeast blackout, we accelerated our technical and administrative procedures to increase our already high level of reliability and to develop stronger transmission systems and interconnections. Despite obstacles to the construction of new fa-

cilities, transmission capacity and the ability to move bulk power between and among regions have increased due in no small measure to the work of the nine regional coordinating councils covering the country and the National Electric Reliability Council of which they are members. There have been no further cascading blackouts since 1967. Currently, the National Electric Reliability Council is evaluating the ability of the interconnecting networks and the generating facilities supplying the loads to support generation deficient areas during times of emergency.

Every industry has its problems and ours is no exception. In fact, the magnitude of our problems bears a direct relationship to the size of our industry. Within the next few minutes, I will share some of those problems with you; but I prefer to regard them as "challenges."

First, we begin with population; for, after all, it is people we are dedicated to serving.

Our industry honors its public utility service commitment not only to today's America, but more important, we are equally obligated to the tens of millions of new Americans of tomorrow. Even the most conservative demographers estimate that our population will grow (on the basis of two children per family) to at least 265,000,000 by the year 2000. At the population growth rate of the sixties (3.24 per family) we would pass the 300,000,000 mark *before* the year 2000.

You have heard many ill-advised, emotionally charged alarmists counsel "zero growth" for the sake of our environment. Such an uncertain sound would signal ignoble retreat into the past.

Instead, the investor-owned electric utility industry recognizes its obligation to see that all customers enjoy not only the creature comforts and conveniences of clean electric energy but also important, power in abundance to support their economic, social and physical well-being on an ever-improving level.

The party that straightforwardly advocates that we should embark on an energy policy course that reduces jobs, restricts economic opportunity and results in reducing resources available to support health, education, welfare and cultural pursuits will find itself summarily rejected.

Electric power will prove to be part of the solution rather than a part of the problem as it relates to the environment.

As Senator Jennings Randolph, Democrat of West Virginia, said in the Congressional Record of last April 26, "The quality of life and the use of energy are inextricably tied together. For one to improve, the other must increase."

Our industry will provide that energy in the form of safe, non-polluting electricity converted from raw fuels by the most efficient technology now known to man.

In a recent New York Times column, Robert Bendiner, said:

". . . The fact is, we need more power to do the very recycling of waste that is so desirable. We need it to operate the vastly expanded sewage treatment plants that a growing population demands. We need it for that immeasurably developed system of mass transportation that our metropolitan areas must have if the automobile is not to make the human lung outmoded. We need it for the herculean clean-up of the nation's lakes and rivers. And, not least, we need it if all who are just emerging from dire poverty are to enjoy a standard of living we have so come to take for granted. . . ."

Mr. Bendiner went on, and so could I; but the need for more power is too obvious to labor the point.

Note how often the task of enhancing the environment is characterized as "herculean." We disavow the methods of our mythical hero. Indeed we will provide the labor to clean whatever Augean stables need cleaning today, but we will not flush the pollution into any River Alpheus.

To be a hero today, even Hercules would need a new approach!

On May 15 Business Week magazine reported that a survey by the McGraw-Hill Economics Department showed that electric utilities lead 12 other major industries in outlay projected for pollution clean-up, with an estimated total of $3.2 billion. It said these utilities plan a jump of 68 per cent in their spending in 1971, to $679 million.

With the greater interest in improving the quality of life, electric energy is gaining recognition as being fundamental to solving some of our most serious environmental problems.

In a sampling of Edison Electric Institute member companies, 85 different manufacturers which purchased electricity from 16 electric utility companies were found to be using annually nearly 1.5 billion kilowatt-hours exclusively for pollution control or environmental enhancement. These kilowatt-hours represent 8.4 percent of the total annual electrical requirements of these 85 customers. In the future, these customers expect to be using nearly 2.3 billion kilowatt-hours a year strictly for environmental considerations.

Effective reduction of water pollution means a tremendous expansion in sewage treatment facilities. To pump millions of gallons of water through screening, filtering and clarifying systems through the hundreds—and perhaps thousands—of urgently needed new treatment plants will require massive quantities of electric power.

In the solid-waste recycling field, there are electrically powered machines using up to 10,000 horsepower for shredding, baling and compressing old auto bodies and other junk. Millions of aluminum cans are being recycled through processes requiring electric energy.

Recently it was reported that scientists at the Franklin Institute are building a machine predicted to separate 60 tons of household trash an hour into reusable raw material. If such a device with the indicated separating and shredding characteristics were to come into being, we have calculated that more than 2 million kilowatts of electric generating capacity would be required to operate the machines needed to handle the 360 million tons of residential, commercial and industrial trash which was produced in the United States in 1969.

On a less theoretical basis, it has been determined that five paper mills on one electric utility's system will need 214 million kilowatt-hours a year by mid-1972 to operate the equipment to enable these operations to meet the state's environmental standards. This amount of electricity is equal to the annual consumption of some 30,000 residential customers using in their homes the 1970 annual average of 7,066 kilowatt-hours per customer.

Consider foundries, which have been prime examples of a polluting industry. Improvements in combustion techniques, including the introduction of electric induction furnaces, have virtually eliminated foundry pollutants. In one example, at Saginaw, Michigan, several electric induction furnaces of a large foundry use 20,000 kilowatts each.

In the broad area of transportation, it has long been recognized that the internal combustion engine is the largest single source of air pollution. There is no question but that the use of electrically powered vehicles will increase, and that the day is coming when the short-range battery-driven electric car will be a feature of the urban and suburban scene.

Last summer, a task force of the Institute's Railroad Electrification Committee pointed out the advantages of electrified railroads. In addition to the obvious environmental benefits of electrical locomotives over diesel-electric locomotives, the task force report cited the fact that the traffic-handling ability of one two-track railroad line is equal to that of *seven* four-lane highways. There is much to gain in improved land use and in air quality through the development of electrified railroads and mass transit facilities.

Our basic objective of an abundant electric energy supply campatible with appropriate environmental considerations will carry a higher price tag. The combined effect of the ravages of inflation, demand for fuels outrunning available supply, higher capital costs, increasing state and local taxes and added investment in pollution control equipment means higher cost for electric service.

Add to these "challenges" the problems of plant siting and everybody else's attempt to "solve" them for us, tight capacity positions in some areas and staggering construction programs and financing costs which demand adequate earnings.

The press has given considerable attention recently to what I call the "raw energy crunch," or the risk of demand outrunning the available long-term supply of fuels such as coal, natural gas, oil and uranium.

Last year the electric power industry in the United States consumed slightly more than 320 million tons of coal, almost 325 million barrels of oil, 3.9 trillion cubic feet of gas and 570 short tons of uranium ore to produce 83.8 per cent of the 1.53 trillion kwhr of electric energy consumed by our nation. Hydraulic energy met the other 16.2 per cent of electric needs.

The investor-owned electric utility industry required an estimated 17 percent of the total fossil fuels consumed in the United States in 1970, about one-tenth of a percent of the proven recoverable reserves at the beginning of 1970.

With electric power requirements expected to quadruple in the next two decades, the critical nature of supply-price trends is obvious.

In 1969 and 1970, labor unrest, production delays, increased exports, hopper-car scarcity and other factors created a crisis in the supply of coal for many eastern utilities, their most important raw fuel. EEI proposed four means of alleviating the shortages: an export embargo, increased coal depletion allowance, development of practical methods of removing sulphur from stack gases and incentives for faster turn-around of railroad coal cars.

Short-term efforts by industry and government increased coal deliveries; and coal costs also increased. However, coal still tops the fuel policy priority list.

Residual fuel oil almost doubled in price on the East Coast in 1970. Recent Middle East negotiations suggest that prices there will trend toward whatever the traffic will bear. Higher shipping costs and increased demand for low-sulphur oil to meet air pollution regulations will continue to exert upward pressures on oil prices.

It is reported that about 23 percent of the nation's present petroleum needs are served by foreign sources and that by 1980 we may be importing as much as 50 percent.

Natural gas is in short supply, not because it does not exist, but because of apparent lack of incentive for exploration. Chairman John Nassikas of the FPC has taken action to determine whether higher rates should be established for future supplies of natural gas dedicated to the interstate market and whether prescribed pipeline rates yield returns adequate to attract investment capital for gas exploration.

Requirements for uranium, used in the present technology, indicate long-term limitations which would tend to cause nuclear fuel prices also to drift upward.

Efficient use of our energy resources will

be the key to success with any fuels policy. In that context, former Presidential Economic Adviser Henrik Houthakker last month observed: "There are few economic problems that cannot be solved by private competitive enterprise with a minimum of government intervention. Nothing I have seen or heard in the area of energy so far has convinced me that exceptional measures by the Government are warranted. Provided we let the free market do its job, we shall be neither cold nor powerless in 1980."

In order to contribute to the formulation of that policy, a comprehensive study of energy requirements is now being conducted by a top-level Policy Committee on Energy Resources of the EEI. The study will identify and specify the interrelating factors, including technological progress and government policy, which will affect the availability of fuels and energy. The study also will provide specific fuel forecasts for the middle of the 70's and 1980. We will make this study available broadly, and we believe that it will be useful not only to our industry, but also to Congressional committees and government agencies. As I will indicate in a moment, answers to the fuels challenge are linked with research and development.

Government participation in our daily lives has become so pervasive and the operation of government so complex that various uncoordinated actions of government sometimes coincide to prevent the electric utility industry from doing what the total of society wants done to adequately serve it. Agencies of our society are unwittingly acting in conjunction with each other to frustrate the very society they serve. The development of energy policy needs not so much a system of rationing or allocation of resources but a coordination of our many fragmented policies so that the nation is assured adequate and environmentally acceptable fuel supplies at reasonable prices.

For example: (1) Promotion of coal exports by the Department of Commerce while mine safety reduced production and created a domestic shortage; (2) Environmentalists act to block construction or operation of power facilities which would supply the power needed to operate clean-up devices.

CAPITAL CHALLENGE

Investor-owned electric utility plant and equipment at the end of 1970 aggregated $93.5 billion, and new construction within the next five years was estimated to require $55 billion, compared with $37 billion for the preceding five years.

Electric needs of the next two decades will require new investment capital of a magnitude that staggers the imagination. Attracting the necessary new money will depend largely on the level of earnings allowed by regulation. It is heartening to note the recognition by regulatory commissions that rate increases are imperative if utilities are to meet their service responsibilities in the face of higher costs all along the line.

Reports to EEI last year showed that 85 rate increases were granted to investor-owned electric utility companies, and that 25 were granted during the first quarter of 1971. Many more applications are pending.

During the last eleven years, 1960–1970, the investor-owned electric utilities raised new money for their expansion program equivalent to more than nine per cent of all personal savings. In the remaining years of the Seventies, a somewhat larger share will be required.

It should be noted, however, that one of the key characteristics of the electric utility industry is that its rate of growth exceeds that of the economy as a whole. This is expected to continue. As electric energy expands in its application to a variety of fields—house heating and transportation, for example—it tends to replace to an extent capital requirements of other segments of the economy. Hence, the expectation that the electric utilities will require a larger share of personal savings in the future is reasonable and does not present insuperable obstacles—as long as investors can see that putting their money in our industry is competitively attractive compared with other opportunities.

In this area, of course, much depends on public opinion; and despite the misinformation and confusion to which they are so often exposed, our customers generally think well of us. Response Analysis Corporation has just completed a nationwide opinion survey which shows we rank neck and neck with telephones as the leading industry the public feels is trying hard to serve the public well. Eighty-five per cent of those approached thought dealings with electric companies were satisfactory and a large majority—60 per cent—felt prices are reasonable. The majority also opposed restricted use of electricity and thought, on the contrary, that the best way to clean up the environment was to use it more effectively.

Finally, and perhaps the most vital, long-term challenge lies in the field of research and development. In addition to extensive research and development previously undertaken by our industry and equipment manufacturers, I propose four specific areas requiring massive effort:

De-sulphurization of fossil fuels, the near-term route to making 1,000 years' supply of coal available for use without ecological degradation.

The fast breeder reactor, a longer-range route to energy conversion efficiencies on the order of 50 to 75 times today's light water reactors.

A significant step forward toward achieving useful power from thermonuclear fusion. This technology holds promise of solutions of many of our fuel and environmental problems of the future and deserves commitment now if we want to make it ready to use 30 years from the time we make such a commitment.

Underground transmission technology, a need that becomes increasingly pressing as power requirements grow.

The fast breeder reactor alone would constitute one of the largest R&D projects we have ever attempted and poses profound financing puzzles which we have yet to solve. These derive from the peculiar forces which inhibit R&D investment within regulated utilities.

We do not need to be apologetic about our past level of commitment to research and development. The issue is not whether we should have done more but the issue is what needs to be done *now* and how should we do it.

In our enterprise system, the profit motive normally stimulates investment in research and development. In the case of regulated utilities, which must pass along to the customer such benefits in the form of reduced rates, not only does the incentive not exist but the system actually works in a counter-productive fashion.

Our assignment is to find an acceptable way to permit those who will enjoy the benefits of technological improvements, that is to say our customers, to share in providing the seed capital for such undertakings. The concept of a surcharge, to be applied voluntarily by each electric supplier with proper approval by regulation, has been suggested and has my enthusiastic support until such time as a better approach evolves.

In my opinion, more effective research and development can be accomplished at less cost if a means can be found for funding and directing the program through the private sector of the economy with a minimum of governmental involvement.

We are conscious of the concern in many governmental quarters, particularly the Congress, for the matter of adequate power supply and proper environmental protection; and we hope that any new regulations and standards enacted into law will work to expedite rather than retard the business of supplying the nation's energy.

President Nixon's recent energy message to Congress reiterates our own objectives of a coordinated, long-range program assuring the ready availability of fossil fuels. His emphasis on developing the fast-breeder reactor reinforces the efforts of industry committees which for months have been working with the AEC toward that end.

We agree with the President on the wisdom of the nation using its energy resources wisely. To critics of "frivolous and extravagant" power use, we would point out that all the small appliances in the nation use less than four percent of electric power, while commerce and industry uses two-thirds.

In working with government toward common objectives, the investor-owned industry offers its most thoughtful and constructive cooperation.

We are continually conscious of the verity of a quote recently attributed to Interior Secretary Rogers Morton to the effect that "ecology is the most important thing in the world until the lights go out."

The electric industry is confident it will deliver all the electricity this and future generations demand, with a balanced energy-environment perspective. Electricity is not the problem. Electricity is a major part of the solution to the problem.

## THE UNIVERSITY OF KANSAS' TRADITION OF EXCELLENCE CONTINUES

Mr. DOLE. Mr. President, the University of Kansas is one of the most outstanding institutions of higher education in the Nation. Its traditions of excellence go back to its founding and have been strengthened and enhanced by students, faculty and alumni alike, over the years.

Perhaps the most unique feature of the university is that it excels in so many areas of endeavor. Many of its departments and schools of learning have national reputations for their achievements in research and quality of graduates; its athletic department consistently produces nationally ranked teams and world-famous performers; and its alumni association is one of the largest and most active in the Nation.

Unfortunately, over the last few years the University of Kansas has received a disproportionate amount of sensational publicity at the hands of the likes of the New York Times and network television. As is the usual case, no mention was made in these stories of the great accomplishments of the university and the individuals associated with it.

Someone has, however, gone to the trouble to compile some of the important, recent but nonheadline facts about KU, its students, and faculty. That someone is Dr. Laurence Chalmers, chancellor of the university. Speaking at the annual luncheon for graduating seniors and their parents, Dr. Chalmers expressed his pride and admiration for the accomplishments of this year's graduating class and for the work of other students and faculty who have continued to contribute to the university's tradition of excellence.

Since Dr. Chalmers' remarks did not receive the same widespread coverage as some other events on the KU campus, it

might help to balance the record and present a more realistic view of what the University of Kansas is all about to have the text of his statement printed in the RECORD. I ask unanimous consent that it be so printed.

There being no objection, the address was ordered to be printed in the RECORD, as follows:

STATEMENT BY DR. LAURENCE CHALMERS

Most of my remarks this noon are addressed to the parents, although the graduating class and the press are welcome to eavesdrop.

Well, we've almost reached that moment when your sons and daughters are ready to be declared honored graduates of an honored University. No doubt some of you parents thought this day never would arrive. I'll let you in on a secret. There were times when your sons and daughters wondered too. Most of you are relieved—so are your graduating seniors. All of you are properly proud. I'll let you in on another secret. Despite the blasé exterior, you sons and daughters are just a tad bit proud too, and properly so. But no one here today can be one bit more proud of this senior class than I am, and no one regrets their departure more than I do.

These are our crack troops (sorry about the analogy gang but it fits), and I feel like the old master sergeant who has just received word that his best combat team is being mustered out and will be replaced by a group of rookies in August. I said that analogy was apt, and I meant it. This University has been under siege for most of the past four years; under seige from the far left, from the far right, from CBS, from the Attorney General and even on occasion from apprehensive or angry parents. You know who manned the barricades and successfully rebuffed every assault? Your own sons and daughters. What is more astounding is the fact that they have managed to improve the University in the process.

The way I add it up, this class has obtained an education, enhanced the University, and defended it against all comers. Is it any wonder that you and they are relieved to see their endeavor successfully concluded while our faculty members and staff are reluctant to let them go?

I'll admit that our reluctance is provincial. They are ready to challenge and to defend our society and K.U. can't hold onto all of their energies and talents indefinitely.

Let me take just a few minutes to mention some of the activities in which your offspring have participated, activities that have been of significant benefit to K.U. Last summer, students from K.U. fanned out across the state, to their home communities, to talk with you, with your friends, with civic groups and service clubs in an effort to explain what really happened on campus the preceding spring. During those summer months your class president, Jim Nichols, joined John Conard and me in a series of 37 speaking engagements before regional alumni gatherings. Jim was especially helpful in presenting a student's viewpoint of campus events.

A similar activity will occur again this summer as the newly-initiated "people's lobby" gets under way to enlist active support for K.U. and for quality higher education in Kansas. These activities are especially noteworthy because they demonstrate that our students are deeply concerned about their university—a concern that became more apparent when the Student Senate voted by a 7 to 1 margin to turn over a full one-third of the activity fund to help finance the academic program of the university.

In other projects this year we have seen the first-year law class provide an ombudsman program for the students; the reclamation center—home of the "whomper"—was started to replace rhetoric with action in the field of ecology; the teacher/course evaluation survey has been honed to a fine degree by the dedicated efforts of a number of students, especially Dennis Embry; and this year's senior class again provided part of their class dues to create a short-term loan fund to benefit members of the senior class.

In this year, the students became active participants in *all* levels of university policymaking: in departmental committees, in school committees, and in the university governance system. To measure the quality of the students' contribution I need only note that the faculty members who most actively supported such student participation on a university-wide level were those who had already experienced such interaction at other levels.

Even in the area of campus construction, students have picked up where others left off. Last year and this they agreed to complete Wescoe Hall and to fully finance the soon-to-be-built Student Health Center.

K.U. students have not just participated in university governance and in activities that promote the university's public relations. Collectively, they have brought us a number of prestigious honors and distinctions.

According to the American College Testing Program, an authoritative organization on higher education, K.U. ranks 8th in the nation among public institutions in terms of the academic excellence of our undergraduates. We are the only one of the top 8 public universities which does *not* have a selective admissions policy.

The Cartter Report of 1964 ranked K.U. 30th in the nation in arts and sciences among all graduate institutions on the basis of strength of ratings gained by individual graduate programs. An updated study, released in January, by the American Council on Education indicates that K.U. graduate programs have been strengthened even further, with 26 programs rated in the top three categories by the ACE.

Also in January, 1971, the U.S. Commissioner of Education announced that 39 K.U. graduate programs are eligible for the use of NDEA Graduate Fellowships, and he awarded funds to support 22 new 3-year fellowships. Only eleven public universities had more doctoral programs approved for these fellowships.

K.U. placed first in the nation this year in the number of undergraduate research grants awarded by the National Science Foundation. Trailing close behind us in the "we try harder" category are Michigan, Yale, and Harvard.

The K.U. School of Engineering was ranked 26th in the nation by the Joint Council for Professional Development.

The K.U. Swim team has been ranked sixth nationally by Collegiate Swimming News. Our basketball team had an undefeated record in winning the Big 8 Conference and the Midwest Regional title and finished fourth in the nation. They'll always be number 1 with us. It is a measure of the balance of the team that all three seniors were drafted by the pros. Our track team continues to excel, and Karl Salb this spring won his fifth NCAA shotput title.

For the second year in a row, Dan Beck and Bob Prentice placed third in the National Debate Tournament. For the fifth straight semester, the University Daily Kansan was awarded an All-American rating, gaining "marks of distinction" in all five categories of the competition. Ted Iliff won 10th place in the Hearst Foundation national feature-writing contest, and Bob Womack won 11th place in editorial-writing in Hearst contest.

This year our pom-pom girls and yell leaders placed first in the nation in competition judged by the International Cheerleading Foundation, and they placed first in the judging at Houston in March—by anybody's standards.

While the basketball team was competing in Houston, the University Theatre's production of "Indians" was performed at historic Ford Theatre in Washington, D.C., as one of the ten finalists chosen by the American Educational Theatre Association for the American College Theatre Festival.

This class was not satisfied with collective honors and university service. Many of you won individual distinctions. 92 seniors were elected to Phi Beta Kappa membership. Hundreds were elected to professional honorary societies. Many won departmental and school awards and scholarships. Four have been appointed Woodrow Wilson fellows and another six have been designated finalists in the national Woodrow Wilson competition. One K.U. Ph.D. candidate won a Smithsonian Fellowship for next year. Another K.U. graduate student won the American Bar Foundation's annual fellowship in legal history—the only such fellowship awarded each year. Bill Ebert, this year's student body president, has been awarded a Rockefeller Fellowship in theology.

Four representatives from the University of Kansas were among the 1600 delegates to the White House Conference on Youth held in April at Estes Park, Colorado.

Let me pause from justified praise of the graduating class to note some achievements of their partners in this enterprise—our distinguished faculty members. Literally hundreds of research grants have been awarded to K.U. faculty members this year. These awards are in fields as diverse as philosophy and protein research, from genetic reproduction to geology, from biochemistry to behavior modification programs. Notable among them was the recipient of the prestigious national Alfred P. Sloan Research fellowship awarded to Professor Ralph Christofferson.

Not all achievements are research related. Each year at K.U. numerous awards are made to faculty members for excellence in teaching. Most prestigious is the honor that you, the members of the senior class, bestowed when you selected this year's winner of the HOPE award, Professor Jim Koevening.

During the year, K.U. faculty members have been elected to executive positions in numerous regional and national professional societies in many academic fields, while other faculty members have been recognized for academic excellence by their respective regional and national professional societies.

I'm happy to add that the Faculty Senate recently enacted a Faculty Code of Rights, Responsibilities, and Conduct, modeled to a significant degree upon the Code that students enacted 15 months ago—proving again that we all profit from the interaction of students and faculty.

The faculty continues to engage in teaching, research, and service—and to provide new knowledge in more than 100 books, 1500 journal articles, and hundreds of artistic presentations.

I hasten to note that this listing of honors and accomplishments has been drastically condensed. To list all the achievements of your students, and our faculty would be virtually impossible. I'm only sorry that CBS didn't have time to mention even a few of these achievements and distinctions when they aired their broadcast of the Kaw Valley Hemp Harvest. I hope their failure to distinguish between sensationalism and constructive accomplishment doesn't mean they're going to pot. (Sorry about that!)

Now let me conclude with just a few words to our seniors. Tonight I bid you a ceremonial farewell. This noon I hope you'll forgive a more personal comment.

Your support of this University and of its academic mission has been of incalculable aid and comfort, to me personally, and to the entire university community. I have shared only two of your four years on "the Hill," but no president or chancellor has ever felt more welcome. I could not have coped with many of our crises without your spontaneous and

enthusiastic support. It will not be the burnings or the bombings that linger on in my memory. What will stay with me throughout my lifetime will be your enormous enthusiasm, your deep sense of commitment, your incredible candor and your free gift of love. May you receive as much happiness and fulfillment as you have given to all of us. Come back to see us, soon and often.

## TEXTILE IMPORTS

Mr. STENNIS. Mr. President, I have on several occasions expressed concern in the serious problem facing the textile industry from a standpoint of the overwhelming increase in imports, and especially from low-wage countries. There is a growing awareness of this problem by a majority of Members in the Senate and the House that legislation is the only solution to resolving this problem in a meaningful way. It was my hope that the Senate would pass the bill reported by the Finance Committee last December, and I am convinced that title III of this bill dealing with control of textile imports would have been overwhelmingly adopted by the Senate if it had come to a vote, but unfortunately adjournment pressures prevented such a vote.

I am pleased that President Nixon is giving this problem his special attention, and that he has given Ambassador David Kennedy the assignment of negotiating agreements with importing countries covering wool and manmade fiber textile articles which are not covered by the Long-Term Cotton Textile Arrangement. This is a move in the right direction, and I commend the President for these dedicated efforts to bring textile imports to a manageable level.

From reports appearing in the press I have the impression that the negotiations which Ambassador Kennedy has underway in Taiwan, Korea, and Hong Kong are not encouraging, although there appears to be some semblance of a possible agreement with Taiwan, although the contents of this agreement are unknown factors and the acceptability is certainly a matter that would require evaluation. The textile import problem with Japan which has grown in intensity over the years is well known. The announcement of intent to control imports made by the Japanese Textile Federation is completely unacceptable in substance, and as a method of control, and it is my hope that Ambassador Kennedy will be successful in negotiating a realistic government-to-government agreement with Japan.

Mr. President, the apparel manufacturers in Mississippi and throughout the Nation cannot compete with low-wage rates that prevail in Asian countries. Even Japan, with an average textile wage rate of 54 cents per hour is finding it difficult to compete with textile wage rates of 28 cents per hour in Hong Kong, 14 cents per hour in South Korea, and 11 cents per hour in Taiwan. The apparel industry is suffering untold damage from imports in the form of manmade fiber products, but manmade fabric and yarn producers are also being injured and there is a serious threat of injury to manmade fibers in the primary form, especially from Japan.

In 1964 U.S. imports of cotton, wool, and manmade fiber textile products amounted to 1.5 billion equivalent square yards with cotton products amounting to 1.1 billion square yards of this total, with less than 400,000 square yards of manmade fiber textile products. Total imports of products manufactured from these fibers amounted to 4.5 billion equivalent square yards in 1970, with cotton products amounting to 1.5 billion equivalent square yards, and manmade fiber products amounting to 2.8 billion square yards. This represents an increase of 700 percent in manmade fiber textile products since 1964, and proves conclusively that a textile control program to be effective and meaningful must control products made from all fibers and in some cases the fiber in the primary form.

Japan once the predominant importer into the United States of textiles is now being hard pressed by Taiwan, Hong Kong, and Korea. In the case of apparel Japan imported 37.1 million pounds into the United States in 1970 as compared with 50.2 million pounds from Taiwan, 32.5 million pounds from Hong Kong, and 35.3 million pounds from Korea.

The overwhelming imports of textile products are having a devastating effect on unemployment which is running at a rate of 7.2 percent textiles and 10 percent for apparel. Imports are also discouraging capitol investment and cutting deeply into textile profits.

Mr. President, with this brief outline of the general textile import problem I would like to comment on the textile negotiations with the Republic of South Korea. It is my understanding that Ambassador Kennedy will begin negotiations with the Republic of South Korea early next week in what I understand to be an atmosphere of misunderstanding and a disappointing lack of cooperation on the part of South Korea.

Imports of man-made fiber textile products from Korea have increased from 27 million equivalent square yards in 1966 to 212 million square yards in 1970. Imports from Korea in 1970 alone increased by 20 percent and it is absolutely necessary that this rate must be substantially reduced to a reasonable level. It should be pointed out that we are not suggesting a reduction in actual imports of the 1970 level, but calling for a reduction in the rate of growth which is at the present time far in excess of an acceptable level.

The United States has made great sacrifices to help South Korea to gain its independence and since that time has given them economic and military aid amounting to $8.2 billion. This aid has been a major factor in the expansion of the textile industry in South Korea, and it now appears that Korea is taking a position that it has a vested right to partically unlimited imports into the United States.

The time has come when our Government must tell South Korea in no uncertain terms that the U.S. textile industry cannot survive under rates of imports experienced in the last few years and that the rate of growth must be substantially reduced.

Mr. President, I would certainly urge President Nixon to use all the powers of his office to negotiate a meaningful and acceptable quota arrangement for wool and man-made fiber textiles and if this approach fails we must unite our efforts to pass textile import legislation.

## JUVENILE DELINQUENCY PREVENTION AND REHABILITATION

Mr. COOK. Mr. President, it is with great pleasure that along with my distinguished colleagues, the Senators from Maryland and Indiana, Senators MATHIAS and BAYH, that I introduce the Juvenile Delinquency Prevention and Rehabilitation Act of 1971.

As the President's Commission on Law Enforcement and Administration of Justice said, our best hope in reducing crime in America is to reduce juvenile delinquency and youth crimes. Today, young people under 21 are arrested at the rate of one every 5 minutes on drug related violations alone. In spite of the massive attack on crime by the Congress these past few years, the young remain proportionately the most important contributors to the Nation's crime problem. Between 1960 and 1969 arrests for serious crimes in this country increased by 71 percent. Of this increase, adult arrests rose by 57 percent while juvenile arrests increased by an astonishing 90 percent. The Federal Bureau of Investigation recently reported that the involvement of young persons as measured by police arrests is escalating at a pace almost four times their percentage increase in the national population.

It is obvious that the Federal Government must devote more of its resources to attacking this problem in the age group under 21 years old. This legislation, which amends the Omnibus Crime Control and Safe Streets Act of 1968, provides for increased assistance to States and local governments for both the prevention of juvenile delinquency and the rehabilitation of juvenile offenders.

This bill also attempts to correct a very serious problem in our traditional juvenile institutions by requiring the separation of those who have committed serious criminal offenses from those charged with truance and similar problems

Because such a program requires not only a massive infusion of funds, but new and innovative techniques as well, the bill also requires that no less than 50 percent of the funds "be expended only on the development and use of facilities and services designed to provide an alternative method of rehabilitating or detaining juveniles other than confinement in training schools, reform schools, correctional institutions, detention centers."

Mr. President, in my own State of Kentucky we have established such innovative and alternative methods of juvenile rehabilitation.

The name of the facility referred to is the Southfields Residential Group Center and it is located out in the country, some 20 miles from the city of Louisville.

This isolated facility has a maximum population of 20 young men who work during the day in various community

projects and attend a group interaction session, presided over by the superintendent, five nights a week. After these evening sessions the young men return to their rooms and are unsupervised until morning. There are no locks on the doors of the apartments nor is there a fence around the institution.

The great success of Southfields, an open campus and peer group operated institution, could be repeated in communities all over the Nation. Such an approach must be utilized in the future if we are to keep the young, misguided, first and second offenders from becoming hardened criminals. It is obvious that our traditional juvenile correctional facilities have failed when it is estimated that 8 out of 10 inmates in adult penal institutions were once inmates in juvenile facilities.

Therefore, I am hopeful that this legislation, with its emphasis on alternatives to traditional incarceration, will be able to substantially reduce the number of young men and women who graduate from juvenile institutions to adult institutions.

## FREEDOM OF THE PRESS AND NATIONAL SECURITY

Mr. HOLLINGS. Mr. President, I have already publicly stated my opposition to administration attempts to block the New York Times and the Washington Post from printing the historical record of our involvement in Indochina. The American public deserves to know the truth about how this country got into that war. I am not at all convinced that what has been printed so far endangers our security. This bureaucratic determination to hide the truth through classifying embarrassing documents as secret must be halted. A free press is our best guarantee against a government burying its mistakes.

Two South Carolina editorialists have taken basically this same stand. Their words are a strong defense not just of their own profession but also of the public's right to know. The editorials are from the Charleston, S.C., News and Courier, and the Greenville, S.C. News. I ask unanimous consent that they be printed in the RECORD.

There being no objection, the editorials were ordered to be printed in the RECORD, as follows:

[From the Greenville (S.C.) News]

WHAT IS NATIONAL SECURITY?

Legal proceedings arising from publication by the New York Times of top-secret official documents on America's involvement in the Vietnam war revolve around a profound issue, one much deeper than the very serious questions raised by information contained in the documents so far made public.

Discussion of the policies of the Kennedy and Johnson administrations as exposed by the so-called McNamara papers can come later. At the moment the basic issue is the right of the Times to publish the material.

The case already has made history. For the first time a federal judge has ordered an American newspaper to withhold publication of information in its possession. The order is temporary and effective only until Saturday. A full hearing is scheduled today. The Times is complying with the temporary order but will contest the right of the government and the courts to forbid publication.

At this point the First Amendment to the Constitution forbidding Congress to pass any law abridging the freedom of the press is tested against a law forbidding publication of information "prejudicial to the safety or interest of the United States or for the benefit of any foreign government to the detriment of the United States."

The government, of course, must prove that information already published and still unpublished is prejudicial to the national security. Its case apparently is based upon a contention that publication impairs national defense and diplomatic relations with friendly foreign governments.

Without doubt, information already published by the Times embarrasses the government at home and abroad. All sorts of official duplicity and failure to heed warnings based upon sound information is laid bare. Exposure of intelligence could be considered damaging to national security.

Even if the government proves that the statute has been violated and that publication of the rest of the documents will make defense and diplomacy more difficult, the constitutional right of the people to know about official blunders in important matters still is involved.

It is ironic that a Republican administration is seeking to suppress information discrediting its Democratic predecessors. This would indicate that the government does view the material as highly prejudicial to basic national interests, transcending politics and going beyond mere embarrassment.

But the real question goes to the basic foundation of national security in a free nation.

There is no such thing as national security for the United States without broad and deep public confidence in the government. A government or a political party which deliberately deceives the people on matters of vital interest is itself a threat to national security because that government or that party undermines public confidence in official processes.

The right of a free people and a free press to monitor the processes of government and of politics and to expose and correct blatant governmental or political duplicity and blundering is, therefore, a fundamental part of national security.

Although information published by the Times and presumably information still to be published is embarrassing, distressing and perhaps damaging, suppressing it would be even more dangerous to American liberty and American security.

In addition, the right of America's news media to publish such information, once it has been obtained, is basic. A free press, guaranteed to the American people by the Constitution, cannot remain free if it has to operate under threat of injunction against exploring the workings of government.

Only in cases of impending national disaster should any form of legal censorship be imposed upon the American press. On the basis of information made public so far, publication of the McNamara papers in full would not cause sufficient security damage to justify the terrible dangers of censorship and suppression of information, with resulting loss of confidence in government itself.

[From the News and Courier, Charleston, S.C.]

RULES AND THE PRESS

In commenting on a federal court order temporarily restraining The New York Times from further disclosures of a secret Pentagon document, The News and Courier approaches the complex subject with mixed feelings.

As a newspaper operating under the First Amendment guaranteeing freedom of the press, we have strong resentment of any kind of government restraint. Government suppression is a constant threat against the people's right to know what is happening in the world, especially in their own country.

As a loyal citizen The News and Courier also believes in observing the law and respecting the government. In wartime, such respect includes acceptance of rules to safeguard information that would help the enemy and hurt our own country. During World War II we, like the great majority of the press, strictly observed voluntary censorship.

The Vietnam War seems to be in a twilight zone of its own. Nobody appears to respect rules or the motivations of the "establishment," meaning not only the government but the whole American system. One of the glories of the system is that it permits deviations—sometimes to the point of outrage. Even a strong system, however, can be destroyed by constant abuse.

How much abuse the doctrine of a free press, on one hand, and government responsibility on the other, can stand cannot be determined by a precise formula. Publishing a regional newspaper outside the metropolitan—and in a sense national—zone served by The New York Times, The News and Courier may not have the same standard and sense of mission as The Times. We cannot logically condemn The Times for breaking the story about the Johnson administration secretly escalating the war when we are printing the same story, as relayed by the wire services. Such a judgment would be academic anyway in view of the nationwide publicity once The Times broke the story, and the likelihood that the information soon will become formally privileged by debate on the floor of Congress and publication in The Congressional Record.

Whether harm has been done in the sense of national security remains to be seen. The federal court suspended disclosures by The Times to provide time for further consideration. Meanwhile, inside the government a search is under way for someone to blame for leaking the document to The Times. "Leaking" is almost standard practice in some circles of Washington.

The role of The Times in accepting the leak and passing it along thus becomes a matter of journalistic judgment rather than lawbreaking in a broad sense. Because of its prestige and resources, The Times often becomes more deeply involved in government policies than less powerful elements of the press and other media of information. Sometimes—and we are thinking especially of its role in helping Fidel Castro come to power in Cuba—The Times even becomes a policy maker rather than recorder. How far journalistic responsibility goes in these matters is an issue beyond our capacity to judge. We therefore fall back on the device of judging each case on its merits as it arises.

In the present case, The Times may have transgressed in its zeal by ignoring the "top secret" label established by the government. We doubt nevertheless that spelling out what many observers already knew—namely, the secret escalation of the war in Vietnam by the Johnson administration without the knowledge and consent of the Congress and the public—has done any more harm to the national interest than already has been done for years by demonstrators, protesters, doves in general and many others who for one reason or another have opposed deep U.S. involvement in Indo-China.

The uproar over this disclosure is but a minor episode in a long, tragic and possibly catastrophic period of American history. We would not like to discover someday that freedom of the press has also become a casualty, along with patriotism and reverence for the flag.

## SUPPORT FOR THE PRESIDENT'S REORGANIZATION PLAN

Mr. DOLE. Mr. President, since their introduction in Congress, the President's Government reorganization proposals have received considerable editorial support throughout the country. As a cosponsor of these bills in the Senate, I was especially pleased by the support given them by a Kansas newspaper, the Wichita Eagle and Beacon.

In an editorial of January 24, 1971, the Eagle and Beacon made a clear and convincing case for the adoption of the President's plan to consolidate and streamline the structure and function of the executive branch of the Federal Government. Both as a persuasive opinion and a gage of grassroots support on behalf of the reorganization plan, this editorial merits the consideration of the Senate. I ask unanimous consent that it be printed in the RECORD.

There being no objection, the editorial was ordered to be printed in the RECORD, as follows:

STATE OF UNION MESSAGES CONSTRUCTIVE, FAR-REACHING

The "experts" are busy dissecting the President's State of the Union message, but even the most critical cannot deny that this was Richard Nixon at his best.

Speaking to Congress and the nation Friday night, the President presented the blueprint for a reorganization of government and a reallocation of federal funds and priorities that can vastly improve the operation of the governmental process, both in Washington and in every state.

President Nixon, halfway through his first term in office, obviously is hoping to make his next two years constructive and memorable ones in the history of the United States. Neatly outlined and explained in this long text are the plans the President and his advisors have carefully built over the past months. They're beautiful.

In addition to government reorganization and reallocation of funds, Mr. Nixon proposes passage of more than 35 pieces of legislation left over from the last Congress, including reform of the welfare system by placing an income floor beneath every family with children; achieving "full prosperity in peacetime" by approving an "expansionary budget," restoring and enhancing the natural environment through a system of "strong initiatives" which he did not further explain, and improve America's health care, especially for the poor, by pumping in new funds, increasing the number of doctors, improving delivery of health services, and encouraging better preventive medicine. Included is a $100 million campaign to find a cure for cancer.

It is obvious that the executive branch in Washington needs real reform and recognition. The President proposes a startling change—to create four new departments. One, the Department of Economic Development, would combine the present Departments of Labor, Agriculture, Commerce and Transportation. The others would be Departments of Housing and Community Development, Human Resources and Natural Resources. These would be built around, respectively, the present Departments of Housing and Urban Development; Health, Education and Welfare; and Interior. In doing this he would reduce the number of cabinet posts from 12 to eight.

On paper, this looks promising. The work of the new departments could, presumably, be more clearly defined. Now, the authority of old departments sometimes laps over that granted newer ones like HEW and HUD, with resulting confusion and in-fighting. The proposed new departments emphasize the increasing interest in upgrading the environment and enhancing the quality of life for all citizens.

But it won't be easy. Anyone who remembers the bloodletting when the old military departments were combined into the big Department of Defense will concur. In our own farm belt, there will be many farmers vehemently opposed to losing the Department of Agriculture, even though farming, as a major business, probably should be considered at a cabinet level along with other facets of the economy.

Another major part of the President's address concerned revenue sharing. This was a promise made when he was campaigning for President, and he now is ready to try to keep it.

Here, too, he makes good sense. This is progress. It would reduce the flow of dollars into Washington bureaus, and let the people have some of their federal tax dollars back, some $16 billion, without strings, to spend on programs at home.

This is another change that won't be simple, however. Having our tax money spent at the discretion of state and local governments, instead of federal officials, doesn't mean that the real interests of the people will be served automatically. Local governments have often been blind and callous about real local needs, preferring to dispense tax money according to a century-old philosophy, ignoring human needs and environmental needs.

Revenue sharing is going to put a greater burden on the voter back home. He's going to have to know what good city, county, and state government is, and he's going to have to vote into office the people who will provide good local and state government.

Certainly, in his six goals, the President has dealt with most of America's most pressing domestic problems—the poor, the ecology, the national health, the return of the power of money from Washington to the local level, the mushrooming federal bureaucracy, and a return to prosperity in peacetime, which as he said, this country has not enjoyed since 1957.

Moreover, they are programs that will be popular for the most part with the voting public if not in every case with officialdom, and Mr. Nixon appears in conceiving the program to have virtually assured that whatever becomes of the proposals, he will emerge strengthened in the presidential campaign.

If Congress buys most of the program many people will approve of the various new benefits. If it doesn't, there will be lots of campaign ammunition for 1972.

He mentioned no pricetag for his package, but it is plain that it will be large. If we can shed ourselves of a significant portion of the cost of the Vietnam operation, and if the federal reorganization results in any important saving, the cost may not be burdensome, and certainly what the programs will be buying will benefit Americans far more than many federal expenditures of the past have done.

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## SOCIAL SECURITY: ALSO A GOOD INVESTMENT

Mr. CHURCH. Mr. President, from time to time scare stories are circulated about the soundness of the social security program.

On several occasions, this issue has been examined by groups of independent, nongovernmental representatives of business, labor, and others. Recently the 1971 Advisory Council on Social Security declared that the cash benefits program is actuarially sound both for the short run and the long-term future.

However, many people do not realize that social security is more than just protection from loss of wages because of retirement. Social security is also family security—providing protection for a worker's dependents because of death or disability.

In addition, social security is a good investment, not only for today's retirees but also for the older Americans of tomorrow. In the words of Wilbur Cohen, the former Secretary of the Department of Health, Education, and Welfare:

Young workers could not buy comparable insurance protection from private insurance companies at anywhere near the amount they pay for social security protection.

An excellent article written by Bruce Biossat, and published in the Washington Daily News of June 21, points out that a worker with maximum creditable earnings can expect to receive benefits worth about six times his investment if he and his wife retire in 1985.

Mr. President, I commend this article by Bruce Biossat to the Senate and ask unanimous consent that it be printed in the RECORD.

There being no objection, the article was ordered to be printed in the RECORD, as follows:

SOCIAL SECURITY "MYTH"

The attempt to destroy some of the "myths" surrounding the Social Security system appears to be creating new ones.

Some Americans cling tenaciously to the idea that workers who retire under Social Security never get back what they pay into it in taxes deducted over the years from their paychecks. That's just plain wrong.

Suppose you have been working under Social Security since it began in 1937. The most you could have contributed thru 1971 would be $4,171 in taxes. It must be remembered that the levy once was one per cent, and was taken only from the first $3,000 of income.

If you happen to reach 65 this year and choose to retire, you will get back that $4,171 in a little more than 19 months of receiving benefit payments. If your wife also has attained 65 and could draw benefits, your total monthly benefits will give you your money back in just under 13 months.

Let's go again, however, to the case of a man and wife who will not reach 65 until 1985, with the man having what are called 42 years, thru 1984.

You can presume a bit conservatively, that the man would live 13 years drawing retirement benefits, and his wife would live 3 years after his death. The actual average, officials say, is a little longer.

In the man's retirement span and the wife's later survivorship period, the total benefits that would be paid out to them under present law would come to $67,754. And that must be set against the man's lifetime Social Security payroll deductions of just $10,798.

If the pending House Ways and Means bill, with its provisions for higher benefits, were to become law, then the same couple in the same time span would draw $137,407 in retirement money—with the man having paid in $15,666 in his working years under Social Security.

Moreover, what he and his wife can draw now or in 1985, or whenever, in retirement benefits is not the whole story. If the man becomes disabled or dies before retirement age, his widow and children are entitled to substantial benefits. And Social Security taxes also provide both the worker and his wife with Medicare hospital insurance at age 65.

It is pretty commonly argued these days, of course, that the worker pays not only the So-

cial Security tax levied directly against his check, but also the matching contribution levied against his employer.

The contention is that the employer gets it out of the worker's hide, either by hiking prices or by keeping his wages correspondingly lower.

Sorry, men, but that's just too glib. Undoubtedly the argument is true in part. But there is no way to prove that an employer freed of that tax would automatically be paying his workers a correspondingly higher wage. Or, indeed, that the whole burden shows up in higher prices.

As a matter of fact, it is the employer's contributions which help to broaden Social Security beyond a retirement system, to permit payments to disabled workers or to surviving widows and children when a man dies before retirement age.

Another thing. Given the years in retirement and in survivorship in the 1985 example cited here, a man and his wife would still draw far more in total benefits even if he is considered as paying both his and his employer's payroll tax. Again, under present law the benefits would be some $67,754 and the doubled tax would be about $21,600.

One last point, critics like to say Social Security is not an insurance system, but of course it is. No matter that the monies are shuffled about, with today's workers paying benefits for the presently retired. The key fact is that what you get bears a relationship to what you earn (and pay tax upon) under Social Security.

The Supreme Court has described the system as "social insurance," and the encyclopedias say social insurance is a "branch of insurance."

## OBSERVANCE OF BALTIC ANNIVERSARIES

Mr. DOLE. Mr. President, the month of June holds particular significance to many Americans whose ethnic heritage traces back to the Baltic region of Europe, for it was 31 years ago this month that the Baltic States of Lithuania, Latvia, and Estonia were overrun by the forces of the Soviet Union, and in June of the following year the people of Lithuania successfully threw off the shackles of Soviet oppression. These events, both sad and heroic are observed each year in this country by men and women who have sought refuge in America from the oppression in their homelands and by all Americans.

The peoples in the Baltic States have a deep and fervent tradition of respect for and belief in the principles of democracy and freedom. Over the course of more than three decades of subjugation and oppression by the Soviet Union and Nazi Germany they have never weakened in their struggle to restore their independence and self-determination, but their steadfastness has cost them more than one-fourth of their populations.

Many of those who escaped the extermination policies of oppression have settled in the United States and are contributing in many valuable and important ways to their adopted country.

I recently received from Mr. V. P. Volteras, president of the national executive committee of the Lithuanian American Community of the U.S.A., Inc., an essay describing the Baltic peoples' great struggle for freedom. It is a moving statement of noble dedication to the values we Americans and peace-loving nations throughout the world hold dear. I ask unanimous consent that it and the text of House Concurrent Resolution 416, agreed to unanimously by the 89th Congress, be printed in the RECORD.

There being no objection, the items were ordered to be printed in the RECORD, as follows:

SELF-DETERMINATION OF THE BALTIC PEOPLES

RED TERROR IN LITHUANIA, LATVIA, AND ESTONIA

The Soviet Union invaded the Baltic States on June 15, 1940, and took over Lithuania, Latvia and Estonia by force of arms. These three peace-loving republics have been suffering in Russian-Communist slavery for more than 30 years.

At a time when the Western Powers have granted freedom and independence to many nations in Africa, Asia and other parts of the world, we must insist that the Communist colonial empire likewise extend freedom and independence to the peoples of Lithuania, Latvia and Estonia whose lands have been unjustly occupied and whose rightful place among the nations of the world is being denied. Today and not tomorrow is the time to brand the Kremlin dictators as the largest colonial empire in the world. By timidity, we invite further Communist aggression.

The Balts are proud peoples who have lived peacefully on the shores of the Baltic from time immemorial. For instance, this year marks the 720th anniversary of the formation of the Lithuanian state when Mindaugas the Great unified all Lithuanian principalities into one kingdom in 1251.

The Lithuanians, Latvians and Estonians have suffered for centuries from the "accident of geography." From the West they were invaded by the Teutonic Knights, from the East by the Russians. It took remarkable spiritual and ethnic strength to survive the pressures from both sides. The Balts, it should be kept in mind, are ethnically related *neither to the Germans nor the Russians.*

After the Nazis and Soviets smashed Poland in September of 1939, the Kremlin moved troops into the Baltic republics and annexed them in June of 1940. In one of history's greatest frauds, "elections" were held under Red army guns. The Kremlin then claimed that Lithuania, Latvia and Estonia voted for inclusion in the Soviet empire.

Then began one of the most brutal occupations of all time. Hundreds of thousands of Balts were dragged off to trains and jammed into cars without food or water. Many died from suffocation. The pitiful survivors were dumped out in the Arctic or Siberia. The Baltic peoples have never experienced such an extermination and annihilation of their people in their long history through centuries as during the last three decades. Since June 15, 1940, these three nations have lost more than one-fourth of their entire population. The genocidal operations and practices being carried out by the Soviets continue with no end in sight.

Since the very beginning of Soviet Russian occupation, however, the Balts have waged an intensive fight for freedom. During the period between 1940 and 1952 alone, some 30,000 Lithuanian freedom fighters lost their lives in an organized resistance movement against the invaders. The cessation of armed guerrilla warfare in 1952 did not spell the end of the Baltic resistance against Soviet domination. On the contrary, resistance by passive means gained a new impetus.

This year marks the 30th anniversary of Lithuania's successful revolt against the Soviet Union. During the second part of June of 1941 the people of Lithuania succeded in getting rid of the Communist regime in the country: freedom and independence were restored and a free government was re-established. This free, provisional government remained in existence for more than six weeks. At that time Lithuania was overrun by the Nazis who suppressed all the activities of this free government and the government itself.

The Government of the United States of America has refused to recognize the seizure and forced "incorporation" of Lithuania, Latvia and Estonia by the Communists into the Union of Soviet Socialist Republics. Our Government maintains diplomatic relations with the former free Governments of the Baltic States. Since June of 1940, when the Soviet Union took over Lithuania, Latvia and Estonia, all the Presidents of the United States (Franklin D. Roosevelt, Harry S. Truman, Dwight D. Eisenhower, John F. Kennedy, Lyndon B. Johnson, and Richard M. Nixon) have stated, restated and confirmed our country's nonrecognition policy of the occupation of the Baltic States by the Kremlin dictators. However, our country has done very little, if anything, to help the suffering Baltic peoples to get rid of the Communist regimes in their countries.

The case of the Baltic States is not a question about rights of self-rule of Lithuania, Latvia and Estonia, since this is established beyond any reasonable doubt, but the question is how to stop the Soviet crime and restore the freedom and independence of these countries. The Select Committee of the House of Representatives to Investigate the Incorporation of the Baltic States into the U.S.S.R., created by the 83rd Congress, after having held 50 public hearings during which the testimony of 335 persons was taken, made a number of recommendations to our Government pertaining to the whole question of liberation of the Baltic States. According to the findings of this House committee, "no nation, including the Russian Federated Soviet Republic, has ever voluntarily adopted communism." All of them were enslaved by the use of infiltration, subversion, and force. The American foreign policy toward the Communist enslaved nations, the aforesaid House committee stated, must be guided by "the moral and political principles of the American Declaration of Independence." The present generation of Americans, this committee suggested, should recognize that the bonds which many Americans have with enslaved lands of their ancestry are a great asset to the struggle against communisum and that, furthermore, the Communist danger should be abolished during the present generation. The only hope of avoiding a new world war, according to this committee, is a "bold, positive political offensive by the United States and the entire free world." The committee included a declaration of the U.S. Congress which states that the eventual liberation and self-determination of nations are "firm and unchanging parts of our policy."

The United States Congress has made a right step into the right direction by adopting *H. Con. Res. 416* (89th Congress) that calls for freedom for Lithuania and the other two Baltic republics—Latvia and Estonia. All freedom-loving Americans should urge the President of the United States to implement this very important legislation by bringing the issue of the liberation of the Baltic States to the United Nations. We should have a single standard for freedom. Its denial in the whole or in part, any place in the world, including the Soviet Union, is surely intolerable.

H. CON. RES. 416

Whereas the subjection of peoples to alien subjugation, domination, and exploitation constitutes a denial of fundamental human rights, is contrary to the Charter of the United Nations, and is an impediment to the promotion of world peace and cooperation; and

Whereas all peoples have the right to self-determination; by virtue of that right they freely determine their political status and freely pursue their economic, social, cultural, and religious development; and

Whereas the Baltic peoples of Estonia, Latvia, and Lithuania have been forcibly deprived of these rights by the Government of the Soviet Union; and

Whereas the Government of the Soviet Union, through a program of deportations and resettlement of peoples, continues in its effort to change the ethnic character of the populations of the Baltic States; and

Whereas it has been the firm and consistent policy of the Government of the United States to support the aspirations of Baltic peoples for self-determination and national independence; and

Whereas there exist many historical, cultural, and family ties between the peoples of the Baltic States and the American people: Be it

*Resolved by the House of Representatives (the Senate concurring)*, That the House of Representatives of the United States urge the President of the United States—

(a) to direct the attention of world opinion at the United Nations and at other appropriate international forums and by such means as he deems appropriate, to the denial of the rights of self-determination for the peoples of Estonia, Latvia, and Lithuania, and

(b) to bring the force of world opinion to bear on behalf of the restoration of these rights to the Baltic peoples.

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## AWARD TO REPRESENTATIVE L. H. FOUNTAIN OF NORTH CAROLINA FOR DISTINGUISHED PUBLIC SERVICE

Mr. ERVIN. Mr. President, the North Carolina Citizens Association is an organization composed of progressive business and industrial leaders from all areas of the State. It makes two awards annually. One entitled "Citation for Distinguished Citizenship," and the other entitled "Citation for Distinguished Public Service."

At its annual meeting in Raleigh, N.C., on March 18, 1971, the North Carolina Citizens Association awarded its citation for distinguished public service to our House colleague, L. H. FOUNTAIN, one of the ablest and most dedicated of the public servants of this Nation.

I ask unanimous consent that a copy of this citation for distinguished public service, a biographical sketch of Congressman FOUNTAIN, and an article entitled "A Common Ground of Service" which appeared in the magazine of the North Carolina Citizens Association entitled "We the People" for May 1971, be printed in the RECORD.

There being no objection, the citation, biographical sketch, and article were ordered to be printed in the RECORD, as follows:

THE NORTH CAROLINA CITIZENS ASSOCIATION AWARDS ITS CITATION FOR DISTINGUISHED PUBLIC SERVICE TO L. H. FOUNTAIN OF TARBORO, N.C.

For dedicated and devoted service to his fellow man in numerous positions of public trust during the past thirty-five years, in particular as Reading Clerk in the North Carolina State Senate, as a North Carolina Senator, and as a Member of the United States House of Representatives;

For wisdom, courage, integrity, creativity and sound judgment in the exercise of his public, private and civic responsibilities;

For his deep-rooted Christian conviction, and his lifelong involvement in the work of the Church, especially the Presbyterian Church, both on a local and national level, and his unswerving moral leadership;

For his unceasing work on behalf of American agriculture, not only for the benefit of the North Carolina farmer, but also for all the people across America engaged in the most basic business of all;

For his fairness and impartiality in helping the people of North Carolina in their personal relationships with the Federal Government;

For his distinguished leadership in the House of Representatives' Committee on Government Operations, especially for his tireless work as Chairman of the Intergovernmental Relations Subcommittee, which has resulted in the savings of hundreds of millions of the taxpayers' dollars;

For his wise and articulate advocacy of economy and efficiency in government, and his courageous leadership in the constant struggle to eliminate waste, extravagance, corruption, conflict of interest and duplication in the Federal Government;

For his pioneering effort and continuing leadership in the field of Federal-State-Local relations, which led to the establishment of the Advisory Commission on Intergovernmental Relations in 1959, and which resulted in its little-publicized but highly effective work; and for the farsighted vision, which won him national recognition as the "Father" of the Advisory Commission on Intergovernmental Relations;

For his tenacious and thorough work in investigating harmful or ineffective medical drugs, as well as other aspects of food and drug safety, which has earned him the popular title "Watchdog" of the Food and Drug Administration;

For his statesmanship and leadership in the House of Representatives' Committee on Foreign Affairs, in particular as Chairman of the Near East Subcommittee, for his quiet, persistent work for peace with justice in that troubled part of the world;

For his distinguished service as a United States Delegate to the 22nd General Assembly of the United Nations and his international stature in foreign relations;

For his consistent championship of a strong America, capable of defending itself against any aggressor;

For his unflinching loyalty and untiring adherence to the principle that government is, and should forever be, the Servant and not the Master of the people;

For these and many other contributions to the betterment of the people of North Carolina, the nation and the world, the North Carolina Citizens Association presents its Citation for Distinguished Public Service to L. H. Fountain.

Done this 18th day of March, 1971 in the City of Raleigh, North Carolina.

SHEARON HARRIS, *President.*
EDWARD L. RANKIN, Jr.,
*Executive Vice President and Secretary.*

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BIOGRAPHICAL SKETCH: REPRESENTATIVE L. H. FOUNTAIN, SECOND DISTRICT, NORTH CAROLINA

Rep. L. H. Fountain is a native of the village of Leggett, Edgecombe County, North Carolina, and the son of the late Lawrence H. and Sallie (Barnes) Fountain. He is married to the former Christine Dail of Mount Olive, and they have one daughter, Nancy Dail (born March 15, 1958).

Mr. Fountain was educated in the public schools of Edgecombe County and at the University of North Carolina, where he received his A.B. in 1934 and his J.D. in 1936. He was admitted to the North Carolina Bar the same year he graduated from law school.

He practiced law in Tarboro, North Carolina, until March 1942 when he entered the U.S. Army as a private in the Infantry. He rose through the ranks and was released from the service as a Major in the Judge Advocate General's Office on March 4, 1946. He now holds rank of Lt. Colonel in the Army Reserve.

Upon his discharge, Mr. Fountain returned to his law practice in Tarboro. Prior to the war he had been eastern organizer of the Young Democratic Clubs of North Carolina, Chairman of the Second Congressional District Executive Committee, and Reading Clerk of the North Carolina Senate from 1936 to 1941.

In 1947 he was elected to the State Senate where he served until 1952 when he was elected to the 83rd Congress as Representative from the Second Congressional District of North Carolina. He has been re-elected to each succeeding Congress. Congressman Fountain serves on the House Committees on Government Operations (Chairman of the Intergovernmental Relations Subcommittee) and Foreign Affairs.

Mr. Fountain is a Presbyterian Elder and has had a perfect Sunday School attendance record since the age of three. He is a member of the Executive Committee of the East Carolina Council of Boy Scouts of America, the local and other Bar Associations, the Elks, and Kiwanis Clubs. He served as Lt. Governor of the Sixth N.C. Division of Kiwanis International. He is also a former Jaycee and received the Distinguished Service Award (Man of the Year) of the Tarboro Junior Chamber of Commerce in 1948. In 1971, he was presented the North Carolina Citizens Association Distinguished Public Service Award. He is a charter member of the Board of Trustees of St. Andrews Presbyterian College, Laurinburg, North Carolina.

Congressman Fountain was appointed and served as a United States Delegate to the 22nd Session of the United Nations General Assembly.

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A COMMON GROUND OF SERVICE

A Republican and a Democrat . . . a Westerner and an Easterner . . . a manufacturer and a legislator . . . a Baptist and a Presbyterian.

In politics, geography, profession and denomination, James Edgar Broyhill and L. H. Fountain go their separate ways. In service to their native State of North Carolina they stand together on common ground.

They stood on that common ground March 18 in Raleigh to be honored and thanked by the North Carolina Citizens Association for the lifetime of service which each has rendered his State and its people.

Mr. Broyhill is the founder and Board Chairman of Broyhill Furniture Industries of Lenoir. Rep. Fountain, a native and resident of Tarboro, has served in the U.S. House of Representatievs from the Second Congressional District since 1953, and for several terms prior to that time in the North Carolina Senate.

Rep. Charles A. Jonas of Lincolnton presented Mr. Broyhill the Association's Citation for Distinguished Citizenship. Associate State Supreme Court Justice Joseph Branch presented Rep. Fountain the Association's Citation for Distinguished Public Service.

Mr. Broyhill was described in his citation as "A mountain man who has been acclaimed as matching the peaks of his homeland; a dirt farmer who planted the seeds of his success not in the soil of his native Wilkes County, but in the men and machines of the infant furniture industry of neighboring Caldwell County; an erstwhile blacksmith who was forged on the anvil of economic and educational adversity; a staunch champion of the free enterprise system and promoter of its benefits; as relentless a competitor in business as he is on the links and a winner in both realms; as loyal to the commoner as

to his many noble friends; a benefactor of youth through generous support of education and recreational institutions for their mental, spiritual and physical development; a reluctant but charismatic leader; a non-politician's politician; a person of great dedication to church, civic and charitable affairs; father and grandfather in the patriarchal mode; a man of God."

As examples of J. E. Broyhill's distinguished citizenship the citation listed his founding of the Broyhill Foundation which has made higher education possible for many deserving young people; his directorships and trusteeships with the boards of a number of major businesses and major educational and charitable institutions and associations; his receipt of other honors; his role in the founding of such institutions as the Caldwell Memorial Hospital in Lenoir and the Broyhill Children's Home in Western North Carolina; and his extensive political activities which include continuous membership on the Republican National Committee since 1944 and his membership in the North Carolina delegation to the Republican National Convention seven consecutive times since 1944.

Rep. Fountain was cited "for dedicated and devoted service to his fellowman in numerous positions of public trust during the past 35 years."

Examples of his accomplishments included . . . "his tenacious and thorough work in investigating harmful or ineffective medical drugs, as well as other aspects of food and drug safety which has earned him the popular title of 'Watchdog' of the Food and Drug Administration . . . for his distinguished service as a United States Delegate to the 22nd General Assembly of the United Nations . . . for his pioneering effort and continuing leadership in the field of Federal-State-Local relations which led to establishment of the Advisory Commission on Intergovernmental Relations in 1959, and for the farsighted vision which won him national recognition as the 'Father' of the Advisory Commission on Intergovernmental Relations . . . for his statesmanship and leadership in the House of Representatives' Committee on Foreign Affairs, in particular as Chairman of the Near East Subcommittee . . . for his deep-rooted Christian conviction and his lifelong involvement in the work of the Church, especially the Presbyterian Church, both on a national and local level, and his unswerving moral leadership . . . for his unflinching loyalty and untiring adherence to the principle that government is, and should be, the Servant and not the Master of the People. . . ."

Mr. Broyhill was the 21st in a list of distinguished North Carolinans to receive the Association's Citation for Distinguished Citizenship. Rep. Fountain was the third recipient of the Association's Citation for Distinguished Public Service, created in 1969.

## TEXTILE IMPORTS

Mr. TALMADGE. Mr. President, if the reports which we hear covering the attempts of Ambassador David Kennedy to negotiate bilateral agreements for the control of the growth of textile product imports from the Far East are true, there is great cause for alarm on our part, and a new sense of urgency in facing up to and solving this tremendous problem. Judging from available information, our negotiators have bent over backward to reach mutually advantageous terms with Taiwan, Korea, and Hong Kong. While our own great textile and apparel industries are stagnating under the burden of excessive imports from these countries, more and more jobs are being transferred abroad.

How much longer will we be willing to sit in silence while fiber, fabric, and apparel plants are being closed and the workers—many of whom are limited in their skills, who are members of minority groups and married female breadwinners—are cast adrift to swell the numbers of our poor and our jobless and further add to the 14 million Americans who are already on our welfare rolls?

I say that our negotiators have been generous in trying to reach agreements that are not catastrophic on the economies of other countries, and this is exactly what our negotiators have set out to accomplish. We must applaud agreements that provide opportunities for growth in trade that is consistent with the needs of both economies—ours and our trading partners.

According to reports, our negotiators are not trying to roll back import levels, but are willing to accept current rates as a base, with generous growth rates over a 5-year span, in excess of the expected growth in the U.S. market.

To show how utterly unreasonable some of the countries in the Far East have been in their demands, it is reliably reported that South Korea has insisted that it must be permitted to expand its textile exports to the United States by 25 percent per year. Continuation of this rate in 5 years would more than treble the already large volume of their 1970 exports to the United States. I suppose that in their eyes this 25-percent rate represents a major concession since, over the last 2 years, our textile imports from Korea—which are already large—have been growing at about 50 percent per year.

A basic cause for this reluctance to negotiate a reasonable rate of growth with the United States is that major Asian exporting countries have allowed themselves to become overly dependent on the U.S. market, and are unwilling or unable to develop markets in other areas such as in Western Europe, which now takes only minor quantities of the textile exports from the Far East. The following ratios show how heavily the apparel exports of Hong Kong, Korea, and Taiwan are concentrated on the U.S. apparel market. Most of the textile exports to the United States from these countries are in the form of apparel.

*1969 ratio of apparel exports to United States as percent of total apparel exports*

| Country: | |
|---|---|
| Hong Kong | 39 |
| Korea | 62 |
| Taiwan | 71 |

Today almost 90 percent of the U.S. imports of apparel of manmade fiber come from these three countries and Japan, and the measure of the growth in such U.S. apparel imports is shown by the following table:

[Million equivalent square yards]

| Year: | |
|---|---|
| 1966 | 230 |
| 1967 | 343 |
| 1968 | 558 |
| 1969 | 915 |
| 1970 | 1,132 |
| 1971 (1st quarter annualized rate) | 1,948 |

From 1966 to the present, it is apparent that the increase in such apparel imports has been over 50 percent per year. Obviously, this is a rate of increase which cannot be tolerated if we are to have a viable fiber, fabric, and apparel industry in this country.

Since South Korea has been described as being the major stumbling block in our attempts to negotiate fair control arrangements in the Far East, let us look more closely at the pattern of South Korean manmade exports to this country. The following table shows the ratio of imports from South Korea to total U.S. imports for major categories of imported manmade apparel:

*Percent of U.S. imports from South Korea*

| Item: | |
|---|---|
| Knit shirts (including blouses) | 30 |
| Sweaters | 30 |
| Woven coats | 24 |
| Woven dress shirts | 42 |
| Other woven shirts | 27 |

These areas in which Korea's apparel exports to the United States are concentrated are precisely those areas where imports are currently accounting for major shares of the U.S. market. For instance, last year imports represented 55 percent of the women's, girls,' and infants' sweaters of manmade fiber sold in the United States. Blouses for women and girls constituted a major market for manmade fiber markets yet 37 percent of all such items sold in this country last year were imported. Twenty-eight percent of the men's and boys' woven dress shirts of manmade fiber which were sold last year were imported. Similarly, in 1970 imports were over 20 percent of the U.S. market for men's and boys' coats and jackets, women's and girls' slacks and shorts, and women's and girls' coats and jackets.

With Korea insisting on its right to expand their exports into these markets, we can expect further and adverse effects in terms of plant closings and loss of jobs without reasonable controls. We are now the only open market in the world for these products.

Mr. President, the time has come when Korea must adopt a more reasonable attitude toward our negotiators, and I call for controls which are reasonable and acceptable which I understand are being made to our friends in the Far East by Ambassador Kennedy and his team. If these negotiations fail it will be convincing evidence that textile import control legislation is the only realistic and acceptable solution to this problem.

## CRIMES AGAINST THE BALTIC STATES

Mr. ALLOTT. Mr. President, June is such a pleasant month that it is sometimes difficult to remember that it was during June that some of the most atrocious crimes of recent years occurred.

Americans of Baltic origin or descent have no trouble remembering the grim facts. They know that it was in June, 31 years ago, that the Red Army of the Soviet Union crushed the Baltic States.

They know that in the intervening years the Baltic States have lost more

than a quarter of their population as a result of draconian polices inflicted by the Soviet tyrants. And all Americans of Baltic origin or descent remember that just 30 years ago this month the Lithuanians were waging a heroic war against the Soviet domination.

The United States has benefited in many ways from the sturdy, freedom-loving citizens of Baltic origin or descent. Above all,these people have helped kindle in America a renewed dedication to resisting despotism. Thus it is appropriate that we pause this June—and every June—to honor these citizens, and to pledge renewed dedication to the causes of liberty in the Baltic States.

## CAN LEVIATHAN ENDURE?

Mr. CHURCH. Mr. President, the Committee on Foreign Relations has recently reported Senate Joint Resolution 115, asking that a ban be placed on the killing of whales. The joint resolution calls for a 10-year moratorium on the killing of all species of whales. This respite from the intensive whaling that has been going on for the past 15 years is needed if we are not to see the disappearance of many of the species of whales that exist.

The United States has for all intents and purposes abandoned whaling. The Department of Commerce has issued regulations barring the importation of whaling products from abroad. We have ended a trade that once was perhaps the most important one in the United States.

The two countries doing most of the whaling today are Japan and Russia; they take 42 percent and 43 percent of the whales killed each year. As many as 58,000 whales may be killed in a single year.

I ask unanimous consent that the article entitled "Is the Government Saving the Whale," written by Jim Ayres, and published in the issue of the Boston Globe of June 20, 1971, be printed in the RECORD.

There being no objection, the article was ordered to be printed in the RECORD, as follows:

IS THE GOVERNMENT SAVING THE WHALE

(By James B. Ayres)

Environmentalists are urging Congress to adopt a resolution calling for a 10-year moratorium on the killing of whales, charging that many species are on the brink of extinction.

The resolution, now before the Senate Foreign Relations Committee, directs Secretary of State William P. Rogers to propose the moratorium at next week's meeting of the International Whaling Commission in Washington, D.C.

In proposing the resolution last Tuesday, Sen. Hugh Scott (R-Pa), said that in the last decade, "more whales were killed than ever before in the history of the world—so many that species after species have been reduced to a pathetic remnant of once great numbers."

But the United States, for once, is not the main villain in this environmental tragedy.

The United States will ban whaling by the end of this year with the government's closing of the nation's last whaling operation in California.

And ex-Interior Secretary Walter J. Hickel, shortly before he was fired, placed eight species of whales on the department's endangered species list.

This action prohibits the import of oil, meat and other products made from the eight species, including the finback, sei and sperm whales, the most hunted whales for commercial purposes.

APPALLING PACE

Hickel said it was clear that "if the present rate of commercial exploitation continues unchecked, these three species will become as rare as the other five." (the bowhead, blue, humpback, white and grey whales).

"We are not going to wait until all of these species are on the brink of extinction before we take positive action," Hickel said.

Although environmentalists applauded Hickel for taking a significant conservation step since this country consumed 25 percent of the world's whale products, they point out that other countries continue to kill whales at an appalling pace.

Russia catches 43 percent of all whales killed annually, followed closely by Japan which takes 42 percent. A typical catch in the 1960's amounted to 57,891 whales in 1966 compared with 28,907 killed in 1933.

Unknown to most Americans, a whale yields a tremendous variety of products from its oil, flesh, and bone: candles, soap, hand cream, suntan oil, fertilizer, cosmetics, lipstick, vitamins, paint dryer, and cat, dog and poultry food, to name a few products.

Japanese eat 100,000 tons of whale meat annually, while 50 percent of Europe's margarine is made from whale oil.

Spermaceti from the sperm whale is also used in manufacturing steel, lubricating leather and precision instruments and as an additive to motor oils.

COMMERCIAL INTERESTS

Environmentalists argue that there are substitutes now available for all these uses, including synthetic soybean meat cakes which could provide the protein the Japanese now obtain by eating whale steaks.

But they are less hopeful that the International Whaling Commission, created in 1946 to regulate the seasonal catch quotas and whaling seasons, will give the moratorium proposal a warm reception if, in fact, Congress does pass the resolution next week.

John Walsh, Boston field officer of the International Society for the Protection of Animals, said any moratorium proposal before the commission "doesn't stand a ghost of a chance because of commercial interests."

Others are not happy with the secretive conduct of the week-long annual meetings of the commission.

Geneva MacDonald of the Animal Welfare Institute in New York City said the commission members "never have been accountable since the session is closed to the press. They do what they want."

And Walsh said his society feels the commission "should be replaced by an international body under the United Nations and comprised of men not exclusively connected with commercial whaling interests and capable of enforcing regulations set up by that body."

Present members of the commission are Argentina, Australia, Canada, Denmark, France, Iceland, Japan, Mexico, Norway, Panama, South Africa, the Soviet Union, United Kingdom and the United States.

And Walsh feels a "team of independent observers, made up of representatives from different countries involved in whaling, should be allowed to sail with the catcher fleets to enforce the catch quotas."

REGULATORY SYSTEM

Walsh stressed that the primary purpose of the 10-year moratorium is for more scientific research into the complex population and behavioral habits of the whale which only recently have been explored with scientific discipline.

The group said the 10 years were needed "to develop a regulatory system that functions, that is adequately staffed and funded, that can set sustainable yields, find alternatives for whale flesh, bone and oil, that can set up a system for the hunting of whales that makes moral and ecological sense."

Unlike the halcyon days of whaling in Nantucket and New Bedford when men faced whales in fragile long boats with hand-held harpoons, whaling is now a technological, mechanized operation.

A whaling expedition now employs sonar and helicopters to track the whales and catcher boats armed with guns which fire harpoons carrying a grenade set to detonate three to four seconds after impact on the whale's body.

The whales are then processed in a factory ship which can carve up a large whale every half hour.

In cosponsoring the moratorium with Sen. Scott last week, Rep. William S. Broomfield (R–Michigan) said:

"The whale has no lobby in Congress or around the world. It is up to us to see that he is protected from the 'remorseless havoc' man has brought upon his existence."

## THE STORY OF DR. MARY TOWNSEND-GLASSEN OF PHILLIPSBURG, KANS.

Mr. DOLE. Mr. President, one of Kansas' most beloved and admired citizens was recently honored by having a special statewide day proclaimed in recognition of her many years of service and deep devotion to her friends, neighbors, and patients. The person of whom I speak is Dr. Mary Townsend-Glassen, of Phillipsburg, Kans., who in 36 years of practice has brought an uncommon degree of professional competence and human warmth to her patients and community in northwestern Kansas.

Dr. Mary, as she is known, is a unique individual, and it was with a special sense of pride that I noted an article about her in the May 1971 issue of the National Business Woman, the magazine of the National Federation of Business and Professional Women. The article is a clear statement of the reasons that Dr. Mary is held in such high esteem by all who have come to know her, and I believe it would be appropriate to have this article printed in the RECORD so others can appreciate her great contributions to the people of her hometown and home State. I ask unanimous consent that the article be printed in the RECORD.

There being no objection, the article was ordered to be printed in the RECORD, as follows:

To hold an assured place in the minds and hearts not only of neighbors and fellow citizens but of a large number of individuals throughout the state and the nation surely qualifies a woman professional as a resounding success.

That is the status that Mary Townsend-Glassen, M.D., of Phillipsburg, Kansas, enjoys as she rounds out a full and busy life devoted to practicing the healing art and science of medicine among the people she knows best—residents of the community where she was born, grew to young womanhood, and is spending her mature years.

Dr. Mary, as she is known by both friend and patient, stands as an important symbol of the type of physician that, until recent years, threatened to become a vanishing breed—the family or community doctor. In an age of specialization, she disdained a

specialty to return to general practice in her home community—and to live to see her kind of medicine have a renascence in the emergence of community medicine departments in many medical schools of the nation.

A recent biography of Dr. Mary's life, entitled *How to Sleep on a Windy Night*, could just as readily have been titled *All My Babies*.

For when any large gathering of the very young and the not-so-young get together in Phillipsburg, chances are that from two-thirds to three-fourths of them were delivered by Dr. Mary. In all, her total of deliveries in 36 years of practice stands at around 4,000, at least a quarter of which were delivered in their homes.

In reality, the book's title reflects a larger concern for the quality of life possible for "Dr. Mary's babies" following their birth.

Her abiding, immensely helpful interest in a host of community and institutional health services grew out of a personal family tragedy. Her only son, George Allan, whose life, almost from the beginning had been marred by devastating, serious illness, suffered irreparable brain damage in a fall on ice. At once, his performance in the eighth grade began to reflect the blighting injury: his marks were like those of a moderately to severely retarded child.

Dr. Mary's lengthy, often futile search for good care for her son opened her eyes to the dearth of services and facilities for the mentally retarded and the mentally ill. Not content merely with self-enlightenment, she proceeded to spend much of here energies in the years ahead opening the eyes and hearts of others.

As the head of a Kansas state commission on mental illness, she was credited with pioneering efforts in behalf of enlightened mental health care. She personally raised $50,000 for Phillips County's first community hospital and, also, personally engineered its establishment.

During World War II, she served as the county's very firm health officer, causing a priest to label her "the lady Pope of Phillipsburg."

Following her medical education at Washington University School of Medicine in St. Louis, Dr. Mary returned to her hometown where she and her husband, Clarence Glassen, brought up her two children from a prior marriage.

No only did Dr. Mary survive the Kansas dust storms when she began her practice, writing off $40,000 in bills for her patients. She has since survived a stroke and three heart attacks to continue the work she loves.

She has been county chairman of the Kansas Society for Crippled Children; was president for two years of the Kansas Council for Children and Youth, and a delegate to the Mid-century White House Conference on Children and Youth; past vice president of the Kansas Society for Exceptional Children; organizer of the city YWCA, and charter president of the Phillipsburg BPW Club. The Kansas BPW Federation named her Woman of the Year for 1966–67.

The greatest honor of her life came as 1970 drew to a close. On December 4th, the eyes of the whole state were upon her. It was "Dr. Mary Day" throughout Kansas by proclamation of the Governor. President Nixon wired his congratulations, as did many great and near-great personages. Phillipsburg held a fitting, all-day ceremony in her honor.

If you have fully discharged your responsibilities to your neighbors, you can sleep even on a windy night, according to one legend. There will be many restful nights ahead for Dr. Mary: all of the proceeds from her biography are to be given to the town library and to the county association for retarded children.

## IMPACT OF REVENUE SHARING ON UTAH

Mr. MOSS. Mr. President, over the past weeks the Nixon administration has been conducting a national saturation campaign to gain support for its "revenue sharing" proposals. In the face of this Republican-financed effort it is essential that the citizen and community leader alike receive information on all aspects of this important issue.

Recently a delegation of Republican Members of Congress representing the Nixon administration visited my home State of Utah. They spoke only of the benefits of the new proposals. I believe the whole story must be told if we are to have the best possible form of State-Federal relationship.

The State of Utah could, in fact, lose money as a result of the Nixon administration's "general revenue sharing" proposals, according to estimates compiled by the Legislative Reference Service and sent to the House Ways and Means Committee. Those figures show a potential annual loss to the State of Utah in excess of $5 million should the administration's proposed program become law.

The additional revenue sharing moneys received by the States would come from a general fund to be created and initially consisting of $5 billion.

But creation of this new fund will mean that many categorical grants will be phased into general revenue sharing. This is bad news for Utah, because we receive a bigger share of categorical grant money than we will of general revenue sharing funds.

Figures for fiscal 1969 show that the State received 0.68 percent of all Federal categorical grants in aid. But under the Nixon plan, Utah will receive only 0.57 percent of general revenue sharing funds.

It would be much better for Utah to continue with the categorical grant program than in some new program where our proportionate share will be diminished. I am not opposed to the idea of revenue sharing, but the formula currently proposed is not beneficial to Utah.

Moreover, while publicly extolling the virtues of revenue sharing, the President has been quietly impounding funds appropriated by the Congress. Hearings conducted by the Senate Subcommittee on Separation of Powers reveal that the administration has prevented the release of over $12 billion in this fiscal year. In my home State of Utah more than $70 million has been withheld for expenditure.

This impounding of funds is a last ditch effort by the Nixon administration to reduce its growing budget deficit. This action has impaired the recovery of local economies including that of my home State by drying up funds which provide jobs and stimulate economic expansion.

## THE NO-WIN CONFLICT IN VIETNAM

Mr. TALMADGE. Mr. President, the Washington Evening Star of Saturday, June 26, contains an editorial column by Jenkin Lloyd Jones on the agony and the shame of the war in Vietnam.

It is a sad chronicle of this no-win conflict and of the men we have sent over there to fight in a war that has had no glory, no prospect of victory, and that has given the United States nothing to show for all the loss of blood and treasure.

Mr. Jones touches a sore nerve in this column. He reflects the frustration and bitterness that I believe an overwhelming major of the American people feel.

I bring the column to the attention of the Senate and ask unanimous consent that it be printed in the RECORD.

There being no objection, the article was ordered to be printed in the RECORD, as follows:

OUR DROOPING COLORS IN VIETNAM

(By Jenkin Lloyd Jones)

They're coming back home, now. No bands. No cheering crowds. No confetti. No speeches. The most unhonored combat Army in American history is simply coming home.

The armies of 1918 and 1945 returned with snap and pride, boastfulness and a sense of great things done—done hopefully for all time. These small groups you see at the airports—half apologetic, half ashamed—must be more like the weary Confederates who wore rags and went back to ruins.

I remember them in a happier and more hopeful hour. There was the old elan when I rode with them on night patrol down the Bassac River, and skimmed the paddies in the helicopters and interviewed the kids sweeping the jungle trails above Pleiku, and watched the jets roar from the carrier decks off Hainan Island. These were as good fighters as America had ever seen.

For those were days when they thought we intended to win. They really did. The enormity of allowing a 600-mile open flank from which the enemy could sally forth at their convenience and retire to whenever they were bloodied hadn't yet dawned on them.

Only the prospect of victory makes war tolerable—only the promise of glorious dawn beyond the dark night of agony and danger. But Vietnam was a meat grinder. Vietnam was endless.

Maybe the root of trouble was the atom bomb. If Adolf Hitler or Joseph Stalin had gotten to it first, a frightened world would have knuckled under to the most ruthless blackmail.

But we got it first. We were awed and a little guilty at its terrible power. So Harry Truman fired Douglas MacArthur for wanting to carry the Korean war across the Yalu.

Truman feared a widened conflict leading to a nuclear hell. For the first time in our history, America fought a no-win war and took the insults and humiliations at Panmunjom.

We should never have made that mistake twice. But we did. We bowed to the Nervous Nellies in the United Nations who maintained the stubborn fiction that Laos and Cambodia were neutral, even though the enemy operated in them at his pleasure.

So the meat grinder was set up and gradually morale crumbled among soldiers who saw no victory, only the number of months or weeks before they could go home.

In the meantime, the home front crumbled even faster. To lose a son in combat is sad enough, but to lose a son in apparently purposelss combat invites white-hot anger.

The doves began to be vocal in the Congress. They said, "All is lost—let's quit." Every Marxist organization insisted that we leave the field to the Communists. College seniors began showing up at commencement with peace symbols on their mortarboards.

"Concerned" preachers and professors set up shop as "draft counselors"—and guess

what the counsel usually was? Church headquarters began sending bundles to the bugouts who had fled to Canada.

Then an unprecedented thing began to happen. Among "intellectuals" the enemy began to be popular. Forgotten were the hordes who streamed south when the Reds took over North Vietnam. Forgotten were the Viet Cong's systematic assassinations of the village chiefs, the gutted and raped villages. Forgotten was Hanoi's cynical contempt for the Geneva convention on treatment of prisoners.

No, the fable was peddled that the South Vietnamese were straining to join their Red Brothers, and that only cruel American militarists were preventing the reunion. At the pot-rock bashes enemy flags are waved and American flags carried upside down.

So the boys are coming home. Many of them are hooked on the hardest drugs. Military discipline is shot. Barracks have erupted in race struggles. Insubordination is common, and the murder of officers is no longer rare.

In the meantime, the Communist world has udnerstood the dimensions of our debacle. Russia is building warships and missiles at the fastest pace in history, while all left-leaning outfits in America are bawling that we must dismantle our "military-industrial complex" and give the money to the poor.

Now is the time for America to take a deep breath. We are entering a period of mortal danger. There is no point in maintaining a military establishment conditioned to lose. We must either rebuild it, or we must understand that the eventual alternative is surrender.

The people of East Germany, Czechoslovakia, Hungary and Cuba might have something to tell us:

Democracy must win all the time.

Communism only has to win once.

## THE SALT TALKS

Mr. ALLOTT. Mr. President, we have just completed the process of providing the manpower we need for a strong national defense. Soon we must turn our attention to the equally important and still more complex task of providing the weaponry necessary for national security.

Recently the Wall Street Journal has done the service of publishing four informative and intelligent articles on the strategic arms limitation talks—SALT. Three of the articles are by Mr. Robert L. Bartley. The fourth is by Mr. Richard J. Levine. Both men are members of the Wall Street Journal's distinguished Washington bureau.

The articles comprise a useful introduction to the grave debates that will take place in this session on such matters as the ABM system. So that all Senators can profit from these articles—which were published on June 11, 17, 21, and 25 respectively—I ask unanimous consent that they be printed in the RECORD.

There being no objection, the articles were ordered to be printed in the RECORD, as follows:

### WHAT DOES RUSSIA HAVE IN MIND?

(By Robert L. Bartley)

WASHINGTON.—The poor souls charged with worrying about nuclear weapons and the Soviet Union have spent a breathless year on a roller-coaster.

Their spirits sagged as the Soviets built up their force of huge and dangerous SS–9 missiles, soared when SS–9 deployments suddenly stopped, plunged when satellite photographs showed a new speckling of huge missile silos and soared again when President Nixon and the Soviet leaders agreed to agree on the limitation of strategic arms.

The record is perhaps a caveat against the optimism that has prevailed since the President's May 20 SALT announcement. More importantly, this volatility is a sign of large things in the balance. We have arrived at a pregnant moment both in the strategic arms race and in Soviet-American relations generally.

In the past few years the Soviets, by building missiles at an astounding pace, have for the first time overcome the 25-year-old American superiority and achieved a rough parity in strategic weapons. At the same time they have been pressing boldly into the world with sharp initiatives in the Middle East and continuous probes elsewhere, just when the United States has been pulling back from the role of world dominance it assumed at the end of World War II.

#### AN ANSWER IN JULY

The next round of strategic weapons talks, to resume July 8 in Helsinki, should answer the weighty question of whether the Soviets will stop their missile buildup with parity, and are willing to sign a pact giving up any notion of striking for a superiority of their own.

The answer to this immediate strategic question should also give some new hints about a second and even more basic one: What kind of people are the Russians anyway? Are they a dynamic and confident new nation bidding to supplant a fading United States? Or are they just as insecure as the Americans are, and just as eager to calm international tensions to deal with vexing problems at home? For these opposing viewpoints still stir a lively debate between men who have spent their lives studying the Russians.

Each hill and valley in the last year's roller-coaster ride has been used as fresh evidence in the debate, and there should be much more important indications when we learn what does happen at Helsinki and whether the Soviets continue their rapid missile deployments. That is not to say that all of the questions will be answered even by a successful arms pact, for no agreement now in sight would end the nuclear arms competition, and the kind of arrangements most likely to emerge would leave plenty of room for argument here at home.

Still, the May 20 joint statement does point to a willingness to come to at least some agreement. After the announcement, White House sources stressed that the basic political decisions had been made on both sides, and they predicted faster progress as soon as the talks resume. They declined to go into detail on the type of pact expected, however, except to point to the joint announcement itself—that negotiators would concentrate on limiting defensive weapons, but that "together with" this agreement they would take "certain measures" limiting offensive weapons as well.

From the American viewpoint, the key issue in the strategic balance is the SS-9, which can carry a warhead of 25 megatons, compared to 1 to 2 megatons for the U.S. Minuteman. This also means that if both eventually were equipped with multiple warheads, the SS–9 could carry many times more. Thus even if the number of missile launchers on each side were equal, the Soviets could theoretically achieve a considerable advantage. This would be especially true if a pact limited defensive missiles, since the American ABM is designed to protect the Minuteman missiles against a first strike by a multiple-warhead SS–9.

Thus American negotiators have pressed for a separate limit on SS–9 sized launchers within a numerical limit on total missiles. Informed speculation suggests, however, that a pact might simply limit defensive missiles and total offensive land-based launchers, with the SS–9 sub-limit issue resolved by little more than a unilateral United States declaration that it would consider the agreement undermined if the Soviets started to replace their older missiles with SS–9s. Those suspicious of the Soviets are likely to regard this as cool comfort, and in any event some strategic specialists are gloomy about the long-range implications of any pact that limits defense more sharply than offense.

All the same even so limited an agreement would mean the Soviets were willing to accommodate American views at least to some extent. In particular, they have plausibly argued that European-based American aircraft should be considered strategic weapons because they could reach the Soviet Union, and this argument would not be reflected in the type of pact now in sight. If such a pact can in fact be consummated, the world outlook would be quite different from the prospect if no pact results and the Soviets continue to expand their SS–9 force at the rate they have maintained over the past several years.

#### THE EXPERTS' VIEW

How a SALT agreement would reflect on Soviet ambitions in the world can perhaps best be seen by looking at the views of American experts on Russia. The experts come up with quite a range of ultimate conclusions about Soviet motives, even though they agree on most of the underlying particulars.

Those relatively relaxed about the Soviets nevertheless agree, for example, that there is a basic hostility between the Soviet system and the American one. Those uneasy about the Soviets will nevertheless agree that the USSR has been showing a new interest in diplomatic initiatives, especially since the 24th Soviet Communist Party Congress this spring. Since then the Soviets have not only agreed to the joint SALT announcement, but have expressed new interest in an agreement on Berlin and in talks about a mutual reduction of forces in Europe.

The experts uniformly agree that the Soviets probably have not reached any crisp decisions about either their strategic posture or their exact global aims. Such things are decided less by conscious decisions than by changing moods and nuances. One analyst remarks, "They probably have some problem articulating to themselves what their role should be in the world 10 years from now or 15 years from now."

Observers also agree that there is a complete consensus among Soviet leaders on the need for at least parity with the United States in nuclear weapons. They agree that some Soviet leaders also see psychological and diplomatic advantages in nuclear superiority that would tip the balance of power in the Soviet direction, and assume that other Soviet leaders are more interested in concentrating efforts instead on domestic problems.

The Soviet economy is by far the most important of these problems, it's further agreed. Economic growth seemed to be recovering in the years immediately after the Khrushchev overthrow, but has run into new trouble since 1968. The growth rate in the industrial sector sagged to 7% in 1969 from 8.1% in 1968 and 10% in 1967, for example. In 1968 agricultural production actually declined 3% from a year earlier.

Over the long run the Soviets must demonstrate that their economic system can compete successfully with Western ones, and they must also somehow deal with rising demands for consumer goods. Both of these requirements compete for resources with high military spending, and this creates important pressure toward constraining nuclear weapons.

There is also a long list of other problems that the Kremlin might conceivable feel more comfortable about if arms competition were restrained—the Chinese threat, potentially

explosive discontent in Eastern Europe, a technological lag behind the West, dissent by Russian intellectuals, the chance of inducing Western Europe to put less emphasis on defense. These items are commonly cited by American analysts, but no one seems confident about their weight in the Soviet mind

Finally, the Soviet Union may see the possibility of a SALT pact that gives them some advantage or another, such as curbing an American technical lead in ABMs. Or the Soviets may merely be satisfied with a treaty guaranteeing them equality with the United States, which despite rising sentiment against defense expenditures still represents an economy twice the size of the Soviet one. One observer notes, "They are still very much impressed by the American production line and American technology."

Where the experts start to disagree sharply is on the weight of all these influences relative to that of Communist ideology and Russian nationalism. "The doctrinaire nature of Soviet communism boils out of every pore," someone tells you. A few days later and a few floors away, someone else reports, "I don't think they think about us in ideological terms very much."

Most close observers agree that the ideological component in Soviet thought has declined over the years, but a typical remark cites "strong lingering ideological impulses." These impulses may even be on the upswing as cultural divisions in Western nations and Communist gains in Chile appear to make long-standing Marxist-Leninist dogma once again credible.

Still other observers say that Communist ideology isn't that important, that with or without communism the Russians are starting a phase of "great power dynamism." They are coming to feel they have a right to throw their weight around in the world, and are exhibiting "a strong streak of self-righteousness." Particularly against the American mood of retirement, such feelings are likely to lead the world into difficult times.

These viewpoints are equally diverse when applied to SALT and the May 20 agreement to agree. One expert believes the Soviets have for sometime been trying to improve relations with the West, and that the key SALT movement was the American decision to allow some slight separation between the issues of defensive and offensive weapons.

Others believe that the Soviets want to guarantee parity with the U.S. and save a few billions to invest in their economy, and have accordingly decided to negotiate a strategic arms pact so long as they aren't forced to make any really important concessions.

MERELY A "COSMETIC"?

Yet another observes that the May 20 announcement was not substantive but "cosmetic." Because everyone agreed that SALT couldn't go on much longer without some signs of progress, the two sides had to come out of the latest round with a little something. And while the Soviet pressures toward agreement are strong enough to prevent the collapse of the talks, it remains to be seen whether they are strong enough to lead to any agreement except on that gives them clear advantages.

When a pretty-much-agreed set of facts produces this range of views among experts, the poor layman can be excused almost any bewilderment. But in the next six months the confusion may start to clear a bit, as we find out what actually does result from the Helsinki talks, and as we learn what missiles the Russians test to put in that latest sprinkling of holes.

Even then we will by no means have all the answers, of course, but we ought to know a good deal more than we do now not only about the strategic outlook, potentous enough in itself, but about such questions as the ideological content of Soviet thought, the Russian ambitions in the world and the shape of the era that succeeds that of American dominance.

Mr. Bartley, a member of the Journal's Washington bureau, contributes editorials and other commentary. This is the first of four articles discussing strategic weapons and the U.S.-Soviet arms talks.

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SALT AGREEMENT: GENOCIDE PACT?

(By Robert L. Bartley)

WASHINGTON.—With good luck American and Soviet negotiators will agree on strategic arms limitation sometime this year, writing the doctrines of "mutual deterrence" and "assured destruction" into a formal agreement. Despite the general jubilation that will result, some experts will be deeply worried. For a dissenting school of strategic thinkers believes those doctrines add up to a "genocide pact."

The phrase comes from Fred Charles Ikle of Rand Corp. He and a few other analysts, notably Donald G. Brennan of the Hudson Institute, are deeply suspicious of the prevailing notion of deterring war by insuring that each of two competing nations can utterly destroy the other. Above all, they are appalled at the millions and millions of innocent civilians who would be killed if deterrence somehow broke down and war did start.

The doctrine of "assured destruction" became the bedrock of U.S. strategic posture during Robert McNamara's tenure as Secretary of Defense. The thinking is that if the U.S. can absorb a Russian nuclear strike and still retaliate with enough power to destroy the Soviet Union as a society, the first strike will never take place. When each power can retaliate to obliterate the other, the theory continues, the result is a "mutual deterrence" that makes nuclear war unthinkable.

Mutual deterrence and assured destruction will almost certainly provide the intellectual foundation for any arms pact that may emerge from the forthcoming round of SALT at Helsinki. The recent joint U.S.-Soviet announcement said that negotiators would "concentrate" on limiting anti-ballistic missiles, but would also agree on "certain measures" to restrict offensive missiles. The clear implication is that any agreement will follow the assured destruction doctrine in limiting the defense more sharply than the offense.

This order of priorities conforms to the assured-destruction logic because it would insure that neither side could escape destruction if a nuclear exchange took place, thus building the maximum "unthinkability" into the use of nuclear weapons. Opponents of the doctrine would reverse the priorities, limiting the offense more sharply than the defense to insure that any exchange would produce fewer deaths. This difference, in fact, has been at the root of much of the domestic debate over ABM proposals.

Ironically, assured-destruction-type deterrence seems likely to be formalized internationally just when it's losing its hallowed status among Western strategic thinkers. Those openly attacking it are few; most analysts continue to accept it for want of a persuasive alternative. But among its defenders, the self-satisfaction of the McNamara era has given way to a new uneasiness.

This shows in President Nixon's 1971 foreign policy message which contains a line saying the President should not be "limited to the indiscriminate destruction of enemy civilians as the sole possible response to challenges." The administration has found immense difficulties in translating this desire for flexibility into specific weapons and tactics.

A SMALL STEP

The Nixon administration concept of "sufficiency," however, is at least a small step away from assured destruction. In the heyday of the latter nuclear-force levels were decided by a computer programmed to calculate the number of warheads necessary to destroy given percentages of the Soviet population and production capacity. While "sufficiency" is a less clear-cut concept, it seems to mean that force levels and similar decisions are ultimately matters for political judgment.

The new uneasiness about current deterrent postures is cropping up not only in political quarters but in intellectual ones. The latest annual survey by the Institute for Strategic Studies in London found, for example, that "deterrence still seemed to be an overwhelmingly powerful force at the end of 1970." But it also noted, "some fear was an inevitable element in the strategic balance, if only because the concept of nuclear deterrence had been constructed on an assumption of reciprocal rationality which could never be completely guaranteed."

This is precisely the point at which critics of assured-destruction deterrence concentrate their attack. Obviously mutual deterrence means no rational man would deliberately start a war, but who ever said war is likely to be started by the deliberate plan of rational men? Yet for the purpose of deterring rationally planned war, the current nuclear posture insures that war starting from any cause will automatically result in the slaughter of the majority of the population in both the U.S. and the Soviet Union.

Rationality has in fact played scant part in most past wars, to judge by the evidence assembled by Rand's Dr. Ikle (pronounced E-Clay) in his new book, "Every War Must End" (Columbia University Press). In tracing how wars in this century have been brought to a close, he finds that those who started them have not even thought about the problems of ending them.

When the Japanese attacked Pearl Harbor, for example, their government had made no effort to think through how such a war would ultimately end. World War I started though no one wanted it. Once wars are actually under way, he finds, they grow ever more resistant to rationality, tending to continue beyond any logical purpose because of internal political developments in the warring nations.

If history is a guide, nuclear war, too, would be most likely to start in some less-than-rational fashion. Dr. Ikle conceives of a number of circumstances in which deterrence might be of little help: an accidental missile launch, a non-nuclear war that escalates because of the powerful political forces war engenders, the advent of national leaders whose philosophy includes, as Mussolini's did, living dangerously.

There is even a possibility that leaders on one side might come to believe that the other would not in fact launch a retaliatory strike. However rational the threat of retaliation is, actually carrying it out when the threat has failed is a separate question. What if an enemy's first strike has hit your military installations, and the enemy retained further missiles that could strike your cities? Would you then kill his civilians?

ELEGANT BUT FRAGILE LOGIC

The point is not that nuclear war will come this way or that way, but that the logic of mutual deterrence is elegant but fragile. To work it must persist forever, but it is too clean, too logical, too pristine. Dr. Ikle says, "We have this rational structure that must survive decade after decade if we are to survive decade after decade, that's my main theme."

The alternative to assured-destruction deterrence would be negotiating armaments postures that limit offense and encourage defense. Dr. Brennan says "The SALT context is a ready-made opportunity to make a dramatic difference," providing the talks are aimed at an agreement reducing offensive forces and allowing defensive build-ups on both sides. In the absence of an arms agree-

ment, he has elaborated a unilateral posture of maintaining general parity while spending a greater proportion of money on defense.

Whether an alternative can work in practice as well as theory depends, however, on the technical feasibility of missile defense. Most experts agree that a well-designed system could be useful in defending hard targets like missile silos, but defense of the civilian population is quite another matter.

Dr. Brennan believes that if offensive forces were reduced to the equivalent of 500 Minutemen, a $20 billion missile defense around the top 50 cities could save perhaps 45 of them. The prospect of losing five cities, he adds, would still deter any rational leader. Over time he has been considerably more optimistic about defense than other planners, however, and in any event negotiating a 500-missile offensive limit would require astounding political feats.

Still, there is always the chance that a highly effective defense can be developed eventually; even a less effective one would still save some lives, and you have to start somewhere. The present technical problems are little reason, Dr. Ikle notes, to negotiate a treaty "closing the door on defense. That may be a door we want to go through." Yet the thrust of arms talks so far seems to be sharp limits on defense in the pursuit of assured destruction. Dr. Brennan remarks, "People are not basically interested in getting out from under this."

Proponents of assured destruction, indeed, argue that missile defense starts to make nuclear war once again thinkable. A power knowing it had some protection against retaliation might consider launching a surprise first strike, says Herbert Scoville, Jr., former deputy director of the CIA and now a spokesman for the Federation of American Scientists. "Without an ABM it's crystal clear, you've got to be bloody irrational to start anything."

HOW IRRATIONAL?

If any leader is completely irrational, Dr. Scoville continues, the whole situation is hopeless anyway. He agrees that assured-destruction deterrence is "psychologically not the most satisfying kind of situation." But he thinks the cataclysmic effects of nuclear war will make a sharp difference in the minds of national leaders, "even if they're not rational they're not *that* irrational."

This is a plausible line of argument, and its impact on American strategic thinking has been a powerful force toward an arms agreement stressing limits on defense. Also, the Soviets currently want to limit defense, and in fact had been proposing a defensive-only pact, a curious stance in light of their traditional emphasis on defense. Many American analysts and politicians had been urging acceptance of the Soviet proposal.

Given the political practicalities, American negotiators have reason to feel they did pretty well in maintaining any offensive limits at all in the joint announcement. The administration has to consider, for example, that even a limited ABM only barely passed Congress. Given both this background and the Soviet position, it's hard to conceive how the American government could insist on limiting offense and expanding defense the way critics of assured destruction would like. One close observer remarks, "If that's the way you're going to do it you may as well forget about SALT agreements at present."

Any reasonable SALT agreement would be a hopeful political sign, in the sense of suggesting a willingness of both the U.S. and the Soviet Union to work together at least to some extent on strategic problems. For the U.S. to suddenly reverse its negotiating position after all that has already gone by could have quite disturbing implications in international politics.

Even so, the critics of assured destruction would rather have no pact than the wrong one, preferring to wait and hope that the Soviets would work their way back to their old position that limits should apply to offense but not defense. And whatever the practicalities, the critics do raise highly disturbing questions about accepting assured destruction deterrence as a permanent doctrine.

When you look at the public images the two sides of the strategic debate have acquired, in fact, the questions turn downright eerie. How is it that anyone who wants an ABM to save civilian lives is seen as something close to a warmonger? How is it that one enrolls in the legions of peace, and stands up against the Dr. Strangeloves, by backing assured destruction and its threat of genocide?

These are the political practicalities that go far to determine what kind of SALT agreement we will negotiate, given a rare chance to do so. Unless the world has in fact reached the point where the only sanity is madness, there simply must be something fundamentally wrong with our national thinking. And regardless of the outcome of SALT, the need to clarify that thinking will persist.

A good start would be to recognize that if the impending SALT agreement does come to pass, its short-run political implications may very well give reason for jubilation, but its long-term strategic implications raise a hard question. To wit, for how long do we really want to stake the destruction of the world's two greatest nations on a bet that the elegant logic of assured destruction will prove more durable than the suggestions of history?

Mr. Bartley, a member of the Journal's Washington bureau, contributes editorials and other commentary. This is the second of four articles discussing strategic weapons and the U.S.-Soviet arms talks.

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HOW MUCH MONEY WILL SALT SAVE?

(By Richard J. Levine)

WASHINGTON.—The recent U.S.–Soviet announcement of progress in the Strategic Arms Limitation Talks, or SALT, has prompted considerable optimism and discussion. But one harsh possibility has generally escaped public notice: An initial agreement slowing the nuclear arms race would shrink the Pentagon's budget requests very little, if at all.

If, as is widely anticipated here, a SALT agreement does emerge later this year, congressional critics will certainly cite it as support for their argument that the defense budget be cut so that domestic spending may increase. But many Pentagon planners, even now, disagree with that prospect. And significantly, a recent analysis of the military budget by a prestigious independent research organization notes that any immediate savings from SALT are likely to be slim.

Though there haven't been any Pentagon pronouncements on the likely budget implications of SALT, defense officials caution privately against expectations of "dramatic" cutbacks in defense spending. The most probable result of a SALT accord, they stress, would be avoidance of major increases in future budgets. A damper on some phases of the arms race, they say, could allow them to safely slow development programs for such new strategic weapons as the B1 bomber and the Undersea Long-range Missile System, known as ULMS, a new missile-firing submarine.

ANALYZING THE BUDGET

Much the same points are made in a detailed analysis of President Nixon's new budget, "Setting National Priorities: The 1972 Budget," written by former Budget Director Charles L. Schultze and three other staff members of the Brookings Institution.

"The possibility of a decline in the strategic budget looms dim," the study found. "A SALT agreement of the type that now seems most likely wouldn't have much effect in reducing U.S. strategic spending over the next three or four years . . . but an agreement could keep the (strategic) budget from rising much above (the current level)."

The reason the budget for strategic forces (bombers, land-based intercontinental ballistic missiles, missile-firing submarines, bomber and missile defenses) might not shrink much lies in the probable shape of any initial arms pact hammered out when negotiators resume in Helsinki next month. Moreover, even if strategic spending decreased, the impact on the overall Pentagon budget wouldn't be as great as is generally assumed. "Our big costs aren't in the strategic area any more," explains a Pentagon official. "They're in people."

Indeed, strategic forces consume a relatively small portion of the $79.2 billion defense budget for fiscal 1972, which starts July 1. The Pentagon estimates their direct cost at $7.6 billion.

When such indirect costs as research and development, training, administration, intelligence supply and maintenance are included, the Brookings Study figures, the total cost goes to $19.7 billion—still only about 25% of the budget. Moreover, the Brookings analysis concludes that many of these indirect costs "would change very little in response to changes in either the number of strategic systems or their composition."

By contrast, the direct cost of general-purpose, or conventional, forces is estimated at $24.3 billion for the coming fiscal year. This is up almost $8 billion from eight years ago, when the force was slightly larger, mainly because of pay raises and inflation. In fact, one of the Pentagon's most pressing problems is the rapidly rising cost of civilian and military manpower. Today, personnel costs make up 52% of the defense budget, compared with 34% in 1964, and they are expected to climb to more than 60% by the mid-1970s.

In a sense, defense officials feel they are caught in a vicious circle. With manpower costs escalating, they keep searching for ways to cut manpower; by mid-1973, the armed forces will probably be down to 2.3 million men from 2.8 million today and 3.5 million at the Vietnam war peak. But if this smaller force is to be effective, defense planners insist, it must pack a bigger punch. Therefore, they must request expensive modernization of planes, tanks, tactical missiles and ships.

Even with an arms accord, many Pentagon officials anticipate rising defense budgets in the decade ahead, as payrolls go up to attract and hold volunteers and as increasingly complicated and expensive weapons are built. Defense Secretary Melvin Laird has indicated that the Pentagon would be doing well to hold its budget to a fixed percentage (about 7 percent) of a rising Gross National Product.

A key point about SALT is that any initial accord surely won't ban "qualitative" improvements and the substitution of more modern weapons systems in the U.S. and Soviet arsenals. Indications here are that the best that can be expected is a ceiling on the number of defensive missiles in rival antiballistic missile systems, or ABMs, and on the number of offensive land-based missiles. It is unclear whether a first step agreement would place limits on strategic bombers and submarine-launched missiles; these are questions the negotiators will perhaps leave for later. Thus, under an initial agreement the arms race would continue—though at a somewhat slower pace—as the suspicious superpowers upgraded the quality of their weaponry.

Still, a limit on ABMs would produce some real savings. The current four-site Safeguard system for which the administration has requested approval and partial funding would cost $7.1 billion, and the full 12-site system currently carries a $14.8 billion price tag. But when one attempts to measure the impact of a SALT agreement on the rest of the strategic budget, things get a bit fuzzy.

INCREASED INTELLIGENCE SPENDING?

Indeed, the Brookings Institution study predicts that in the event of an arms pact,

"the U.S. probably would increase spending on intelligence collection and research and development as a hedge against Soviet cheating or a possible breakdown of the agreement." A SALT accord, the study somberly notes, "could be as much an argument for spending on permitted activities as an argument against such spending, depending on the kind of technical problems that arose as well as on the overall state of East-West relations."

Pentagon observers believe it's likely that development work would go forward on such programs as advanced warheads for ICBMs and a new ABM defense that features more numerous radars, as well as on the B1 and ULMS submarine. Furthermore, it's expected that new strategic weapons just beginning to enter the operational inventory would continue to be added to it.

In the latter category are the fearsome multiple independently targetable warheads known as MIRVs. The U.S. is in the midst of equipping some 500 of its 1,000 land-based Minuteman missiles and 31 of the 41 Polaris subs with MIRVs. The two conversion programs will cost almost $13 billion, and since the Russians are building an MIRV capability there is little chance that the U.S. programs will be halted.

The futures of the B1 and the ULMS, in much earlier stages than MIRV, are a little more difficult to devine.

The Air Force is pressing hard for a fleet of some 200 B1 bombers, conservatively estimated to cost $10.5 billion, as a badly needed replacement for the aging B52 fleet. But this program has a host of critics in and out of Congress who think it folly to build a new bomber in an age of sophisticated missiles. And the administration has loosely linked a decision on whether to produce the B1 to the outcome of the SALT talks.

For now, the bomber project is drawing most of its strength from the administration's continuing commitment to maintaining three separate strategic weapons systems—landbased missiles, bombers and missile submarines. In his foreign policy report earlier this year, President Nixon reiterated the familiar rationale for this "triad" concept, asserting that it "provides insurance against surprise enemy technological breakthroughs or unforeseen operational failures and complicates the task of planning attacks on us."

An initial SALT pact, Pentagon insiders concede, could slow development of the ULMS submarine—potentially the most costly procurement program in Pentagon history—but there are few experts who believe it won't be built eventually.

Navy officers indicate that Polaris submarine hulls have a safe and useful life of 25 to 30 years. And they view ULMS, which would be able to hurl missiles at least 5,000 miles, as a necessary and logical replacement for Polaris. Like Polaris, the giant ULMS submarines will be virtually impossible to detect and destroy—an invulnerability that bombers and land-based missiles clearly lack.

Pehaps most significant for the fate of ULMS, however, is the program's strong backing in Congress, especially among dovish lawmakers who favor moving the nation's entire nuclear deterrent to sea. Even at $15 billion or more, they believe ULMS would save money if the Pentagon could be convinced to abandon the land-based missile and bomber in favor of a "blue water" strategy.

There are of course many defense critics, in and out of Congress, who advocate deep cutbacks in Pentagon budgets regardless of the outcome of the SALT negotiations.

Consider, for example, the position of the National Urban Coalition, which is dedicated to revitalizing the nation's cities. It recently published a lengthy paper on military spending as part of its proposed "counterbudget" for the federal government. The report, written by former Pentagon employe Robert S. Benson, argues that the $7.6 billion strategic budget for fiscal 1972 could be cut to $5.3 billion and to $3.1 billion by fiscal 1976.

No matter what happens at SALT, the coalition believes the Pentagon should, among other things, scrap its 54 land-based Titan missiles, halt immediately efforts to put MIRV warheads on Minuteman, stop "altogether" the Safeguard ABM program and phase out by the middle of 1973 two-thirds of the bomber force.

"The foundation of our strategic deterrence in the 1970s should be a Polaris-Poseidon fleet," the coalition asserts. Along this line, it recommends heavy funding for ULMS development but delay of a production decision until it becomes clear that the Soviets are making significant strides in antisubmarine warfare techniques.

A PENTAGON ARGUMENT

Such radical surgery on the strategic forces, the Pentagon would argue, amounts to unilateral disarmament that could dangerously weaken national security. And even in the current antimilitary atmosphere on Capitol Hill, the National Urban Coalition program seems likely to attract scant support.

Nevertheless, the Pentagon might find it a bit difficult to convince Congress, in the warm afterglow of a SALT pact, that the defense budget shouldn't shrink a little—if only to symbolize the "new era" devoted to the "works of peace" of which President Nixon has spoken.

But it's a good bet that the Pentagon, which never seems to have quite enough money for men or machines, would try. And given the arithmetic and structure of the defense budget, the Pentagon might well succeed.

Mr. Levine, a member of the Journal's Washington bureau, covers military affairs. This is the third of four articles discussing strategic weapons and the U.S.-Soviet arms talks.

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THE PENTAGON'S DEBT TO KARL MARX

(By Robert L. Bartley)

WASHINGTON.—The biggest strategic problem facing American defense planners is not any missile crisis with the Soviet Union but the cultural crisis in the United States. One of the most important effects of a Soviet-American arms agreement, in fact, would be to give the Pentagon a respite from international problems while it attends to domestic ones.

In terms of productive capacity or military technology, after all, there can scarcely be any doubt about the ability of the U.S. to defend itself against any Soviet threat. Any question about keeping pace with Russian military advances is not a question of capability but of national will. And those charged with defending the nation have reason to worry about maintaining the popular and political support vital to that task, given deep disenchantment over Vienam, spreading anti-military sentiment, new inward-turning tendencies among youth and faltering military support in Congress.

In the eyes of many analysts, moreover, the greatest current danger to world peace is that these trends will lead Soviet planners into risky adventures because they underestimate American will and resolve. A willingness to reach a SALT agreement and to slow missile deployments, if it proves bona-fide on the Soviet side, would suggest that the Russians are making no such mistake. And at least in strategic arms, the Pentagon's problems at home haven't led the Russians to grab for any dramatic advantage.

POST-VIETNAM PROBLEMS

When Secretary of Defense Melvin Laird started to talk about Soviet strategic advances this spring, he wanted to refocus national attention on defense problems that would persist after Vietnam. In particular, what results would flow now that the Soviets had achieved a rough parity in strategic weapons?

"We've lost the cushion for safety in terms of hardware; the margin of error is very small. So we need to build a cushion of support in the public and Congress," says one Pentagon official who reflects the secretary's views. "With all the flack we've been getting it looks like an impossible task," he adds. For now the hope is to prevent further erosion of support, and then some time, "probably not this year," start to rebuild it.

It's easy enough to be cynical about the Pentagon's desire for congressional and public support, of course. Whole television programs have been spent illustrating the power of its propaganda machine (which is a sure sign the machine's no longer very powerful). But theoretical military writers do not take lightly either the matter of national will or the current cultural trends in the U.S.

In fact, a brilliant paper on precisely this subject has been written for the Institute for Strategic Studies in London by Klaus Knorr, director of the Princeton Center of International Studies. He writes, "Men and arms count only if there is a determination to commit them. Domestic support is a vital prerequisite of such resolve." And there is a serious question whether current social trends will "finish off, or at least greatly subdue, the United States as a military power capable of acting with determination in making her weight felt beyond her boundaries."

Dr. Knorr argues that affluence makes citizens "inward-turning" and thus undermines the primacy of foreign policy, that continuing democratization undermines the traditional function of elites in mobilizing public goods for purposes like defense, that the American intelligentsia questions and undermines all forms of authority without assuming real responsibility of its own, that much of youth is rejecting established institutions, that the elites have lost their self-confidence. All of these trends limit military power.

Dr. Knorr approves of most of these trends, and believes the U.S. will survive them with only a slight pulling back from the world. But he says this may be "too comforting a picture," that "in a world in which the passion for peace is unevenly spread, serious consequences would arise if these movements were successful in the affluent societies alone. Historically viewed, the combination of riches and unwillingness to fight has proved invariably fatal."

These worries are particularly acute if you view Russia as economically strong but unsoftened by consumer affluence or similar trends. These thoughts are in the back of the minds of American planners as they assess the Soviet threat. This is why they reacted so intensely when reconnaissance photos showed large numbers of new missile holes that at first seemed suitable for huge SS–9 launchers. To them it was not merely a matter of another 40 or 60 missiles, but a suggestion that the Soviets were striking out for a strategic superiority.

A GOOD SOVIET GAMBLE?

And why shouldn't they, it was easy for defense-minded Americans to reason, because the Soviets would have at least some chance that the U.S. would not have the will to keep pace. At the least, a Pentagon response to the Soviet initiative—and there was preliminary Pentagon study of requesting a supplemental appropriation for strategic weapons—would set off a domestic battle that would aggravate internal problems. From the Soviet point of view, it was easy to imagine, to strike for superiority now would seem a one-sided gamble.

It turns out, however, that a majority of these new holes probably are intended for missiles smaller than the SS–9, and the Russians are showing a new interest in a SALT bargain including at least some limits on offensive weapons. The picture is subject to change if SALT fails or new deployments are discovered, but at the moment it seems

that the Soviets are not striking for a dramatic advantage. Presumably, that gamble did not seem as one-sided to them as some Americans imagined. It's intriguing to speculate how they do see the current situation, why they might conceivably conclude that this is a time to bargain, rather than an obvious time to exploit internal problems in the U.S.

For one thing, some analysts think the Soviet Union has a cultural crisis of its own, and may also want a breather. This is described in different ways: of leaders with an aggressive view of their place in the world but a population already exhausted by World War II and other trials, of an elite whose legitimacy suffers from past butcheries and crises of succession, of a possible marriage between intellectual dissent and mass economic discontent.

Dictators need not fear being thrown out in elections, of course, but the problems of mass support come up in other ways. As sociologist Lewis S. Feuer describes it, "The fear that above all haunts the Soviet leaders is that a kind of Socialist exhaustion will come to pervade their people and that the economy itself will then begin to decline sharply, as it did in Czechoslovakia under comparable circumstances."

While some American experts doubt this picture of Soviet leaders restrained by their masses, nearly all do agree that Communist ideology gives them a decidedly ambivalent view of the American cultural crisis itself. Thomas W. Wolfe, an expert on the Soviet at Rand Corp., says, "I would say they haven't really made up their mind whether we're going to be pushovers or whether we're going to be unpredictable and they shouldn't push us too far."

Youth revolt, intellectual disaffection and the rest have pumped a new life into the Marxist dogma that the internal contradictions of capitalist society will tear it apart. There wasn't much to support this view as the European nations made a spectacular recovery from World War II, but now Communist writers are in effect saying, Dr. Wolfe reports, "Our weltanschauung is pretty accurate after all."

Another Kremlinologist, similarly, sees the Communists' success in Cuba reviving their belief in the dogma of an inevitable Communist victory. And last fall Soviet diplomats did tour Western European capitals with the message that internal conditions made the U.S. an unreliable ally, and that it was time to make accommodations with Russia.

Marxist dogma also makes the Soviets believe, however, that the U.S. really is more or less run by its military-industrial complex, with the obvious implications for defense build-ups. Their ideology has also always held that capitalist nations will grow increasingly dangerous and impredictable as their internal contradictions multiply. Into this belief someone has led the Cambodia and Laotian excursions, and the result is something like the view expressed in a Soviet publication by G. A. Arbatov, their top White-Houseologist:

"On the one hand, the administration is completely aware that within the country there is growing dissatisfaction with the foreign-policy adventures, the burdensome pledges, the participation of the United States in aggressive wars. And the government cannot fail to take that dissatisfaction into consideration. It attempts to show that it is meeting the moods of public opinion halfway.

"On the other hand, the administration is experiencing a noticeable nervousness with regard to the fact that the other powers with which the United States has come into conflict on the world scene see complications of the domestic situation in America, and understand that they are limiting the freedom of Washington's hands. This nervousness obviously is pushing certain American figures into adventuristic actions which have been called upon to prove that the U.S. government continues to have at its disposal complete freedom of actions and, if need be, is ready for any aggravation of the situation, and can 'go all the way,' as the expression goes. . . .

"Today, it seems to me, what is beginning to exert a noticeable influence upon the political behavior of the administration is its own 'inferiority complex,' which evolves from the striving to seem to be 'stronger' and 'more resolute' as the objective situation becomes less and less favorable. . . ."

Or in other words, precisely because of the Americans' cultural crisis, this may be a dangerous time to take too many risks in pushing them. If this strain of logic really does dilute more aggressive thoughts in the minds of Soviet leaders, it's a bit easier to conceive of them agreeing to an arms pact even if that means writing off some opportunities that the American cultural problems might give them.

They have seen the pace of American missile deployment change dramatically in a short time, after all, with a huge build-up in the early 1960s and a slowdown late in that decade. If domestic problems only make American leaders jumpy and more unpredictable than ever, then perhaps the Soviets could see a pretty good bargain in an agreement guaranteeing them parity with a wealthier and technologically superior U.S.

A WORD OF CAUTION

It's risky, of course, to assume that public Soviet publications like the Arbatov statement necessarily reflect the thinking of the top political leaders. The new round of SALT could come to nothing after all; some experts worry that the Soviets are merely "playing games." Those new missile holes may not all be for SS–9s, but they do represent more missiles.

Cultural trends like those Dr. Knorr discusses, also, are long-term things; even with a SALT agreement it's not hard to imagine an American indecisiveness and Soviet assertiveness making the world a less comfortable place to live. While a strategic arms agreement would avoid the immediate irritant of a new Pentagon request for a lot more weapons, it would also make many Americans less defense-minded than ever. Clearly for better or worse, American defense planners are not anytime soon going to enjoy the unquestioning support they once received. Even given time to wind down the Vietnam war and work on its domestic fallout, they will not be able to solve their problems completely.

Still, if it does turn out there is a SALT agreement, if American leaders use the breather to get their domestic support in a bit better order, if the Soviets fail to exploit the domestic problems that loom so large in the minds of American planners, then the Pentagon will owe a debt of gratitude to Karl Marx—who seems to teach that despite any appearances the imperialist aggressors will not turn into spineless neo-isolationists overnight.

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## MEDICINE AND THE COMPUTER: THE PROMISE AND PROBLEMS OF CHANGE

Mr. KENNEDY. Mr. President, one of the expert witnesses called to testify before the Senate Subcommittee on Health in our Washington hearings last spring on the "Health Care Crisis in America" was Dr. William B. Schwartz, professor of medicine at Tufts University School of Medicine. In his testimony, Professor Schwartz examined the revolutionary uses that the computer will play in our future health care system and the effects of the computer on the social structure of medicine and society.

According to Professor Schwartz, the use of the computer in our health care system will fundamentally alter the role of the physician and profoundly change the nature of medical manpower recruitment and education. As the scope of medical knowledge continues to expand, the gap between what physicians should know and what they can retain and utilize is widening rapidly.

We know that computers can help to narrow the gap. They can be used as intellectual, deductive instruments, to assist physicians in their diagnoses of patients' symptoms. Automated history taking, blood analysis, administration of anesthesia, reading of electrocardiograms and electroencephalgrams, chromosome analysis, and other procedures could be easily performed by "health-care specialists," who are backed up by computers.

At the same time, computers may pose a threat to many physicians who primarily deal with the immediate physical problems of their patients. If "health care specialists" and computers assume many of the quantitative analyses presently done by hand, the doctor might be removed from direct supervision of primary medical care. Such a redefinition of responsibility could hardly be met with much approval from the medical profession.

In addition, present medical education places a high priority on the student's ability to accumulate vast amounts of facts and to learn to recognize patterns of disease. Widespread use of computers in diagnoses would inevitably produce change in medical school curricula. Given this potential, it would be desirable even now for students to devote at least part of their educational experience to the processes involved in decisionmaking and examination of the possible contributions of computers in the clinical care of the patient.

Questions of reliability and legality must also be considered before the use of computers can be introduced in the health-care system. If an information system were charged with an increasing number of responsibilities in the delivery of health care, a major breakdown in the system might have disastrous consequences. Further, medical records, centralized in a national data bank, would pose great threats to a citizen's privacy. And, who would be responsible for a mistake in medical analysis by the computer—the computer itself, or the medical personnel led astray by the computer printout? Obviously, legislation would have to be enacted to meet at least some of the problems which computers would create.

Future planning for our health-care system will involve many decisions on the cost of a nationwide computer system, priorities of programs to be initiated, laws to regulate and control the information stored in the computer memory banks, and the amount of social adjustment needed to efficiently implement new programs.

Many of Professor Schwartz' views were set out in detail in an article last December in the New England Journal of Medicine. I believe that his article, "Medicine and the Computer: The Promise and Problems of Change," adds per-

ceptive and comprehensive information for the benefit of all who are concerned with America's health-care system. I ask unanimous consent that the article be printed in the RECORD.

There being no objection, the article was ordered to be printed in the RECORD, as follows:

[From the New England Journal of Medicine Dec. 3, 1970]

## MEDICINE AND THE COMPUTER—THE PROMISE AND PROBLEMS OF CHANGE

(By William B. Schwartz, M.D.) *

(Abstract.—Rapid advances in the information sciences, coupled with the political commitment to broad extensions of health care, promise to bring about basic changes in the structure of medical practice. Computing science will probably exert its major effects by augmenting and, in some cases, largely replacing the intellectual functions of the physician. As the "intellectual" use of the computer influences in a fundamental fashion the problems of both physician manpower and quality of medical care, it will also inevitably exact important social costs—psychologic, organizational, legal, economic and technical. Only through consideration of such potential costs will it be possible to introduce the new technology in an effective and acceptable manner. To accomplish this goal will require new interactions among medicine, the information sciences and the management sciences, and the development of new skills and attitudes on the part of policy-makers in the health-care system.)

Many discussions during the past decade have considered the use of computers as an adjunct to medicine. Few, however, have fully explored the possibility that the computer as an intellectual tool can reshape the present system of health care, fundamentally alter the role of the physician, and profoundly change the nature of medical manpower recruitment and medical education—in short, the possibility that the health-care system by the year 2000 will be basically different from what it is today. This article explores that possibility and examines in some detail the social costs that may be exacted by such radical change.

Much has, of course, already been said about the role of the computer in improving the efficiency of the health-care system. These now familiar projections envision the computer performing a wide variety of functions such as the scheduling of hospital admissions, the keeping of medical records and the operation of laboratory and pharmacy. Such developments in the area of "housekeeping" activities offer considerable hope for the improvement of both hospital and outpatient operations but do not come to grips with the more fundamental problems of the health-care system—the increasing shortage of physician manpower and the geographic maldistribution resulting from the reluctance of today's doctor to practice in rural or depressed urban communities. Even less do they give hope of dealing with the difficult challenge of maintaining a high level of physician competence in the face of a continued expansion of medical knowledge that tends to widen progressively the gap between what a doctor should know and what he can retain and utilize. The computer thus remains (in the light of conventional projections) as an adjunct to the present system, serving a palliative function but not really solving the major problems inherent in that system.

There is, in fact, little reason to believe that any of the current proposals for solving these problems, technologic or other, will do more than mitigate their severity. Despite plans to reorganize patterns of medical care and efforts to enlarge medical-school capacity and create new classes of "doctor's assistants," the physician shortage promises to be with us for decades and to pose a serious obstacle to health planning. The problem of maintaining and improving quality appears equally knotty since there is little indication that current programs in postgraduate education will be adequate to the challenge.

### NEW STRATEGIES

If conventional remedies will not meet the demands imposed by society's broad commitment to extensions of health care, it is clear that new, even heretical, strategies must be devised. One such strategy will almost certainly involve exploitation of the computer as an "intellectual," "deductive" instrument—a consultant that is built into the very structure of the medical-care system and that augments or replaces many traditional activities of the physician. Already several interesting steps have been taken in an attempt to extend the computer's role into this realm—the automated interpretation of the electrocardiogram [1-3] and the automation of history taking [4-6] being the most familiar examples.

But well beyond these first steps in concept and impact are experimental efforts to use the computer on a "real-time" basis to assist in diagnosis and management [7-9] (Table 1). Indeed, it seems probable that in the not too distant future the physician and the computer will engage in frequent dialogue, the computer continuously taking note of history, physical findings, laboratory data, and the like, alerting the physician to the most probable diagnoses and suggesting the appropriate, safest course of action. One may hope that the computer, well equipped to store large volumes of information and ingeniously programmed to assist in decision making, will help free the physician to concentrate on the tasks that are uniquely human such as the application of bedside skills, the management of the emotional aspects of disease, and the exercise of good judgment in the nonquantifiable areas of clinical care.

The computer, used in this manner, might also open the way to quite different means of employing nonphysician manpower. Use of the computer as an intellectual resource in diagnosis and treatment could well be coupled to the development of new types of highly specialized allied health personnel who could perform functions of a scope well beyond those currently considered feasible for doctor's assistants. Computer-supported "health-care specialists," aided by a variety of automated devices for history taking, blood analysis and other procedures, and trained to perform a careful physical examination, might take over a large segment of the responsibility for the delivery of primary medical care. Guided by the computer, constrained from exceeding his capacities by instructions built into the computer programs, and linked to regional consulting centers by appropriate display devices, the new breed of "health-care specialist" could make a major contribution to the resolution of the seemingly insoluble problem of maldistribution and shortage of physician manpower.

As a step beyond, it is conceivable that the computer could also take over a variety of specialized functions that are now performed by highly skilled physicians. It is entirely possible, for example, that the administration of anesthesia—a function now uniquely human—could be largely or fully automated if new monitoring technics were combined with the capacity of the computer instantaneously to analyze and respond to large volumes of physiologic data.[10]

If it is accepted that we are on the threshold of change of the magnitude envisioned here, we must also consider the probability that major new stresses will occur within the social structure of medicine and, indeed, that the social costs will spill over into society at large. Mankind's experience demonstrates that a major technologic change (for example, the industrial revolution, and the introduction of the automobile and of insecticides) made in the name of progress has always exacted a heavy price and often a price neither imagined nor considered at the outset.

One may thus project a revolution in the health-care system in which the importance of remembering facts is sharply reduced, the decision-making process is aided and abetted by computers, and many tasks formerly in the domain of the physician are taken over by a consortium of computers and paramedical personnel.

What consequences can be foreseen?

### EFFECTS ON THE PHYSICIAN

Clearly, a major impact upon the practicing physician must be expected. The doctor may view with favor the many features of a computer-based system that would relieve him of a variety of routine and tedious tasks, he is unlikely, however, to accept cheerfully the several threats to his basic professional values that will flow from the technologic revolution envisioned here.

Physicians as a group have traditionally cherished their ability to learn and retain large numbers of facts, to formulate a differential diagnosis and to carry on decision-making activities. Introduction of the computer into these processes could well be viewed by the doctor as devaluating his hard-won medical education and as undermining his intellectual contribution to medical care. This loss of self-esteem would, of course, be exacerbated if the patient were to find in the transfer of many intellectual functions from man to machine a basis for viewing the doctor with diminished admiration and respect. Such loss of status could have serious social, economic and political consequences for a profession that has historically enjoyed eminence in the public mind.

TABLE 1.—Example of an Actual Consultation in Which the Computer Assists the Physician in the Evaluation of a Complex Acid-Base Disturbance.*

Computer: What is the plasma $CO_2$ content, please?

Physician: 15 mMoles/L.

Computer: And the plasma pH, please?

Physician: 7.14.

Computer: The finding of a low $CO_2$ content, low pH and normal $PCO_2$ (calculated to be 42 mmHg) indicates the presence of a mixed respiratory and metabolic acidosis, and the patient should therefore be checked for any source of impaired ventilation. I will now be glad to assist with the diagnosis of the metabolic component of this patient's disorder. What is the serum sodium concentration please?

Physician: 240 mEq/liter.

Computer: Impossible value! Please check and re-enter the correct sodium concentration.

Physician: 140 mEq/liter.

Computer: What is the chloride concentration?

Physician: 103 mEq/liter.

Computer: The calculated "anion gap" is 22 mEq/liter. Metabolic acidosis with an increased "anion gap" is seen in—

1. Diabetic ketoacidosis.
2. Salicylate poisoning.
3. Ethylene glycol poisoning.
4. Methyl alcohol poisoning.

* From the Department of Medicine, Tufts University School of Medicine, and the Medical Service of the New England Medical Center Hospitals (address reprint requests to Dr. Schwartz at Tufts University School of Medicine, 171 Harrison Ave., Boston, Mass. 02111).

Footnotes at end of article.

* The computer program was written in CAL (Conversational Algebraic Language) by W. B. Schwartz, D. M. Goldman & J. P. Kassirer; the response of the computer is accomplished through the use of a branching "decision tree."

5. Paraldehyde ingestion (rarely).
6. Lactic acidosis.
7. Renal failure.

If you would now like a brief explanation both of terminology and of the mechanisms responsible for metabolic acidosis. Please so indicate by typing *yes*.

Physician: Yes.

Computer: "Anion gap" is defined as the difference between the concentration of Na and of the sum of measured anions (CL plus $HCO_3$). Metabolic acidosis with a widened "anion gap" occurs when bicarbonate concentration is decreased by an acid load that does not produce an equivalent rise in chloride concentration. Such an anion pattern is seen:

1. When the dissociated products of the acid are $H^+$ and an anion other than chloride as in the case of:

A.—Ketoacids (diabetic ketoacidosis)

B.—Lactic acid (lactic acidosis)

C.—Unknown organic acids (as seen in salicylate intoxication or poisoning with methyl alcohol, ethylene glycol, paraldehyde).

2. When (as in renal insufficiency) the reduction in plasma $HCO_3$ concentration is induced by defective excertion of hydrogen ion and is not accompanied by an increase in chloride reabsorption.

Computer: If you would like a more complete discussion of this problem please so indicate (by typing yes) and I can suggest several references. [When requested, references are provided here.]

Computer: I am now ready to assist in narrowing the list of possible diagnoses. What is the blood sugar please?

Physician: 135 mg/100 ml

Computer: And the serum ketone level, expressed in terms of diluted plasma?

Physician: 1 to 2

Computer: And the creatinine concentration?

Physician: 2.1 mg per 100 ml

Computer: And the salicylate concentration please?

Physician: 0

Because the computer has a large potenthat it is extremely unlikely that diabetes is the source of the metabolic acidosis in this patient. Although there is renal insufficiency, it is not of the severity that ordinarily produces this large A reduction in plasma bicarbonate concentration. Other ethiologic factors must therefore be considered. In particular, lactic acidosis or poisoning due to ingestion of methyl alcohol, ethylene glycol or paraldehyde must be ruled out. I would strongly recommend that the lactate concentration in plasma be measured and that the history be carefully reviewed for evidence of toxin ingestion.

Because the computer has a large potential role as tomorrow's "consultant," physicians engaged in consulting activities will clearly be affected by the computer's intrusion. Their talents will be much less in demand if interactive programs, such as are already available for congenital heart disease [7] and acid-base disorders,[8] can give prompt and expert counsel on the full range of problems encountered in clinical medicine. Indeed, the recent fusion of computer-based diagnostic strategies with technics for the assessment of risks and benefits of a given diagnostic or therapeutic procedure [11] gives clear promise of an era in which the computer will advise on the course of action at each stage of management in even the most complex disorders. The evolution of refined technics for automated reading of electrocardiograms [1-2] and electroencephalograms,[12] for image processing [13] (for example, chromosome analysis [14 15] and mammograms [16]), and for computer control of activities such as delivery of anesthesia [10] promises to lessen further the need for highly specialized professional skills.

Footnotes at end of article.

The practicing physician interacting with the computer will be equally concerned. Even today, students and physicians exposed to prototype computer-based consulting programs commonly express anxiety and displeasure at the prospect of practicing medicine within a system that has as a major feature the surrender of many memory and analytical functions. It might be argued, of course, that the opportunity to deal more extensively with the emotional aspects of disease will compensate the physician for the expropriation of his diagnostic and therapeutic skills, but it is far from clear that most physicians are equipped by either temperament or training to accept change of this kind gracefully. In view of the goals that motivate most students to enter medicine, the character of current medical education and the orientation of today's physician toward dealing with the immediate physical problems of his patient, it does not seem likely that the transition into a very different pattern of professional life will be easy or welcome. An informal sampling of opinion among present and future practitioners has confirmed this impression. A typical response came from a medical house officer: "If I wanted to spend that much of my time talking with the patient I would have become a psychiatrist!"

His concerns would in all likelihood be further aggravated if the computer were used to broaden the responsibilities of allied health personnel and thus largely to remove the doctor from direct supervision of primary medical care. Such a redefinition of responsibilities, in association with the expanding role of the "health-care specialist" in activities such as minor surgery and normal obstetrics,[17] will hardly be regarded with favor. It is, in fact, likely that once established, paramedical groups will develop new ambitions that would threaten further encroachment into the doctor's domain. The ultimate clash is not difficult to imagine—the health-care specialist pointing to the physician shortage to justify enlargement of his role, and the physician warning of deterioration in the quality of medical care if sharp limits are not set down.

Beyond all this is the sensitive issue of economics, the concern that a combination of computers and health-care specialists may convert a doctor shortage into a doctor surplus. Although hardly conceivable for the foreseeable future, even the ultimate possibility could engender anxiety, particularly among special classes of physicians whose activities might be most directly affected by new forms of automation.

In addition to these general problems there are a host of more specific and troublesome issues.

### MIGHT THE COMPUTER BE USED TO APPRAISE THE PHYSICIAN?

If the computer comes to play a major part in diagnosis and treatment, the computer system itself can readily be used to evaluate physician performance. Special programs could collect information on the frequency with which consultations are requested, and the numbers and types of questions asked, and could generate at regular intervals a profile defining the character and intensity of the interaction between physician and machine. These data could serve the constructive purpose of guiding review panels to the areas in which the programming repertoire needed strengthening, and in all likelihood little objection would be raised to such a fact-finding enterprise provided the information was gathered and stored under conditions that strictly preserved the anonymity of the individual physician. But what if, in the interests of "quality control," it became national policy to use the data as a means of appraising and criticizing individual performance? The doctor would then be confronted with a difficult dilemma. On the one hand he might fear that failure to use the system "as much as he should" would be interpreted as an indifference to his patient's welfare or as a lack of commitment to standards of excellence. On the other hand, he could well imagine that frequent requests for assistance would be taken as a sign of incompetence, as demonstrating a lack of confidence in his knowledge and judgment.

In view of the threats inherent in such surveillance, the physician would in all likelihood demand that appropriate safeguards for protection of privacy be built into the data-collection programs. Even if a commitment were made to a policy of confidentiality, a nagging doubt would probably remain. Might an "unauthorized" program deep in the bowels of the computer generate a dossier on which a judgment of performance could be made? Might such a file provide the basis for a re-evaluation of licensure or of certification by a specialty board? Might it be used for determining the level of payments from government or other insurance groups? In an era already characterized by widespread "electronic snooping" such concerns are entirely justified.

#### *Restrictions on practice*

It is now generally agreed that operating-room privileges are not an inherent right of all physicians; appropriate training in surgery or one of its subspecialities is in most hospitals, a prerequisite for carrying out major surgical procedures. Similar limitations do not apply to the nonmanipulative aspects of medicine. However, with the advent of a sophisticated computer system, and the ability to limit access to particular programs (by use of "passwords" and other technics), one would have a de facto means of denying to the "unqualified" physician the right to deal with major medical problems. Perhaps the most powerful deterrent would be the risk of legal liability. An unfavorable outcome in the patient with, for example, a hemorrhagic diathesis, diabetic ketoacidosis, or a complex cardiac arrhythmia could well become prima facie evidence of malpractice and thus effectively serve to prevent a physician from assuming clinical responsibilities deemed to be beyond his level of competence. Perhaps only in communities where well trained specialists were not available would all computer programs be made available to all physicians. The physician without "clearance" might thus well find himself at an enormous professional, psychological and economic disadvantage.

#### *The university-based physician*

The advent of a biomedical computer network, largely replacing traditional means of communication between the academic community and the practitioner, will exert a major influence on the teacher consultant based in the university hospital. As lectures, reviews and books become less important in the spread of information and in postgraduate education, involvement in the computer system will become a more and more important sphere of activity. It is likely, for example, that the consultant whose computer programs are selected to help the practicing physician (or health-care specialist) to make decisions about patients with blood disease not only will become influential in shaping patterns of thought and practice in hematology but also will find his academic status considerably enhanced—just as does the present-day author of a major textbook.

The evolution of a national computer network will also carry with it the risk of producing an unprecedented degree of centralized control of information sources. It is conceivable, for example, that a decision would be made to provide only a single program, regarded as "best," for dealing with a given clinical area. If such a policy were followed, it would deny many experts the opportunity to present their views in a market place of ideas and thus an opportunity to be heard as teachers and clinicians. It would also have the drawback of making the practitioner a

captive audience, exposed to a single point of view and barred from access to the consultant of his choice. Although these considerations would argue for wide diversity in programming, countervailing technologic and economic factors could preclude such an open strategy. Proliferation of programs might tax the capacity of the computer memory, create increased complexities in file management, and greatly enlarge the task of revising and updating the system. It is not difficult to imagine how such technologic pressures might tend to standardize and restrict the number and variety of programs provided by the network.

The academic community would probably be affected in still another way. The new system would demand the fashioning of an administrative structure to provide close and continuous supervision of a now vital national resource. It is easy to foresee the need for establishing a federal panel, and satellite review boards, charged with the responsibility for selecting computer programs, for modifying existing programs in the light of experience, and for assuring that the programs are constantly kept abreast of current knowledge. Under this system, a handful of individuals, drawn largely from university centers and knowledgeable in the arcane arts of computing sciences as well as in medicine, might thus emerge as a new elite. The pervasive influence of this small group on the nation's health-care system, and their commanding and potentially autocratic role, would be viewed by most of the medical community with some concern. This new elite, powerful and remote, would almost certainly provide the practicing physician with a prime and convenient target for the resentments engendered by the incursion of the computer into his professional life. The split between those controlling the system and those using it must thus be considered as a potentially important social cost.

EFFECTS ON THE MEDICAL SCHOOL AND THE MEDICAL STUDENT

Medical education is now dominated by the student's need to accumulate a multitude of facts and to learn to recognize patterns of disease. If new uses of computers make the current enormous investment in these activities superfluous, one can reasonably anticipate that fundamental changes in the curriculum will follow. A larger portion of the educational experience might well then be devoted to a broad study of the processes involved in decision making,[18] currently an area almost totally neglected, and to an examination of the specific strategies underlying the intellectual contribution of the computers to clinical care. Such efforts not only would make more rigorous the student's own decision-making activities but also should provide him with a realistic appreciation of both the strengths and limitations of the computer-based system on which he will rely.

Another major portion of the curriculum will probably be redirected toward the social and psychologic aspects of health care, sharply accelerating a trend already perceptible in many medical schools. This further shift from the hard sciences to the behavioral sciences, in concert with the new emphasis on the decision-making process, would herald a new difficult period of adjustment for administration and faculty accustomed to thinking of medical education in traditional terms.

Major technologic change will also affect the composition of the student body of the medical school. Many applicants of a type now attracted to a career in medicine may well be discouraged by the great change in character of medical practice wrought by the encroachment of machines and paramedical personnel. Indeed, it seems likely that applicants with predominantly new interests and backgrounds will appear, some deeply concerned with the behavioral and social sciences and others fascinated by the information sciences and their application to medicine. There will still remain, however, the small handful of students committed to research and teaching who wish to study the physiologic and biochemical problems on which further advances in clinical medicine depend. It is evident that a reorganization of the curriculum, far greater than that in progress today, will be necessary to accommodate the diverse needs of the new student population.

THE PATIENT'S VIEW

Although it might seem that physicians and engineers together should determine in what fashion the information sciences should be exploited, experience with health-care planning for the community shows that such an approach will be neither feasible nor desirable. Participation of the patient in the policy-making process will be essential to the launching of a viable computer-based system that is to have hope of gaining widespread acceptance. It can be expected that the patient, as the ultimate judge of the product, will protest if the improvements structured by experts fail to satisfy community needs and to preserve individual dignity. Indeed, the most creative efforts to implement effective information systems are likely to founder if the individual is made to feel that he is simply raw material in an impersonal medical processing plant. The problems to be faced are complex and varied. How will the patient respond to being examined and treated by a health-care specialist or to being anesthetized by a computer? What will be his reaction to the threat to privacy posed by a central data bank of medical records linked to consoles throughout the country?

And what of defects in performance and reliability of the system? Will expectations of performance be unrealistically high? Will the patient accept the inevitable shortcomings of an impersonal computer-based system as gracefully as he will similar or greater deficiencies in his personal physician? When computer performance is less than perfect and when mistakes are made, will he have appropriate means of legal redress? Such concerns must be given serious consideration, if effective implementation and public acceptance of the new technology are to be achieved.

RELIABILITY OF THE SYSTEM

Many of the issues dealt with in the previous section raise important technologic and legal problems. It is evident, for example, that if an information system were charged with an increasing number of responsibilities in the delivery of health care, a point would eventually be reached at which a major system failure would have disastrous consequences. Dependence on the computer for storage and retrieval of medical records, for provision of anesthesia, for assistance in diagnostic and therapeutic decisions, for processing of laboratory data, and for a host of other more mundane housekeeping functions would carry with it the potential for serious disruption of clinical care if a breakdown of more than brief duration should occur.

The vulnerability of a computer-based information network is apparent. Not only would continued operation depend on the uninterrupted availability of electrical power, but also on the smooth functioning of a multitude of vital machine, program, and communications components. The incorporation of features designed to minimize the likelihood of operational failure thus would loom as a prominent issue in the design of the system. Some considerable degree of protection would be provided by an "active" and a "stand-by" computer complex, but even this approach could not ensure against partial or even total failure of the system.[19] Dependence on the system would therefore require accepting as a potential social cost the problems of minor or even major deteriorations in function. In anticipation of partial failures, assignments of priorities would be necessary to assure most effective utilization of remaining computer capacity—automated anesthesia and patient monitoring taking precedence, for example, over automated history taking or record retrieval. In anticipation of total or near total failure (for example, loss of all but emergency power) contingency plans would be required for return to an atrophied and obsolescent manual operation. It is foreseeable that each of the complex decisions involved in the design and planning effort would involve compromise and risk.

PRIVACY AND LEGAL ISSUES

The threat to confidentiality posed by computer-based medical records represents one facet of the more general threat to personal privacy raised by the prospect of a centralized all-encompassing national data bank.[20-22] Protection of the medical record presents a special and perhaps unique problem, however, because the effort to safeguard privacy would have to be balanced in system design against the need to make information quickly and easily available to the physician who requires it. These conflicting goals would create a dilemma that probably will not be resolved in an entirely satisfactory fashion. Although passwords might provide a measure of security, carelessness in protecting them could lead to ready penetration of the files by unauthorized users. Perhaps the most practical solution would involve the classification of information according to its degree of sensitivity, access to highly confidential data being achieved only through relatively complex procedures. For access to psychiatric findings, for example, the simultaneous use of separate passwords by patient and physician might be required—much as two keys are used to open a safe-deposit box. It must be recognized, however, that no matter how many safeguards might be established to restrict the use of computerized data, all computer banks are potentially penetrable and unsafe.[23]

Finally, there remains the problem of developing a new legal code that must assign liability for difficulties arising from system errors or failure. If technical problems within the network should lead to the delivery of inaccurate information to the physician (for example, the wrong record or incorrect laboratory data), who would be held responsible for resulting mis-steps in management—the manufacturer, the programmer, the medical personnel, or all three? If a program that has been used in guiding therapy proves to have a previously unrecognized flaw and the patient suffers in consequence, who is legally at fault: the physician who prepared the program, the panel that approved it, the physician who employed it, or all of them jointly? Who is to be held responsible for complications resulting from computer-administered anesthesia? What will be the liability of health-care specialists and nurses led into error by their use of the information system?

MAGNITUDE OF THE EFFORT AND LEADERSHIP

The development of a national biomedical computer system entails yet another social cost, the expenditure of dollars and therefore, inevitably, the diversion of resources from other uses. Thus, even if it were agreed that the development of a major computer system for health care were both technologically feasible and socially desirable, difficult decisions on allocations of resources would still remain. A commitment to a computing effort likely to involve many billions of dollars would have to be weighed against important competing needs such as the demands for new medical schools, for modernization of our obsolescent urban hospital system, for the development of community

Footnotes at end of article.



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medicine, for support of biomedical research, and for increased efforts in the field of mental health. The analytic strategies for dealing with such a complex task of resource allocation are still far from perfected, but even if it were possible to arrive at a clear formulation of priorities and to have a reliable estimate of the budgetary commitment to the computing effort, a further problem in allocation of support would still remain. Both the housekeeping and the intellectual computer technologies represent a potentially wide range of effort with concomitant enormous costs, and difficult choices will have to be made. Is the commitment to automated storage and retrieval of the medical record more important than the automation of anesthesia? Is automation of the library more important than a major effort in the area of computer-aided decision making?

It also seems clear that a new type of leadership will be needed if the intellectual, technologic, economic, and social problems considered here are to be resolved in a rational way. The physician educated in the traditional mode is poorly equipped to work at the interface between medicine, the information (computer) sciences, and the management sciences. Similarly, the computer scientist, with his training in mathematics and kindred disciplines, is ill prepared to encompass the range of problems that confront him when he enters the field of health care. Moreover, the anticipated benefits of joint endeavors have proved largely illusory. Too often, serious difficulties in communication and an inability fully to comprehend the character of each other's world have prevented an effective fusion of complementary skills. Leadership in the future must therefore almost certainly come from a new breed of "health-information scientist," who within himself incorporates the breadth of knowledge and experience that will permit him to function as innovator, planner and educator. Medical sciences, computing science, decision theory, operations research, industrial dynamics, systems analysis, and the application of the behavioral sciences to large social systems will be some key tools of this new profession. A commitment to the development of a formal educational effort designed to create this new breed would appear to deserve high priority on the part of today's medical educators and policy makers.

In planning for the future more is involved, however, than the analysis of costs and benefits by trained scientists, the orderly examination of competing priorities and the application of rational tools of decision making. In a democracy major decisions about national priorities and the allocations of resources are—properly—public decisions, and therefore they are—properly—political decisions, at least in considerable part. Thus, the training of a new kind of medical-information scientist is only one of the tasks to be undertaken if an effective wedding of the information sciences and medicine is to be used fruitfully in the solution of major problems in health care. What is in fact much more important is the development of mechanisms for the full and thorough public understanding of the new technology that alone will permit a truly national choice to be made.

CONCLUDING COMMENT

The past decade has been marked by many demands for reorganization of health services, but most proposed solutions have consisted of a rearrangement or a refinancing of the traditional system and its components. As such, they have skirted the basic problem that new demands cannot be met by a system whose resources are already being fully utilized. Computer technology offers an innovative and powerful tool for removing the constraints on delivery of health services, constraints that will inescapably exist even under a health system reorganized in the most rational fashion.

Because the coming intervention of the information sciences represents radical change, it will also inevitably create radical problems. Some of these have been presented here not to discourage vigorous efforts to develop and exploit the new technology but rather as a basis for discussion, analysis, and planning. The power of the information sciences is such that it will, without doubt, alter the face of medicine, and we can ill afford to ignore this impending reality. Instead, physicians must take the opportunity to assist and lead in the planning and implementation of a system that can best serve the interests of both the public and the medical community.

I am indebted to Dr. H. Jack Geiger, Dr. Donald A. Schon, and Mr. John T. Foster for advice and criticism.

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## KOREAN IMPORTS

Mr. THURMOND. Mr. President, the inauguration of President Park in Seoul for the new presidential term marks another milestone in the postwar history of this American ally on the continent of Asia. It would be a gesture greatly appreciated in this country if President Park could see his way clear to opening his term of office with a settlement of the textile trade problems between our two countries.

The press has widely reported the presence in Asia during the last few weeks of Mr. David Kennedy, the President's Special Ambassador. Among other economic matters he is discussing with the Governments of Korea and of our other trading partners in East Asia has been the flood of textile and apparel imports reaching our depressed markets from that part of the world. Indeed, Korea, Hong Kong, Taiwan, and Japan together account for more than one-half of our imports of textiles and apparel.

I was frankly shocked to learn that the Government in Seoul absolutely refuses to discuss any reasonable solution of this long outstanding issue. Korea has claimed a "special relationship" with the United States going back to the Korean war days of 1950–53—when we saved South Korea from communism at the cost of tens of thousands of American casualties. Yet in the view of the Government in Seoul the "special relationship" is apparently the right of unlimited access to the depressed U.S. textile market for low-wage Korean imports. The average wage in the Korean textile industry is 11 cents per hour. In the United States it is $2.54 per hour.

Mr. President, the present level of imports of textiles and apparel from all countries represents more than one-third of a million jobs. We cannot allow this erosion of the economy to proceed any further. I believe that the Government in Seoul would be well advised to promptly reexamine its negotiating stance in the textile matter while the Government in Washington is still thinking in terms of moderating the rate of growth of imports rather than cutting back the existing level, as is being done by some other countries.

Mr. President, in the first 4 months of 1971 our textile imports from Korea jumped 70 percent as compared with the same period a year earlier. They are currently running at the annual rate of 444 million equivalent square yards. And yet, with the import pattern thus clearly out of hand, the South Korean Government is refusing any meaningful negotiations. The attitude exemplified here by the Korean textile industry is quite disheartening.

The American textile industry is the most efficient in the world according to a recent study financed by the British Textile Council. In fact that study, published by the council in 1969, found that the British and Japanese industries were but 37 percent and 32 percent, respectively, as efficient in spinning and weaving as the American industry. The Korean industry is of course substantially less efficient than either of these. It is the enormous wage gap between

Korea and the United States that creates this pressing problem.

Mr. President, Korea may be a less-developed country, but there are less developed portions of the United States, as well. Since 1965, when Congress passed the Appalachian Regional Development Act, the Federal and State governments have been cooperating to promote the economic development of Appalachia. In that region, extending from southern New York State to Mississippi, the textile-apparel industry provides one job in every four. Indeed, there are more than 1 million textile-apparel jobs within Appalachia and contiguous territory within commuting distance of Appalachia.

It is high time for Korea and our other trading partners in the Far East to join with us in a mutual accommodation of the textile issue.

## WHITE HOUSE CONFERENCE ON AGING: HOW SHALL DELEGATES BE SELECTED?

Mr. CHURCH. Mr. President, the Secretary of the Department of Health, Education, and Welfare has within recent days written to the Governor of each State to describe new guidelines for the selection of delegates to the White House Conference on Aging.

That Conference—to begin on November 28 in Washington, D.C.—will be attended by several thousand delegates, representing the States and national organizations. Obviously, it is vital that the delegates be chosen solely on the basis of the contribution they can make to the Conference and to the followup activity which should take place after that Conference.

To make certain that the State delegations would satisfactorily represent the diversity of interests and groups within each State, the National Planning Board for the White House Conference on Aging decided on March 27 that the Governor from each State would nominate the members of the delegation from that State. This was the practice followed at the White House Conference on Aging in 1961. Since March, many Governors have given careful thought to the selection of delegations; and many have already made their choices.

And yet, the HEW directive to which I referred earlier—dated June 11—asks each Governor to nominate 150 percent of the approved number of delegates from his State and to send that list to HEW.

In other words, if a State is authorized to send 50 delegates, its Governor is to submit a list of 75 names to Washington, D.C., where, according to the HEW letter, "the official State delegation will be chosen."

The reason given for this decision is that "several hundred national organizations are also participating in the conference and will also be nominating delegates," and, therefore, "in order to avoid any complications which might arise from duplicate nomination," the Governors are supposed to submit the 150-percent lists of candidates.

If this is the sole reason for the 150-percent rule, would it not be far more efficient for HEW to inform the Governors of the nominations from the national organizations? It would appear, therefore, that this may be an attempt to politically stack the deck of delegates to the White House Conference on Aging, by exercising a final veto over the States. It is my understanding, in fact, that many directors of member units of the National Association of State Units on Aging are urging their Governors to reject the new HEW formula on the grounds that it is an affront to each Governor, that it usurps plans which have been months in the making, and that it would put the selection of delegates in the hands of Federal officials who—in distant Washington, D.C.—are somehow deemed more qualified than State officials to choose the final list of State delegates.

Mr. President, earlier this year the Senate Committee on Aging, of which I am chairman, joined with the Subcommittee on Aging of the Senate Committee on Labor and Public Welfare to evaluate the effectiveness of the U.S. Administration on Aging and its conduct of preparations for the White House Conference on Aging.

At that time we asked HEW representatives for their comments on complaints that political considerations were having an undue effect upon preparations for that conference. We were assured that they were not, and that they would not.

But in the face of the HEW 150-percent rule—and the strong criticism which has resulted—actions are speaking louder than assurances.

## A HALF CENTURY OF SERVICE BY THE GENERAL ACCOUNTING OFFICE

Mr. DOLE. Mr. President, I salute the Comptroller General of the United States and his able staff upon the 50th anniversary of the establishment of the General Accounting Office. The General Accounting Office and the Office of the Comptroller General of the United States were established as an arm of the legislative branch of the Government and made independent of the executive departments and agencies 50 years ago this month by the Budget and Accounting Act of 1921.

The basic function of the General Accounting Office is to assist Congress in carrying out its oversight responsibilities and to assist in analyzing the proposals which come before us. All of us who have served in the Senate or the House are aware of the competence with which that function has been carried out in the past and is continuing to be carried out under the leadership of Comptroller General Elmer B. Staats.

Congress is in a period—perhaps unparalleled in our history—when it must sit in judgment on the merits of admirable programs which are far too numerous and far too complex to be digested and comprehended in the time available to us. We are presented with much learned and persuasive testimony on the vital need of the numerous proposed programs and the great benefits that will ensue from them. We are also often presented with equally learned and persuasive testimony against these same programs.

In more placid years, we were able to moderate these adversary positions, extract from the crucible of ideas of the substantive issues, and discard the specious and self-serving ones. Today we are often nearly overwhelmed by the volume and complexity of the matters we must consider, and we feel the need for expert, professional judgment from an independent and objective source.

In enacting the Legislative Reorganization Act of 1970, Congress gave emphasis to this need and recognized the Comptroller General and the General Accounting Office as a means of fulfilling it. We provided in that act that:

> The comptroller general shall review and analyze the results of government programs and activities, including the making of cost benefit studies, when ordered by either House of Congress, or upon his own initiative, or when requested by any committee having jurisdiction over such programs and activities.
>
> The comptroller general shall have available employes who are expert in analyzing and conducting cost benefit studies of government programs and, upon request of any committee, shall assist in analyzing cost benefit studies furnished by any federal agency to such committee and in conducting cost benefit studies of programs under the jurisdiction of such committee.

We are fortunate in having available to us an organization with the competence of the General Accounting Office, and doubly fortunate in having at its head the very able Elmer B. Staats, who has served as Comptroller General since March 1966.

General Staats brought to the office much talent and experience, including 26 years of service in the Federal Government. With pardonable pride, I include among his credentials the fact that he is a native son of Kansas, and that he earned his A.B. degree and his Phi Beta Kappa key at the University of Kansas.

His 26 years of Government service preceding his appointment as Comptroller General included 22 years with the Bureau of the Budget. There he held positions of increasing responsibility, and in his last 6 years he was Deputy Budget director. His extensive experience from the vantage point of the Bureau of the Budget gives him a keen insight into the working of the Government. In bringing this experience to his present office of Comptroller General, he has added a new dimension to the General Accounting Office.

On this occasion of the 50th anniversary of the General Accounting Office, I extend to the staff of that office and to the Comptroller General my congratulations and my best wishes for many more years of continuing successful operation.

## COSPONSOR OF S. 1311—NEWSMAN'S PRIVILEGE ACT

Mr. BROOKE. Mr. President, I am pleased to join today as a cosponsor of S. 1311, the Newsman's Privilege Act of 1971, introduced by my distinguished colleague from Kansas, Senator PEARSON.

This legislation provides that no government body can require a newsman to disclose any confidential information,

nor the source of such information, obtained by him in his professional capacity.

Although the common law has traditionally not recognized a newsman's privilege, legal developments during the past year, both in and out of the courtroom, indicate a changing attitude on the part of Federal legal officials toward adoption of such a privilege.

The Ninth Circuit Court of Appeals in its significant opinion in Caldwell against United States on November 16, 1970, recognized that where it has been shown that the public's first amendment right to be informed would be jeopardized by a journalist's appearance before a secret grand jury interrogation:

> The Government must respond by demonstrating a compelling need for the witness's presence before judicial process properly can issue to require attendance.

Likewise, in his address to the American Bar Association House of Delegates on August 10, 1970, Attorney General John Mitchell announced a new set of Justice Department guidelines governing the issuance of subpenas to the newsmen. In stating that no subpena would be requested by the Department without the express authorization of the Attorney General, he commented that:

> The Department of Justice does not consider the press "an investigative arm of the government." Therefore, all reasonable attempts should be made to obtain information from non-press sources before there is any consideration of subpoenaing the press. He further stated that "Great caution should be observed in requesting subpoena authorization by the Attorney General for unpublished information, or where an orthodox First Amendment defense is raised or where a serious claim of confidentiality is urged."

Because of these actions by the judicial and executive branches of the Government, I believe that the Congress ought to take prompt action to codify the right of members of the press to be free from Government interrogation. The existence of a free and independent press insures the widest possible dissemination of information. It not only fosters the public's right to know but also, in many cases, exposes public and private malfeasance and contributes to a more efficient and responsive Government.

Mr. President, I ask unanimous consent that the texts of the court opinion and the Attorney General's guidelines be printed in the RECORD.

There being no objection, the material was ordered to be printed in the RECORD, as follows:

[United States Court of Appeals for the Ninth Circuit, No. 26,025, November 16, 1970]

EARL CALDWELL AND NEW YORK TIMES COMPANY FOR AN ORDER QUASHING GRAND JURY SUBPENAS, EARL CALDWELL, VS. UNITED STATES OF AMERICA.

On appeal from the United States District Court for the Northern District of California.

Before: Merrill and Ely, Circuit Judges, and Jameson, District Judge.*

Merrill, Circuit Judge:

Earl Caldwell appeals from an order holding him in contempt of court for disregard of an order directing him to appear before the Grand Jury of the United States District Court for the Northern District of California pursuant to a subpoena issued by the Grand Jury.

Appellant is a black news reporter for the New York Times. He has become a specialist in the reporting of news concerning the Black Panther Party. The Grand Jury is engaged in a general investigation of the Black Panthers and the possibility that they are engaged in criminal activities contrary to federal law.

In order to protect First Amendment interests asserted by appellant the District Court order of attendance, which appellant disregarded, expressly granted appellant the privilege of silence as to certain matters until such time as the Government should demonstrate "a compelling and over-riding national interest in requiring Mr. Caldwell's testimony which cannot be served by any alternative means." This protective order provided:

"(1) That * * * he shall not be required to reveal confidential associations, sources or information received, developed or maintained by him as a professional journalist in the course of his efforts to gather news for dissemination to the public through the press or other news media.

(2) That specifically, without limiting paragraph (1), Mr. Caldwell shall not be required to answer questions concerning statements made to him or information given to him by members of the Black Panther Party unless such statements or information were given to him for publication or public disclosure.

"(3) That, to assure the effectuation of this order, Mr. Caldwell shall be permitted to consult with his counsel at any time he wishes during the course of his appearance before the grand jury * * *."

Appellant contends that the privilege granted by the District Court will not suffice to protect the First Amendment interests at stake; that unless a specific need for his testimony can be shown by the United States he should be excused from attendance before the Grand Jury altogether. Thus it is not the scope of the interrogation to which he must submit that is here at issue; it is whether he need attend at all.

The case is one of first impression and one in which news media have shown great interest and have accordingly favored us with briefs as amici curiae. As is true with many problems recently confronted by the courts, the case presents vital questions of public policy: questions as to how competing public interests shall be balanced. The issues require us to turn our attention to the underlying conflict between public interests and the nature of such competing interests.[1]

While the United States has not appealed from the grant of privilege by the District Court (which it opposed below) and the propriety of that grant is thus not directly involved here, appellant's contentions here rest upon the same First Amendment foundation as did the protective order granted below. Thus, before we can decide whether the First Amendment requires more than a protective order delimiting the scope of interrogation, we must first decide whether it requires any privilege at all.

THE PROTECTIVE ORDER

The proceedings below were initiated by a motion by appellant to quash subpoenas issued by the Grand Jury.[2] In his moving papers appellant's position was that the "inevitable effect of the subpoenas will be to suppress vital First Amendment freedoms of Mr. Caldwell, of the New York Times, of the news media, and of militant political groups by driving a wedge of distrust and silence between the news media and the militants, and that this Court should not countenance a use of its process entailing so drastic an incursion upon First Amendment freedoms in the absence of compelling governmental interests—not shown here—in requiring Mr. Caldwell's appearance before the Grand Jury."

Amici curiae solidly supported appellant in this position. The fact that the subpoenas would have a "chilling effect" on First Amendment freedoms was impressively asserted in affidavits of newsmen of recognized stature, to a considerable extent based upon recited experience. Appellant's own history is related in his moving papers:

"Earl Caldwell has been covering the Panthers almost since the Party's beginnings. Initially received hesitatingly and with caution, he has gradually won the confidence and trust of Party leaders and rank-and-file members. As a result, Panthers will now discuss Party views and activities freely with Mr. Caldwell. * * * Their confidences have enabled him to write informed and balanced stories concerning the Black Panther Party which are unavailable to most other newsmen.

If Mr. Caldwell were to disclose Black Panther confidences to government officials, the grand jury, or any other person, he would thereby destroy the relationship of trust which he presently enjoys with the Panthers and other militant groups. They would refuse to speak to him; they would become even more reluctant than they are now to speak to any newsmen; and the news media would thereby be vitally hampered in their ability to cover the views and activities of the militants."

The response of the United States disputed the contention that First Amendment freedoms were endangered.

"Newsmen filing affidavits herein allege that they fear, in effect, that the Black Panthers will refrain from furnishing them with news. This contention is specious. Despite some assertions by Black Panther leaders to the contrary, the Black Panthers in fact depend on the mass media for their constant endeavor to maintain themselves in the public eye and thus gain adherents and continued support. They have continued unceasingly to exploit the facilities of the mass media for their own purposes."

Assuming, arguendo, that this statement is correct, it is not fully responsive to the claim that First Amendment freedoms are endangered. The premise underlying the Government's statement is that First Amendment interests in this area are adequately safeguarded as long as potential news makers do not cease using the media as vehicles for their communication with the public. But the First Amendment means more than that. It exists to preserve an "untrammeled press as a vital source of public information," *Grosjean* v. *American Press Co.*, 297 U.S. 233, 250 (1936). Its objective is the maximization of the "spectrum of available knowledge," *Griswold* v. *Connecticut*, 381 U.S. 479, 482 (1965). Thus, it is not enough that Black Panther press releases and public addresses by Panther leaders may continue unabated in the wake of subpoenas such as the one here in question. It is not enough that the public's knowledge of groups such as the Black Panthers should be confined to their deliberate public pronouncements or distant news accounts of their occasional dramatic forays into the public view.

The need for an untrammeled press takes on special urgency in times of widespread protest and dissent. In such times the First Amendment protections exist to maintain communication with dissenting groups and to provide the public with a wide range of information about the nature of protest and heterodoxy. See, e.g., *Associated Press v. United States*, 326 U.S. 1, 20 (1945); *Thornhill* v. *Alabama*, 310 U.S. 88, 102 (1940).

The affidavits contained in this record required the conclusion of the District Court that "compelled disclosure of information received by a journalist within the scope of such confidential relationships jeopardizes

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those relationships and thereby impairs the journalist's ability to gather, analyse, and publish the news."

Accordingly we agree with the District Court that First Amendment freedoms are here in jeopardy.

On the other side of the balance is the scope of the Grand Jury's investigative power.

In his moving papers appellant complained that the Government had not disclosed the subject, direction or scope of the Grand Jury inquiry and that efforts of counsel to obtain some specification had been unavailing.

"Government counsel has said only that the grand jury has 'broad investigative powers,' that he cannot 'limit the inquiry of the grand jury in advance,' and that the subject and scope of the grand jury's investigation is 'no concern of a subpoenaed witness.' "

The Government in opposing appellant's motion to quash, stated its position in these terms:

"On the basis of what he has written, directly quoting statements made to him for publication by spokesmen for the Black Panther Party, Earl Caldwell obviously can give and should come forward with evidence which will be helpful to the Grand Jury in its inquiry."

Thus, as is true in innumerable instances, the Grand Jury does not know what it wants from this witness. It wants to find out what he knows that might shed light on the general problem it is investigating. This type of wide-ranging, open-ended inquiry is, of course, typical of many Grand Jury proceedings. See *Hale* v. *Henkel*, 201 U.S. 43 (1906); Note, "The Grand Jury as an Investigatory Body," 74 Harv. L. Rev. 590, 591–92 (1961). If the privilege of silence as defined by the District Court is made available to news gatherers, the Grand Jury will be deprived of their assistance as witnesses in such general investigations.

The question posed below was whether, as a matter of law, this loss to the Grand Jury, this impediment to its traditionally broad scope of inquiry, outweighs the injury to First Amendment freedoms.

The Government stresses the historic traditions of the Grand Jury with its extensive powers of investigation, see, e.g., *Hale* v. *Henkel, supra,* and the corresponding duty of the citizenry to come before the Grand Jury to give testimony. *United States* v. *Bryan*, 339 U.S. 323 (1950); *Blair* v. *United States*, 250 U.S. 273 (1919). But these general propositions of Government authority necessarily are tempered by constitutional prohibitions and other exceptional circumstances. See *United States* v. *Bryan, supra,* at 331; *Blair* v. *United States, supra,* at 281–82. In this respect we find guidance in the Supreme Court decisions regarding conflicts between First Amendment interests and legislative investigatory needs,[3] the Court has required the sacrifice of First Amendment freedoms only where a compelling need for the particular testimony in question is demonstrated.[4]

If the Grand Jury may require appellant to make available to it information obtained by him in his capacity as news gatherer, then the Grand Jury and the Department of Justice have the power to appropriate appellant's investigative efforts to their own behalf—to convert him after the fact into an investigative agent of the Government. The very concept of a free press requires that the news media be accorded a measure of autonomy; that they should be free to pursue their own investigations to their own ends without fear of governmental interference; and that they should be able to protect their investigative processes. To convert news gatherers into Department of Justice investigators is to invade the autonomy of the press by imposing a governmental function upon them. To do so where the result is to diminish their future capacity as news gatherers is destructive of their public function.[5] To accomplish this where it has not been shown to be essential to the Grand Jury inquiry simply cannot be justified in the public interest.

Further it is not unreasonable to expect journalists everywhere to temper their reporting so as to reduce the probability that they will be required to submit to interrogation. The First Amendment guards against governmental action that induces such self-censorship. See *New York Times* v. *Sullivan*, 376 U.S. 254, 279 (1964); *Smith* v. *California*, 361 U.S. 147 (1959).

It was on such considerations as these that the balance was struck by the District Court. It ruled:

"When the exercise of the grand jury power of testimonial compulsion so necessary to the effective functioning of the court may impinge upon or repress First Amendment rights or freedom of speech, press and association, which centuries of experience have found to be indispensable to the survival of a free society, such power shall not be exercised in a manner likely to do so until there has been a clear showing of a compelling and overriding national interest that cannot be served by any alternative means."

Finding that the Government had shown no compelling or overriding national interest for testimony of the sort specified, the District Court imposed the limits we have set forth earlier in this opinion. It reserved jurisdiction to modify its order on a showing of such governmental interest which cannot be served by means other than by appellant's testimony.

We agree with the District Court that the First Amendment requires this qualified privilege, and we find nothing unreasonable in the terms in which it was there defined.[6]

ATTENDANCE

As we have noted, the issue upon this appeal goes beyond the question of a privilege to decline to respond to interrogation in certain areas. The District Court ruled that, although protected by its limited privilege, Caldwell was required to respond to the subpoena by appearing before the Grand Jury to answer questions not privileged. Appellant contends that his mere appearance before the Grand Jury will result in loss of his news sources. The Government questions this result.

The affidavits on file cast considerable light on the process of gathering news about militant organizations.[7] It is apparent that the relationship which an effective privilege in this area must protect is a very tenuous and unstable one. Unlike the relation between an attorney and his client or a physician and his patient, the relationships between journalists and news sources like the Black Panthers are not rooted in any service the journalist can provide his informant apart from the publication of the information so obtained. Goldstein, "Newsmen and their Confidential Sources," The New Republic 13 (March 21, 1970). The relationship depends upon a trust and confidence that is constantly subject to reexamination and that depends in turn on actual knowledge of how news and information imparted have been handled and on continuing reassurance that the handling has been discreet.[8]

This reassurance disappears when the reporter is called to testify behind closed doors. The secrecy that surrounds Grand Jury testimony necessarily introduces uncertainty in the minds of those who fear a betrayal of their confidences. These uncertainties are compounded by the subtle nature of the journalist-informer relation. The demarcation between what is confidential and what is for publication is not sharply drawn and often depends upon the particular context or timing of the use of the information. Militant groups might very understandably fear that, under the pressure of examination before a Grand Jury, the witness may fail to protect their confidences with quite the same sure judgment he invokes in the normal course of his professional work.

The Government characterizes this anticipated loss of communication as Black Panther reprisal; as manifesting a Black Panther demand that, "if you subpoena Caldwell, we will never speak to you again." It argues that it is unthinkable that the American people would capitulate to such extortion.

But it is not an extortionate threat we face. It is human reaction as reasonable to expect as that a client will leave his lawyer when his confidence is shaken. The news source has placed no price tag or exaction on enjoyment of First Amendment freedoms save its continuing confidence in the discretion of the reporter.[9]

As the Government points out, loss of such a sensitive news source can also result from its reaction to indiscreet or unfavorable reporting or from a reporter's association with Government agents or persons disapproved of by the news source. Loss in such a case, however, results from an exercise of the choice and prerogative of a free press. It is not the result of Government compulsion.

We conclude that the privilege not to answer certain questions does not, by itself, adequately protect the First Amendment freedoms at stake in this area; that without implementation in the manner sought by appellant the privilege would fail in its very purpose.

On the other side of the balance is the Grand Jury's right to summon this witness before it and in secrecy compel him to answer questions or to resort to his privileges. It is not the right to secure appearance and testimony that is itself in issue; the District Court's protective order alone would suffice were that all. It is the right to compel presence at a secret interrogation with which we are concerned.

Throughout history secret interrogation has posed problems and caused unease. See, e.g., Note, "An Historical Argument for the Right to Counsel During Police Interrogation," 73 Yale L.J. 1000, 1034–45 (1964). We do not doubt that secret interrogation is in general essential to the integrity and effectiveness of the Grand Jury process. However, implicit in the extraordinary nature of secret interrogations, is the possibility of conflict with basic rights. When this is shown to occur it is appropriate to inquire into the need in the particular case for the specific incursion. Since compulsion to attend and testify entails the exercise of judicial process, it is appropriate that the inquiry be judicially entertained.

The question, then, is whether the injury to First Amendment liberties which mere attendance threatens can be justified by the demonstrated need of the Government for appellant's testimony as to those subjects not already protected by the privilege.

Appellant asserted in affidavit that there is nothing to which he could testify (beyond that which he has already made public and for which, therefore, his appearance is unnecessary) that is not protected by the District Court's order. If this is true—and the Government apparently has not believed it necessary to dispute it—appellant's response to the subpoena would be a barren performance—one of no benefit to the Grand Jury. To destroy appellant's capacity as news gatherer for such a return hardly makes sense. Since the cost to the public of excusing his attendance is so slight, it may be said that there is here no public interest of real substance in competition with the First Amendment freedoms that are jeopardized.

If any competing public interest is ever to arise in a case such as this (where First

Footnotes at end of article.

Amendment liberties are threatened by mere appearance at a Grand Jury investigation) it would be on an occasion in which the witness, armed with his privilege, can still serve a useful purpose before the Grand Jury. Considering the scope of the privilege embodied in the protective order, these occasions would seem to be unusual. It is not asking too much of the Government to show that such an occasion is presented here.

In light of these considerations we hold that where it has been shown that the public's First Amendment right to be informed would be jeopardized by requiring a journalist to submit to secret Grand Jury interrogation, the Government must respond by demonstrating a compelling need for the witness' presence before judicial process properly can issue to require attendance.

We go no further than to announce this general rule. As we noted at the outset, this is a case of first impression. The courts can learn much about the problems in this area as they gain more experience in dealing with them. For the present we lack the omniscience to spell out the details of the Government's burden [10] or the type of proceeding that would accommodate efforts to meet that burden.[11] The fashioning of specific rules and procedures appropriate to the particular case can better be left to the District Court under its retained jurisdiction. Cf., *White Motor Co.* v. *United States*, 372 U.S. 253 (1963).

Finally we wish to emphasize what must already be clear: the rule of this case is a narrow one. It is not every news source that is as sensitive as the Black Panther Party has been shown to be respecting the performance of the "establishment" press or the extent to which that performance is open to view. It is not every reporter who so uniquely enjoys the trust and confidence of his sensitive news source.

THE FOURTH AMENDMENT ISSUE

Appellant also moved to quash the Grand Jury subpoenas on the ground that they were based upon information obtained by unconstitutional surveillance of his interviews with Black Panther members. He sought a hearing to determine whether the subpoenas were so obtained. *Alderman* v. *United States*, 394 U.S. 165 (1969). The District Court denied the motion solely on the ground that appellant lacked standing to raise the Fourth Amendment contention. This is assigned as error.

In light of our disposition of the First Amendment question in this case, we need not reach this issue. The United States might never meet the First Amendment burden imposed upon it by the District Court order as here implemented. Even if the Government does meet that burden, the court may not have to reach this Fourth Amendment claim; the Government's showing of need for appellant's testimony may disclose a basis for the Government's information which would present no Fourth Amendment problem. If such a problem is presented it could then be discussed in light of the specific facts.

Accordingly, we regard decision upon this question as unnecessary to the present disposition of the case. We reserve the issue and decline to reach it here.

Reversal and remanded with instructions that the judgment of concept and the order directing attendance before the Grand Jury be vacated. The District Court under its retained jurisdiction may entertain such further proceedings as may be initiated by the United States.

FOOTNOTES

* Honorable William J. Jameson, United States District Judge for the District of Montana, sitting by designation.

[1] Where, as here, the alleged abridgement of First Amendment interests occurs as a by-product of otherwise permissible governmental action not directed at the regulation of speech or press, "resolution of the issue always involves a balancing by the courts of the competing private and public interests at stake in the particular circumstances shown." *Barenblatt* v. *United States*, 360 U.S. 109, 126 (1959); see, e.g., *Konisberg* v. *State Bar*, 366 U.S. 36, 50–51 (1961); *Bates* v *Little Rock*, 361 U.S. 516 (1960); *NAACP* v. *Alabama*, 357 U.S. 449, 460–67 (1958); Kalven, "The New York Times Case: A Note on 'The Central Meaning of the First Amendment,'" 1964, Sup.Ct.Rev. 191 214–16 (1964).

[2] The first subpoena was served February 2, 1970. It directed appellant to appear and testify and to bring with him notes and tape recordings of interviews reflecting statements made for publication by officers and spokesmen for the Black Panther Party concerning the aims, purposes and activities of the organization. On March 16, after appellant had protested the scope of the subpoena, a second subpoena was served. It simply required appellant's attendance. Appellant's motion to quash was directed to both subpoenas. The court denied the motion and directed compliance with the March 16 subpoena subject to the protective order. Appellant appealed that decision; but the appeal was dismissed, apparently on the ground that the District Court order was not appealable. By then the term of the Grand Jury had expired, and a new Grand Jury was sworn. A new subpoena ad testificandum was served on May 22, 1970. All proceedings had in connection with the earlier subpoenas were made a part of the record of the proceedings concerning this last subpoena. A new order directing attendance was issued; this order also contained the protective provisions or privilege. It is appellant's disregard of that order which resulted in the judgment of contempt now before us.

[3] Like the Grand Jury, legislative committees have long been viewed as invaluable instruments of governance. See, *e.g.*, *Barenblatt* v. *United States*, 360 U.S. 109, 111 (1959); *United States* v. *Rumely*, 345 U.S. 41, 43 (1953).

[4] *DeGregory* v. *Attorney General of New Hampshire*, 383 U.S. 825 (1966); *Gibson* v. *Florida Legislative Investigation Committee*, 372 U.S. 539 (1963); *NAACP* v. *Alabama*, 357 U.S. 449, 460–67 (1958); *Sweezy* v. *New Hampshire*, 354 U.S. 235 (1957); *Watkins* v. *United States*, 354 U.S. 178 (1957); *United States* v. *Rumely*, 345 U.S. 41 (1953). It is necessary that, as the investigation proceeds, step-by-step, "an adequate foundation for inquiry must be laid." *Gibson* v. *Florida Legislative Investigation Committee*, *supra*, at 557.

[5] It is a paradox of the Government's position that, if groups like the Black Panthers cease taking reporters like appellant into their confidence, these journalists will, in the future, be unable to serve a public function either as news gatherers or as prosecution witnesses.

[6] *Garland* v. *Torre*, 259 F.2d (2d Cir.) *cert denied*, 358 U.S. 910 (1958), is not to the contrary. That case involved a libel suit in which an author attributed alleged defamatory remarks reported by her to a "network executive." The author, when called as a witness in the libel action against the network, claimed a First Amendment privilege not to disclose the informant's identity and was held in contempt for her refusal to divulge the source.

The Second Circuit (per Judge, now Mr. Justice, Stewart) affirmed the judgment of contempt. But, in doing so, it accepted the proposition "that compulsory disclosure of confidential sources of information may entail an abridgement of press freedom * * *" Id., at 548. The test was "whether the interest to be served by compelling the testimony of the witness in the present case justifies some impairment of this First Amendment freedom," Id. In that case the court noted that it was "not dealing here with the use of the judicial process to force a wholesale disclosure of a newspaper's confidential sources of news nor with a case where the identity of the news source is of doubtful relevance or materiality." Id., at 549–50. There the information was essential for the trial of plaintiff's case; "The question asked of appellant went to the heart of plaintiff's claim." Id. Thus an over-riding need for the specific testimony was shown.

[7] One reporter for the New York Times states: "[O]n every story there is a much subtler and much more important form of communication at work between a reporter and his sources. It is built up over a period of time working with and writing about an organization, a person, or a group of persons. The reporter and the source each develops a feeling for what the other will do. The reporter senses how far he can go in writing before the source will stop communicating with him. The source, on the other hand, senses how much he can talk and act freely before he has to close off his presence and his information from the reporter. It is often through such subtle communication that the best and truest stories are written and printed in The Times, or any other newspaper."

Appellant relates his own experiences as follows:

"I began covering and writing articles about the Black Panthers almost from the time of their inception, and I myself found that in those first months that they were very brief and reluctant to discuss any substantive matter with me. However, as they realized I could be trusted and that my sole purpose was to collect my information and present it objectively in the newspaper and that I had no other motive, I found that not only were the party leaders available for in-depth interviews but also the rank and file members were cooperative in aiding me in the newspaper stories that I wanted to do. During the time that I have been covering the party, I have noticed other newspapermen representing legitimate organizations in the news media being turned away because they were not known and trusted by the party leadership.

"As a result of the relationship that I have developed, I have been able to write lengthy stories about the Panthers that have appeared in The New York Times and have been of such a nature that other reporters who have not known the Panthers have not been able to write. Many of these stories have appeared in up to 50 or 60 other newspapers around the country.

"The Black Panther Party's method of operation with regard to members of the press is significantly different from that of other organizations. For instance, press credentials are not recognized as being of any significance. In addition, interviews are not normally designated as being 'backgrounders' or 'off the record' or 'for publication' or 'on the record.' Because no substantive interviews are given until a relationship of trust and confidence is developed between the Black Panther Party members and reporters, statements are rarely made to such reporters on an expressed 'on' or 'off' the record basis. Instead, an understanding is developed over a period of time between the Black Panther Party members and the reporter as to matters which the Black Panther Party wishes to disclose for publication and those matters which are given in confidence."

He concludes:

"* * * if I am forced to appear in secret grand jury proceedings, my appearance alone would be interpreted by the Black Panthers and other dissident groups as a possible disclosure of confidences and trusts and would similarly destroy my effectiveness as a newspaperman."

A fellow black reporter, on leave of absence from The New York Times, states:

"From my experience, I am certain that a black reporter called upon to testify about

black activist groups will lose his credibility in the black community generally. His testifying will also make it more difficult for other reporters to cover that community. The net result, therefore, will be to diminish seriously the meaningful news available about an important segment of our population."

[8] This is not necessarily true of every news source. In political and diplomatic areas where the source is an undercover tipster the relationship may well be sufficiently protected by a privilege not to disclose the source.

[9] Quite a different situation would be presented were the demand unrelated to the privileged relationship: E.g. "The police must free our leader."

[10] Appellant, in his brief to this court, has carefully spelled out what he feels would be required:

"Specifically, we contend that, before it may compel a newsman to appear in grand jury proceedings under circumstances that would seriously damage the news-gathering and reporting abilities of the press, the Government must show at least: (1) that there are reasonable grounds to believe the journalist has information, (2) specifically relevant to an identified episode that the grand jury has some factual basis for investigating as a possible violation of designated criminal statutes within its jurisdiction, and (3) that the Government has no alternative sources of the same or equivalent information whose use would not entail an equal degree of incursion upon First Amendment freedoms. Once this minimal showing has been made, it remains for the courts to weigh the precise degree of investigative need that thus appears against the demonstrated degree or harm to First Amendment interests involved in compelling the journalist's testimony." While there is much to commend this suggestion, we are not certain that it represents the best or most satisfactory formulation of the requirement. See, for example, *People* v. *Dohrn, et al.*, Circuit Court of Cook County, Criminal Division, No. 69–3808, May 20, 1970.

[11] Appellant suggests that the Government's specification of need could be presented *in camera* to the District Court with appellant or his counsel present.

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REPORTS AND PROPOSALS

ATTORNEY GENERAL'S GUIDELINES FOR SUBPOENAS TO NEWS MEDIA

The Justice Department guidelines announced by Attorney General John N. Mitchell for government attorneys in requesting subpoenas to members of the news media who may have information in criminal cases, announced in his address to the American Bar Association House of Delegates August 10, 1970, appears below in full text.

The Department of Justice recognizes that compulsory process in some circumstances may have a limiting effect on the exercise of First Amendment rights. In determining whether to request issuance of a subpoena to the press, the approach in every case must be to weigh that limiting effect against the public interest to be served in the fair administration of justice.

The Department of Justice does not consider the press "an investigative arm of the government." Therefore, all reasonable attempts should be made to obtain information from non-press sources before there is any consideration of subpoenaing the press.

It is the policy of the Department to insist that negotiations with the press be attempted in all cases in which a subpoena is contemplated. These negotiations should attempt to accommodate the interests of the grand jury with the interests of the news media.

In these negotiations, where the nature of the investigation permits, the government should make clear what its needs are in a particular case as well as its willingness to respond to particular problems of the news media.

If negotiations fail, no Justice Department official should request, or make any arrangements for, a subpoena to the press, without the express authorization of the Attorney General.

If a subpoena is obtained under such circumstances without this authorization, the Department will—as a matter of course—move to quash the subpoena without prejudice to its rights subsequently to request the subpoena upon the proper authorization.

In requesting the Attorney General's authorization for a subpoena, the following principles will apply:

A. There should be sufficient reason to believe that a crime has occurred, from disclosures by non-press sources. The Department does not approve of utilizing the press as a spring board for investigations.

B. There should be sufficient reason to believe that the information sought is essential to a successful investigation—particularly with reference to directly establishing guilt or innocence. The subpoena should not be used to obtain peripheral, non-essential or speculative information.

C. The government should have unsuccessfully attempted to obtain the information from alternative nonpress sources.

D. Authorization requests for subpoena should normally be limited to the verification of published information and to such surroundings circumstances as relate to the accuracy of the published information.

E. Great caution should be observed in requesting subpoena authorization by the Attorney General for unpublished information, or where an orthodox First Amendment defense is raised or where a serious claim of confidentiality is alleged.

F. Even subpoena authorization requests for publicly disclosed information should be treated with care because, for example, cameramen have recently been subjected to harassment on the grounds that their photographs will become available to the government.

G. In any event, subpoenas should, wherever, possible, be directed at material information regarding a limited subject matter, should cover a reasonably limited period of time, and should avoid requiring production of a large volume of unpublished material. They should give reasonable and timely notice of the demand for documents.

These are general rules designed to cover the great majority of cases. It must always be remembered that emergencies and other unusual situations may develop where a subpoena request to the Attorney General may be submitted which does not exactly conform to these guidelines.

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## IRVING ABRAMSON

Mr. WILLIAMS. Mr. President, this week marks the retirement of one of America's foremost labor leaders, Irving Abramson, general counsel of the International Union of Electrical, Radio, and Machine Workers. Many Senators have expressed admiration for Mr. Abramson's career on the occasion of his retirement, including the distinguished Senator from Washington (Mr. JACKSON), I ask unanimous consent that Senator JACKSON's letter to me concerning Mr. Abramson be printed in the RECORD.

There being no objection, the letter was ordered to be printed in the RECORD, as follows:

UNITED STATES SENATE,
*Washington, D.C., June 23, 1971.*

Hon. HARRISON A. WILLIAMS, Jr.
*Old Senate Office Building,*
*Washington, D.C.*

DEAR PETE: It is a great honor and privilege for me to have this opportunity to express my admiration for a distinguished American who rose from poverty by virtue of his diligence and brilliance while retaining a lifelong commitment to help achieve a better life for working men and women throughout the country.

It is fitting that we should acknowledge our admiration of the extraordinary service of New Jersey's own Irving Abramson, civic leader and distinguished labor leader.

The tireless work of more than 40 years by this man has helped to achieve the economic security and social dignity that make the working men and women of this country envied by their peers throughout the world.

Irving Abramson helped to shape a labor movement that was young and vigorous; he helped it grow during those difficult years of the 1930's when the outcome remained in doubt; and he has helped to give it wisdom during its years of power and maturity. The life of Irving Abramson and the development of the American Labor movement are intertwined.

It is significant that the legal career of this man came only after he had already attained a position as one of the leading trade union leaders on the East Coast including the presidency of the New Jersey State CIO Council, and eastern area director of the CIO.

This distinguished American served his state as a member of both the State Housing Authority and Rehabilitation Commission. He served his Nation as a member of the Executive Committee of the National War Fund, Enemy Alien Board, and as Chairman of the CIO War Relief Committee. His distinguished service brought him the gratitude of the United Kingdom who presented him with the King George Award for Freedom.

The career of this man is distinguished. The high offices he has held reflect the trust he inspired in those with whom he became associated. Though he received offices and honors, Irving Abramson, labor leader and civil leader, labor lawyer and legal scholar, never forgot the great task he had set for himself as a young man. That goal, the achievement of economic security and social dignity for working men and women, was and is visible in the 40 year record of this man. He has argued the case of the working man in courts throughout the land and won landmark cases involving Group Health Insurance and the Textile Workers Union.

His legal scholarship includes a significant document on Industrial Security presented at Cornell University. This paper reflects the experience of a man whose dedication to civil liberties made him a leader in the representation of working men, who as alleged security risks, lost their employment through denial of access to classified information.

Mr. Abramson will retire as general counsel of the International Union of Electrical, Radio and Machine Workers on July 1st. He is a great labor leader, a great lawyer, and a great American. He will be missed.

Sincerely yours,

HENRY M. JACKSON,
*U.S. Senator.*

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## UNEMPLOYMENT AMONG VIETNAM WAR VETERANS

Mr. THURMOND. Mr. President, for some time now I have been greatly concerned about the growing problem of unemployment among veterans of the Vietnam War. Unemployment among these young men is twice the rate of nonveterans of the same age. I find it intolerable that these men who have served their country in Vietnam should face a greater job hurdle than those who have not.

Around the country there are some 352,000 Vietnam-era veterans officially

listed as unemployed. The Labor Department shows 13.6 percent unemployment among 20- to 24-year-old veterans and 10.6 percent for nonveterans of the same age.

Last week I was pleased to note that business leaders pledged to President Nixon that they would find at least 100,000 jobs in the next year for servicemen returning from the Vietnam war. The chairman of the National Alliance for Businessmen, Mr. John Harper, told the President that in addition to finding 100,000 jobs for these veterans, the alliance would continue its efforts to find jobs for the hard core unemployed.

This is a positive move in the right direction. Mr. Harper and the National Alliance for Businessmen are to be commended for their leadership in this much needed emphasis.

It is, however, only a first step. Much more needs to be done. Last year about 500,000 GI's came home from Vietnam. Another 200,000 are expected through 1971 as our forces there decrease. Most of them are young—22 percent have had infantry training only, another 13 percent have had other related training with minimum civilian usage, and 19 percent of the men have had clerical training which is often of limited value in civilian life. It shows that more than half of the returning servicemen today may face uncertain job futures.

I call upon the business community everywhere to give urgent consideration to these returning veterans, particularly in cooperation with manpower training programs. It is my hope that more people can be trained to make their own way in the world, reducing the welfare rolls and making more productive citizens. It is incumbent upon all of us, who are potential employers, to help these people, especially these young veterans, who have not had previous opportunities of work. We owe it to them to help them find and earn a rewarding place in society.

## CUBAN REFUGEE PROGRAM

Mr. BROOKE. Mr. President, as a member of the Appropriations Committee, and particularly as a member of the Foreign Operations Subcommittee which has been considering the many aspects of our foreign assistance program, I was deeply disturbed to read in the newspapers that the full committee has specifically deleted from the continuing resolution any funds for the Cuban refugee program.

It is my understanding that a continuing resolution is adopted for the purpose of providing funds at existing levels for ongoing programs, until such time as the specific appropriations legislation can be passed. A continuing resolution should not, in my judgment, be used as a vehicle for terminating programs at a time when they are still under consideration by the appropriate committees and subcommittees.

In addition to the procedural question, however, I find it most disturbing that we should attempt to abrogate, suddenly and without warning, a program which has brought so many thousands of political refugees to our shores and on which so many thousands more still depend.

Since November 1965, when the program was initiated, "freedom flights" from Castro's Cuba have brought 232,000 people to the United States. In order to qualify for these flights, Cuban citizens must declare their intent to immigrate—a process which leads to loss of jobs, income and property, severe social stigmatization, and even harassment by the Cuban authorities for the many months or years of their wait for a seat on the "freedom flight."

Upon their arrival in the United States, it is true that the Cubans are provided with basic welfare assistance. But they do not stay on welfare for very long. According to the Census Bureau, Cubans who have emigrated to the United States, many of whom have settled in my State of Massachusetts, had a median family income of $5,957 in November of 1969. They are hard working people, and have an extremely low unemployment rate. Eighty-one percent of the refugees receiving welfare assistance, in fact, are over the age of 60.

Mr. President, I believe it would be a tragedy to terminate so abruptly a program which has provided life and hope to many thousands of citizens of this hemisphere. This country has never closed its borders to those who seek refuge here. Let us not begin now.

I profoundly urge that this provision be deleted from the continuing resolution.

## HENRY AUBIN ON HEALTH CARE IN THE DISTRICT OF COLUMBIA

Mr. KENNEDY. Mr. President, the condition of health care in America stands in a curious position. Of all the nations in the world, America leads in the quality of medical technology that it has perfected. Unfortunately, this vast amount of medical knowledge and technique is available to only some of the American people, not to all of the people.

Last week, the Washington Post published a major six-part series by Mr. Henry Aubin on health care in the District of Columbia.

The first article in the health care series examines the soaring hospital costs in Washington and across the Nation. Needless hospitalization, skyrocketing medical malpractice insurance, batteries of unneeded tests, lack of effective cost control budgets, and uneconomical hospital planning all contribute to rising hospital costs.

The second article explores the new trend among physicians to join group practices. Reducing overhead and increasing effectiveness are the reasons most often cited for this new trend.

The third article places much of the responsibility for large hospital bills on the private health insurance industry. Insurance firms fail to exercise control over hospital costs. They encourage hospitalization and tolerate administrative waste in the insurance plans they sell.

The fourth article examines the quality of medical care available to many Washington residents. Fragmentation of various programs and organizations in the health field has led to vast inequities in medical care throughout the city.

The doctor shortage in Washington, D.C., is examined in the fifth article. Crime and urban problems are cited as reasons for not practicing in the city, while the suburbs offer doctors such inducements as cheap rents, tax breaks, and a clientele that can better afford to pay.

In the last article, Mr. Aubin discusses the participation of Washington doctors in medicaid. The amount of paperwork and the delays in reimbursement have been frequently criticized. However, medicaid has enabled a number of doctors to practice in the inner city—without the program, these doctors would find it impossible to treat poor patients.

I believe that Mr. Aubin's articles will be of interest to all of us in the Senate concerned with the health crisis. I ask unanimous consent that they be printed in the RECORD.

There being no objection, the articles were ordered to be printed in the RECORD, as follows:

SOARING HOSPITAL COSTS—WHO IS TO BLAME?

*First in a Series*

(By Henry Aubin)

The cost of care in many Washington hospitals has soared by more than three times the rate of the area's cost of living since 1965, and authorities say it is unlikely to level off soon.

The average charge for a paying patient at one large teaching hospital, Georgetown University Hospital, was $135 a day in 1970, an 87 per cent increase since 1965, according to the hospital.

And during the first five months of 1971 the average charge jumped an additional 9 per cent over last year's rate to $147.22 a day.

Indeed, whereas a patient at many of the city's 14 private general hospitals might have paid only about $70 a day six years ago, today the patient can expect to pay $120 or more.

Hospital officials blame rising labor cost and inflation for much of the increase. But another central cause is a health care system that encourages high costs through unnecessary hospitalization of patients and inefficient use of facilities and personnel.

Patients here are frequently footing the bill:

For some doctors who cluster patients in hospitals whether they need to be there or not, so they can see more patients in less time, with hospital personnel doing much of the work. Doctors' net incomes are increasing far in excess of the cost of living.

For patients who don't, or can't pay themselves. For example, Washington Hospital Center, which says that one patient in four at its emergency room gives the wrong name and address, reports some $5.8 million in unpaid debts that have to be subsidized by paying patients.

For skyrocketing medical malpractice insurance. One surgeon says that, although he has never been sued, his premiums today are 16 times larger than they were 25 years ago, and rates for Washington hospitals are higher than for suburban ones.

For "defensive medicine," or unnecessary treatment, that may mean an additional 10 per cent on hospital bills. To reduce the risk of malpractice charges and to ease patients' fears that they are not getting all the attention they should, some doctors say that often utterly useless tests and X-rays are given, along with consultations that prolong the patients' hospital stay.

For education of student nurses, interns and residents, often costing in excess of $10

daily. Furthermore, young trainees may order batteries of unneeded tests—"everything but the kitchen sink," acknowledges one hospital official—not for their protection but for their education.

For uneconomical regional planning—or lack of planning—among hospitals. In Northern Virginia, for example, booming hospital construction is expected to result in more hospital beds than are needed, according to projections by the area's Health Facilities Planning Council, consequently lowering over all occupancy rates and perhaps increasing the individual costs for all patients.

For the long-established preference of hospitals for each to have its own special facilities—such as laundries—instead of sharing common facilities for lower costs. Local hospitals are beginning to consider such arrangements, but they lag far behind many other cities in this field.

For alleged waste, inefficiency, and misdirected policies of private and government health plans, which pay 80 per cent of hospital bills. Critics charge that the largest of these plans, Blue Cross and Blue Shield, is closely tied to the hospitals and therefore fails to control hospital costs, encourages hospitalization, and tolerates waste by its own personnel, passing along the bill to the public through higher rates.

Hospitals say they are taking steps to trim needless costs. For example, Washington Hospital Center, whose 843 beds make it the largest private hospital in town, reports that its costs increased by 10.8 per cent in 1970, down from its annual average increase of 12 per cent or more during the previous five years.

But, overall, hospital costs in Metropolitan Washington jumped by 14.9 per cent in 1970, a slight increase over 1969's rate of 14.2 per cent, according to the Hospital Council of the National Capital Area, Inc. By comparison, the cost of living in the area went up 5.3 per cent in 1970, says the U.S. Bureau of Labor Statistics.

Critics say increasing costs will continue indefinitely because hospitals lack the economic incentive necessary for large-scale reform; they don't pay for those costs. The public does—through its insurance carriers and taxes.

Because hospitals know they will be reimbursed "they tack on costs in an aimless way," asserts an outspoken critic, Dr. Arthur A. Morris, treasurer and vice president of downtown Washington's Doctors Hospital. Fewer than half of the metropolitan area's 28 nonfederal hospitals, Morris says, draw up "effective cost control budgets before the start of a spending year."

District hospitals could actually cut their costs by an average of as much as 20 per cent if they would accept wholesale revision of long-established procedures, estimates Morris, who is also chairman of the Hospital Council's committee of financial requirements of hospitals.

Most hospital officials say they are working toward more efficiency, but nevertheless they say costs will get higher, not lower. As the comptroller of Washington Hospital Center, Jose Blanco, told a Senate panel investigating costs last year:

"Let's stop pretending that a comprehensive health program is going to be inexpensive. It is going to cost, more and more."

Indeed, if Washingtonians seethe at the prices they are paying, they might consider what is happening elsewhere.

Hospitals in eight other cities charged more for room and board than in Washington in 1969, according to the most recent survey by the American Hospital Association. (The price for room and board often comprises only half or a third of a patient's total bill; but it is a common measure for comparing overall hospital costs among cities). On this scale, Baltimore ranked sixth and New York first. But that is small consolation for Washington residents.

Since 1965, the cost of living here has increased by more than 26 per cent, according to the Department of Labor.

That, by hospital standards, was a mere trot:

At Washington Hospital Center the average inpatient was charged $116 a day in 1970 for all kinds of treatment and accommodations, the hospital says. It estimates that the average daily cost has increased approximately 80 per cent since 1965.

At Cafritz Memorial Hospital the average patient was billed $124 a day in January, a 72 per cent increase over the rate in 1966, when the hospital opened, the hospital says.

Also, Providence Hospital says its average costs for treating patients increased by 97 per cent between 1965 and 1970. George Washington University Hospital reports that its average patient costs jumped by 103 per cent between fiscal 1965 and fiscal 1970.

Overall, Washington hospitals exceeded the national cost per patient day by 29 per cent in 1969, the last year for which the Health Insurance Institute has figures.

Maryland topped the national average by 14 per cent. Virginia was below it by 23 per cent.

Payrolls comprise the biggest part of expenses for all hospitals. The payroll comes to about two-thirds of most hospitals' budgets.

Nurses make up about a third of the payroll, and service personnel such as housekeepers, launderers, porters and kitchen help claim 16 or 17 per cent, according to the heads of two large local hospitals, Cafritz and George Washington.

Salaries for the administration—including fiscal and busines employees, public relations personnel and data processors—average 10 per cent, officials at the two hospitals say. The remainder goes to technicians, therapists, house medical staffers, pharmacy personnel and other skilled workers.

Hospitals' public relations departments are quick to answer queries on rising costs by pointing to pay raises given to housekeepers, porters, nurses and other relatively low-paid personnel. And the PR officials are quick to produce figures showing just how much more money these employees are making than a few years ago.

But queries on how much high paid employees are earning are unanswered.

Washington Hospital Center, Cafritz, George Washington University Hospital and Georgetown University Hospital were asked how much their administrators—the top officer of each hospital—were earning. Officials at each hospital refused to discuss front-office salaries.

Hospitals also refuse to make public their payments to pathologists. Pathologists, who are in charge of laboratories, are the highest paid physicans at many hospitals around the country, often earning more than $100,000 a year. One non-administrative source at Washington Hospital Center said senior pathologists there could earn $60,000 a year after expenses and before taxes.

Critics like Morris contend that many employees on hospital payrolls are unnecessary. They say hospitals could manage well with significantly fewer employees, thereby saving the patient more money.

For every 100 patients, Washington hospitals hire 304 workers, 33 more than Virginia hospitals and 25 above the national average in 1969, according to the American Hospital Association. Maryland was even higher, having 54 employees above the national average.

A decade ago, the average hospital around the country made do with 20 per cent less manpower to care for patients on a per capita basis.

"There seems to be an inevitability about this rise, and it's an inevitability that seems to be passively accepted rather than fought," Norman W. Skillman, director of cost-...ghting Chester County Hospital in Pennsylvania told the Senate Subcommitte on Anti-Trust and Monopoly Legislation at a hearing on hospitals.

Some Washington hospitals have succeeded in reducing their work force through attrition. Washington Hospital Center, for one, found that by cutting out useless procedures for patient care it could get along with fewer workers. One such useless regulation, recently dropped, required the temperature of all patients—even those with broken bones—to be checked four times a day. Now these checks are made only when warranted, says a spokesman.

By sharing more facilities and services, cost-cutters argue, hospitals can save considerably.

Hospitals in some other cities have done so. Some examples cited by the Department of Health, Education, and Welfare's health care facilities service:

Thirteen hospitals in Metropolitan Minneapolis formed a drug purchasing group in 1969 in order to obtain lower-cost stock for their pharmacies.

Twenty-four medical facilities in the Boston area formed a laundry association in 1961.

Nine hospitals save more than $1.5 million a year by using a common computer service in Norfolk.

Washington hospitals have yet to form such ambitious arrangements, though William Bucher, director of the local hospital council, notes that four hospitals are now discussing the possibility of sharing a common laundry in Virginia. They are Cafritz, George Washington, Georgetown and Doctors. Doctors Hospital alone, Morris estimates could save $120,000 annually.

The other prominent example of hospitals sharing facilities, Bucher says, is the joint use of a leased computer by Washington Hospital Center and Children's Hospital. These two hospitals also share a security force. In addition, the center sells steam to nearby Veterans Administration Hospital—one of four federal hospitals in the city—thereby obviating the need for that hospital to build its own steam plant.

In many cities hospitals are criticized for insufficient sharing or expensive medical heart surgery units—each of which can cost several hundred thousand dollars to purchase, to provide special rooms for and to train and pay specialized personnel.

Why purchase this equipment? There are two points of view: that it enables the hospitals to use the latest techniques and thereby save lives, a view often articulated by the hospitals. The other is that it gives the hospitals status.

Dr. John F. Gillespie, a former cardiovascular researcher at Georgetown University Hospital and now president of Georgetown Consultants, Inc., a health profession consulting firm, says the second view carries weight in hospital decision-making: "The capabilities of performing these expensive and advanced techniques have caught the fancy of the public so that there exists a personal or institutional race for prestige, stimulated by the publicity fallout, in performing these feats."

The Washington area—with an estimated five open heart surgery units and five cobalt machines—does not have as much duplication in such services as many cities. The metropolitan Health Facilities Planning Council and the hospitals that maintain the machines say the local population requires every machine in town. But economy-minded critics like Morris and Gillespie say the area could get by with less of the expensive equipment.

Many health experts—Bucher, Morris and the staff of the planning council, to name a few agree, however, that the area's greatest

duplication is in full-service hospital beds, particularly in Northern Virginia.

The planning council complains that when Potomac Hospital in Woodbridge and Centreville Hospital Medical Center add a combined total of 250 beds within the next two years, Northern Virginia will have 3,000 hospital beds. It won't need that many until 1980, says the council whose recommendations are only advisory.

The council's executive director, John R. McKinney, also says the council did not have the chance to review plans of Commonwealth Doctors Hospital, Fairfax, to add 80 beds. Two other nearby hospitals also plan to open more beds soon.

Because of the hospital boom in Northern Virginia, says the council, hospital occupancy rates there have already begun to slump.

In addition, a 600-bed hospital is planned for McLean Gardens, along Northwest Washington's Wisconsin Avenue. McKinney, Bucher and a host of other health planners say the District doesn't need another hospital.

The entire hospital construction situation bodes ill for hospital costs in the District, predicts Andrew L. Braun, a comprehensive health planner for the Metropolitan Washington Council of Governments.

Because more hospitals are going up in the Virginia suburbs, Braun says, more suburban residents who now rely on District hospitals will be using facilities nearer their homes. This, in turn, will reduce the number of paying patients in District hospitals and increase the price of per capita care—possibly, Braun speculates, even to the extent of driving even more patients from city to suburban hospitals.

On the other hand, Braun notes, if District hospitals say they must sometimes refuse admission to patients, regardless of their paying status, because all their beds are filled, then maybe more beds in the area are advisable.

A declining occupancy rate in District hospitals is already apparent in 1970, according to the planning council, occupancy rates for all hospital beds (except for newborn and convalescent care, and for federal hospitals) came to 80.4 per cent, down from 1969's rate of 82.5 per cent. The most efficient occupancy rate is 85 per cent, says the council.

And, of course, many of the patients who are in those beds have no business being there.

". . . If we exclude the few illnesses that honestly need hospitalization, along with specific surgery that is safer in a hospital environment, we could easily reduce our need for hospital beds by half," says Dr. Edward Pinckney, a California physician and critic of the national health scene.

Though some local doctors might quarrel with Pinckney's estimate, many others say privately that they dispatch a lot of people to hospitals who could be treated with their shoes on or in beds at home.

"Just this morning," said a prosperous internist, looking out over downtown Washington from his office, "I had a lady about 80 in this office. She was mobile, she could take care of herself.

"She had all the textbook symptoms of diabetes—a moderately severe case. Insulin was not necessary.

"I could," continued the doctor, asking not to be identified, "have treated her in the office several times a week, giving her oral medication.

"But it would have been cumbersome. She'd be here often. It would be time-consuming.

"In terms of my convenience it was much better to put her in the hospital, so I did."

The doctor, emphasizing that he was less inclined to hospitalize patients than most doctors, added that while he charges the same fee for hospital and office care ($12 a visit), seeing a patient in the hospital often takes less time than treating him in the office. "House staff and nurses have often done the examination, and all I have to do is check the chart and ask the patient how he is."

When several patients are at one hospital it's an even greater time-saver. And though it does take time to drive to hospitals, many doctors with downtown offices live in the suburbs and find they can conveniently stop at hospitals while commuting.

"Seeing patients at home," notes another doctor who shuns the practice, "is more logistically complicated."

Many patients, of course, prefer to go to hospitals because their insurance policies give greater reimbursements for hospital care than for cheaper office or home care.

As one District physician, also an internist, acknowledges: "Sometimes a doctor, under pressure from the patient or his family, will try to be a good guy and put the patient in the hospital if the patient's insurance pays for studies made in the hospital and on an outpatient basis."

"It has been my experience," says Dr. Pinckney, "that the typical patient who will cry out in protest against a personal medical fee of a few dollars is completely apathetic and indifferent when it comes to hundreds of dollars a day for hospital care, as long as someone else foots the bill.

"To some the few dollars a month paid out in premiums are negligible when compared to the widely publicized cost of the care they are ostensibly receiving."

Another problem, notes Pinckney, is that "incessant 'brainwashing' by doctors, hospitals, government and especially hospital insurance plans have led the American public automatically to look to the hospital as the epitome of health care."

Also adding to medical costs are patients who, less illusioned, sue for malpractice. They are getting more numerous and they are winning larger settlements.

In two recent cases in the area, juries awarded patients $265,000 and $600,000 from Washington Hospital Center and a dermatologist respectively.

Insurers say that Washington ranks high among cities for the incidence of such suits, and insurance rates are consequently rising. In the District, anesthesiologists, for example, now pay an average $1,400 in annual premiums, reports St. Paul Insurance Companies, Inc., one of the area's leading malpractice carriers. A year ago they paid $750.

In Virginia hospitals, however, St. Paul says its anesthesiologists have only to pay $825 in premiums to meet requirements. But that's up from $450 a year ago. In Maryland, the premiums went from $480 to $815.

The difference in premiums in the three places is about the same for surgeons, obstetricians and others.

The rates for hospitals themselves also vary widely in the three places. In Virginia, the premium rate for basic limits of liability has been 35 cents a bed for the last two years, St. Paul says. In Maryland the rate has been $1.90 per bed the last two years. But in the District, the per bed rate went up from $3.60 to $4.50 in February.

Other hidden costs patients pay for are the multimillion dollar education programs for student nurses, interns and residents at teaching hospitals. The main teaching hospitals in the city are Georgetown University Hospital, George Washington University Hospital, Freedman's Hospital, D.C. General Hospital and Washington Hospital Center.

While the quality of care is generally rated high at teaching hospitals because of the abundance of supervision and recent medical techniques, the patient pays for it. For example, about $13 or more of a patient's daily bill at Washington Hospital Center goes to pay for medical education, according to that hospital's comptroller, Jose Blanco.

Frequently, patients do not accrue benefits for paying for this education. Student nurses at the center, for example, spend much of their time in the classroom, not with patients. And less than half the nurses remain at the center after graduating.

". . . The question is not whether or not they stay with us," Blanco told the subcommittee. "We are training nurses for the health field, and I have a feeling that we need to do this. Somebody has to do it."

In all, counting payments for bad debts, indigent patients (the government pays for less than half their cost) and the medical education of others. Blanco estimates that a patient at his hospital pays more than $35 a day that is not directly related to the service he receives. That's about a third of the average daily bill.

On top of this are charges for unnecessary tests. All hospitals over-test, but teaching hospitals—those with many "young, enthusiastic and curious" doctors—do so the most, observes one veteran internist with privileges at Georgetown and Washington Hospital Center.

Some of the most overdone tests and their average 1969 costs in Washington, according to the American Hospital Association; urinalysis, $2.70; complete blood count, $5.70; chest X-ray, $16.40, and electrocardiogram, $17.90. Some of these, of course, are given again and again.

Patients also stay longer—and thus pay more—in teaching hospitals.

A 1968 national survey by the Commission on Professional and Hospital Activities, a Michigan-based group, found that the difference in the length of time patients remain in main teaching hospitals over nonteaching hospitals averaged 18 per cent.

The study ascribed a small part of this difference to the fact that teaching hospitals tend to deal with patients with more complicated illnesses, but it stated that most of the difference was attributable to the "teaching effect."

Presumably because of the large amount of teaching in the District, statistics compiled by the AHA for 1969 show that patients can expect to be hospitalized a little longer in Washington than other parts of the country.

The average length of stay in the District was 8.7 days, whereas the national average was 8.2 days. In Virginia the average was 8.3 days, in Maryland 8.6 days.

Hospitals have formed groups of doctors, called "utilization committees," which are supposed to make sure patients aren't staying longer than they ought. Reports on their effectiveness vary. Cafritz, for one, reports that its program is working well and that it has knocked a day off the average length of stay in recent years, bringing it down to 7.5 days.

An official at another hospital notes there's an economic incentive to cut the rate of lingering hospital patients so long as there is a waiting list—new patients tend to run up higher bills during their first few days of hospitalization, what with the number of tests and examinations.

But what larger economic incentives are there for efficiency?

All private general hospitals in the District are run on a break-even basis, and none make a profit as such. Most are corporations that call whatever excess of income they have over expenses not profit but "growth and development money."

Thus Washington Hospital Center growth and development fund last year was 2.8 per cent, or $1,018,954. The paying patient's bill is given a 4 per cent surcharge for this fund, and the money is invested in hospital equipment, expansion and new projects.

No matter how much their prices increase, then, hospitals with large portions of private patients tend to come out ahead.

One local hospital official, who asked not to be identified, explains the attitude of hospitals toward expenses with this question: "If someone told you (that) you could spend a

vacation and spend as much money as you liked and you'd be paid back, how would you behave?"

Patients often have the same attitude. The hospitals pass the buck to the patient, he passes it on to his insurer.

The patient himself may not mind—someone else is paying. But now, with the premium rates for Blue Cross and other plans on the rise, the public is becoming more aware.

That may be a crucial first step.

For if the way to lower hospital costs is to lower hospital use, then, notes Dr. Pinckney, the "first prerequisite to reduce hospital costs is to . . . make the public accept the proven scientific fact that many, many diagnostic and treatment procedures can be done as well, if not better, in their doctor's offices."

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DOCTORS' PAY SOARS ABOVE LIVING COSTS

*Second in a series*

(By Henry Aubin)

The incomes of doctors, already the highest of all professionals, are climbing far in excess of the rising cost of living in Metropolitan Washington.

A survey of tax returns of 900 Washington area physicians shows that the average income, after professional expenses and before taxes, of general surgeons jumped 33 per cent between 1965 and 1969, the latest year for which figures were available. Net incomes of general practitioners in that period rose by 19 per cent; orthopedic surgeons, 38 per cent; neurosurgeons, 24 per cent, and internists, 18 per cent.

Meanwhile, the area's overall consumer price index increased in that period by 11.3 per cent, according to the U.S. Bureau of Labor Statistics.

The average income for the general practitioners in the survey was $38,848 in 1969. For internists it was $40,136 and for general surgeons, $49,400.

Leading the field were specialty surgeons: orthopedic surgeons averaged $80,000 and neurosurgeons, $85,000.

Internal Revenue Service figures dramatically confirm that the medical profession is far and away the best paid profession. National averages for the incomes of professional partners in 1968, the most recent year available, show physicians in group practice earned $36,250; lawyers, $24,419; dentists, $17,541; architects $16,003 and engineers, $13,628.

There is no evidence that soaring incomes of local doctors have significantly slackened with the economy in recent months, according to John C. Post, head of Professional Business Management, Inc., the area's largest and oldest consultant on doctors' financial affairs.

"The slumping economy has had some effect on other parts of the country but not much here," says Post, who advises some 1,500 area physicians and dentists in business matters.

He attributes this largely to the relative lack of unemployment among patients here, many of whom work for the government.

Health care costs in Metropolitan Washington are increasing at about 9 per cent faster than the national average. The Bureau of Labor Statistics says the price index for medical care—which includes physicians' fees, hospitals, drugs and prescriptions—rose by 38.9 per cent nationally between 1965 and 1970 and that it rose by 47.7 per cent in this area.

Doctors often cite their own rising professional expenses and the inflationary economy as the prime reason for their marked increase in patient fees.

"But," says William F. Berry, medical economist for the Bureau of Labor Statistics, "beneath the surface the medical profession is raising prices because it feels it can get those prices and it fears there may come a day when it can't—when the government will set a ceiling on medical prices."

CARE IS BETTER

Doctors have also been benefiting financially by growing patient loads and the abandonment of most house calls. Doctors can see more patients in less time in their offices and, many doctors emphasize, the quality of care is better since more equipment is available in offices than can be toted about in the traditional black bag.

John Post argues that only a small minority of doctors are "out to make all the money they can"—no more than 5 per cent of his clients are that way, he says. "The primary purpose of the others is to help people."

"I think," he says, "the public in general has an exaggerated idea of doctors' incomes."

Post calls the introduction of governmental programs like Medicare and Medicaid the main reason for doctor's rising profits in the last several years. Under the programs, doctors are reimbursed by the government for treating the elderly and poor, care that many physicians used to do free.

"The average humanitarian doctor in Washington used to devote an hour or two of his day treating poor patients for nothing. That is largely done away with today—most doctors get some payment from every patient they see, whether from the government, the insurance carrier or the patient himself. That is one of the most striking developments here in the last five years," says Post, who has been on the local medical economies scene for the last 35 years.

COSTS INFLATED

The bounteousness of Medicaid over the last three years brings the city government's top health official, Philip J. Ruthledge, to this conclusion: "Medicaid has probably done more to inflate the cost of medical care than it has to improve the quality of medical care in the District."

Nonetheless, 163 of 350 doctors polled by the D.C. Medical Society complained that Medicaid doesn't reimburse them enough and asked that the fee schedule be raised.

Increasingly, doctors here are also taking part in "group practices."

One of the simplest of such group arrangements—and also one of the most fashionable, notes D.C. Medical Society President Dr. Marvin C. Korengold—is for young doctors just out of training to go into business with an older doctor nearing retirement.

Under such an arrangement, the young doctor can get a quick entree into an established practice and not have to spend years to build up a clientele. He also saves on the high costs of buying his own equipment, which runs from $10,000 to $50,000 in many instances.

The older doctor also benefits—he can take more vacations and retire early, knowing there will be continuity in his practice, a continuity appreciated by patients as well.

About 1 physician in 10 in the Washington area is now a member of a "group"—usually of a larger size than the type just described. The concept was first adopted in earnest here about 20 years ago and has become increasingly common, though this part of the country still lags behind the West in its popularity.

REDUCING OVERHEAD

"For many doctors it's almost a must, what with inflation and increasing costs. You try to reduce your overhead," notes Dr. Henry Ecker chairman of the D.C. Medical Society's executive board and himself an associate of a four-man group downtown.

The rationale behind groups is that by getting together and sharing equipment, facilities and personnel, each physician can increase his efficiency, savings and leisure. He also has easy access to consultations with other doctors.

Group practitioners tend to make more money than individual practitioners. According to 1967 IRS tax returns, the national average for group partners' net income was $36,143. The average for individual doctors was $27,208.

Despite higher profits to be gained by joining other physicians, there will probably always be a predominance of "solos," says Post. "Doctors are generally independent-minded," he notes.

"I know I'd probably make more money in a group," says Dr. Michael J. Halberstam, a downtown internist who intends to remain independent, "but a tremendous amount of tension mounts between partners when one is felt not be pulling his weight. Some doctors can work very well in that kind of situation, others can't."

Group practice has many definitions. Most broadly, it means any business set up by two or more physicians according to a pre-arranged formula.

GROUP PRACTICES

Basically, three kinds of groups are popular in Washington:

The partnership, whereby members usually pool their earnings and divide the proceeds according to a prearranged formula. Each patient is billed jointly by the partnership, not just by the member who did the work.

The office association, whereby members share facilities but bill patients separately. Boosters of such an arrangement say it allows doctors to be more free with their time and to take vacations as desired.

The clinic, often comprised of a dozen or more specialists. The Kater Clinic, at 1780 Massachusetts Ave, NW, and the Washington Clinic, at 5401 Western Ave. NW, are the best known local examples of such large clinics requiring fees from patients for whatever services are rendered.

The Group Health Association, Inc., established in 1937 and comprising about 70 physicians, gives patients prepaid care. Under a contract signed with the city early this month, the association will provide care for and receive more than $350 annually for each of 1,000 Medicaid patients.

City health officials say the innovative program, which gives doctors an economic incentive to keep their patients healthy instead of only seeing them when they are ill, could result in better health care for the patients and also prove to be more profitable for doctors than the regular fee-for-service payment mechanism.

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PAY MOST OF THE BILLS—RISING HOSPITAL COSTS LINKED TO HEALTH INSURANCE FIRMS

*Third in a series*

(By Ronald Kessler)

The search for a solution to rising hospital costs is turning increasingly to those who pay most of the bills: The private and public health insurance plans.

About 80 per cent of hospital charges are paid by nonprofit Blue Cross and Blue Shield, private insurance companies, or government programs, primarily Medicaid and Medicare.

These charges have doubled in the Washington area in the past six years, while prices of other basic commodities sold in the area have risen by only 25 per cent, hospital and Labor Department figures indicate.

Hospital administrators cite a range of reasons for the sharp increases, from salary demands to burgeoning medical equipment technology and costs. But health experts, consumer spokesmen, and congressional and administration officials—including, to an extent, President Nixon—charge the health plans themselves with contributing to rising costs through waste, inefficiency, and misdirected policies.

Much of the criticism has been directed at Blue Cross and Blue Shield, by far the largest health plan. About half the hospital bills in the metropolitan area are paid by Blue Cross, local officials of the insurance plan estimate, and about half Washington's

population is covered by Blue Shield and Blue Cross, the officials say. The plans also funnel Medicare and Medicaid payments in Washington and in many other areas of the country.

Blue Cross pays hospital bills, while Blue Shield pays doctor bills. Although they are legally separate, the organization sells policies together and have other ties. Operations are conducted by 74 local Cross plans and 72 local Shield plans throughout the country, with national offices in Chicago.

Critics contend Blue Cross and Blue Shield foster high medical costs by:

Failing to exercise control over hospital costs.

Encouraging hospitalization.

Tolerating administrative waste by the plan's personnel.

In January, the Senate Anti-trust and Monopoly Subcommittee was told of interesting expenses incurred by Blue Cross of Virginia, the Richmond-based local plan that covers all but the northern and southwestern section of Virginia.

Among them: memberships in country clubs, a car leasing contract for $30,000 more than a similar bid by another company, a $200,000 "contribution" to a company that turned out to be profit-making with a director who also was a director of Blue Cross, and $1 million for office furniture purchased without competitive bid from a company whose officials included another Blue Cross director. The $1 million price tag was said by the national office of Blue Cross to be higher than prices of similar furniture obtainable on the market.

And last spring, a House Government Operations Subcommittee heard testimony that the local Blue Cross plan covering metropolitan Washington—Group Hospitalization Inc.—kept in noninterest-bearing accounts at four Washington banks an average of $10 million. The money, kept in the accounts until 1967, represented premiums paid by federal employees who subscribe to the Federal Health Employes Health Benefits Program.

Three directors of Blue Cross' Group Hospitalization also were directors at three of the banks. The bank with 85 per cent to 90 per cent of the non interest bearing money—National Savings and Trust Co.—appeared to have closer ties: its president and chairman, Douglas R. Smith, was treasurer of Group Hospitalization; another director of the bank, F. P. Rawlings, Jr., was president of Group Hospitalization.

By the estimate of the subcommittee counsel, the loss to federal employes from the banking arrangement was $700,000 to $800,000 a year in interest. A class action suit has been filed on behalf of members of the federal plan in an attempt to recover the money.

A spokesman for Group Hospitalization stresses that the decision to keep the money in accounts free of interest was made by national headquarters, and a spokesman for the Virginia plan says many of the expenses disclosed at the congressional hearing have been stopped.

Walter J. McNerney, president of the national Blue Cross Association Inc., in Chicago, contends that in the area of administrative costs, "Nobody has a better record than Blue Cross and Blue Shield. Only about 5 per cent of our subscription income is retained for administration."

Social Security Administration figures indicate that administrative costs of commercial health insurance carriers—which combined pay almost as many hospital bills as Blue Cross—are nearly double that of Blue Cross and Blue Shield. Critics say the remaining 95 per cent of Blue Cross-Blue Shield expenses—those allocated to pay hospital and doctor bills—are most in need of reform.

At the core of the problem, says Sen. Philip A. Hart (D-Mich.), who heads the antitrust subcommittee, is that Blue Cross and Blue Shield "appear to be tied in with the organizations that it faces across the bargaining table, raising questions about whether negotiations with hospitals and doctors over fees are conducted "at arm's length."

The negotiations are among the unique features of Blue Cross and Blue Shield operations. Other insurance carriers simply reimburse patients or hospitals for charges billed. Blue Cross, which covers hospital expenses, initially pays normal billing charges, but at the end of each year negotiates a discount rate based on each hospital's actual costs for the year.

Joseph P. Gamble, senior vice president of Blue Cross' Group Hospitalization Inc. in Washington, rejects the contention that there is a close tie between Blue Cross and hospitals. He characterizes the connection as a "business relationship," perhaps similar to a supplier of a company.

But Gamble and other Blue Cross-Blue Shield officials concede that the plan is unique in several other respects:

Rights to the Blue Cross name and emblem are owned by the American Hospital Association, a trade group of hospitals, that can revoke an individual Blue Cross-Blue Shield membership if certain rules are violated.

The national and local governing boards of Blue Cross and Blue Shield are dominated by representatives of medical societies and hospitals.

In Washington, 10 of the 15 directors of the Blue Cross Group Hospitalization are hospital trustees or medical doctors, Gamble says. On the Shield side, which pays doctor bills, 13 of the 23 voting trustees of the local Medical Service of D.C. Inc. were nominated by medical societies, according to Victor M. Brian, president of the local Shield plan.

Because of this domination, contends Theodore O. Cron, president of American Patients Association, a consumer group, "Blue Cross and Blue Shield have neglected to impose any kind of reasonable management control on the hospitals. About all that's needed is that the bill come in on the right size paper.

"The hospitals have no incentive to keep costs down because they will be reimbursed by Blue Cross, and Blue Cross has no incentive to reduce costs because it will be paid by subscribers who get hit with higher and higher premiums," Cron adds.

Cron and other health experts say Blue Cross should pay prospectively rather than retrospectively. This means that Blue Cross would negotiate rates with hospitals at the beginning of each year.

"With rates set in advance, hospitals would be encouraged to project their income. They would have to live . . . within (their budgets)," says John F. O'Leary, special counsel for Massachusetts' health affairs.

Among those who advocate prospective payment is the Health Insurance Association of America, a trade group that says it represents 80 per cent of the private health insurance carriers in the nation.

"The main difference between our operation and Blue Cross is that in general they negotiate with the hospitals on a reimbursement basis after the expenses are incurred and, in most states, get discounts not available to us," says Leslie P. Henry, president of the group. "With prospective payment, hospitals would come in with their budgets in advance and the hospitals would have to stick with them. If they operated inefficiently during the year, they would be penalized. If they did well, they'd be rewarded. Unlike Blue Cross, we have no say over rates."

McNerney of the national Blue Cross Association says, "We do bargain with hospitals in many regards. At any given time a majority of hospitals are apt to be upset with what they're getting rather than happy."

Gamble of the local Blue Cross plan added, "We can't sit as a regulatory agency over the hospitals. But we can provide the tools for them to compare costs with other hospitals and help to plan facilities to avoid duplication and prevent overbuilding."

Dr. Donald H. Stubbs, former president of the local Blue Shield plan and former chairman of national Blue Shield, says he believes "any program constructed to pay for medical care is not the logical program to avoid paying those costs."

"If Blue Cross didn't get along with hospitals and doctors, they couldn't influence costs as well," says Dr. Stubbs, who is chairman of Washington Medical Center, the parent of Metropolitan Hospital and Doctors Hospital here.

Jose A. Blanco, controller and assistant administrator of Washington Hospital Center, the area's largest private hospital, says Blue Cross takes a "tough" stand in negotiating sessions, rejecting many items and auditing whole departments.

But, Blanco says, "Blue Cross does increase costs by simply paying for services that they might say are not needed." For example, he said, they might insist that each hospital in the area does not need an open-heart surgery unit that is used only part time.

"They could say: 'Next year we're going to pay only $60 per room, and you live with it or die with it,'" Blanco said.

He added, however, "If I'm going to go to the hospital or any of my relatives is to go, I wouldn't want any monetary constraint. I want them to get well regardless of cost."

Blanco said the discount given to Blue Cross is "more than anything traditional. It goes back to the days when hospitals were in real difficulties, and it would guarantee them a certain amount of income on a regular basis."

In addition, he said, Blue Cross sends one check a week rather than hundreds for each patient, and it deposits with the hospitals a sum to cover services while "paperwork is going on," Blanco said, all saving money for the hospitals.

Blue Cross traces its start to a plan established in 1929 by Baylor University Hospital to insure Dallas, Tex., school teachers who used the hospital. Blue Shield had its roots in a local plan started in 1939 by the California Medical Association.

The plans, according to some Blue Cross-Blue Shield officials, were set up as much to insure that hospital and doctor bills would be paid as to help patients who might not be able to obtain medical care otherwise.

In part because of its historical emphasis on paying hospital costs rather than expenses, incurred outside the hospital, Blue Cross and Blue Shield have come under increased criticism for allegedly encouraging hospitalization—with resulting higher medical bills.

In his health insurance message Feb. 18, President Nixon said, "To many health insurance policies focus on hospital and surgical costs and leave critical outpatient services uncovered . . . because demand goes where the dollars are, the result is an unnecessary—an expensive—overutilization of acute-care facilities."

Necessary use of hospitals is difficult to define. Dr. Stubbs, the head of Washington Medical Center, says, "It's a matter of what is optimum, a question of where you can get the right care.

The average American housewife can go home in two days after having a baby in the hospital, but if she has four kids at home and no one to take care of them, she should probably stay longer.

"I think that nearly half the time spent in the hospital could be better spent at home." By this, Dr. Stubbs said he means, "We're not sure that it (going home) would change the medical picture."

Some studies have found that the rate of hospitalization is lower for patients not covered by health insurance.

Whatever the fine points of the need for hospitalization, says one Alexandria physician, "It's fairly common for patients to in-

sist on going to the hospital because that particular treatment is paid for by Blue Cross and Blue Shield only in the hospital.

"If you refuse to admit them," says the doctor, who asks that his name not be used, "they'll go to someone else who will." The doctor says he can treat a patient with pneumonia for $125 at home or he can admit him to a hospital for seven to 10 days at a cost—borne by Blue Cross-Blue Shield—of $600 to $700.

Other doctors report that some patients ask to be admitted to hospitals because they're covered and because the patients "think of hospitals as resorts," according to one D.C. doctor, who also asked not to be named.

"You can conduct diagnostic tests outside the hospital and have the patient pay for them or you can do them in the hospital and have Blue Cross and Blue Shield pay for them," says Dr. John F. Gillespie, a former Georgetown University cardiovascular surgeon who heads Georgetown Consultants Inc., a medical consulting firm.

Brian, the head of the local Blue Shield plan, says that Blue Cross and Blue Shield now pay for diagnostic tests in this area regardless of where they are done, so long as they are related to a "symptom or complaint."

But he says pneumonia treated at home would be covered by only 80 per cent after the patient pays for the first $50, while all costs would be covered upon admission to a hospital.

"We did encourage hospitalization," concedes the national Blue Cross' McNerney. "We had a shortage of beds in this country, and we helped create facilities. Now the challenge is demand rather than supply. There was a lag between our emphasis on supply, but that lag is being overcome."

"In the 50s and 60s, Blue Cross and Blue Shield were untouchable," says one Blue Cross official. "People loved them because they paid their medical bills. Then we had Medicare and Medicaid, escalating costs, higher wage settlements, more malpractice suits, more technology, and the roof fell in."

Medicare, which provides health care payments for the aged, and Medicaid, for those on welfare, both became effective in 1966.

A 1970 Senate Finance Committee report found both programs to be inflationary and poorly administered.

In Feb. 22 testimony before Sen. Edward M. Kennedy's health subcommittee, HEW Secretary Elliot L. Richardson charged that Medicare and Medicaid, as well as private health insurance companies, "have been willing to reimburse hospitals 'at cost,' which has become a euphemism for a blank check.

"There has been little incentive to hold down costs, to search for means of increasing the productivity of health manpower and facilities, or to substitute capital for labor."

President Nixon, citing a "deepening crisis" in medical costs, has proposed a measure that would broaden health insurance coverage by requiring all employers in interstate commerce to provide insurance for their employes through private carriers, paying up to 75 per cent of the premiums. Coverage of doctor visit would also be required, in an attempt to discourage hospitalization.

Sen. Kennedy and others have introduced a labor-backed proposal to establish a national health insurance plan, scrapping present private and government programs for universal insurance financed by tax payments.

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QUALITY OF SERVICES UNDER FIRE—MEDICAL CARE RISKY AT BEST

*Fourth in a series*

(By Henry Aubin)

A jobless, 48-year-old man was brought by ambulance from Providence Hospital, where he had gone for help, to D.C. General Hospital.

When he arrived he was suffocating, in shock and had a 104.4 degree fever. Four hours later he died.

An ambulance brought a 58-year-old trash collector from Washington Hospital Center to D.C. General.

Twenty-seven hours after arriving he died from cardiovascular collapse. His physician said his condition would have been less serious had he not been transferred.

An ambulance shuttled a woman from a private community hospital, where she had hastened to have a baby, to D.C. General:

The stretcher brought both her and the baby into D.C. General, because she had the baby en route.

There are about 20 instances each year of patients who die because they were transferred from private hospitals to D.C. General "without assiduous attention paid to their medical stability," according to the chief of that public hospital's emergency room, Dr. Robert P. Santangelo.

And dozens of pregnant women each year experience heavy bleeding or miscarriages in ambulances while being transferred, estimates a former chief resident at D.C. General's obstetrics and gynecology department, Dr. James D. Madden.

What almost every one of these cases has in common, says Santangelo, is poverty. Ninety-nine per cent of the transfer patients, he estimates, have low incomes or are indigent.

The 14 private, community hospitals in the District are more than half filled with suburbanites. Every year about 2,000 poor persons are transferred from these hospitals to D.C. General because, the hospitals say, there isn't enough room for them.

The transfer patients serve as vivid reminders of the 1970 conclusion of the mayor's Task Force on Public Health Goals:

"The present system (of health care) perpetuates a double standard of medical care—one in which the poor receive poor health care at an inadequately supported public hospital, and the rest of the population receive a uniformly higher standard of health care at a variety of other (community) hospitals."

"The more affluent citizen, white or black, gets all the (medical) care he wants, while the poor person, whether white or black doesn't—and we need more doctors and more paramedical personnel to fill the gap," says the president of the D.C. Medical Society, Dr. Marvin C. Korengold.

That's not to say things are fine for the middle and upper classes. Quality and availability of care are two different matters.

As Philip J. Rutledge, the city's top health official, put it last week: "Problems of quality health care cut across economic and racial lines. Some have charged that the affluent may well receive worse care from their private practitioners and private hospitals than the poor receive in municipal institutions.

"The point is we are not sure of the quality of care the affluent or the poor receive."

What public money used for health "buys and how it effects the population of the District of Columbia and suburban communities no one can say," says Rutledge. He is encouraging discussion of setting up some form of monitoring system.

Despite uncertainty as to how well the money is being spent, about a half billion dollars in public money is being spent for health in the District this year, Rutledge estimates. He says about 60 percent of it is federal and the rest local.

Some professionals, like Korengold, say health programs have improved the District's condition somewhat over the past decade. Mortality rates for most diseases have gone down, though often not as rapidly as in most other cities.

But some skeptics say there has been little substantial improvement.

Dr. Robert R. Huntley, chairman of Georgetown University's department of community medicine, says two trends have served largely to counter the effect of increased health spending here:

The arrival of many rural Southern poor who have brought with them a "backlog of unmet health needs."

Soaring inflation of medical prices. According to the U.S. Bureau of Labor Statistics, consumer prices in this area have increased by one-third in the last 12 years while medical prices have doubled.

While the city says the quality of health care is impossible to assess, hard realities stand out.

The nation's capital last year, as it did for most of the past decade, had the highest infant mortality rate of any city in the country. It also has had among the highest death rates for pneumonia, tuberculosis, cirrhosis and venereal disease.

The District has fewer family doctors per capita than any other U.S. city of comparable size, and the shortage is most severe in low income areas. A shortage in hospital beds also exists.

Although most hospital authorities in Washington agree that the city has enough hospital beds to meet the needs of its own population, about 60 per cent of these beds in private hospitals are filled, according to a survey by the local Health Facilities Planning Council. Most of them are residents of Prince George's and Montgomery counties, which do not have enough hospital facilities to meet the needs of their rapidly expanding populations.

Last month a group of citizens singled out Cafritz Memorial Hospital for a lawsuit, claiming that the hospital denied services to many persons living near its Southeast Washington location in order to cater to Prince George's County residents.

The eight citizens, whose legal action was prepared by the Center for Law and Social Policy, said that while the 412 beds at Cafritz comprise four-fifths of all hospital beds in the Southeast, only one of every eight residents of that area who get hospital care get it at Cafritz.

Most get cared for at D.C. General. The facility is so crowded that people wait in the emergency room for periods ranging up to 12 hours before they are cared for, according to Santangelo.

Speaking to compensate for the scarcity of private doctors and medical facilities in low income areas, the city and federal governments have established health clinics and programs like Medicaid, which give free care to the poor.

But people who are in charge of these ventures acknowledge that they don't meet the needs.

The city's eight neighborhood health clinics for the poor receive more than 10,000 visits each month from patients. The clinics ought to be seeing two or three times that number but can't because they lack funds for more staff and facilities, says the director of the centers, Dr. John Algee.

Indeed, as the first line of medical care in their communities, the clinics are "all inadequate in the services they provide," says Rutledge.

Medicaid can be criticized on similar grounds.

The local Medicaid program, started in 1968 and expected to cost $39 million during the current fiscal year, does not offer recipients as full a range of services as in many other cities. Because of funding shortages, it does not, for example, pay for dental care, which is part of Baltimore's program, or for prosthetic devices, hearing aids or private duty nursing, as in many states.

A comparison of the program in Washington and Baltimore is useful, though the program hasn't won many plaudits in the Maryland city, either.

A total of 143,293 Washingtonians were eligible for Medicaid during some part of fiscal 1970, and the program spent an average of

$177 on them; in Baltimore, the approximately 210,000 persons eligible for Medicaid averaged about $260.

In Washington, the average cost for the 92,585 persons who actually received Medicaid services wah $242; in Baltimore, the 155,000 persons who received services averaged $286. The figures come from health officials in both cities.

Washington's medical Charities Program is another short-funded attempt to help the poor. Under this program, the city reimburses private hospitals $38 a day to care for indigent patients.

This payment covers less than half of what it costs the hospitals to provide the care.

The hospitals say it places an unreasonable burden on them. It means their private patients, the ones who pay their own way, have to absorb these losses through higher bills.

For example, Washington Hospital Center says "charity" patients last year cost it some $750,000 above what was covered by the city. Because of its proximity to poverty neighborhoods, the hospital center receives an unusually high volume of poor people in its emergency room and transfers more of them to D.C. General than any other hospital.

Rogers Memorial Hospital, also located in a low-income area, says it's even worse off because of the program. It says it lost $729,000 in fiscal 1970 on charity patients but, unlike most other hospitals, could not charge this off to paying patients—because less than 3 per cent of its patients pay.

Rogers says it is dipping into endowment money for the time being but that in another two or three years it will be in serious financial trouble.

The city is asking Congress for money to double the reimbursement rate, thereby making it more attractive for private hospitals to care for the poor.

The present $38 reimbursement, acknowledges Dr. William J. Washington Jr., head of the city's hospitals and medical care administration, is "grossly inadequate."

There is debate between private and public sectors over the role the city's hospitals should play in caring for those who can't afford them.

Arguing the hospitals' view, William Bucher, director of the Hospital Council of the National Capital Area, Inc., says charity patients are the "moral and legal obligation of the District government."

Hospitals, for their part, have a "moral obligation not to overcharge" their paying patients, says Bucher, whose organization includes most local private hospitals.

Besides, he adds, if private hospitals in the District make their prices too high, the patients would go elsewhere and hospitals would go out of business.

But Ron M. Linton, vice chairman of D.C. General's governing board, says the private hospitals often use D.C. General "as a dumping ground for poor blacks," as evidenced in their transfer practices.

"D.C. General is, in fact, subsidizing other hospitals by taking on a disproportionate load of those who cannot afford to pay."

Rutledge, who in his capacity as head of the city's department of human resources also serves as chairman of D.C. General's governing board, points out that the private hospitals are tax exempt, nonprofit institutions and are beneficiaries of federal subsidies.

"These privileges," he says, "have been extended without attendant responsibilities. Hospitals have not been subject to effective regulations to insure that they act in the public interest."

The only way to get ahead of the serious health situation here and in other cities is to establish a strong program to prevent illness, many health authorities contend.

The lack of sufficient "preventive medicine" services and outpatient care, at neighborhood health clinics, for example, means that many patients end up being admitted to hospitals who should never have become ill enough to be there. They are there because of the failure of the health system, their illnesses not having been checked at an earlier stage.

Critics such as Dr. Paul B. Cornely, past president of the American Public Health Association and professor of community health at Howard University's medical school, argue that every dollar spent on prevention saves as much as $10 in treatment. But the city says it is too short funded to get ahead of the problem in that manner.

As Rutledge puts it, "When there's a lot of illness that needs immediate attention and you have a few dollars . . . you (have to) concentrate on the short-term benefits of taking care of the illness."

Money for preventive programs for the coming fiscal year remains fixed at $8 million in District and U.S. funds, less than 6 per cent of the city's proposed $140 million health care package.

Most of the $8 million is spent on immunization programs for smallpox, tetanus, whooping cough, polio, measles, rubella and diphtheria; for programs that have had some success in cutting tuberculosis and venereal disease rates, for dental care for children, health care in schools and free physical examinations.

But many of these programs are too small. The $1 million dental care program for poor children, for example, meets only 25 per cent of the need, according to Dr. Charles R. Hayman, who directs the overall preventive services program.

And there are no full-time nurses in elementary schools, says Hayman, citing this as one of the central weaknesses of the preventive services.

The city is also proposing an experimental plan whereby it will buy complete medical care for Medicaid patients on a prepaid basis from the Group Health Association, a private clinic. But the program, to start in July and to emphasize preventive care, will enroll only 1,000 of the more than 150,000 eligible for Medicaid this year.

Also, some of the prevention programs, which the city says are so good that they ought to be expanded, are not, in fact, being utilized to capacity now.

Thus the city's free health screening tests, or physical checkups, are drawing only 75 per cent of the people the program could handle. The test and treatment program for tuberculosis is also running at about 75 per cent capacity.

And, officials add, the immunization program for rubella, measles, whooping cough, smallpox and other diseases is at about 80 per cent capacity.

A fundamental problem with the local health situation is the fragmentation of various programs and organizations in the health field, say many observers, including the chairman of the mayor's task force, Dr. Leonard Duhl.

Private hospitals, federal and local governments, health insurance interests, medical schools, professional groups, pharmaceutical and laboratory groups, citizens organizations—they won't, or can't, get together, says Duhl.

"What we need is a plan for the entire city, with all these parties working together on mutual problems," says Duhl, who now teaches urban social policy and public health at the University of California at Berkeley: "There is tremendous resistance to that idea with everyone preferring to go his own private way.

"Every party thinks its own view of the world is the right one. The problem is to get all these 'right' views together."

"I can't," Duhl adds, "place the blame on any one party. I think the blame has to be shared by everyone in the city, including the Congress, which does not appropriate enough money to cope with the situation."

And, he says, it's not just a local problem "It's a national phenomenon."

DISTRICT IS LOSING DOCTORS TO SUBURBS—EXODUS HASTENED BY CRIME, LURE OF MORE MONEY

*Fifth in a Series*

(By Henry Aubin)

The city of Washington, with one of the poorest health records in the country, has the lowest proportion of doctors for patients of any city of comparable size in the East, an analysis of American Medical Association data shows.

Doctors often cite crime and urban problems as reasons for not practicing in the city, while the suburbs offer them such inducements as cheap rents, tax breaks and a clientele that can better afford to pay.

The shortage of physicians is dramatically apparent in such black, low-income sections of Washington as the area east of the Anacostia River, where there were 67 doctors' offices in 1969 for a population of 217,000, according to the most recent city records. By comparison, the white, prosperous area west of Rock Creek had 347 doctors' offices for a population of 86,000.

The doctor shortage and poor environmental and social conditions in low-income neighborhoods contribute to this grim health situation: Washington's infant mortality rate was the highest of any major U.S. city in 1970, and its mortality rates for tuberculosis, pneumonia and cirrhosis were among the highest. Mortality rates are highest in neighborhoods where doctors are the fewest.

The three-year-old Medicaid program, which reimburses doctors for treating the poor, has encouraged a few doctors to settle in disadvantaged areas.

But Medicaid payments are low, the disadvantages of these areas are many, and not enough doctors have come into these areas to compensate for the greater number who have left or are leaving.

The shortage of doctors is most dramatic among general practitioners—the traditional family doctors and first line of defense for health.

The city has fewer of these doctors than any other city in the 400,000 to 1 million population range in the country.

"General practitioners and some other kinds of physicians, with the notable exception of super-specialists, can count on getting more affluent faster outside the city than in it," says one local authority on medical finances, John C. Post, head of Professional Business Management, Inc., a consulting firm for doctors.

In 1963, AMA records show, there were 335 general practitioners with offices in Washington. By the end of 1969, only 185 were left, a decrease caused by death and retirement as well as the lure of the suburbs.

Dividing that total into the 1970 census figure for the city, that means there was only one GP for every 4,130 Washington residents.

In Cleveland, by contrast, there was one family doctor for every 2,300 residents; in San Francisco, one for every 2,900; in Boston, one for every 3,100; in Baltimore, one for every 3,500, and in St. Louis, one for every 3,900.

Washington has been losing its GPs at a rate of 25 a year, and not just for economic reasons.

Dr. Richard E. Cook, a 43-year old GP, used to have a family practice on Maryland Avenue and 8th Street NE, not far from where he used to shine shoes as a boy.

He wanted to work in his native city, but in 1967 he left, discouraged.

Because of their relative affluence and their handling of narcotics for medical reasons, doctors in the inner city were falling prey to burglars and muggers. One colleague, he recalls, even was beaten and robbed when he made a house call; his head injuries required 19 stitches.

"I was never robbed, but there was always that fear in the back of my mind. I was

always agitated and anxious about it," says Dr. Cook.

"That was my main reason for leaving," he says, "but there were other things too."

One of them was his failure to get hospital privileges—that is, permission to put his patients in the hospital personally and to care for them there.

Indeed, notes the president of the D.C. Medical Society, Dr. Marvin C. Korengold, it's generally tougher for physicians to obtain privileges in Washington hospitals than in suburban ones. The main reason, he says, is that there are more new or expanding hospitals in the suburbs than in the city. Thus suburbs have vacancies for doctors while the city has waiting lists.

Cook is still bitter about not being given privileges. "Most city hospitals think a general practitioner is an idiot. The medical community screams about not having enough GPs, but at the same time it doesn't give them the kind of status they deserve.

And it's doubly difficult for a Negro practitioner to get hospital privileges," adds Cook, who is black.

Another reason for "up and leaving," he says, was the long hours and heavy patient load. He estimates he saw 60 to 70 patients a day, "a horrible load for any GP."

From that, he had a net income of only about $15,000 a year.

Today Dr. Cook has a practice among the poor in Annapolis.

"It's a quiet little town. In Washington the atmosphere is hurried, and I've enjoyed medicine here (in Annapolis) much more," he says.

"It's more lucrative," he points out. Now he sees only about 30 patients a day, half his load in Washington, and he's making more than twice as much money. "My net income is about $35,000."

Also he's had no trouble getting hospital privileges.

Professional respect and income, he says are a lot easier to acquire outside the Washington ghetto.

In interviews with doctors who still remain in low-income areas of Washington, crime was frequently mentioned as their prime concern. The depth of that concern was often evidenced by their insistence that they not be identified.

A Southeast Washington physician said he had been shot at after he resisted a mugger several weeks ago. "Already I've abandoned evening office hours," he says, "and right now I'm considering changing locations."

"If I get held up just once, that's it, I'm leaving," says another physician who asked to be identified only as having a practice in a part of the Shaw neighborhood in the model cities area.

That blighted area could ill afford to lose him. D.C. department of human resources records for 1969 show that the model cities area had 81 physicians' offices and a population of 80,000, one-fourth as many doctors as west of Rock Creek on a per capita basis. It also had eight times as many deaths from tuberculosis and twice the infant mortality rate.

The internist has, to a degree, been replacing the vanishing GP.

Some physicians, like internist Dr. Stanley Talpers of downtown Washington, argue that this improves the quality of medical care. Talpers points out internists can treat ailments that fall within their specialty better than generalists can.

But others, like Dr. Korengold of the medical society, disagree, saying that the problem remains of matching the right ailment with the right specialist.

"Internists haven't adequately replaced the GP," says Korengold, "because internists are only specialists of the internal organs of the body; the GP, on the other hand, can still stitch up lacerations, deliver babies, set broken legs, treat heart failures. There's a very definite need for the GP in Washington."

One reason it's always tough to find different kinds of doctors is that Washington has only one doctor of any kind seeing patients—surgeons, internists, other specialists and GPs—for every 330 people. No other city east of the Mississippi of comparable size has fewer doctors per capita.

Pittsburgh, for example, has one for every 210 people, Boston for every 205, Cleveland for every 220 and Baltimore for every 300.

These figures are extrapolated from an AMA statistical category called "nonfederal patient-care doctors." Doctors engaged in administration, research or teaching are excluded.

(The federal government keeps no count of how many federal doctors involved in patient care are in this area, according to officials at the National Institutes of Health. But, say these officials, there are not enough of them involved in caring for patients "to make any appreciable difference" in the above comparisons on the availability of patient-care doctors among cities.)

While the shortage of doctors is most acute in low-income neighborhoods of the city, the Washington area as a whole has fewer patient-care doctors than most metropolitan areas.

Between 1963 and 1969 the number of patient-care doctors grew by 56 per cent in Washington's suburbs, from 1,388 to 2,171, an annual increase of about 130.

But because of the area's phenomenal population growth, there is still plenty of room for more, Korengold stresses. In the last decade, the number of people—and potential patients—soared by 37.8 per cent, the highest growth rate of any of the 12 U.S. metropolitan areas with populations greater than 2 million.

Washington's own population remained about static during the decade. So did its number of patient-care doctors. While the city lost about 30 doctors between 1963 and 1969, it gained about 30 hospital doctors.

Many of the doctors who left for the suburbs or who retired or died were replaced by foreign-trained physicians. Their quality, while often excellent, tends to vary widely.

"As a generalization," says Dr. Henry Ecker, local head of the American College of Physicians and chairman of the D.C. Medical Society's executive board, "the foreign-trained physician is not as well trained as the American physician."

Ralph Nader's study group on the quality of medical care reaches this conclusion: ". . . foreign physicians with lower qualifications and much less competence and ability are presently assuming a major portion of the responsibility for the care of patients in the U.S."

The proportion of foreign doctors in Washington is above the national average. One Washington doctor in seven was foreign-trained in 1964; one in five in 1967, and the trend continues.

Dr. Sidney Wolff, a young Washington internist, has this rule of thumb to explain the exodus of doctors from the city's low-income areas: "As the socio-economic character of a neighborhood changes, the doctors leave."

As Korengold points out, some of the medical society's members had established medical practices in "changing" neighborhoods. They saw their clientele going to the suburbs and they followed, sometimes keeping many of their old patients.

Others, who remained in deteriorating neighborhoods, complained about the schools and about the gap in social and public services. So they, too, left, and the gap widened.

Also, says Korengold, most young doctors just out of training are now settling in the suburbs.

Many of these young doctors are anxious to help disadvantaged people in the city. But they are discouraged from practicing there, especially if they are white.

Dr. Frederick Washington, a young black physician who heads a public health clinic in Anacostia and also has a private practice there, puts it this way: "It's not a good idea for a white physician to be out here. Most of the white physicians have left and you can't blame them.

"Since I came out here, (in Anacostia) in 1966 I've been held up at gunpoint inside my office four times. I've been burglarized three times," and, he adds, several white visitors and a nurse have been subject to "racial attacks."

"I don't know how many nurses I've had who've quit my private practice because of the robberies," says the doctor. "I would leave myself if I didn't feel something for the people.

"Every now and then I get thoroughly disgusted at the vandalism and at the people's attitude. They think you're here at their beck and call. They don't give you the respect you should get.

"No one seems to care about the people out here. Sometimes I say they don't even care for themselves . . . But I say that in the heat of anger."

If the young physician looking for a place to settle decides on a low-crime section of Washington, he finds the going tough. He or she has two areas from which to choose: downtown or the area west of Rock Creek, and both are already heavily booked.

To the ambitious young doctor, the downtown office area around 18th and I Streets NW is especially attractive because of its proximity to several hospitals, to the business and government areas where many well-off patients work, to George Washington University Medical School where many teach, and because of the referrals from all the other doctors.

Dr. Talpers, who is well established downtown, gives little encouragement to prospective newcomers. "It takes doctors longer to get started downtown because of the sheer number of other doctors. A new doctor can have quite a struggle here for a number of years, whereas in the suburbs he can be busy rather quickly."

Says Dr. Korengold: "A pediatrician can open a practice in, say, an apartment complex in the suburbs, a place where young couples with children often live. And he'll have a going practice his second day."

The medical society president is well acquainted with the lure of the suburbs. Four months ago he opened an office in Bethesda in addition to his K Street office. A neurologist, Korengold divides his day between the two offices, an increasingly popular custom among doctors.

Doctors are also finding it's easier to save money outside the city.

Rent, for example, which may cost $8 a square foot in a downtown building may run only $4 or $5 in a well-located suburban building.

And surprisingly large sums can be saved by eliminating parking expenses. One downtown doctors' office reports it spends $300 a month on parking fees for its four doctors, two nurses and a receptionist. The doctors pay for their employees' parking.

Many nurses and receptionists live in the suburbs and doctors have to pay them more to work in the city than near their homes.

More important savings, however, can be derived from a new kind of tax shelter that is legal in Virginia, Maryland and every other state in the union. But it is illegal in the District of Columbia, and, says Korengold, some doctors here are moving to the suburbs as a result.

These tax shelters are in the form of doctors' corporations. They first became popular around the country during the 1960s, when

states began passing legislation allowing them.

Their popularity in the Washington suburbs is attested to by John Post's clientele. Three years ago, says Post, there was only one corporation among his 1,500 clients. Now there are about 70.

Their prime tax advantage, Internal Revenue Service officials acknowledge, concerns retirement funds. In the District of Columbia doctors are allowed to put aside no more than $2,500 a year into tax deductible retirement savings, while in Virginia and Maryland there is no ceiling on the money that can be saved without paying taxes until after retirement, IRS officials say.

The D.C. Medical Society is supporting legislation now before the House District Committee to permit these corporations in Washington.

Testifying last month on behalf of the society's 2,600 members, Korengold said the corporations would "serve to improve the distribution and quality of medical services" to Washington residents.

He and Dr. Ernest Hardaway, a city health official, agree the corporations might lead to the establishment of "health maintenance organizations" in low-income areas. The corporations, Hardaway says, might obtain contracts from the city to provide prepaid health care for Medicaid patients.

He says the potential profits would be higher than for most ghetto practices. He acknowledges, however, that probably few such groups would settle in the inner city, and says, "Many guys (in the health field here) are looking at it (the corporation legislation) only for the tax benefits."

There is growing desire among some local doctors to augment government programs like Medicaid by donating more of their own time to care for the poor. In a profession with a generally conservative view of social problems, the D.C. Medical Society has become known as being relatively "socially involved."

Korengold points to an article he wrote this spring for the medical society's journal as evidence of this increasing interest by doctors to help the disadvantaged. In the column, he suggested that doctors take a "close look at our own city's problems" and make a "small sacrifice."

Despite their already long workdays, doctors, Korengold wrote, should try to give more physical examinations to the poor and take part in clinics, narcotics treatment programs and other voluntary health projects.

"The facts are that there are just not enough of us (doctors) to go around, and it is going to be a long time before the number of physicians catches up with the population spiral."

One activist member of the local medical community, Dr. Robert N. Butler, a Northwest Washington psychiatrist, is also skeptical of any big changes in the situation.

"Like many other comfortable Americans," he says, "Washington doctors have, as a whole, remained comfortably oblivious to reality. Now they're acting, but still not enough."

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SOME DISTRICT OF COLUMBIA DOCTORS LIKE MEDICAID, OTHERS SHUN PROGRAM

*Last in a series*

(By Henry Aubin)

Medicaid, the program providing free health care for the poor, has earned a dubious reputation in some parts of the country for providing an easy target for chiseling, profiteering doctors.

The program in the District of Columbia has been hampered by slow-moving streams of bureaucratic paperwork, but has been free of scandal.

The local Medicaid office says two doctors, both with practices in low-income neighborhoods, are being paid by the program at a rate of $75,000 a year each for treating the poor. But the office says there's nothing improper about that, that both doctors have large staffs and expenses. Most other doctors make less than half that off the program, and only a few small-time chiselers have been detected, the office says.

The head of the program, Dr. William J. Washington Jr., director of the D.C. hospitals and medical care administration, refuses to say which doctors make the most or which doctors have been caught overcharging the city for patient fees. "It would be an invasion of privacy," he says.

Many physicians, particularly those in ghetto areas who are most accessible to the program's 125,000 patients, say they have done well financially by the program. During the current fiscal year about $25 million to physicians, hospitals, pharmacies and ophthalmologists and optometrists who gave services.

But only about 750 doctors are actively participating in the three-year-old program—less than one in three private practitioners in the city.

Many well-established doctors like Dr. Henry D. Ecker, chairman of the D.C. Medical Society's executive committee, have stayed away from the program because of its reputation as a "paperwork headache," as Ecker terms it.

The amount of paperwork and the delays in reimbursement—sometimes as long as a year—have been frequently criticized.

The medical society privately polled several hundred of its members last year on what they thought of the program. Some of their confidential, anonymous replies:

"The whole Medicare-Medicaid program stinks of governmental red tape, vagueness and paperwork."

"I had originally joined (the program) out of a sense of social responsibility but the bureaucratic approach to the program has killed it for me."

"I instruct my secretary to discourage all Medicaid patients from making appointments to see me because the remuneration is too low, the billing procedure necessitates . . . an office overload for which there's no compensation and the prescription system is also a separate system."

"I am fed up with this piece of junk called printing. I am sick and tired of having forms sent back to me because of defective printing. I joined Medicaid because I thought it was the right thing to do. Patients I used to treat free now want more frequent visits which they don't need and (they) bug me on the phone."

"Get rid of that billing system. It drives my girls nuts."

"I do from time to time treat Medicaid patients. I don't send a bill. It is much easier that way."

One respondent, who said he had practiced "in the heart of the ghetto" for 38 years, said:

"I have been able to benefit a large number of patients who have been going to clinics for months without substantial therapeutic benefits . . . I get a good deal of personal satisfaction out of this aspect of my work."

Of the 363 respondents to the poll, more than half said the program needed a speedier billing system as well as higher fees.

Several months ago the program sought to expedite its payment system by getting a computer. It is too early to tell if the reform is a success, but some complaints remain.

"They still owe me from last year," grumbles one K Street specialist.

Medicaid reimbursements are far lower than what doctors would normally charge paying patients. For example, the pre-arranged Medicaid fee scale will pay an obstetrician $90 for a delivery while Blue Cross-Blue Shield would pay him $250. And Medicaid pays a doctor less than $5 for a brief office visit, less than half of what many doctors would ordinarily charge.

But inevitably, Medicaid officials say, some doctors claim they've given more time and more services to patients than they really have.

Most overcharging is the result of "honest mistakes," says Dr. Washington. He says that 3 to 5 per cent of all bills are spot checked for mistakes and that only 15 to 30 per cent of these need "adjusting" because of mistakes.

Dr. Leroy A. Jackson, a Southeast Washington obstetrician who sees about 400 Medicaid patients a week, says he could make twice what he's earning in private practice if he had offices downtown or west of Rock Creek Park.

A few young black doctors besides Jackson are settling in the inner city, but there wouldn't even be that many if it weren't for Medicaid, says Jackson.

Like many ghetto doctors, Jackson has a second job working for a government-sponsored health program for the poor. He is director of a federally funded clinic opening this month in Shaw. It gives medical care to residents who can't get good health care because of the lack of private practitioners in their neighborhood.

The program's aim is to allow poor persons to obtain the same level of medical care as affluent citizens, just as the Medicare program is intended to provide free care for the elderly. In Medicaid, most recipients are near the welfare level of poverty.

According to one Medicaid critic, Dr. Frederick Washington, an Anacostia family practitioner who is of no relation to the city official, the biggest abusers of the system are not the doctors but the patients. Like many physicians, he emphasizes that most doctors are motivated by sincere humanitarianism and many care for the poor without any remuneration whatever.

But many of the Medicaid patients who used to come to his private office at 23 Atlantic St. SE, he recalls, had "ailments they could have taken an aspirin for. They demanded x-rays, prescriptions and being sent to the hospital unnecessarily. They asked for medicine for friends or relatives and sometimes they even lent their Medicaid identification card to other people who weren't in the program so they could get free care.

"There has to be a way to police these abuses," he says.

Feeling that the Medicaid patients were "unfair to doctors," he stopped seeing them as of the first of the year.

Jackson says Medicaid has had "a beneficial effect on the poor—there are many people who ordinarily would not seek out medical care who now do so."

But at the same time, he charges, some doctors practice a double standard, not spending as much time or effort with Medicaid patients as they would with others.

"Any time a program is designed specifically for the poor person there is a tendency to practice poor medicine," he says.

Dr. Ernest Hardaway, a top city health aide, agrees that some doctors give only cursory attention to Medicaid patients. "We know this to be a fact, the problem is how do we prove it," he says.

"Personally, I would consider it profiteering whenever a doctor runs patients through without a careful examination."

Hardaway's boss, Philip J. Rutledge, director of the D.C. department of human resources, does not paint a flattering picture of the program he is ultimately responsible for.

"The program," he says, "has a very poor record when it comes to enforcing quality . . . and making sure the patient was not overcharged and underserved."

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## CONGRESS: THE VIRTUES OF ITS VICES

Mr. BROOKE. Mr. President, it is with a great deal of pride that I call to the

attention of my colleagues a most insightful article by my former Administrative Assistant, Dr. Alton Frye, which appeared in the summer issue of Foreign Policy.

Dr. Frye has had a number of years to study the role of Congress in foreign policy, and has had considerable first-hand experience of the decisionmaking process.

"Congress: The Virtues of its Vices," is an article which seeks to explore some of the contributions of the Congress, both procedural and substantive, to the formation of American policy in the decade of the 1960's.

I ask unanimous consent that the text of this article be printed in the RECORD.

There being no objection, the article was ordered to be printed in the RECORD, as follows:

CONGRESS: THE VIRTUES OF ITS VICES

(By Alton Frye)

"It will always be the best joke made by the democratic system," said Joseph Goebbels, "that it provided its deadly enemies with the means of destroying it." Like others before him, the Nazi propaganda chief thought that representative government was especially ill-equipped to conduct foreign policy. For two centuries thoughtful democrats—as well as their enemies—have pondered the dilemma of how public discussion and the legislative process can be made to square with the requirements for competent and sustained action in a hostile international environment. Most of them have seemed to conclude that legislatures are a hindrance rather than a help in the making of a nation's foreign policy. To American political scientist Robert Dahl, here is an area where the Constitution's separation of powers has "misfired."

As an avowed partisan of Congress as an institution, I believe it is possible to take a more affirmative view of a democratic legislature's actual participation in foreign policy. Contrary to the boast of Goebbels and the conclusion of Dahl, the U.S. Congress can and does play a useful role in our foreign relations. And much skepticism toward Congress has been accompanied by an exaggerated faith in the rationality of executive decision-making. Too few observers have appreciated that the politics of bureaucracy can distort policy quite as seriously as legislative politics, and that bureaucratic politics lacks most the safeguards of open, public discussion.

The nation's corps of expert professionals in foreign affairs has long given primary allegiance to the executive branch, and has often been scornful of Congress. But today even that pendulum has begun to swing. Former State Department and Presidential advisers are seeking congressional outlets for their services in unprecedented number. Ex-ambassadors, analysts and White House staffers abound on Capitol Hill. The professional staff of the Senate Foreign Relations Committee consists almost entirely of refugees from the Foreign Service. This executive branch "brain drain" is, in the words of George Ball, "redressing the balance of power and responsibility in foreign affairs between the two ends of Pennsylvania Avenue." Some of the shift, to be sure, takes on the appearance of a government-in-exile, as members of recent administrations seek to use legislative channels to influence current policies of the executive. But it would be wrong to judge what is happening as mainly a partisan end-run around the Presidency. Men of both parties are searching for ways to cure what they consider a serious institutional misalignment.

Granted that many of the common complaints against Congress are justified, we need to move beyond the obvious fact that our most pluralistic institution has the vices of its virtues. We need also to discover the virtues of the system's vices, and to exploit them as systematically as possible.

Members of Congress and their staffs are beginning to play a more self-conscious role and to challenge the traditional notion that a legislature, by its very nature, is obstreperous and short-sighted when it moves from its "proper sphere" of domestic affairs into the international arena. Quite apart from action to check and balance unwise executive decisions, senators and congressmen have a number of collective opportunities to advance the nation's foreign interests. A retrospect of the past decade suggests some of these constructive possibilities. It may also illuminate three main aspects of Congress' foreign policy function; those of "constrainer," "communicator" and "liberator."

I. CONGRESS AS CONSTRAINER

The legendary sign on President Truman's desk read "The buck stops here." In fact, of course, the President has wide latitude for diluting his responsibility for unpopular policies, most importantly by emphasizing the shared responsibility of Congress for many undertakings. It is commonplace to deplore this aspect of the U.S. political system as one of its gravest defects, a feature which makes it extraordinarily hard to fix responsibility within the system. Neglected by this customary criticism, however, are the ways in which a system of shared responsibility can work to the nation's advantage. Buck-passing has its virtues.

In states with highly centralized or authoritarian structures, there is usually little doubt about the capacity of the executive to decide and administer foreign policies. While this concentration of policy-making authority confers certain advantages, it carries liabilities as well. There is little opportunity for such a government to escape the international onus for unpopular or unsuccessful policies. When friction occurs in its relations with other states, this cannot normally be mitigated by claiming that the government was compelled to act under the pressure of strong domestic political institutions.

Democratic states, and especially the United States, present a more variegated facade to the outside world. The executive is indeed the country's agent in international relations, but it is a limited agent whose mandate may be curtailed in a number of ways by Congress. Important negotiations with foreign states invariably find members of the U.S. administration asking themselves "how much Congress will buy." This fact is not lost on foreign negotiators, who may regret it but who cannot ignore it in devising their own bargaining positions. They come to recognize that "possible repercussions on the Hill" operate as a vague, but continuous and general, limitation on the U.S. government.

The ubiquity of this factor may reduce Washington's diplomatic flexibility, but, as students of bargaining know, there are many circumstances in which this very lack of flexibility can be a negotiating asset. When one participant in a bargaining discussion knows that there are limits beyond which another participant cannot go, he may be more likely to tailor his own demands to fit within the perceived boundaries of potential agreement. The limits asserted by the second participant appear most credible when they are beyond his power to control. This is often the situation in U.S. foreign relations, when both American and foreign negotiators realize that any agreement they reach will have to be sold to Congress.

The history of the Limited Nuclear Test Ban Treaty illustrates some of the ways in which Congress' capacity to set boundaries for agreements may enhance executive bargaining power. Following the Soviet resumption of nuclear testing in 1961 and the intensification of the Berlin crisis, sentiment in Congress shifted toward a harder line with Moscow. In a mood of deep distrust following Russia's abrupt abrogation of the moratorium on tests, influential members of Congress made clear that they would oppose any future suspension of tests unless it was accompanied by adequate arrangements for verifying compliance. Tests in the atmosphere, outer space, and underwater could be monitored from outside a nation's territory, but it was generally believed that controls over underground tests would have to include local inspection of suspected test sites.

When serious discussions resumed in late 1962, Soviet Premier Khrushchev seems to have appreciated that, if a comprehensive treaty was to be concluded, it would be necessary to include some on-site inspection. Although he insisted that such a provision was really unnecessary, the Soviet leader told Norman Cousins that he realized "Congress has convinced itself that on-site inspection is necessary and the President cannot get a treaty through the Senate without it. Very well, then, let us accommodate the President." On December 19, 1962, in his most dramatic concession of the lengthy negotiations, Khrushchev wrote President Kennedy that the Soviet Union would permit two or three annual inspections, a number the Soviets believed the United States prepared to accept. The Kennedy Administration, however, having previously reduced its demands, felt it could not agree to fewer than seven such inspections, and a comprehensive treaty remained out of reach. Nevertheless, Khrushchev's testimony makes clear that the concession was a response to the constraints he believed Congress to have imposed on the President.

Perhaps the most vital congressional contribution to the eventual limited agreement was removal of what many had considered an insurmountable obstacle to a test ban, the apparent congressional insistence that any treaty must be both comprehensive and verified. Disillusioned with the experience of the 1958–61 moratorium, many congressmen had denounced the idea of any agreement that did not provide for inspection inside the Soviet Union. On this issue negotiations deadlocked, only to be broken by a historic Senate initiative.

One of the most vocal critics of the test ban discussion had been Senator Thomas J. Dodd. Skeptical of Soviet intentions, Dodd had found his worst fears confirmed by Russia's secret test preparations during the earlier, unpoliced moratorium. A compromise agreement with anything less than foolproof inspection seemed anathema to him, as, for some time, did anything less than a comprehensive agreement. But, in the spring of 1963, a series of private exchanges between Dodd and the U.S. Arms Control and Disarmament Agency (ACDA) persuaded the senator that it was indeed possible to determine unilaterally whether another country was conducting tests in any environment except underground. This led Dodd to join Senator Hubert Humphrey and 32 co-sponsors in submitting a Senate resolution that called for a limited test ban, covering only tests in the atmosphere, underwater, and in outer space. The resolution side-stepped the inspection issue and helped to revive the dying negotiations. Success came barely two months later when U.S., Soviet, and British representatives initialled a treaty prohibiting nuclear tests in all environments other than underground. By adjusting the constraints on this issue, the Senate had played a critical role in inducing the Soviet Union to accept the compromise text.

Turning the argument around, Congress can also act as a "de-constrainer," loosening executive branch policy constraints which may have become outmoded or futile. As a

forum for the exploration of diverse views and issues, Congress is a natural arena for the floating of trial balloons on delicate matters, by congressmen acting on their own or seeking to test reactions to ideas in which the administration has an interest. The subject of birth control assistance to nations receiving U.S. foreign aid, taboo in the Eisenhower years and broached rather gingerly by members of the Kennedy Administration, had long been considered an impossibly hot potato for American politicians. Surprisingly, Congress not only reacted favorably to the tentative ideas advanced by Presidents Kennedy and Johnson, but some members pressed for more vigorous efforts in this direction. Through hearings and speeches Senator Ernest Gruening became a leading advocate of larger and more systematic assistance to deal with the population problem. Although many members still shy away from the issue, the fact remains that Congress has helped to make birth control assistance a matter for open and honest discussion.

Beyond attempting to eradicate unwritten constraints thought to be imposed by public opinion, Congress may also amend and correct its own past restrictions on the direction of American foreign policy. The history of our China policy exemplifies this. Through the 1950's a series of congressional resolutions and other expressions left no doubt that Congress favored every effort to isolate Peking internationally. The legislature repeatedly called on the President to oppose seating Red China in the United Nations and to refrain from extending diplomatic recognition to the mainland government unless and until it demonstrated willingness to become a law-abiding member of the world community. For years the doctrine of containment found ready agreement in the executive branch and the nation at large. By the 1960's, however, it was evident that American policy toward China was frozen in a mold that promised little profit to the U.S. national interest or to international stability. Premier Khrushchev mocked our policy of non-recognition, remarking to President Kennedy that the U.S. seemed well on the way to surpassing the performance of Czarist Russia, which had taken twenty-six years to recognize the government established by the American Revolution.

While both the Kennedy and Johnson Administrations stood firm on the essentials of past policy, in Congress demands began to be heard for new departures. During 1965 and 1966 Senator Robert Kennedy called for including Red China in arms control conferences. Other senators, including Jacob Javits, began to urge that the Peking regime be brought into the United Nations without expelling the Nationalist government on Formosa. During nationally televised hearings in March of 1966, Senator William Fulbright and the Foreign Relations Committee started to educate the American public in the new realities of the Far East.

The hearings, widely acclaimed for focusing attention on a major problem, did not produce immediate and overwhelming support for specific innovations in U.S. policy, but they clearly marked the end of the previous consensus favoring rigid isolation of Peking. The President could no longer invoke congressional unanimity as a basis for standing pat on the old policy. Indeed the erosion of the former, apparently absolute congressional constraints in this area served as a powerful prod for the administration to seek alternatives. Progress toward improved relations with Communist China promised to be a slow and arduous process, especially in light of the war in Vietnam; but the demonstrated shifts in congressional attitudes aroused hope that the process might at least be underway. Tokens of the changing climate were the quiet relaxation of U.S. restrictions on travel to China and the Johnson Administration's new watchword: "containment but not isolation." Though slowed in the late sixties, the gradual movement toward contact with China continued with President Nixon's resumption of the suspended Warsaw ambassadorial talks with Peking, and his Administration's modified formula regarding Chinese membership in the United Nations. The shifting congressional posture on China policy not only encouraged the executive to pursue overtures toward the Communist government; presumably it eased the President's difficulties with the Nationalist Chinese, who well understand that the initiatives are being urged on the Chief Executive by influential senators and congressmen. In each of these cases, I would argue, the legislative establishment and adjustment of constraints on the executive has helped improve U.S. performance in international politics.

II. CONGRESS AS COMMUNICATOR

Foreign states are frequently alert to congressional attitudes on foreign policy and to congressional influence on the President's capacity to act in international affairs. Both allies and adversaries have their "Congress-watchers" stationed in Washington (just as U.S. embassies abroad have "parliament-watchers" in other democratic nations). Through these and other channels, the substance of congressional hearings, debates, and votes is broadcast. They form part of the data from which other states derive their ideas of likely U.S. behavior in world affairs. Congress can be a potent force in shaping foreign leaders' expectations of U.S. policy. As an independent communicator, it can accomplish some distinctive purposes beyond the power of the executive branch.

One of the most difficult tasks in delicate political relationships between states is to be able to levy sanctions or convey threats without offending the other party. In order to maintain good relations on all issues, diplomats may find it hard to exert pressure on any one issue.

In the U.S. system Congress can to some degree relieve the executive of this burden. In cases of friction with some foreign power, when the executive may feel obliged to remain silent or to couch a reproach in the softest of terms, Congress can voice its demands or displeasure in more emphatic fashion, reminding the foreign state that the President may be compelled by the legislature to take sterner action than he himself might wish. This pattern has become a regular feature of contemporary American foreign policy. It recurs frequently, for example, in congressional action on the annual foreign aid bill, where restrictions and reductions are often designed to apply pressure on points of contention unrelated to the aid program itself.

The higher logic of foreign assistance efforts stresses the U.S. interest in promoting the development of economically progressive and politically stable societies abroad. In this view the aid program should not be transformed into a vehicle for retaliation against regimes with whose policies we disagree. This rationale is persuasive so far as it goes, but there are instances in which the policies of the government being aided tend to frustrate the purposes of U.S. economic or military aid. It can scarcely be claimed that Congress has always discriminated between this class of policies and others, but a number of congressional aid reprisals can be defended in these terms. Good examples are the restrictions Congress placed on aid to the United Arab Republic and to Indonesia during the mid-1960's.

Both these countries have negated much of the value of U.S. assistance by diverting substantial resources to military programs. In the view of many, the U.A.R.'s policy of implacable hostility to Israel was not only undermining its own development efforts but perpetuating political instability throughout the Middle East. Similarly, Indonesian President Sukarno had followed his campaign to oust the Dutch from West Iran by his armed confrontation with Malaysia. The extravagant costs of his international policies, combined with continued neglect of domestic economic problems, made it doubtful that U.S. assistance to the island nation would serve any worthwhile purpose. It might only help prolong Sukarno's misguided priorities and delay the start of serious efforts to develop the Indonesian economy. Thus, consistent with the grand strategy of the aid program, there was a case for the congressional ban on assistance to Indonesia and, with the U.A.R. in mind, on aid to any country which the President determined to be preparing military action against another nation receiving U.S. aid (i.e. Israel).

In these and most other cases, however, the legislation has left the President flexibility to determine whether and how to apply the restrictions. Thus Congress can communicate a threat, arming the administration with weapons more explicit and direct than it may wish to use, but leaving the final decision to the President. If the threat is ignored and the sanction is carried out, the President can divert a portion of the foreign state's resentment by stressing that Congress, not the executive, dictated the action.

In addition to statutory actions, Congress can often convey signals through its debates and proceedings that might be inappropriate or impolitic for the executive to express. One example is the vocal and widespread congressional support for reducing the number of U.S. troops in Europe, especially since the NATO allies have generally failed to meet their own designated force levels for defense of the continent. One may complain that such congressional expressions weaken the credibility of the American commitment to Europe. But the United States must also be concerned that its commitments not be taken so much for granted that it loses leverage on its allies. If a threat to cut American deployments is necessary to induce allies to meet their own commitments, there is much to be said for having the threat communicated indirectly through congressional debate. This procedure manages to make the point without running the risk that allies will lose confidence immediately in the intentions of an incumbent U.S. administration, a danger that must be avoided if the pressure is to have the desired effect of increasing the cohesiveness and effectiveness of the alliance.

Congress' functions as an international communicator are not limited to applying pressure on foreign states or to expressing American dissatisfaction with another country's policy. One of its most vital functions derives from the diversity of signals which members of Congress generate. On almost any policy pursued by the executive, there will be a dissenter in Congress. There are times when this can encourage foreign antagonists to believe that an administration, under fire by critics on the home front, will not be able to carry out the policy it has begun. There is little question that this kind of calculation had an important impact on North Vietnamese estimates of U.S. capacity to sustain the war effort in Southeast Asia. Hanoi's propaganda alleged that President Johnson might be impeached or overthrown by congressional dissidents in this country; Communist units in the field have bombarded American troops with excerpts from antiwar speeches by former Senators Morse, Gruening, and others, coupled with appeals to lay down their arms.

But congressional dissent from an administration's policy does not work only to bolster the morale of foreign adversaries. As a principal means for self-criticism of U.S. foreign policy, the process of dissent saves the country from the hazard of presenting a monolithic image to the world. Foreign states at odds with policies or actions of the executive can frequently identify members

of Congress whom they consider more friendly. Their attitude toward the United States as a whole takes on a more complex aspect, reducing the likelihood of permanent and general antagonism between this country and others. Just as Congress sometimes incurs the enmity of foreign powers by constraining the executive in various respects, international reaction to controversial U.S. actions will often focus on the administration, while individuals in Congress maintain cordial personal relations with leaders of the foreign states concerned. These relations can become a valuable national asset, a reservoir of good will which can lay the foundation for subsequent improvement in relations between the countries.

A striking example of this process is Senator Fulbright's sharp criticism of U.S. intervention in the Dominican Republic in 1965. President Johnson's dispatch of troops to the Caribbean island aroused considerable alarm among other Latin American countries. But with so prominent a figure as Fulbright sharing their concern over the President's action, Latin Americans were less prone to infer that Yankee imperialism was blossoming throughout the United States. They were able to detect, through the public statements of the Arkansas senator and others of like mind, that there was no American consensus in favor of abandoning the Good Neighbor Policy and the principle of nonintervention. This was reassuring to many of our Latin neighbors and tended to moderate their apprehensions about the future course of American policy in the Western Hemisphere.

Thus, as an important source of signals to foreign leaders and publics, Congress helps to color and to complicate their vision of America. If congressional actions sometimes communicate an impression of domestic dissension, there are certain advantages inherent in the very multiplicity of images they transmit. In the most irritating episodes between the United States and other governments, it is usually possible for the foreign state to identify with one or more sympathetic members of Congress and thus to retain some saving remnant of affection for this country. This is but one of the compensating virtues in a system with an unmatched propensity to criticize whatever action the executive takes.

### III. CONGRESS AS LIBERATOR

These capacities of Congress have, up to now, generally been exploited on an *ad hoc*, unsystematic basis. Only in a limited sense and in comparative few cases have they been applied as part of a rational plan to increase U.S. effectiveness in world politics. The simplest and most conspicuous cases have been the use of congressional resolutions to emphasize popular support for a particular policy or to provide greater freedom of maneuver for the President to handle a foreign crisis.

There is a long history of such resolutions designed to "unleash" the President, to make clear to foreign parties that the Chief Executive enjoys the confidence of the legislature in determining U.S. action abroad. They have often served to reduce the chance that an adversary might assume that domestic politics would prevent the President from responding to an international provocation. The Formosan Resolution of 1955, the Middle East Resolution of 1957, the Gulf of Tonkin Resolution of 1964 were all of this type.

Such resolutions, ordinarily requested by the President in the context of a developing crisis or with a view to precluding some hostile action by an adversary, are the nearest thing in American politics to a test of legislative confidence in the executive branch of government. Members of Congress recognize that the President's prestige is an essential element in his effectiveness as the nation's principal agent in international politics. That prestige becomes a vital asset to the country. Members are extremely reluctant to cast what would appear to be a vote of no confidence in the President's authority to meet a foreign crisis. They have hesitated to delay or modify resolutions of this type, calculating that tardy passage or tacking on constraints to Presidential action would tend only to weaken the psychological impact of the vote and hence to frustrate the purposes of the resolution. These considerations generally overcome congressional reluctance to approve such prior endorsements of contingent executive action. To paraphrase former Representative James Roosevelt, seldom do bills with so few friends get so many votes.

By the very act of requesting a contingent resolution, the President makes it extremely difficult for Congress to defeat it. In such cases the executive enjoys the power of political pre-emption. Congress has commonly been maneuvered into a position where it must accept with little or no modification the administration's definition of desirable policy, which severely restricts its own opportunities to contribute to policy. An atmosphere of crisis and a public test of national unity impede legislative exploration of the merits of the administration case and of other policy alternatives.

Yet the effects of this procedure seem to have been advantageous to U.S. foreign policy on several occasions. The 1955 Formosa Resolution probably enhanced the cedibility of the country's deterrent posture in the Formosa straits. Under the 1957 Middle East Resolution, President Eisenhower supplied assistance to Jordan and Lebanon, helping to preserve the precarious political balance in that region. An important element in the Kennedy Administration's policy during the Cuban missile crisis of 1962 was the joint resolution passed only weeks before. By votes of 86 to 1 in the Senate and 384 to 7 in the House, Congress had declared U.S. determination to prevent Cuban subversion of the Hemisphere and any development in Cuba of an externally supported military capability endangering U.S. security. There could hardly have been a clearer mandate for the President's decisive action to force removal of Soviet ballistic missiles from the island.

Nevertheless, many congressmen and political leaders had long been apprehensive about the broad grants of authority implied by such resolutions. Wayne Morse consistently opposed them, denouncing the Formosan Resolution, for example, as a "predatory authorization" to wage war. Adlai Stevenson and others opposed the Middle East Resolution as a blank check. But neither of those measures actually led to the dire consequences foreseen by its critics. Not so with the Southeast Asia Resolution which Congress passed in August 1964 by the emphatic margins of 88 to 2 in the Senate and 414 to 0 in the House. In language quite similar to that of the 1955 resolution, Congress declared support for the President's determination "to take all necessary measures to repel any armed attack against the forces of the United States and *to prevent further aggression.*" [Emphasis added.] That resolution became a prime justification of the Johnson Administration's subsequent expansion of U.S. military activities in Vietnam, much to the chagrin of its supporters.

So bitter has been the disillusionment with the Gulf of Tonkin provision that the 91st Congress moved to clean the record by repealing it, although it took no final action on other such measures whose duration has been left uncertain. There are now tremendous reluctance to enact similar resolutions. It is healthy for the legislature to be wary of such proposals, to scrutinize them with greater care, and to draft them more precisely in the future.

Before throwing away this useful technique, however, one ought to take a thorough look at the peculiar circumstances surrounding the Tonkin measure. As Mark Twain observed, "It is important not to get out of an experience more than there is in it. A cat sits on a hot stove, won't sit on a hot stove again. But she won't sit on a cold one either." One may argue that some wrong lessons have been learned from the Tonkin Resolution.

It seems probable that the deterrent value of the Tonkin Resolution was utterly dissipated by the contradictory signals Hanoi received during the 1964 Presidential campaign. Lyndon Johnson's portrayal of Barry Goldwater as "Super-Hawk" contrasted with his own dovish themes on Vietnam. And the contrast could not have failed to obscure the warning intended by the August resolution. To the North Vietnamese it may well have seemed that a few stiff attacks, as at Pleiku in early 1965, would persuade President Johnson to depart forthwith. It is only reasonable to believe that, if congressional resolutions are to be helpful, they must be part and parcel of a more consistent set of messages than those emanating from the United States in late 1964.

Those who consider contingent resolutions an example of unwarranted congressional submission to executive power neglect the substantial factors operating to encourage Presidential restraint in seeking or exploiting such resolutions. Whether or not one agrees that President Johnson abused the 1964 resolution, those members of Congress who came to think so were able to impose heavy penalties on the alleged offender. The President eventually paid the price of having his policies condemned in public by prominent senators and seeing his programs, especially in foreign aid, curtailed by the legislature. No Chief Executive sensitive to such reprisals will soon forget that impolitic use of a "liberating" resolution can bring severe retaliation and political defeat. Virtually the entire legislative program of an administration is hostage to a President's good faith and discretion in exercising his powers. Congressional leaders can and should make this clear to any President in whom their confidence is actually less than suggested by the uniformly high consensus displayed on a liberating resolution. Informal constraints of this nature, applied with more forethought than in the past, are probably the most feasible way to insure that this technique remains a valuable instrument of U.S. foreign policy and does not become a mere pro forma method by which the executive pre-empts congressional participation in the gravest decisions.

The resolving power has additional applications. Congress can also use it to initiate policy moves of many kinds. An historic instance occurred in 1970, when the Senate urged the President to seek a comprehensive limitation on further deployments of strategic offensive and defensive weapons. Passage of Senate Resolution 211, authored by Senator Edward Brooke, marked a last-ditch attempt to induce the executive to offer the Soviet Union the broadest possible arms control package, rather than the more modest proposals then favored by the administration. President Nixon acknowledged that the decisive Senate action weighed heavily in his decision on the U.S. negotiating position in the Strategic Arms Limitation Talks (SALT).

Apart from its direct encouragement to the Chief Executive, this resolution had other important effects. It conveyed to the Soviets, who were quietly voicing skepticism over whether the Nixon Administration genuinely wanted a SALT agreement, an unequivocal indication that the United States was serious in the negotiations. It also weakened some of the impediments to SALT within the U.S. bureaucracy; no longer could the opponents of a large-scale strategic understanding contend that Congress would never accept such an agreement. By establishing an ambitious position in advance of final executive preparations for SALT, the Senate demonstrated a welcome maturity and a rare sense of

timing. That scarcely insured success in the negotiations, but it contributed to keeping a number of momentous issues—especially deployment of MIRV and ABM—open for diplomacy.

IV. CONGRESS AS A FOREIGN POLICY INSTRUMENT

To discuss these dimensions of Congress' role in foreign policy is only to scratch the surface of one of the most complex elements of our government. It is, however, to suggest that the possibilities for constructive congressional involvement go well beyond the familiar responsibilities for advice and consent to treaties, confirmation of ambassadors and other senior appointees, and authorization and appropriation of funds for specific foreign programs of the United States.

The functions mentioned here overlap and interact among themselves and with others. They defy simple prescriptions and neat procedures. No one can expect Congress to devise explicit, formal methods for asserting its control over all the myriad elements of American foreign policy. While improved exercise of its formal powers is to be desired, Congress must recognize that the volume and velocity of international politics requires an executive with ample capacity to act for the nation. Events will not always await the building of a consensus through prolonged discussions, which is the distinctive trait of a legislature.

But as constrainer, communicator, and liberator, Congress can play a more positive role in foreign policy than its traditional critics have suggested. That role is growing today, fueled partly by past disagreements with the executive but equally so by an expanded awareness of how much the Presidency—and the nation—stand to benefit by sophisticated legislative assertion. The congressional impact on foreign affairs is more often indirect than direct, informal than formal, marginal than fundamental. Yet in complex questions of foreign policy the margins are frequently the vital edges, and Congress' ability to shape them is of real importance.

## REPRESENTATIVE MIKVA'S EXCELLENT REPORT ON MILITARY MANPOWER

Mr. PROXMIRE. Mr. President, the distinguished Representative from Illinois, ABNER J. MIKVA, has prepared a Report on Military Manpower for Members of Congress for Peace Through Law. Long a leader and expert on the issue of military manpower, Representative MIKVA proposes that our military forces be reduced to 2.1 million men. His study indicates how this can be done without any loss of military efficiency.

In fact, we could be better off and stronger if such action took place. At present, less than 100,000 of the 1 million men in the Army are in positions to fight as combat soldiers. This is a ratio of 1 to 10, which means we have an enormous logistic tail for our combat divisions.

At present, more than 50 percent of the defense budget goes toward manpower costs. That is why both a reduction in numbers and a reordering of duties in order to place more men in combat-ready positions is long overdue.

Representative MIKVA's report is the third in a series of those being released by Members of Congress for Peace Through Law. Previous reports were on the B–1 bomber and the F–14 fighter.

I ask unanimous consent that Representative MIKVA's excellent study be printed in the RECORD.

There being no objection, the study was ordered to be printed in the RECORD, as follows:

MILITARY MANPOWER REPORT

(Prepared by Congressman ABNER J. MIKVA, for Consideration by the Military Spending Committee of Members of Congress for Peace Through Law)

One of the primary determinants of the size of the defense budget is the level of manpower which is requested. The decision regarding appropriate manpower levels affects the size of supporting and training components of the budget in addition to the type and amount of equipment needed to supply this manpower. In short, if we are maintaining more manpower than we need, then we are paying for all kinds of unnecessary items throughout the entire defense budget.

America's manpower posture at present is musclebound. Our national security could be well assured with an overall manpower level of 2.1 million men instead of the 2.5 million requested by the Department of Defense for FY 1972.

Obviously our Armed Forces should be designed to protect our national security. More specifically, three criteria should be used in determining optimal military posture: (1) what elements of the *status quo* are crucial to the maintenance of U.S. security; (2) what are the potential threats to these vital elements; and (3) what is the minimum military establishment necessary to deter or to repel such threats. The determination of the first criterion has largely been a function of the President and the Executive Branch. However, the remaining two formulations—which have the greatest impact on ultimate force levels—have always been under the exclusive purview of the Pentagon. This has resulted in staggering military budgets and unnecessarily high manpower levels.

The post-Vietnam foreign policy of the Nixon Administration differs little from that of previous Administrations. Foremost among our commitments is maintenance of a nuclear deterrent sufficient to inflict retaliatory nuclear damage on a potential aggressor so as to render nuclear attack against the United States highly irrational, and thus improbable. In addition, the United States maintains a policy of total defense in Europe and is prepared to respond to aggression against any Western European NATO state. American defense of the regime in South Korea continues, and despite the so-called Nixon Doctrine the current Administration comes perilously close to continuing our pre-Vietnam policy of open-ended commitments to the defense of Asian nations, the fatal mistake that led to the debacle in Vietnam.

It is useful to critically consider the three criteria earlier cited as they apply to Europe, Asia, and the strategic nuclear balance. In analyzing our present foreign policy—the determination of those elements of the *status quo* that are vital to U.S. security—few Americans would quarrel about the premise that Western Europe must be helped. Twice in this century, Americans have fought in Europe rather than see it succumb; it is unlikely that Americans would view aggression any differently today. However, the second and third determinations—what kind of threats are posed against Europe, and what is the optimal military force to deter those threats—are susceptible to fundamental re-evaluation.[1]

The paramount threat to NATO and European security is, of course, the Warsaw Pact. Two military contingencies could arise from this threat: (1) aggression in conjunction with the use of tactical nuclear weapons, or (2) aggression entailing exclusively conventional tactics without the use of nuclear weapons. It is the second contingency that presents a dilemma for force planners. Since the late 1960's, NATO has followed a policy of flexible response—guiding its action according to the degree of the initial aggression. Such a policy requires the maintenance of large numbers of standing troops to confront potential war contingencies.

Whether conventional troops are indeed necessary to deter non-nuclear aggression is a subject of considerable debate. Many observers argue that the threat of nuclear escalation is sufficient to deter any aggression, nuclear or otherwise, and that the maintenance of conventional armies is unnecessary and wasteful.

An excellent case can be made that NATO troops are not necessary to deter conventional attacks on Western Europe so long as one is prepared to use nuclear weapons in response to conventional attack. The United States is not yet prepared to limit its options this drastically—therefore, we have maintained a posture of "flexible response" which requires continued reliance on conventional ground troops.

However, even if we accept the doctrine of flexible response, a reduction in American NATO forces is desirable. An examination of the conventional military balance in Europe is of prime importance, and in such an analysis only Army troops are relevant. Most published statistics on NATO and Warsaw Pact levels include Navy and Air Force manpower, but these figures should be discounted since NATO and Pact troop levels are roughly equivalent.

It is undeniable that NATO air forces would be able to match Communist aircraft in any engagement. Alain C. Enthoven, former assistant Secretary of Defense, in the May 1969 issue of *Interplay* illustrated the rough equivalence of NATO and Pact air forces. Although NATO aircraft are slightly outnumbered, NATO has a distinct advantage in effectiveness indicators plus a greater reserve pool of aircraft.

NATO AND WARSAW PACT TACTICAL AIR FORCES IN THE CENTER REGION IN MID-1968[2]

| | NATO | Warsaw Pact |
|---|---|---|
| Number of deployed aircraft | 2,100 | 2,900 |
| Percentage of total inventory (of center region countries) | 20 | 40 |
| Percentage of force by mission capability (center region): | | |
| Primary interceptors | 10 | 42 |
| Multi-purpose fighter/attack | 48 | 15 |
| Primary attack | 9 | 6 |
| Reconnaissance | 13 | 8 |
| Low performance | 20 | 29 |
| Total | 100 | 100 |
| Effectiveness indicators (NATO as a percentage of pact): | | |
| Average payload | 240 | |
| Typical loiter time | 200–500 | |
| Crew training | 200 | |

Similarly, although the NATO tank force is only 55% of Pact strength, Mr. Enthoven argues that this factor would largely be irrelevant in a European encounter. NATO tanks are generally more sophisticated, and the 50% advantage NATO has in anti-tank weaponry would most likely be decisive, especially with NATO in a defensive posture.[3]

Moreover, a potential conflict in Europe would likely be of a small scale, surprise-attack nature, entailing a quick invasion and control of limited territory. The vision of a massive mobilization and all-out attack has been largely out of vogue (even with the military) since the late 1960's. As a result, any discussion of a NATO-Pact conflict must place heaviest emphasis on those troops that could be deployed within the first thirty days. Forces which could be used only in the second and, especially, third months of the conflict would be of little value.

Footnotes at end of article.

Given these assumptions, a scenario of a Pact invasion would look something like this: [4]

Stage 1 (M-DAY) Deployed Army Manpower.

*NATO* [5]

| | |
|---|---|
| United States | 200,000 |
| West Germany | 300,000 |
| Great Britain | 50,000 |
| France | 28,000 |
| Canada | 5,400 |
| | 583,400 |

*Warsaw Pact* [6]

| | |
|---|---|
| U.S.S.R. | 185,000 |
| East Germany | 90,000 |
| | 275,000 |

Stage 1 shows a clear NATO superiority.

Stage 2 (M-DAY+15) Deployed Army Manpower.

*NATO* [7]

| | |
|---|---|
| United States | 10,000 |
| Belgium | 78,000 |
| Denmark | 28,000 |
| Netherlands | 82,000 |
| | 198,000 |
| | +583,400 |
| | 781,400 |

*Warsaw Pact*

| | |
|---|---|
| Poland | 185,000 |
| Czechoslovakia | 175,000 |
| Hungary | 90,000 |
| U.S.S.R.[8] | 97,000 |
| | 547,000 |
| | +275,000 |
| | 822,000 |

Stage 2 indicates a slight manpower edge for Pact forces.

Stage 3 (M-DAY+30) Deployed Army Manpower.

*NATO*

| | |
|---|---|
| Britain [9] | 50,000 |
| Canada [10] | 6,000 |
| Italy [11] | 100,000 |
| France [12] | 48,000 |
| Greece | 100,000 |
| Turkey | 200,000 |
| United States | 100,000 |
| | 604,000 |
| | +761,000 |
| | 1,365,000 |

*Warsaw Pact*

| | |
|---|---|
| U.S.S.R.[13] | 290,000 |
| Bulgaria | 125,000 |
| Rumania | 170,000 |
| | 585,000 |
| | +820,000 |
| | 1,405,000 |

Stage 3 shows a slight, but insignificant, Pact advantage.

In light of historical perspective, no rational military strategist would embark on an offensive campaign in the face of such strength. At no time during the scenario does Pact strength even approach the 2 to 1 or 3 to 1 advantage historically necessary to insure any reasonable chance of success in an offensive endeavor. The probability of victory is small indeed, and any conventional attack against even a substantially smaller NATO force would be clearly irrational.

At this juncture all active Pact forces have been utilized. The Soviet Union would be unable to muster any additional divisions for European combat unless they were prepared to either (1) divert troops from the Chinese border and thus expose themselves to possible attack, or (2) to upgrade substantially several divisions stationed in central Russia, a move requiring extensive time and effort. Yet the United States maintains another 8⅔ active divisions (over 400,000 men) at home in addition to nine reserve divisions for NATO reinforcement, a total of 17⅔ divisions earmarked for NATO use.

Assuming it is possible to transport all of these active divisions to Europe within the first month of a Pact attack (the programmed fleet of 69 C–5A transports makes such an airlift possible),[14] the NATO force would be bolstered by these more than 400,000 soldiers. This would bring total NATO force levels to over 1,700,000 troops by M-DAY+30 (versus 1,400,000 Pact troops) and does not even bring to tap the nine reserve divisions intended for NATO use. Clearly, we are buying more NATO "defense" than we need, or for that matter, could ever possibly utilize.

ASIA

In Asia, our foreign policy in spite of the tragedy of Vietnam, remains essentially unaltered. We continue to maintain a division in South Korea despite Secretary Laird's conviction that "a large-scale conventional attack on South Korea is not likely in the future." [15] Furthermore, even in the face of a large-scale attack by the North Koreans, the Institute for Strategic Studies has concluded that the South Korean Army is amply prepared to defeat any invasion from the North.[16] In light of these considerations, last year's MCPL Military Manpower report advocated that our force level in South Korea be halved. Such a proposal continues to be desirable.

The FY 1972 proposed military budget anticipates potential military contingencies throughout Southeast Asia. Secretary Laird has stated,

"We plan for materiel logistics, and intelligence support, and backup tactical air and naval support. We plan for only a limited backup ground force capability for non-Chinese, non-Soviet supported contingencies. We also maintain the capability to assist our allies against a CPR (Communist Chinese) attack with conventional forces in [deleted] Asia, but not in both areas simultaneously providing we are not fighting in Europe." [17]

Coming on the heels of Vietnam, this is frighteningly ambiguous language. What is a non-Chinese, non-Soviet supported attack? If Communist guerrillas supplied with Russian and Chinese arms attack Thailand, does the Administration reserve the right to intervene with American troops? If Communist Chinese soldiers move into North Vietnam and thereby free NVA troops for use elsewhere, does current foreign policy call for deployment of American troops in Asia as a response? The fact of the matter is that the FY 1972 budget maintains two Army divisions (96,000 men) for Asian contingencies in addition to three Marine Corps divisions (87,000 men). If Vietnam has taught us anything, it is that our foreign policy interests are not served by deployments of land troops in Asia. The only eventuality that could conceivably justify deployment of several divisions would be large scale overt attack by the Communist Chinese.

Such an attack is extremely unlikely for several reasons. First, geographically speaking, there are few places where a Chinese attack could be mounted. The areas of vital American interest—Japan, Taiwan, the Philippines, Indonesia, and Australia—are largely impregnable islands, certainly not vulnerable to a Chinese invasion. Likewise, the jungles of Indochina make the operation and supply of large armies extremely difficult, as our experience in Vietnam has shown. The principal area where a large Chinese ground attack is possible is South Korea, where American soldiers stand ready alongside a formidable South Korean army.

In addition, considerable doubt exists as to whether the Chinese Army could launch and sustain an offensive. Although the CPR Army remains a formidable defensive force, much of it is ill-equipped. Only five of 118 divisions are armored and there is a decided shortage of field engineering, heavy self-propelled artillery, and motor transport equipment—all crucial to the success of an offensive operation.[18] The justification for retaining large numbers of American troops as a counterbalance to potential Chinese aggression remains less than convincing.

American strategic nuclear policy has likewise remained largely unaltered since the early 1960's. Since that time, we have maintained three separate nuclear deterrents—nuclear bombers, land-based missiles, and sea-based missiles—each force being sufficient to inflict 'unacceptable' damage on a nuclear aggressor. The rationale for maintaining this "triad" deterrent is that each component displays different characteristics and poses different defensive problems for a potential attacker. Secretary Laird provided the rationale for each component of the "triad" in his statement before the House Armed Services Committee:

"Land-based missile have a high alert rate, quick response capability, reliable command and control, and the capability to cover a broad range of targets. Sea-based missiles offer dispersion and concealment, pose a threat from several directions with a short time of flight, [deleted] and are capable of extending responses over a long period of time. Bombers can deliver large payloads with accuracy needed to destroy hard targets, can restrike tarkets as necessary, and can provide damage assessment of earlier strikes." [19]

While our sense of omnipotence is undoubtedly served by our knowledge that we can obliterate the Earth in any number of different ways, it is highly debatable whether this "triad" nuclear deterrent is essential to our security. Our Polaris/Poseidon fleet of submarines remains invulnerable, and no breakthrough in anti-submarine warfare are on the horizon. We have already expended hundreds of millions of dollars on an anti-ballistic missile system in the conviction that our land-based missiles are defensible. These two components of the deterrent would seem to be capable of absorbing a nuclear first strike and still inflict sufficient retaliatory damage.

If there is a weak link in the system, it is the bomber force. Planes are extremely susceptible to air defense systems, and the unique characteristics of bombers—ability to carry large payloads, restrike targets, destroy "hard" targets, and conduct reconnaissance missions—would be largely irrelevant in a massive nuclear exchange.

Moreover, the intercontinental bomber force is a redundant deterrent. It makes sense to procure only those forces necessary to deter enemies from nuclear attack. Apparently, the Soviet Union does not view a bomber force as a primary deterrent; their intercontinental bomber force is less than a third of the SAC Command. And if the Soviets consider a "duad" nuclear force of land and sea-based missiles a sufficient deterrent, there is no reason why they would not view a U.S. "duad" in the same manner. It makes no sense to buy a weapon your enemy does not consider to be an effective deterrent.

Having reappraised our foreign policy—criteria 1 (what are the areas vital to U.S. security) and 2 (what are the threats to those areas), criterion 3 can be analyzed (what is the optimal defense posture vis-a-vis criteria 1 and 2). Proceeding from the constraint that it is rational to procure the minimum manpower level necessary to insure American security, it soon becomes apparent that substantial reductions in manpower levels requested in FY 1972 Department of Defense budget are justified.

A comparison of FY 1972 Department of Defense requested manpower levels and our recommended reduction follows:

MANPOWER REQUIREMENTS

| | Fiscal year 1972 DOD[1] budget | Recommended budget | Reduction |
|---|---|---|---|
| **ARMY** | | | |
| General purpose forces: | | | |
| Land forces | 501,000 | 405,000 | −96,000 |
| Mobility forces | 2,000 | 2,000 | |
| Total, general purpose forces | 503,000 | 407,000 | −96,000 |
| Other mission forces: | | | |
| Intelligence and security | 29,000 | 21,000 | −8,000 |
| Communication | 13,000 | 13,000 | |
| Research and development | 9,000 | 9,000 | |
| Support to other nations | 18,000 | 18,000 | |
| Total, mission forces | 69,000 | 61,000 | −8,000 |
| General support forces: | | | |
| Base and individual support | 134,000 | 101,000 | −33,000 |
| Training | 196,000 | 147,000 | −49,000 |
| Command | 28,000 | 28,000 | |
| Logistics | 6,000 | 6,000 | |
| Total, general support forces | 364,000 | 282,000 | −82,000 |
| Strategic forces | 6,000 | 6,000 | |
| Total, Army | 942,000 | 756,000 | −186,000 |
| **NAVY** | | | |
| Strategic forces | 19,000 | 19,000 | |
| General purpose forces: | | | |
| Land forces | 3,000 | 3,000 | |
| Tactical air forces | 61,000 | 49,000 | −12,000 |
| Naval forces | 202,000 | 202,000 | |
| Mobility forces | 3,000 | 3,000 | |
| Total, general purpose forces | 269,000 | 257,000 | −12,000 |
| Other mission forces: | | | |
| Intelligence and security | 17,000 | 10,000 | −7,000 |
| Communication | 11,000 | 11,000 | |
| Research and development | 8,000 | 8,000 | |
| Support to other nations | 6,000 | 6,000 | |
| Total, other mission forces | 42,000 | 35,000 | −7,000 |
| General support forces: | | | |
| Base and individual support | 106,000 | 86,000 | −20,000 |
| Training | 126,000 | 120,000 | −6,000 |
| Command | 34,000 | 34,000 | |
| Logistics | 9,000 | 9,000 | |
| Total, general support forces | 275,000 | 249,000 | −26,000 |
| Total, Navy | 605,000 | 560,000 | −45,000 |
| **MARINE CORPS** | | | |
| Strategic forces | | | |
| General purpose forces: | | | |
| Land forces | 87,000 | 58,000 | −29,000 |
| Tactical air forces | 29,000 | 19,000 | −10,000 |
| Naval forces | 1,000 | 1,000 | |
| Total, general purpose forces | 117,000 | 78,000 | −39,000 |
| Other mission forces: | | | |
| Intelligence and security | 2,000 | 2,000 | |
| Communications | | | |
| Research and development | | | |
| Support to other nations | | | |
| Total, mission forces | 2,000 | 2,000 | |
| General support forces: | | | |
| Base and individual support | 36,000 | 26,000 | −10,000 |
| Training | 42,000 | 28,000 | −14,000 |
| Command | 8,000 | 8,000 | |
| Logistics | 2,000 | 2,000 | |
| Total, general support forces | 88,000 | 64,000 | −24,000 |
| Total, Marine Corps | 207,000 | 144,000 | −63,000 |
| **AIR FORCE** | | | |
| Strategic forces | 113,000 | 63,000 | −50,000 |
| General purpose forces: | | | |
| Tactical forces | 81,000 | 68,500 | −12,500 |
| Mobility forces | 63,000 | 48,000 | −15,000 |
| Total, general purpose forces | 144,000 | 116,500 | −27,500 |
| Other mission forces: | | | |
| Intelligence and security | 39,000 | 27,000 | −12,000 |
| Communication | 29,000 | 29,000 | |
| Research and development | 18,000 | 18,000 | |
| Support to other nations | 1,000 | 1,000 | |
| Total, other mission forces | 87,000 | 75,000 | −12,000 |
| General support forces: | | | |
| Base and individual support | 225,000 | 190,000 | −35,000 |
| Training | 108,000 | 88,000 | −20,000 |
| Command | 64,000 | 64,000 | |
| Logistics | 12,000 | 12,000 | |
| Total, general support forces | 409,000 | 354,000 | −55,000 |
| Total, Air Force | 753,000 | 608,500 | −144,500 |
| Total, DOD manpower | 2,507,000 | 2,068,500 | −438,500 |

[1] All figures supplied by Department of Defense

Note: Figures may not add due to rounding

RATIONALE FOR REDUCTIONS

*Army—186,000*

Army land force manpower should be reduced by the elimination of two active Army divisions. All other reductions flow from this decision. Currently the Army maintains 13⅓ active divisions, 4⅓ in Europe, one in Hawaii, one in Korea, and seven in the United States—of which 4⅔ are earmarked for NATO reinforcement. Each division is composed of three components of 16,000 men each—a combat division (DIV) plus two support divisions (an initial support increment (ISI) and a sustaining support increment SSI)). For each combat division deployed, there are two support divisions.[20] One division equivalent (DFE) = (DIV+ISI+SSI) = 48,000 men. Thus, the elimination of two divisions would result in a manpower reduction of 96,000 men.

The two divisions should be taken from the 4⅔ divisions stationed in the United States for NATO reinforcement. This leaves 2⅔ active divisions (128,000 men) for NATO contingencies. Referring back to the scenario developed earlier, you will note that only 100,000 additional United States forces were included in the final stage calculation (M+30). The proposed elimination of two stateside NATO support divisions does not impair our ability to supply 100,000 support troops within 30 days in the event of an emergency in Europe. The scenario is not affected by this manpower cut of two support divisions. Still, at no time does the Warsaw Pact advantage approach 2 to 1, much less 3 to 1. The primary deterrent to a conventional Pact attack—an inability to gain a numerical superiority significant enough to render a reasonable probability of victory—is not affected by the reduction. In the unlikely event that the conflict should extend beyond M-DAY+30, the Soviet Union would have to embark on a large-scale mobilization program in which case we could draw on our nine reserve divisions for support.

The rationale for reductions in base and individual support and in training follow along two lines. First, manpower requirements in both areas are largely a function of the size of land forces. By reducing land forces by 16%, it is possible to reduce manpower in these areas by an equivalent amount. In fact with the elimination of two army divisions in the United States, it becomes practical to close at least one U.S. division headquarters.

Second, a reduction should be made corresponding to the incredible built-in allowance for inefficiency. In determining its manpower needs in the general support categories, the Army assumes an 11% "non-production time factor".[21] In other words, to do a job which requires the services of 100 men, the Army hires 111 men. If ever there was a self-fulfilling prophesy, this is it. How can you hope to cut down inefficiency in the military if you build it into the budget as a line item? No business would tolerate this kind of inefficiency and neither should the military. The Navy is an even worse offender. It assumes a "productivity allowance" of 20%.[22]

Simply by eliminating this programmed inefficiency from the Army's and the Navy's general support requests we could effect a total manpower cut of nearly 35,000 men.[23]

Finally, a reduction in intelligence and security forces appears justified. With the recent furor over military surveillance of domestic activities, it has become obvious that there simply is not enough military "spy work" to go around. Hence, reductions in the intelligence requirements of all the services would appear to be in order.

*Navy—45,000*

The primary reduction in naval forces is the elimination of four aircraft carriers, leaving a remaining force of nine carriers. In any conventional war involving the Russians, aircraft carriers would be *extremely* vulnerable for several reasons:

1. Large air-to-surface missiles with conventional warheads and terminal guidance have made it possible to launch the equivalent of the Second World War Kamikaze attacks.

2. Satellite and long-range aircraft reconnaissance has greatly reduced the ability of naval task forces to hide in the broad expanses of the oceans.

3. More sensitive submarine sonars and higher speed submarines make it easier to find and attack the carriers.

Footnotes at end of article.

4. Developments in carrier defense have lagged behind . . . improvements in offense, such as higher-speed and lower altitude missiles.[24]

Although it is difficult to sink an aircraft carrier, it is comparatively easy to make flight operations impossible. There is little question that in any eventuality where the Soviets could deploy submarines or anti-carrier ships, carriers would be of little use.

In addition, most of the functions an aircraft carrier performs are also achieved by land-based aircraft. And few areas in the world are inaccessible to U.S. land-based aircraft.

The primary justification for the aircraft carrier is its role during a peacetime crisis or in a limited military engagement not involving the Soviet Union. Its presence is highly visible, and as long as contiguous waters remain free of submarines or anti-carrier craft, the carrier can wield sizable diplomatic influence. Hence a fleet of nine carriers—two support carriers are necessary for every one deployed—is valuable. The nine carriers, in effect, provide three carriers for crisis contingencies, one for use in the Atlantic, Caribbean, one for the Mediterranean, and one for the Pacific. Each carrier requires, on the average, a crew of 2,650 men plus another 1,500 men to operate and maintain the aircraft. Thus, the elimination of four carriers would achieve a reduction of approximately 12,000 men.

Other reductions include an elimination of the Navy's 20% non-productive time factor along with a small reduction in training manpower to account for the cutback of four carriers.

*Marine Corps—63,000*

We recommend the elimination of one Marine Corps division of 29,000 men. This would leave two divisions for Pacific deployment, certainly sufficient for any foreseeable limited military conflict. The dissolution of this division logically precipitates the elimination of one Marine Corps air wing in that the Corps has historically maintained one wing for every Corps division. Similarly, reductions in base support and training logically flow from having one less division.

*Air Force—212,000*

Air Force manpower reductions should occur in two areas: strategic forces and tactical air wings. As indicated earlier, the argument for preserving the present 521—plane SAC manned nuclear bombing force is less than overwhelming. Undoubtedly, a "triad" nuclear deterrent adds something to our own security. The relevant question, however, is whether a "duad" force is just as sufficient to deter Soviet nuclear attack. And there is every indication that it is, especially in light of the fact that the Soviet Union itself largely maintains a "duad" force. A recommended reduction of 50,000 men of the current 77,000 man SAC force would bring our bomber force into parity with that of the Russians, and still permit limited use of the B–52 bombers as conventional weapons.

With the elimination of two Army divisions, it is possible to cut back four Air Force wings. Historically, the Air Force has maintained a 2 to 1 ratio between wings and divisions, this year requesting 50⅓ wings to support 25⅓ divisions. Thus, a reduction of four wings is justifiable, resulting in a direct manpower savings of 12,500 men and an indirect savings (from base operation and training manpower reductions) of about 55,000 men.

Resulting Manpower Posture

These proposed manpower reductions would produce a military force of 11⅓ active Army divisions and 2 active Marine Corps divisions along with nine reserve divisions (eight Army and one Corps). These divisions could be deployed in the following manner:

Area and number of divisions:

Europe (NATO assigned), 4⅓ (Army).

United States (NATO assigned), 2⅔. (Army).

Korea, ⅔ (Army).

Okinawa/at sea, 1 (Army).

Hawaii, 1 (Army).

Pacific Fleet, 1 or 2 (Marine).

Atlantic Fleet, 1 (?) (Marine).

United States (Minor contingency/strategic reserve), 2⅔ (Army).

Total, 11⅓ Army + 2 Marine.

Although this force is smaller than that requested by the Administration for FY 1972, it is, nonetheless, consistent with Administration objectives:

1. The force will mesh with the implementation of an all-volunteer Army by 1973. In fact, by eliminating two divisions, this proposal makes the all-volunteer force an earlier and more realistic possibility.

2. The force is consistent with the Administration's policy of being ever ready to fight 1½ wars (down from 2½ in 1963). The seven divisions committed to the defense of Europe maintains our deterrence of a conventional Pact attack. The two Army divisions and one Corps division in the Pacific are more than adequate for any minor military emergency, and in the unlikely event of an overt Chinese attack, these divisions coupled with the 2⅔ Army divisions stationed in the U.S. for strategic reinforcement would provide a stout defense against a badly-equipped and poorly-organized Chinese army. Finally, the 2⅔ divisions in the United States for minor contingencies also provide a force for unforeseen situations such as a crisis in the Middle East.

3. In maintaining the existing nine reserve divisions, this proposal coincides with Secretary Laird's Total Force concept, which stresses reliance on reserve forces, rather than draftees, for reinforcement.

Undoubtedly some will claim that this is an inopportune time to engage in manpower cutting, since negotiations with the Soviet Union on mutual reductions in force levels may be in the offing.

We firmly support such mutual reductions in the numbers of men under arms in Europe and elsewhere. The manpower cuts recommended in this report should serve as a guideline for such mutual reductions. Assuming that the Soviets have as much padding in their defense posture as we do, we should be thinking in terms of mutual cuts of at least 500,000 men. Such cuts would not affect the strategic balance significantly, and would go far toward de-emphasizing armed confrontation as a means of conducting foreign policy.

The basic message of this study, however, is that even if negotiations with the Soviet Union fail to produce agreements on mutual reductions, the United States can and should proceed with substantial unilateral cuts.

The economic ramifications of these reductions are enormous. A reduction of 438,500 men would result in an immediate savings of over 4 billion dollars. When one considers the equipment eliminations contingent on these reductions, the savings could well approach 7 billion dollars. The advantage of freeing these sums of money for domestic concerns is obvious. For years, social problems in this country have cried for solutions as billions of dollars have been squandered in the interests of national defense.

But even if no domestic programs were starving for funds, even if all Americans were living in a peaceful, prosperous society, it would still be foolish to continue to finance inflated and oversized defense budgets. By maintaining a musclebound defense posture, we increase the likelihood that the military will periodically flex its muscles. Our recommended manpower levels are sufficient to repel and to deter any potential attack which threatens our security. And that is all we should require our defense posture to do.

FOOTNOTES

[1] The United States' role as protector of Western Europe is being challenged in some quarters as a basis for future foreign policy. Obviously a redefinition of our role in Europe would call for additional changes in our military manpower posture. For the purpose of this analysis, continuation of our present commitments to Europe is assumed.

[2] Alain C. Enthoven, "Arms and Men: The Military Balance in Europe," *Interplay*. May, 1969.

[3] *Ibid.*

[4] Institute for Strategic Studies, London, *The Military Balance: 1969–70, and 1970–71.*

[5] All forces stationed in West Germany.

[6] All forces stationed in East Germany.

[7] Troops stationed in Italy.

[8] Troops stationed in Poland, Hungary, and Czechoslovakia.

[9] Six infantry brigades stationed in Britain.

[10] One mechanized infantry brigade stationed in Canada for NATO use.

[11] Two armored divisions and five infantry divisions, stationed in Italy, for NATO use.

[12] Three mechanized divisions stationed in France.

[13] Twenty-nine divisions in European U.S.S.R. Institute for Strategic Studies estimates that, under ideal conditions, these divisions could be mobilized within 30 days.

[14] Each C–5A holds approximately 270 soldiers plus equipment, travelling at an approximate airspeed of 460 miles per hour. Assuming each plane makes one round trip a day, a fleet of 69 planes could transport 559,000 troops a month, enough to tap the active force, but little of the nine reserve divisions. (Information supplied by the Defense Department.)

[15] Testimony of Honorable Melvin L. Laird, Secretary of Defense, before the House Armed Services Committee, March 9, 10, 11, 1971.

[16] Institute of Strategic Studies, *Military Balance: 1969–70.*

[17] Testimony of Laird, *op. cit.*

[18] Institute for Strategic Studies, *op. cit.* 1970–71.

[19] Testimony of Laird, *op. cit.*

[20] The ratio of two support divisions for each combat division is accepted here for purposes of discussion. However, there is considerable room for skepticism and further study as to whether such substantial numbers of support troops are really required.

[21] Department of Defense, "Defense Military Manpower Requirements for FY 1972, Appendix I," (April 22, 1971), p. 11.

[22] *Ibid.*, page 27.

[23] Army: 14,740.

Navy: 20,000

[24] *Setting National Priorities, The 1972 Budget*, Brookings Institute, Special Defense Issues, The Role of the Aircraft Carrier, page 73.

## THE PENTAGON PAPERS

Mr. McGEE. Mr. President, Kenneth Crawford's column in the Washington Post of June 25 points out, with considerable clarity, the reasons we should not accept the Pentagon papers as an objective, all-encompassing assessment of our involvement in Vietnam.

The admitted prejudices which exist in the interpretations of the documents comprising the 47-volume study have a significant bearing on the merits of such a study. I have long maintained that only history can be the judge of our involvement in this conflict. Subsequent to the initial publishing of portions of this study, a number of columnists have raised valid issues pointing out that an attentive American public would have been fully aware of the moves which led to escalation had they only scrutinized the record. Much was being published at the time of our escalation in this conflict, and numerous columnists were predict-

ing with considerable accuracy what the stakes were at that time. However, few people gave but scant attention to these well-published events.

Therefore, I ask unanimous consent that Mr. Crawford's column be printed in the RECORD.

There being no objection, the article was ordered to be printed in the RECORD, as follows:

SPECIAL KIND OF LEAK—PREJUDICE FLAWS PENTAGON PAPERS

(By Kenneth Crawford)

What is remarkable about the Pentagon study of Vietnamese war decision-making—at least the parts so far published by The New York Times and The Washington Post—is not that so many of the facts dealt with were previously unknown but that so many were known. Commentators who professed profound shock at the alleged duplicity of officials dealing with war policy on the basis of the new "revelations" were being either naive or hypocritical.

Interpretations of the documented facts first by the Pentagon team of 30 to 40 anonymous (a few of them now identified) authors of the study are something else. They are flawed by the admitted prejudices of those who made the study and conform too conveniently with the present editorial position of the publications disseminating the report. Also, they omit White House and State Department records necessary to a complete understanding of considerations bearing on the decision makers.

Leslie H. Gelb, coordinator of the report when he was at the Pentagon, frankly admits that his team regarded Vietnam as a Greek tragedy—unwinnable, uncompromisable, and a blunder from the beginning. The Times and The Post have now come to about that conclusion, too, even though they both supported the war effort in its early stages. The danger here is that the clarity of hindsight is too clear. The conclusion of total error is too simple. Perhaps Congress, when it gets around to study of the record, will bother to wonder what fate Southeast Asia would have suffered by this time but for American intervention in Vietnam. But probably it won't. No politician likes to swim upstream against powerful media and apparently fixed public opinion.

That the report is patently unjust to officials concerned over the years with Vietnam is perhaps incidental and unimportant. Cooks who work in the kitchen have to take the heat even after they have left the stove. But the conclusion generally drawn from the report that President Johnson knew during the campaign of 1964 that he would escalate on the ground and in the air once he had won the election is not only unjust but inaccurate. There may have been consensus for escalation among his advisers in 1964, as the report says, but implementation was impossible until the President agreed.

Whether The Times and The Post were justified in printing excerpts from the report and the supporting documents, without first making an effort to get them declassified, as they doubtless should have been, is questionable. Whether the government should have undertaken to exert prior restraint on further publication after the first installments appeared is also a question. A journalist comes down almost instinctively on the side of the people's right to know and the First Amendment in any hassel between government and press over leaks of classified information. Yet the circumstances here are troublesome

Any journalist who has practiced his trade in Washington for a long time has first-hand knowledge of scores of leaks, some of his own contriving. Leakage is a sort of safety valve in the Rube Goldberg-like arrangement of relations between press and government. In practice, it permits the government to keep a few secrets and the public to have most of them. But what The Times and The Post brought off was not normal leakage. They challenged directly and spectacularly the government's claim to the privilege of secrecy in areas of military and diplomatic decision-making in violation of the live-and-let-live understanding of the past. They set themselves up as the judges, superseding duly delegated authority, of what should and should not be secret. They left the government little choice but to resist in some fashion.

It is difficult to be consistent where civil disobedience—deliberate violation of law—is concerned. To many, like me, Martin Luther King's campaign of civil disobedience was justified by his race's oppression. But some of the same people who condoned his acts conceded no such sanction to the May Day demonstrators who trashed Washington to dramatize their opposition to the war. Others deplored the methods employed by the police to put down the May Day disturbances. Yet all the civil disobedients had some higher authority to appeal to for excuse of law violation.

The May Day demonstrators said they were exercising their constitutional right of petition. The police said the necessity of restoring order to the nation's capital justified their legal shortcuts. The Times and The Post invoked the higher authority of the people's right to know and the First Amendment.

The editors of The Times and The Post have put on a morality play of sorts. They have played Robin Hood. with a touch of Hildy Johnson thrown into the characterization, to the government's Sheriff of Nottingham. James Reston is probably right in announcing that the public is on their side, though one may wonder how he can be so sure of that. The press should remember that among the public's devils, it rates high, probably just behind public officials and hardened criminals. It cannot count upon automatic sympathy.

As for the report The Times and The Post have given their readers, parts of which are now available in other newspapers, coast to coast, it is impossible not to wonder what a hostile commission with access to the classified documents could have made of President Roosevelt's maneuvers just before and during the Second World War. It would have been sensational. The primary difference between official conduct in that war and in the war in Vietnam is that that war was won. Also Hitler was a better symbol of evil than the late Ho Chi Minh. So we wallowed in triumph after that war and we wallow in masochism now.

## TRUTH-IN-SAVINGS

Mr. HARTKE. Mr. President, on May 12 I introduced S. 1848, the Truth-in-Savings Act. That legislation is designed to provide consumer depositors with enough basic information to enable them to make a rational and intelligent decision about the investment of their funds in savings institutions.

This is a complicated subject, but it is summarized every working day of the year in dollars and cents terms for the individual depositor. Because consumers do not understand the terms associated with savings accounts, or because they are not aware of the provisions of their accounts, far too many people are losing interest and dividends which could have been earned had the information required by S. 1848 been disclosed.

One aspect of S. 1848 is the section which establishes advertising requirements for savings institutions. For many such institutions, advertising requirements are presently established by regulation. However, a study recently completed by Diana Osbaldiston and Dr. Richard L. D. Morse of Kansas State University indicates that current advertising regulations are inadequate, and that the type of statutory regulation of S. 1848 is necessary to bring order out of the present chaos.

Of the 152 newspaper advertisements examined during this study, more than half were inadequate. Advertisements were considered complete if they stated: The type of account; the annual earnings rate; the minimum amount of deposit required; the minimum length of time for a deposit; when interest is paid; whether or not compounding of interest is offered; and, if so, on what basis; and the limitations and penalties imposed or bonuses allowed on each specified account.

Mr. President, I ask unanimous consent that the Osbaldiston-Morse study be printed at this point in the RECORD.

There being no objection, the study was ordered to be printed in the RECORD, as follows:

ADVERTISEMENTS OF SAVINGS ACCOUNTS

(By Diana Osbaldiston and Richard L. D. Morse, Ph. D)

INTRODUCTION

"Your interest is compounded daily and your savings earn from the day of deposit to the day of withdrawal at the highest rates of interest permitted by law. It's hard to find a better deal than that for your savings anywhere. Isn't that all you need to know about savings?" (Advertisement of Home Federal Savings and Loan Association, Chicago Tribune, Jan. 5, 1971.)

No. This is not all that a concerned investor needs to know about savings in order to maximize his earnings. A small investor may not be abreast of the current rates permitted by law to know whether the rates quoted are the highest. And, although it may be "hard to find a better deal," it is not impossible. Before committing money to a savings institution, careful consideration needs to be given to penalties, limitations, basis for computing interest, etc.

OBJECTIVE

This study was made to ascertain how much pertinent information advertisements provide a prospective investor.

The Federal Reserve Board had issued regulations on advertising of interest on deposits, effective August 1, 1969 and comparable standards were adopted by the FDIC and FHLBB. A secondary objective of the study was to determine whether those regulations were being followed.

The tremendous variety of gifts and other lures clouded the issue of what bargains in investment the financial institutions were offering. It was necessary to make a distinction between the information on savings and the information on lures. No attempt was made to appraise these lures in the evaluation of information supplied by advertisements of savings.

PROCEDURE

*Source of data*

Advertisements were taken from fourteen different newspapers from cities of all sizes throughout the U.S.A. between December 27, 1970 and January 7, 1971. This is the time of the year when traditionally there is much activity in savings advertisements. More than one issue of most of the publications was scanned. And from the 29 issues a total of 152 different advertisements were collected:

| Newspapers | Number of issues | Number of advertisements |
|---|---|---|
| Chicago Tribune | 4 | 28 |
| Daily Oklahoman | 1 | 3 |
| Dallas Times-Herald | 2 | 9 |
| Denver Post | 1 | 12 |
| Des Moines Register | 1 | 5 |
| Kansas City Times-Star | 5 | 28 |
| Los Angeles Times | 2 | 18 |
| Manhattan (Kans.) Mercury | 2 | 5 |
| New York Times | 4 | 17 |
| St. Louis Post-Dispatch | 1 | 13 |
| Topeka Capital | 1 | 3 |
| Wall Street Journal (Midwest edition) | 2 | 3 |
| Washington Post | 1 | 3 |
| Wichita Eagle | 2 | 5 |
| All 14 papers | 29 | 152 |

The same institution may have been represented more than once. If the layout was different or a different type of account was being advertised, then the different advertisements were counted separately. However, if a layout of the same size and content appeared on several days, the advertisement was counted only once.

*Treatment of data*

Each advertisement was measured to determine the total area in square inches. Each advertisement was examined and the following items were noted and tabulated:

1. Type of account.
2. Nominal annual rate.
3. Minimum amount required for the rate to apply.
4. Length of time amount had to be invested for rate to apply.
5. Frequency with which interest was paid or credited.
6. Whether interest was compounded.
7. If compounded, whether the effective annual yield was stated.
8. If the effective annual yield was stated, whether it received greater prominence than the annual rate.
9. Limitations on deposits, represented by withdrawal penalties or the offering of grace or bonus days.
10. Safety of funds in terms of insurance coverage.
11. Gifts and other inducements offered.

*Informativeness of advertisements*

The criteria for grading the advertisements were established from the perspective of a saver who had a few hundred dollars to invest for the first time in his life, who knew very little about savings institutions, and needed to be protected from both misinformation and lack of information. The information should be in a straightforward and easily understood manner.

The advertisements were graded on the basis of information given about savings accounts, not about the institutions' gift offers or its various extraneous virtues or policies. *Five grades were used:*

*Complete.* Advertisements were so classed if the information was complete, was identified clearly with the type of account and was not obscured by gift offers. An advertisement was considered complete if it stated: the type of account; the (nominal) annual rate; minimum amount; term; when interest would be paid; whether or not compounding of interest was offered, and if so on what basis; and, very importantly, the limitations and penalties imposed or bonuses allowed on each specified account. Effective annual yield being omitted did not down grade advertisements.

*Nearly complete.* These advertisements supplied most of the necessary information in a straightforward manner. Omission of limitations downgraded advertisements, as did failure to mention minimum amount and minimum time requirements on accounts offering higher rates of interest.

*Some.* These advertisements supplied some information and careful reading was required to glean the information.

*Little.* The advertisements contained very little information.

*Almost none.* Such ads contained almost none of the information needed.

*Size classes of advertisements*

The advertisements were graded into four class sizes, as follows:

Small, 0–50 sq. ins.
Medium, 51–100 sq. ins.
Large, 101–150 sq. ins.
Super, 151+ sq. ins. (half pages up to double pages at 600 sq. in.).

In approximate terms these mean: less than a quarter page advertisement, quarter page, half page and for the "extra large" advertisements half page up to 600 square inches for double page advertisements.

*Terms and definitions*

*"Institution"* was the term used to cover federally chartered and other banks and savings banks, savings and loan associations, state regulated finance companies and any other firm offering a return on the deposit of money.

*"Type of account"* comprised both unrestricted and restricted withdrawal passbook accounts, saving certificates of deposit and all other various names chosen by the institutions to designate fixed time deposits.

*"Annual rate"* was the annual rate of simple interest. Regulation Q, Section 217.6, as published June 21, 1969, in the Federal Register states that "in no case shall a rate be advisertised that is in excess of the applicable maximum rate for that particular deposit."

*"Interest"* and *"dividend"* were used interchangeably. Although it is usual to define interest as a fixed predetermined return on investment and dividend as the return that is not usually fixed and may be variable, in this context the rate was always known. Therefore the return on investment was called interest.

*"Minimum amounts"* were those required to qualify for a type of account.

*"Minimum time"* was the period of time required for the deposit to remain invested to earn interest.

*"Compounding"* meant that interest was paid on previously earned interest. Interest compounded daily, for example, meant that each successive day the interest was computed on the previous day's balance including accrued interest. Interest was also compounded continuously and quarterly. Compounding would produce an effective annual yield which would be higher than the annual rate of simple interest.

*"Limitations"* were defined as any restriction on the investment. They included penalties for premature withdrawal, requirements concerning the minimum balance remaining in an account at the end of each period (generally so that a computer could pick up the account to calculate interest), limiting withdrawals to the first ten days of a quarter, also the offering of grace or bonus days such as "deposits made by the tenth of the month earn interest from the first," and whether rates of interest on long-term deposits were guaranteed.

*"Safety"* refers to accounts being insured by Federal Deposit Insurance Corporation (FDIC) or Federal Savings and Loan Insurance Corporation (FSLIC). If an institution did not specify being a member or showing the seal, but stated that funds were insured by a federal agency, when the institution's name included the words "Saving and Loan Association," it was considered FSLIC.

*"Other"* comprised the remaining institutions. Although five of these included "Federal Savings & Loan Association" and one included "National Bank" in their names it was assumed the hypothetical investor would not be aware of these regulations.

*"Gifts"* were merchandise offered by the institution to entice or reward a depositor. They included, coins, stamps, free items and those that could be purchased at a reduced price.

*"Prominence of rate"* was taken by observation. Layout and print type size were among the factors that entered into the judgment.

RESULTS AND DISCUSSION

It may be assumed that consumers need certain basic information if they are to be prudent investors. Also it may be assumed that savings institutions supply such basic information in their advertisements. It was the purpose of this study to determine how much information advertisements actually contain.

More than one-half of the advertisements were inadequate. About one-fifth gave complete information, and another 28% were judged to be nearly complete, as shown in Table 1.

Size of the ad was not a factor affecting the adequacy of the information disclosed. Small and medium sized ads were as informative as half-page or full-page advertisements. (See Table 1.) The limiting factor, thus, was not space to disclose full information.

Type of institution did not affect the amount or quality of information, as shown in Table 2. There seemed to be no apparent difference in policy regarding informativeness of advertisements between the 48 FDIC identified institutions and the 81 FSLIC institutions. Although there was an apparent difference in the size of advertisement as between types of institutions, a large percentage of advertisement of FDIC institutions were large or super, as shown in Table 3. Thus it can only be concluded that the quality of information varied with the advertising and management policy of each financial institution and not the size of the advertisement.

Rate of interest is of major significance to savers. Less than half, only 70 of the 152 advertisements, gave the rate prominently in the ad. Prominence of rate varied by type of institution, as shown in Table 4. Of those identified with FDIC 42% prominently displayed the rate, as did 46% of those identified with FSLIC and 57% of "others". Rates were more prominent in the more informative advertisements (Table 1.) and in the smaller advertisements (Table 3.). "The highest rate of interest permitted by law" or similar language was included in 32 advertisements, most (26) of which were FSLIC institutions.

Safety of principal is another major significant consideration for the saver. Most of the institutions included this in their advertisements, as shown in Table 4: 32% were FDIC members and 53% were FSLIC members. Five of the "other" institutions had "Federal" in their names so probably belonged to the FSLIC. By the same reasoning a bank which had "National" in its name probably would have belonged to the FDIC. However, the hypothetical investor would not be aware of these regulations requiring financial institutions chartered by the Federal government to be insured. The insurance type, if any, for the remaining 17 financial institutions is unknown.

Gifts are a common inducement, used by financial institutions to differentiate themselves from others paying the same maximum rate allowable by law. Gifts were not considered as information, but 68 institutions offered them. As shown in Table 5, 47 of the 81 FSLIC institutions (58%) advertised gifts, whereas only 12 of the 48 FDIC institutions (25%) did so.

A secondary objective was to note the relative prominence of the effective annual yield and the annual rate when both appeared in the advertisement, in compliance with Regulation Q.

Where there is compounding daily or continuously, Regulation Q permits the display of the effective annual yield for one

year, presuming the interest remains invested for the period. Section 217.6 (b) and (c) deal with percentage yields achieved by compounding as follows:

(b) "Where a percentage yield achieved by compounding interest during 1 year is advertised, the annual rate of simple interest shall be stated with equal prominence, together with a reference to the basis of compounding."

(c) "No advertisement shall include any indication of a total percentage yield compounded or simple, based on a period in excess of a year, or an average annual percentage yield achieved by compounding during a period in excess of a year."

The institutions' compliance with these sections was checked. Of the 66 advertisements stating the annual rate to be compounded daily or continuously, 25 mentioned the effective annual yield. Three advertisers, all FSLIC members, contravened the regulation by displaying the effective annual yield with more prominence than the annual rate. The rest were within the regulations, as shown in Table 5. As far as subsection (c) was concerned, in one case only was the effect of compounding for more than one year stated, and this was not a federally chartered establishment.

CONCLUSIONS

The amount of advertising, as measured in square inches of space, represents a large expenditure. However, the value of such advertising as a means of informing the prospective investor is questionable.

Although it may be held that the purpose of advertising is to attract customers and not to inform customers, this competitive process takes place in an arena of free enterprise which demands full knowledge on the part of the participants in the system for the system to deliver fully.

It is recommended that all institutions which advertise insured savings should disclose the name of the insurance carrier in the advertisement.

Failure of advertisements to be fully informative was evidently the policy of the sponsoring institution and not for lack of advertising space. An accepted standard for full disclosure of terms is needed. And it should contain all the information needed by a prudent consumer so that he will be able to compare more readily the various savings opportunities available to him.

This study did not investigate the meaning of the words used or how the various institutions interpreted them. A previous study by Pinson revealed the various methods by which institutions compute interest, for example. An investor would be wise to make detailed inquiries from any institution, addressing his questions to the manner in which he planned to use the account so as to detect that type of account and institution which is most suitable to him.

TABLE 1.—INFORMATIVENESS OF ADVERTISING BY SIZE OF AD
[In percent]

| Information in advertisement | Size of advertisement | | | | | Prominent rate |
|---|---|---|---|---|---|---|
| | All | Small | Medium | Large | Super | |
| Complete | 19 | 12 | 24 | 23 | 22 | 29 |
| Nearly complete | 28 | 29 | 29 | 26 | 26 | 41 |
| Some | 15 | 15 | 16 | 10 | 22 | 16 |
| Little | 21 | 27 | 13 | 28 | 8 | 14 |
| Almost none | 17 | 17 | 18 | 13 | 22 | ---- |
| All | 100 | 100 | 100 | 100 | 100 | 100 |
| Number | 152 | 52 | 38 | 39 | 23 | 70 |

TABLE 2.—INFORMATIVENESS OF ADVERTISEMENTS, BY SPONSORING INSTITUTION
[In precent]

| Informativeness of advertisement | Institution | | | |
|---|---|---|---|---|
| | All | FDIC | FSLIC | Other |
| Complete | 19 | 27 | 15 | 17 |
| Nearly complete | 28 | 21 | 32 | 26 |
| Some | 15 | 12 | 17 | 13 |
| Little | 21 | 21 | 21 | 22 |
| Almost none | 17 | 19 | 15 | 22 |
| Total | 100 | 100 | 100 | 100 |
| Number | 152 | 48 | 81 | 23 |

TABLE 3.—SIZE OF ADVERTISEMENT, BY INSTITUTION AND PROMINENCE OF RATE
[In percent]

| Size of advertisement | Financial institution | | | | Prominent rate |
|---|---|---|---|---|---|
| | All | FDIC | FSLIC | Other | |
| Small | 34 | 21 | 33 | 65 | 44 |
| Medium | 25 | 23 | 28 | 18 | 19 |
| Large | 26 | 35 | 24 | 13 | 26 |
| Super | 15 | 21 | 15 | 4 | 11 |
| All | 100 | 100 | 100 | 100 | 100 |
| Number | 152 | 48 | 81 | 23 | 70 |

TABLE 4.—OFFERING OF GIFTS AND PROMINENCE OF RATE, BY INSTITUTIONS
[In percent]

| Institution, class | Number | Gift offers | Prominent rate |
|---|---|---|---|
| FDIC | 48 | 25 | 42 |
| FSLIC | 81 | 58 | 46 |
| Other | 23 | 39 | 57 |
| All | 152 | 44 | 46 |

TABLE 5.—COMPLIANCE WITH REGULATION Q

| Compliance | Reason | Number |
|---|---|---|
| Not in compliance | Greater prominence to effective annual rate over annual rate | 3 |
| In compliance | Equal prominence to effective annual rate over annual rate | 14 |
| In compliance | Less prominence to effective annual rate over annual rate | 8 |
| All institutions stating both rates | | 25 |

## HIRSHHORN-SMITHSONIAN CONTRACT VOID

Mr. ALLEN. Mr. President, Members of the Senate will be interested in a newspaper item published in the Washington Star on Tuesday, June 24, 1971. The item appeared on the front page and is headed "Hirshhorn Museum Funds are Frozen." The first paragraph is adequate to make a point. It reads:

The House Appropriations Committee today voted to place a ban on spending of any new funds for the Hirshhorn Museum until the National Capital Planning Commission approves plans for the museum's sculpture garden.

This simple statement illustrates the basis for one of many objections which have been raised to construction of the museum and sculpture garden—at least under terms and conditions of the contract negotiated by the Board of Regents of the Smithsonian Institution with Joseph H. Hirshhorn and the Joseph H. Hirshhorn Foundation.

The question raised by the ban is whether or not the National Capital Planning Commission is now free or was ever free to exercise an unfettered judgment on the merits of plans and designs for construction of the Joseph H. Hirshhorn Museum and Sculpture Garden. The answer is that the Commission is not free to make an independent judgment so long as it is sitting under a Damocles Sword in the form of an agreement which provides that title to the works of art shall be conveyed to the Smithsonian Institution only if the Commission approves plans submitted to it by Mr. Hirshhorn and Dr. Ripley.

Mr. President, the fact is that both the National Capital Planning Commission and the Fine Arts Commission are confronted with a contract containing the following provisions:

*Paragraph third.* Upon receipt of appropriate authorization from the Congress . . . the Institution shall . . . construct the Joseph H. Hirshhorn Museum and Sculpture Garden . . . *in accordance with plans . . . which . . . shall have been specifically approved by both the donor and the Secretary of the Institute.* (Emphasis supplied).

*Paragraph ninth.* In the event . . . the said museum and sculpture garden shall not have been constructed . . . as provided in paragraph third . . . *this agreement shall be null and void* and the proposed gifts by the donor and the Hirshhorn Foundation shall not be consummated. (Emphasis supplied).

All of us know that the Fine Arts Commission and the National Capital Planning Commission have been vested by Congress with the power and duty to exercise unfettered judgments in granting or withholding the approval of plans and designs for the construction of memorials and other buildings on the Washington Mall. Yet, it will be seen that by reason of the above terms if either the Fine Arts Commission or the National Capital Planning Commission should reject plans "specifically approved" by Mr. Hirshhorn, the onus for voiding the agreement falls on either or both of these agencies. The command is implicit:

Abdicate responsibility to exercise your free and independent judgments on the merits of plans and design of the Museum and Sculpture Garden or else the deal is off.

Mr. President, I doubt that the Smithsonian Institution has the power to disregard a congressional mandate and authorize Dr. Ripley to negotiate contracts with anyone to accept gifts conditioned in a manner to make the transfer of title to such gifts contingent on divesting the above commissions of their legislative responsibilities. At least, I have been unable to find statutory authority to authorize the Board of Regents to enter such an agreement. Without inherent or statutory authority in the Institution it would seem clear that the agreement, in this particular, is ultra vires and, therefore, null and void. Yet, let us suppose that the Board of Regents should say to Mr. Hirshhorn, "Congress has vested the power in the Fine Arts Commission and the National Capital Planning Commission to approve plans and design for construction on the Mall—we cannot usurp

these powers—the provision of the contract that grants you the power of final approval of plans for the Museum and Sculpture Garden was improvident—we wish to strike this provision from the agreement."

Mr. Hirshhorn's response could be, "I specifically reserved the right to final approval along with Dr. Ripley—you agreed to that provision. If Dr. Ripley, or the Fine Arts Commission or the National Capital Planning Commission renege—then please read paragraph nine of the agreement. It provides that our agreement 'shall be null and void' unless the project is constructed in accordance with plans 'specifically approved' by me."

Mr. President, were the agreement thus flawed in but one of its provisions, some Members of Congress might be inclined to urge that we disregard this objection and objections voiced by the American Society of Landscape Architects; the National Sculpture Society; Hon. Gilmore D. Clarke, former Chairman of the Fine Arts Commission; Dr. Norman D. Newton, former professor of landscape architecture, Harvard University; and many other authorities in separate areas of concern who sincerely question both the original and revised plans, designs, and location of the museum and sculpture garden on the mall.

But, Mr. President, we are concerned not with a single objection to the agreement but many—so many that we can do no more than cite a few for purpose of illustration. For example, some Members of Congress will doubt that the Smithsonian Institution has the power to enter contracts, the terms of which make transfer of title of gifts to the Institution contingent on enactment by Congress of a statute to impose administrative and policy responsibilities on present and future Chief Justices of the United States.

Already Chief Justices serve as ex officio members of the Board of Trustees of the Smithsonian Institution; as Chancellor of the Board of Regents; and as members of the Board of Trustees of the National Gallery of Art. Does the Board of Regents have the power to enter agreements which make transfer of title of gifts contingent on congressional delegation of yet another nonjudicial responsibility to Chief Justices of the United States?

Along the same line, I would think that many Members of Congress may very well question the power in the Board of Regents to enter agreements to accept works of art under conditions which would make the agreement null and void if Congress should exercise its constitutional prerogative to amend a statute in certain particulars. Yet, the Board of Regents has entered an agreement subject to the above conditions and these few examples merely scratch the surface.

Hundreds of questions remain unanswered. Questions such as those raised by some journalists who approve the project. We are indebted to Dr. Ripley for bringing to our attention several questions which appeared in an article by Leroy F. Aarons, who favors the project. The following exerpts from the article indicate the source of some few of the many remaining questions:

> Negotiations for the huge collection have been going on here in the *deepest secrecy* between Hirshhorn, who lives in New York City, officials of the Smithsonian and the White House . . . (Emphasis supplied).
>
> . . . the industrialist is extremely sensitive about publicity surrounding the disposition of his works.
>
> The Administration (May 16, 1966) is still so sensitive about the matter that officials scheduled to discuss plans for the new Museum on Capitol Hill this week have been instructed not to leave any copies of the agreement lying around.
>
> His collection is scattered around the world, jamming his offices in Manhattan and Toronto, and displayed throughout his Park Avenue apartment, his Riviera villa and his country home in Greenwich, Connecticut. The bulk of the trove, however, is kept in closets, storerooms and warehouses.

But the most interesting question is raised by the implications implicit in the instructions to Smithsonian officials not to leave copies of the agreement lying around after discussions with Members of Congress. It is only after the agreement has been analyzed that one can fully understand the concern. It is, indeed, a remarkable instrument—having read it for the first time, some 5 years later, I was prompted to introduce Senate Joint Resolution 45 to have it declared null and void. I am inclined to believe that if many Members of the 89th Congress had copies available and had read the agreement carefully, they would not have permitted Congress to become a party to implement the agreement by statute.

Mr. President, I want to emphasize again that the above-mentioned legal questions concerning the validity of the agreement are but tips of an iceberg. These few remarks do not begin to reveal the massive and very serious questions underlying the Joseph H. Hirshhorn Museum and Sculpture Garden project. Questions such as those raised by a report by the House Committee on Library and Memorials; by prominent individuals and professional organizations; and by responsible members of the news media and others.

I consider the agreement utterly void, and I reserve judgment on other questions. I am convinced, however, that the questions raised are of sufficient importance to justify investigation by appropriate committees of Congress.

With this said, let me call to the attention of Members of the Senate most serious accusations made by Dr. Dillon S. Ripley on April 5, 1970. In testimony before the House Subcommittee on Appropriations for the Department of Interior and Related Agencies, by way of explanation of objections to the museum and sculpture garden and the motives of those who voiced such objections, Dr. Ripley tore into critics in a carefully prepared written statement. I quote from the printed record:

> Attempts to blacken the name of anyone or everyone associated with the Hirshhorn project have been accompanied by two other equally distasteful tactics. One, which deserves mention only in passing, has been a campaign of truly scurrilous innuendo of a perfectly familiar antisemitic sort. The other has been a constituent distortion of fact about the Hirshhorn Museum and Sculpture Garden.

Mr. President, I want to emphasize that Dr. Ripley made these charges before a committee of Congress while testifying in support of appropriations requested for the Hirshhorn Museum and Sculpture Garden.

They were made with knowledge that a bill had been introduced in the House of Representatives which would drastically change the plans for location of the proposed sculpture garden.

These were made preceding the approval of revised plans by the National Capital Planning Commission—plans for which he and Mr. Hirshhorn were personally responsible.

They were made with knowledge that a bill had been introduced in the Senate that challenged the validity of the agreement which Dr. Ripley had himself negotiated with Mr. Hirshhorn.

They were made with knowledge that the Senate bill had been jointly referred to the Committee on Public Works and the Committee on Government Operations.

Mr. President, I submit that these charges impugn the motive of Members of Congress, members of the Fine Arts Commission, members of the National Capital Planning Commission, and others who have voiced opposition to the project. One can reasonably infer that the charges were made with intent to intimidate those who were yet to pass judgment on various aspects of the project.

Mr. President, I will not believe that Dr. Ripley can intimidate members of the House Subcommittees on Library and Memorials, which investigated the Hirshhorn Museum and Sculpture Garden, and members who sponsored the House bill to drastically revise Dr. Ripley's and Mr. Hirshhorn's plans.

I will not believe that Dr. Ripley can intimidate members of the Senate Committee on Government Operations and members of the Senate Committee on Public Works who are yet to consider various aspects of this project.

I do not believe that members of the House and Senate Committees on Appropriations or Members of Congress or members of the press and spokesmen of recognized cultural authorities are going to be intimidated by intemperate but calculated charges that impugn their motives.

Mr. President, I hope that in the not too distant future Dr. Ripley will be provided an opportunity to substantiate his charges and that appropriate committees of Congress will have the opportunity to determine on the basis of evidence who, in fact, has been guilty of "consistent distortion of fact about the Hirshhorn Museum and Sculpture Garden."

In the process, perhaps Members of Congress and the people of the United States may learn the reasons behind reported secret negotiations by the Smithsonian Institution with Mr. Hirshhorn which lead to an agreement so secret that officials of the Institution were cautioned not to leave copies around offices and committee rooms of Congress.

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## ADDRESS BY DR. WALTER W. ROSTOW

Mr. McGEE. Mr. President, on June 18 of this year Dr. Walter W. Rostow de-

livered a speech at the Naval War College at Newport, R.I. The address was entitled "Will We Snatch Defeat From the Jaws of Victory?"

In his remarks, Dr. Rostow pointed out with clarity what the stakes are in relation to the pursuit of a real and lasting peace in today's world. At a time when feelings of neoisolationism are sweeping the country in light of Vietnam, Dr. Rostow's observations are worth study and consideration by all Americans.

Mr. President, I ask unanimous consent that Dr. Rostow's remarks be printed in the RECORD.

There being no objection, the remarks were ordered to be printed in the RECORD, as follows:

WILL WE SNATCH DEFEAT FROM THE JAWS OF VICTORY?

(By W. W. Rostow)

My title today is both unfashionable and paradoxical. I derived it from an article in the London *Economist* [1] referring to American policy in Southeast Asia. I shall be discussing a wider range of issues, including Southeast Asia.

The title is unfashionable because it is not generally regarded as good taste these days to talk about victory; it is paradoxical because my notion of victory is not triumph in the usual military sense: it is the building of stable peace, on the principles of the United Nations Charter, from the intractable raw materials left in the wake of the Second World War.

I put the matter this way in a talk at Fort Bragg in June 1961: [2]

"The victory we seek will see no ticker tape parades down Broadway—no climactic battles nor great American celebrations of victory. It is a victory which will take many years and decades of hard work and dedication—by many peoples—to bring about. This will not be a victory of the United States over the Soviet Union. It will not be a victory of capitalism over socialism. It will be a victory of men and nations which aim to stand up straight over the forces that wish to entrap and to exploit their revolutionary aspirations of modernization. . . ."

"The American interest will be served if our children live in an environment of strong, assertive, independent nations, capable, because they are strong, of assuming collective responsibility for the peace."

I begin with the question of peace because I believe the word has been debased in the current debate on foreign policy. In the name of peace the questions posed in that debate are: How fast and how much should the United States pull back from responsibility in the world? How many troops can we pull out of Asia or Europe? How far can we cut the military budget, or the foreign aid budget?

I believe we are debating the wrong questions. The right question is: What must America do to play its part in moving from where we are to reasonably stable peace?

I believe this is the right question, because the underlying forces at work in the world offer more chance than at any time since 1945—and, perhaps, since 1914—for the attainment of reasonably stable peace. But the movement is not certain. There are also powerful forces at work making for disruption and violence, of which the most dangerous are those pushing the United States towards excessive withdrawal from responsibility.

My theme is, then, that the world community is in delicate balance between hopeful and dangerous outcomes and that our behavior as a society could prove to be the critical factor.

I shall develop this argument in three parts: first, a definition of the forces making for the possibility of stable peace; second, a brief portrait of the precarious balance in the arms race, the Middle East, and Southeast Asia; third, some observations about our political and economic life relevant to the outcome.

II

What, then, are the bases for hope?

First, there is the diffusion of power away from Moscow and Washington.

This is no new phenomenon. It began, in a sense, for both capitals in 1948.

For the United States it began when the American Congress voted the funds for the Marshall Plan and threw its weight behind the movement towards Western European unity. We set about reviving a region which we hoped to see emerge as a partner, not a satellite.

For Moscow, the diffusion of power began when Tito defied Stalin and proved that Yugoslavia could survive on that basis.

This diffusion has continued over the past generation, gathering momentum, in particular, after the Cuba missile crisis.

That crisis persuaded men in many parts of the world that the Soviet Union was not as dangerous as it had been over the previous fifteen years and, therefore, they could act with greater independence of Washington, as well as of Moscow. The missile crisis also brought Moscow's split with Peking into the open and intensified it.

So far as American policy is concerned, I believe we can take pride in the fact that in the first postwar generation we threw our political influence, as well as our economic resources, behind the desire of nations to fashion their own destinies. And we have moved in recent years—under President Johnson's leadership and now President Nixon's—to the active support of regionalism in Latin America, Africa, and Asia, as well as continuing our support for regionalism in Western Europe. We did not oppose the diffusion of power. We tried to help organize it in constructive ways.

For Moscow the diffusion of power has meant that the Communist vision of a world led by the Soviet Union has receded. Along its Chinese frontier and in Eastern Europe grandiose hopes have changed to anxieties. In developing continents, nations increasingly march to their own beat. Soviet policy has moved in the direction of a conventional concern for Russian security. The transition is not complete; but I believe there are more men in Moscow than there were ten years ago who understand that the world emerging in the latter half of the twentieth century is not going to be dominated by any single power or any single ideology; and that their duty to their own peoples is to help organize the world peacefully rather than to try to control it directly from Moscow. That is what the Nonproliferation Treaty is about; that is the inarticulate premise of the SALT talks, and the occasional Soviet efforts to join others in damping, rather than exacerbating, crises. But other events raise warning flags; the Middle East since 1967 and the Soviet failure to honor its commitment to the Laos Accords of 1962 should remind us that this doctrine has not been accepted fully. But we are closer to it than we were even ten years ago; and the forces making for the diffusion of power will certainly persist, not diminish.

Related to the diffusion of power is a second major force which could lead us in the direction of stable peace; that is, the decline of the aggressive revolutionary romantics.

The politics of developing nations has been marked in the generation since 1945 by a group of autocratic or totalitarian leaders who have chosen to build their domestic politics on "anti-imperialism" and to channel a high proportion of the limited energies, talents, and resources available to them into external expansion: in Asia the roster included Mao, Ho, Kim, Sukarno; in the Middle East, Nasser and the other radical Arab leaders; in Africa, Nkrumah and Ben Bella; in Latin America, Castro. In one way or another these men were deeply involved in the world's major crises since South Korea was invaded, more than twenty years ago.

Some of these leaders are gone and the fate of others—and their policies—is still to be determined. In general, however, they encountered three forces which have tended to frustrate them.

First, they encountered that nemesis of all expansionists: other people's nationalism.

Second, they encountered the resistance of those who have not wished to see the regional balances of power upset. The United States has carried in our time the major burden of supporting those under pressure of regional aggression; but the British and Australians stood with Malaysia; fifteen nations, with South Korea; six, with South Vietnam; Britain and the United States stood with Jordan and Lebanon in 1958; since 1967 the United States has helped keep the balance of regional forces from overwhelming Israel.

Third, their relative neglect of domestic welfare gradually reduced political support at home for policies of expansion. It is easy initially to excite the people with visions of quick redress for real or believed old grievances or humiliations, or with visions of new grandeur; but, in time, the desire to eat better, to see the children grow up with better health and more education asserts itself.

It was in such settings of frustration and disabuse that Nkrumah, Ben Bella, and Sukarno gave way to successors more focused on tasks of welfare and growth; Kim and Sadat now elevate the priority of domestic development; Castro lays before his people the depth of the economic disarray in Cuba; and the North Vietnamese, after their failure at Tet in 1968, began to surface their inner debate on the priority of victory in the south versus "building socialism" in North Vietnam. (I regret that latest evidence suggests that victory in Indochina has been reinstalled as the overriding priority in Hanoi.)

It is no easy thing for a group of political leaders to abandon a vision to which their mature lives have been committed and which, up to a point, granted them success.

In the case of Hanoi, Pyongyang, Cairo, and Havana, the availability of large external resources permits postponements of the decision to shift from expansion abroad to growth and welfare at home.

And before these dreams are abandoned, we may see final desperate acts to fulfill them.

But, in the end—soon or late—they will confront the destiny of the first great romantic expansionist—Napoleon. And they—or their successors—will echo Napoleon's memorandum to his finance minister in December 1812, when he abandoned the Continental System and the attempt to throttle Britain: "Undoubtedly it is necessary to harm our foes, but above all we must live."

The third hopeful force at work is the trend of events and policy in Peking.

We have observed a truly extraordinary passage of history since Mao—a few weeks after the first Sputnik was launched in the autumn of 1957—proclaimed in Moscow that the East Wind was prevailing over the West and that the Communist Party of the Soviet Union should lead the Communist world in a great offensive:

From the spring of 1958, at least, Moscow and Peking moved towards mortal disagreement over the nuclear question;

Mao's Great Leap Forward of 1958 failed;

By the December 1960 Moscow meeting of the world's Communist parties, Soviet atomic and economic experts had been withdrawn from China and the struggle for power in the Communist world between Moscow and Peking was fully underway;

Footnotes at end of article.

In the wake of the Cuba missile crisis and the Test Ban Treaty the split became overt; and quarrelsome interparty documents were published before the world;

Following the October 1964 explosion of a Chinese Communist nuclear weapon, Soviet forces gradually built up on the Sino-Soviet frontier and were matched by the Chinese;

In 1965 Peking moved towards a major breakthrough: Hanoi was close to victory in South Vietnam; Sukarno withdrew from the United Nations, proclaiming his association with Peking; and plans for the conference in Algiers moved ahead with its aim of welding the developing world into an anti-American bloc. Then, in June, Ben Bella was overthrown and the Algiers conference put aside; in July, President Johnson made his decision to put American forces massively into Vietnam; in October, the Communist effort to seize power in Indonesia failed; and a few weeks later the Cultural Revolution began, throwing the Chienese mainland into protracted crisis;

After two years of economic decline and near political anarchy, in 1967 the tide began to turn in Peking towards more rational domestic and foreign policies. Behind the recent outburst of ping-pong diplomacy lay several years of slow economic recovery, the gradual political triumph of the Chinese military and technocrats, and the quiet resumption of normal diplomacy with other nations in the non-Communist world.

This more hopeful phase in Chinese Communist relations with the outside world is linked with the two major forces which I described a moment ago:

The diffusion of power away from Moscow and Washington, of which the Soviet troops massed on the Chinese frontier are a powerful symbol;

And the decline of the romantic revolutionaries, of whom Mao must be regarded as the most remarkable.

Taken all together, then, it is not beyond the range of possibility that we might see in the years ahead:

A Soviet Union which has accepted its role as a great nation-state among many and is prepared, while advancing its interests, to work towards stabilizing a world environment as potentially dangerous to Russians as to others;

A transition to moderation in Pyongyang, Hanoi, Cairo, and Havana equivalent to that which has already occurred in Djakarta, Algiers, and Accra;

The emergence of a Peking on the Asian and world scenes prepared to concentrate the great talents and energies of the Chinese people on modernization, while, in Mr. Rusk's old phrase, leaving its neighbors alone.

Under those circumstances, the world community would still be a lively place; for the forces at work on the planet are inherently volatile; but it might begin to approximate the relative order and balance envisaged at San Francisco in 1945 when the United Nations Charter was drafted.

III

There are the possibilities; but they are not certainties. We have not come easily or automatically to the point where these hopes can rationally be expressed as possibilities. We have come to this point only because Americans and others have acted and—if necessary—laid down their lives to render unrealistic other less benign paths of policy.

Take, for example, the arms race and the SALT talks.

How have we come to the agreement in principle of May 20th, announced in Washington and Moscow, that the next round in the SALT talks will concentrate on a limitation of ABM's plus "certain measures" to limit offensive weapons as well?

First, there was the Soviet psychological triumph of Sputnik in October 1957 and Krushchev's systematic projection of an extraordinary lie; namely, that the Soviet Union had moved into regular large scale production of ICBM's.

On the basis of this lie—plus the reality of the IRBM's targeted on Western Europe—he launched his campaign of nuclear blackmail designed to detach Berlin from the West and to wreck NATO. And when this failed, he sought a cheap way to shift the nuclear balance by putting IRBM's in Cuba.

It was President Kennedy's destiny to deal with this dangerous passage. Having triumphed in a critical test of will in the Caribbean, he sought and succeeded in turning Moscow from nuclear threat to nuclear agreement, in the 1963 Test Ban agreement.

With great stubbornness and sense of purpose, President Johnson pressed Moscow to persist along this path; and he succeeded in achieving a nonproliferation treaty and in laying the basis for the SALT talks which would have begun with a summit meeting scheduled for announcement on Wednesday, August 21, 1968, if the Soviet Union had not invaded Czechoslovakia on the previous day.

Between 1965 and 1969, however, Moscow put enormous resources into ICBM's, built a substantial ABM system around Moscow, and created, in addition, the still somewhat ambiguous Tallin antiaircraft system with potential ABM capabilities.

This movement of the Soviet Union to strategic parity with the United States has continued with great momentum over the past two and a half years, as a number of speakers have underlined to you, and these charts vividly suggest. (Moorer charts—not printed in the RECORD.)

The announcement of May 20th was hopeful, but inconclusive. A great question evidently still exists in Moscow which we should understand and discuss candidly: Should the Soviet Union complete the SALT negotiations and bring the strategic arms race to a formal close on the basis of parity, somehow acceptably defined to both parties? Or, should it go forward, on the basis of current momentum, and try to achieve strategic superiority over the United States in some meaningful sense?

There are two ways in which the Soviet Union might achieve superiority. First, a sufficiently massive buildup of strategic forces, offensive and defensive, so that a Soviet first strike might be undertaken against the United States so powerful that the United States could only inflict in a second strike a level of destruction on the Soviet Union which the Soviet leaders judged acceptable; that is, the United States would be destroyed as a viable power, whereas a viable Russia, still under Communist control, would survive. Such an insane enterprise is most unlikely; but it is conceivable in a world which has seen, in this century, a good deal of political madness. And we have no right to offer a temptation.

The second sense in which Soviet superiority might be achieved would be what might be called a reverse Cuba missile crisis; that is, against the background of a substantial Soviet strategic advantage over the United States, plus the availability of sufficient Soviet conventional forces, Moscow might try to force Washington to back down in a major confrontation in a particular area; for example, the Middle East.

Thought in Moscow, as in all capitals, is complex. I do not believe all Soviet officials are obsessed with envy and hostility towards the United States; but it is worth recalling Khrushchev's frame of mind, in his own words, as he put the missiles into Cuba: [3]

"It was high time America learned what it feels like to have her own land and her own people threatened. We Russians have suffered three wars over the last half century: World War I, the Civil War, and World War II. America has never had to fight a war on her own soil, at least not in the past fifty years. She's sent troops abroad to fight in two World Wars—and made a fortune as a result. America has shed a few drops of her own blood while making billions by bleeding the rest of the world dry."

We would be most unwise to believe that Soviet leaders might not, in something like Khrushchev's spirit of 1962, try again, if they felt they had a military advantage. The likelihood of such a dangerous adventure is increased somewhat by a belief that our statistical strategic advantage played a large role in President Kennedy's stand at Berlin and in the Caribbean in 1961–62. I do not believe it did. It gave President Kennedy small comfort, if any, to know that more of America than Russia would survive a nuclear exchange, as Western Europe was incinerated. He accepted some risk of nuclear conflict rather than surrender vital American interests, because there was a good chance that Moscow would not risk nuclear war to expand its power if it found the United States redoubtable in defense of a vital interest. As he told Khrushchev at Vienna, Kennedy believed Moscow would be equally redoubtable in defense of its vital interests. Nevertheless, some Soviet leaders may believe—and some Americans do believe—that the numbers mattered greatly in 1961–62; and that fact makes it essential that we do not permit a Soviet strategic advantage to emerge even if it is well short of what would be required for a first Soviet strike.

But the critical question, in my view, is not merely the estimate in Moscow of the strategic numbers, but the image of American will. I know what it took in American strength and will to bring about the Test Ban Treaty, the Nonproliferation Treaty, and the beginning of the SALT talks. These things did not happen because we went about sloganeering for peace. They happened because we combined strength with a deep undertanding of legitimate Russian security interests. We induced Moscow to move along a path where certain of its legitimate national interests could find constructive expression, while blocking the paths to other, more dangerous enterprises.

I believe President Nixon and Ambassador Gerard Smith, and their Soviet counterparts, have the chance to achieve a major breakthrough in the months ahead: on behalf of the American and Soviet peoples—and all humanity. The greatest danger to that possibility lies in our projecting to Moscow the image of a nation engaged in unilateral disarmament, or a nation so confused about its role and purposes in the world—so weakened in will—that a reverse Cuba missile crisis might be worth the try.

Much the same kind of balance between hope and danger exists in the Middle East.

Look back, for a moment, at the rocky road we all have traveled since the Soviet arms deal with Egypt and the Suez crisis some fifteen years ago.

First, there was a phase of Soviet penetration reaching into Iraq, Syria, and Algeria as well as Egypt.

President Eisenhower's conduct of the Lebanon-Jordan crisis drew a line in the dust; and, for a time, Nasser turned more moderate, looking to the great unresolved tasks of Egyptian modernization.

President Kennedy sought to encourage this process, granting substantial aid to Egypt in the form of food to feed the cities. The tensions in the area subsided for a little while. In the phrase of one Egyptian diplomat, Israel was put on the back burner. But, tragically, Nasser could not resist commitment to the struggle in Yemen which began in September 1962. This indecisive and costly affair distorted his economy, increased his dependence on Soviet arms, drew him away from the West, and, in the end, lowered his prestige in the Arab world.

As Syrian pressure on Israel increased—

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Footnotes at end of article.

and Israeli countermeasures—Moscow threw a match into the haystack in the second week of May 1967, spreading false information of Israeli mobolization. This induced Syria to press Nasser to mobilize in the Sinai. Nasser, loaded with Soviet arms but diminished by events in Yemen, saw a road back to Arab leadership; and he agreed. Then, carried away by the momentum of events, he closed the Gulf of Aqaba, and the Six Day War resulted.

President Johnson moved to minimize the possibility of direct Soviet intervention and to keep the balance of arms in the area, while working for a stable long-term settlement. President Nixon has pursued a similar policy.

In this setting, gradually, painfully, the balance of feeling in the Arab world began to move towards moderation: the fedayeen made their bid last year but were defeated in Jordan; a new, more temperate government emerged in Damascus; and President Sadat has talked to his people about the primacy of education and other tasks which must be faced if a modern Egypt is to emerge rooted in the great Arab culture. And he is apparently trying to assure that Egypt can be truly independent, rather than the pawn in the imperial game of a great power.

All these events, as we know, were framed by a massive expansion in the Soviet navy and a kind of latter day Mahanist effort to expand Soviet influence in the Mediterranean, East Africa, and the Indian Ocean area as far to the East as Singapore.

There must be great temptation in Cairo and Moscow to try again: to succeed against Israel in the 1970's after the failures of the 1940's, 1950's, and 1960's. The balance between another bloody crusade, on the one hand, and, on the other, an acceptance of Israel and a turning to the modernization of Arab societies, is close.

And again, we—we Americans—are the critical margin. If American military strength in the Mediterranean (and capable of projection into the Mediterranean) weakens—if American political life projects an image of hasty, irresponsible withdrawal from responsibility in Europe and Asia—the balance could tip, in Moscow and Cairo, away from pursuit of a firm Middle East settlement towards another desperate try to reverse the course of history since the emergence of Israel in 1949.

The policy and posture of America bears also on policy in Jerusalem. Any likely Middle East settlement will involve much more explicit American guarantees and a larger American role in the Middle East than the fragile settlement of 1957, put together with chewing gum and string. Israel must clearly withdraw, in such a settlement, from the bulk of the territory it now occupies. Its willingness to do so, the ability of its political life to bear the strain, depends greatly on the credibility of American strength and will. It is not surprising, therefore, that Israelis follow with great attention the American performance in Asia and Europe—and the temper of our political life—as they study the peace proposals laid before them by the American government.

Now my third illustration—Asia.

Look back and consider again the panorama of Asia in 1965.

A South Vietnam on the verge of defeat and takeover;

Indochina in confrontation with Malaysia, out of the United Nations, making common cause with Peking, eager to complete what both Djakarta and Peking described as a pincer-movement to take over the whole of Southeast Asia, through a Djakarta-Phnom-Penh-Hanoi-Peking-Pyongyang Axis"—a concept enunciated on August 17, 1965, by Sukarno himself.

A Peking proclaiming that "Thailand is next."

All of Asia knew that its future hung in the balance. As Robert Menzies said in 1965, if Vietnam fell it would be "not so very long" before Australia would be "menaced," and the danger was still closer and more obvious in the other capitals—as, for example, Macapagal, in Manila, and Abdul Rahman, in Kuala Lumpur, made clear.

Then President Johnson moved to commit American forces.

Now, six years later, there is a different Asia.

South Vietnam, having harvested the greatest rice crop in its history, is about to conduct its second presidential election under a democratic constitution, with well over 90% of its population under reliable government administration.

Indonesia is independent and moving forward hopefully in economic and social progress.

Asian regional organizations have come into being; for example, ASPAC, ASEAN, the Asian Development Bank. These offer great promise that in the future Asians, working together, can increasingly shape their own destiny.

Japan, the third industrial power in the world, is evidently prepared to use its expanding economic resources to help others in the region whose modernization began in later times, but who are now moving forward with astonishing momentum: in South Korea and Taiwan, Thailand, Malaysia, and Singapore.

Peking, enjoying economic progress after a decade of erratic frustration, is experimenting, at least, with the idea of normalizing its relations with Asia and the rest of the world.

But all this is still precarious and fragile.

As the South Vietnamese take over increasing responsibility for their own defense and try to make a constitutional system work which very few post-colonial nations have been able to manage, they feel every day the threat of hasty, total American withdrawal and the pressure of those who would cut off all military aid to them in order to guarantee a Communist victory.

North Vietnamese troops are embedded, without a shred of legality, deep in Cambodia and Laos, threatening the Mekong towns and the Thai border; and not one weapon they carry or shell they fire was manufactured in North Vietnam. And, putting aside their long neglected tasks of economic and social development, the leaders in Hanoi continue to pour young men into the infiltration pipelines in an effort to crack the process of Vietnamization.

There is a decent hope that an Asia could emerge in the years ahead in which the North Vietnamese go back to their borders; the independent states survive and increasingly work together; relations with China—and, indeed, North Vietnam—are normalized; and the American role continues to diminish, while remaining a relevant force in Asian and Pacific affairs.

There is also a real danger that all that has been achieved since 1965 by those in Asia and ourselves could be lost; that a vacuum emerge in Southeast Asia which Peking, as well as Hanoi, would feel impelled to try to fill; that Asia move from the promise of stability and progress to chaos or a war far greater than that we now see in Indochina. And along the way the possibility of a nonproliferation treaty could be lost and the world plunged into nuclear chaos. I find it hard to believe that Japan, India, and others would rely on the nuclear guarantee of an America that walked away from its solemn treaty commitments to Southeast Asia; and the American nuclear guarantee is the major underpinning of the nonproliferation treaty.

There are some, I know, who believe we can uproot our commitment in Asia—where two-thirds of humanity lives—but keep intact our commitments to Europe and the Middle East. I do not believe that. The world is round and it is small; and the bankruptcy of a great power is indivisible.

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IV

If this analysis is correct, what's wrong with the United States? If the possibilities of movement towards stable peace are so real and the risks of chaos and increased violence also so real, why is American political life fixated not on these great hopes and dangers but on just how rapidly we can pull back or pull out?

I believe there are two major reasons.

The first I dealt with at length in my talk a year ago from this platform, which I called the Tocqueville Oscillation. Historically, in this century, we have only acted abroad with unity and purpose in the face of a clear and present danger to the balance of power in Europe or Asia or to the effort of a major power to emplace itself to the south of us in this Hemisphere. Thus, the responses of 1917 in Europe and the Atlantic; 1940–41 in Europe and then the Pacific; 1947–49 in Europe; the initial response of 1950 in Korea; 1961–62 in Europe and the Caribbean; and, even the initial response to President Johnson's decision of 1965.

America has performed best when it faced a palpable and acute problem—widely recognized and defined in common terms—to the solution of which it could address its full energies, talents, and resources.

Now we are trying to do something quite different. We are trying to manage a redistribution of responsibility in which we will do less, others will do more, without inducing major crises or chaos on the world scene. We are trying safely to withdraw, in degree, from the preponderant positions we initially filled in the postwar world while also making out contribution to stable world order.

We are trying to exploit constructively the gathering strength of others on the world scene; their desire increasingly to shape their own destiny, without being dominated by any major power, including the United States; and the fact that abiding American interests are satisfied by an essentially negative condition: that no potentially hostile power hold the balance of power in Europe or Asia, or gain a foothold in this Hemisphere.

This is the complex pattern of policy which our government—under President Johnson and President Nixon—has been trying to pursue in order to reconcile abiding American security interests, the emerging possibilities for stable peace, and the widespread sense in America that we were, somehow, over-committed or disproportionately committed in the first postwar generation.

But as this subtle, triangular policy is managed, deeply rooted, old-fashioned strands of isolationism have come to the surface of American life. They are being pressed with ardor and ingenuity by some men of unquestioned sincerity as well as access to money and the media. And some American leaders—old enough and experienced enough to know better—are bowing their heads to this onslaught, as they read the polls and sense again the moods that swept the nation at such great cost in the 1930's and in the period 1945–47.

There is nothing new about Americans, when they feel safe, taking the view that conflicts in Europe or Asia are not vital to our national interests; that our problems at home are so pressing that we must put aside concerns for the state of the world; or even that the wars we fought were immoral. As Dexter Perkins noted in the *Yale Review* as long ago as June 1951, it is characteristic of Americans to think of past wars with "a somewhat guilty conscience"; and reading our long line of "revisionist" historians, one could conclude, Perkins noted, "that every war in which this country has been engaged was really quite unnecessary or immoral or both." And with the unique but partial exception of the Second World War—when Pearl Harbor and Hitler's declaration of war were quite clarifying—all of our conflicts

were accompanied by dissidence and impassioned opposition, including the Revolution itself.

In this century, isolationism has never been far from the surface of our politics. There have been strands of isolationism on what are called conservative and liberal sides of American politics. Both are now being evoked, sometimes by the same isolationist advocates; for example:

With respect to Vietnam: on the right, we ought to win the war with all we've got or get out; on the left, the war is immoral;

With respect to Europe: on the right, by this time the Europeans ought to defend themselves; on the left, the Cold War is over.

Now, the precise scale of our forces in Asia or Europe is a legitimate question; but it is a subsidiary question.

The trouble with the current debate on foreign policy in the United States is that we have permitted the isolationists to set the terms of the debate on that subsidiary issue while concealing the truly great primary question we face—the question of how we move towards stable peace.

The way to talk about military forces is to pose this question: What American forces are required, in a world where others are gradually gathering strength, to provide a secure base for the pursuit of stable peace?

The grand question is, then: Can America overcome the Tocqueville Oscillation; can America for the first time make the responsible, steady, and energetic pursuit of stable peace the focus of its foreign policy rather than await situations of mortal danger before we react convulsively? Are we doomed to oscillate between: "To proud to fight" and a crusade to make the world safe for democracy; between Neutrality Acts and "unconditional surrender"; between sentimentality about our noble ally, Joseph Stalin, plus "bring the boys home" and rigid Cold War policies; or, to invert the sequence, between a Communist China viewed as an abiding mortal enemy and now, in the wake of ping-pong diplomacy: the intoxicating discovery that the streets of Peking are clean, Mao makes the trains run on time, and the danger to Southeast Asia has, therefore, ended.

It's time we grew up. The Tocqueville Oscillation is a mortally dangerous game in a nuclear age. It is precisely because they were aware of this mortal danger that four of our postwar presidents have taken upon themselves heavy political costs to lean against it:

President Truman, who saw his standing in the polls disintegrate as he held the line in Korea but avoided a larger war;

President Kennedy, warned on all sides from the beginning of the dangers of a long, twilight struggle in Southeast Asia, with the memory of President Truman's polls engraved in his retentive mind, but firm to the end on Vietnam;

President Johnson, holding tenaciously to a complex policy of resisting aggression, avoiding a larger war, and pressing the possibilities of a nuclear reconciliation with Moscow while watching his political capital ebb away;

And, now, Presdent Nixon, refusing to set a date for total American withdrawal from Southeast Asia, refusing to tear up our treaties, holding the line in Europe and the Middle East, knowing full well the course of President Truman's and President Johnson's polls, as well as his own.

I have no doubt that President Eisenhower would have acted on his advice to President-elect Kennedy of January 19, 1961, if he had continued to bear responsibility: hold at all costs in Southeast Asia. And he backed President Kennedy and President Johnson at every hard step of the way.

And all five of our postwar presidents have struggled for the larger objective beyond resistance to aggression. They all saw that the proper outcome of the Cold War struggles was not merely holding at the truce lines—not merely holding the balance of power—but reaching out beyond to build a world of stable peace.

We ought, then, to have the maturity to move out of the Tocqueville Oscillation to the patient pursuit of world order, because that goal is a more realistic possibility than it has been since 1914. Look at the forces at work in Asia, including the trend towards moderation in China, the potentially constructive role of Japan, and the rising determination and capacity of the smaller states, including South Vietnam, to stand on their feet. Look at the forces of moderation at work in the Middle East. tortured for so long by multiple schisms that might abate as political leaders come to realize that the needs of the men, women, and children of the region, and the conditions for dignified independence, deserve higher priority than old enmities and out-of-date ideologies. Look at Western Europe, moving towards a long delayed unity embracing the United Kingdom, with the promise of being able to carry more of the common burdens of building the peace than over the past quarter-century. And, above all, there is the possibility of bringing the nuclear threat to humanity more nearly under control by a successful completion of the SALT talks and a consolidation of the nonproliferation treaty.

All these elements in play could yield good results; but in no case is the outcome certain; in no case can it be brought about by America acting on its own; but in no case can it happen unless a responsible America recognizes that in a world of diffusing power we remain the critical margin.

V

Now a second observation about our situation. One of the wholesome forces operating almost universally in the world is the rising claim of domestic welfare for scarce resources. We are not and we should not be immune, given our unfulfilled tasks as we seek to improve the quality of our society.

We cannot play our critical role at the margin of world affairs unless our economic performance improves at home. Our people will not support a protracted and responsible search for peace if they feel that essential domestic problems are not being gripped; and we shall lack the resources to play our part abroad unless the domestic economy is strengthened and our balance of payments remains viable.

Right now efforts are being made to expand our economy after a phase of stagnation. That period of stagnation, accompanied by continued inflation, has cut into every household and private institution; and it has weakened public policies necessary for the progress and stability of our domestic society:

State and local governments are strapped for tax revenues;

Educational institutions, public and private, are shaken;

The cities, already in crisis, have seen a further deterioration of essential services;

Above all, the economic and social gap between whites and non-whites, which narrows quite rapidly at, say, a 4 per cent of real growth, has ceased to move fast enough in the right direction as non-white unemployment rises disproportionately. The number of those statistically designated as "poor" in the United States rose last month for the first time since 1959.

In addition, the continued pressure of inflation has kept our balance of payments position weak and our capacity to carry our responsibilities in the world under question.

The case for a policy of economic expansion is strong—indeed, overwhelming; but we are launched upon it with the problem of inflation unsolved. There is no way this nation of ours can do what it must do at home and abroad if we continue with annual money wage rate increases of 8, 10, 12 per cent or more when productivity increases at only 3 per cent. In their hearts, every worker and his wife knows this; every labor leader; every businessman; and every international banker. The fact that some of our competitors abroad are doing not much better is no comfort. The dollar is a special currency in the world. A painful and dangerous retribution awaits us, unless we alter course soon. And the problem of inflation will get worse, not better, as the economy expands and labor markets tighten.

I can only assert the remedy here, not argue the case fully. I believe we must build our economic policy on a three-legged stool: fiscal policy; monetary policy; and wage-price guidelines which relate wages to productivity and assure that price policies do not exploit labor self-restraint to shift income disproportionately to profits. We enjoyed that kind of situation, without legislation, between 1961 and 1966. Whether we can now reachieve that mutual self-discipline in our society without legislation, I have come increasingly to doubt. We should certainly examine the most stable example of this essential reconciliation in a vigorous free economy: Australia, where compulsory wage arbitration has come widely to be accepted and a 2.3 per cent annual price increase was reconciled in the 1960's with an average 1.5 per cent unemployment rate.[4]

But legislation and even compulsory arbitration are not enough. Something more basic must happen. Labor leaders must come together to examine what would be fair as among the different unions and groups of labor under rules which relate wage increases to the average increase in productivity; and then they must come to agreement on the terms of equity with business and government. The task is difficult. But it is not impossible, because every segment of our society loses now and all would gain by a reconciliation of steady growth and price stability. They are no fiscal tricks or monetary tricks that will do the job without this statesmanlike social contract. Legislation may help; but a deeper mutual understanding must be sought and reached if America is to do what it must do and be what it must be—at home and abroad.

VI

The two problems I have discussed are linked; that is, the need for a new, more positive approach to the world community and a reordering of our domestic economic policy. If the isolationist mood is accepted as inevitable, if the only serious question is how fast we cut our responsibilities and commitments in the world, it is natural that men should squabble meanly over their cut in the national pie.

As Angus Maude wrote recently of Britain:[5] "People will only do great things if they see the possibility of great things to do."

I believe there are great things to do abroad as well as at home. I do not believe we can come to responsible consensus at home while behaving irresponsibly abroad. I do not believe we can act steadily and responsibly abroad if we fail to reconcile steady growth and price stability. We must find our way to common cause in foreign as well as in domestic policy.

And the key to that reconcilitation is the perception that the great things to do abroad consist in working steadily, patiently, and actively towards a stable peace men have not known since 1914.

That is the victory potentially within our grasp. That is the goal that could and should re-unite us. In a nuclear age we have no right to wait for another Pearl Harbor or a Cuba missile crisis in reverse: in an age of

Footnotes at end of article.

a trillion dollar GNP we have no right to stumble about like a helpless giant.

The task of political leadership in the United States is to find our way to this consensus in foreign and domestic affairs. I know well, and so do you, that the winds appear to be blowing in other directions. These are awkward days of passionate and unresolved debate. But I am old enough—and a good enough historian—to remember other such periods of groping and to know the capacity of this nation to right itself. There are vast wellsprings of good sense and inner confidence in this land of ours, as well as great resources. As a matter of faith and judgment, I do not believe we shall snatch defeat from the jaws of victory; but, in a quiet way these are truly dangerous times. And, as always in a democracy, it is up to us—it is up to individual, responsible citizens—to let our voices be heard, to let our representatives know that it is not America's destiny to collapse in a heap, to drop by the wayside when the nearly-visible next stage of the journey could be so much more hopeful for us and for all mankind.

FOOTNOTES

[1] *Foreign Report* of the London *Economist*, October 23, 1969.

[2] Reprinted in the author's *View From the Seventh Floor*, New York, 1964, pp. 116, 115.

[3] Edward Crankshaw (ed.), *Khrushchev Remembers*, Boston, 1970, p. 494.

[4] W. A. Eltis, "The Australian Economy Today," *Lloyds Bank Review*, April 1971, p. 30.

[5] *The Common Problem*, London, 1969, quoted in *The Sunday Times*, London, July 20, 1969.

## CONTINUED SUPPORT FOR CUBAN REFUGEES

Mr. RIBICOFF. Mr. President, I am disappointed to learn that the funding for the Cuban Refugee Airlift has been deleted from the continuing appropriations for fiscal 1972, House Joint Resolution 742. The airlift provides transportation to Cubans who wish to leave Cuba and live in the United States.

The measure will be voted on Tuesday morning. I urge other Senators to join Senators CHILES and GURNEY and myself in seeking to have the $1,050,000 item restored to the appropriations bill.

The Cuban Refugee Airlift, begun in 1961, has been one of the most successful humanitarian ventures ever undertaken by this Nation. We should continue it.

When I was Secretary of Health, Education, and Welfare, President Kennedy had me go to Miami to institute and coordinate Federal efforts in setting up a program to assist Cuban refugees. In 1965, President Johnson expanded this program to include the Cuban Refugee Airlift. Both the President and his Attorney General, Robert Kennedy, felt a deep commitment to help Cubans who wished to leave their homeland and take up residence here. I believe this Nation still has that commitment.

Mr. President, to familiarize my colleagues on this issue, I ask unanimous consent that a series of memoranda prepared by the Departments of State, and Health, Education, and Welfare and an article from U.S. News & World Report be inserted in the RECORD at this point.

There being no objection, the material was ordered to be printed in the RECORD, as follows:

### CUBAN REFUGEES

(Prepared by the Department of Health, Education, and Welfare)

Refugees began fleeing from Cuba to the United States as soon as Castro came to power in Cuba, January 1, 1959. The number of refugees was at first small, but increased rapidly as actions of the Castro regime affected more and more Cubans. Some of the early refugees had brought funds out of Cuba, but as the refugee flight continued and as members of all socioeconomic groups in Cuba began to join the exodus, the Cuban government imposed stringent restrictions on those requesting permission to leave. A refugee was allowed to bring out only one suitcase containing clothing, and no money or valuables.

Toward the end of 1960, it became evident that the large number of refugees reaching Miami without any resources had exceeded the capacity of local public and voluntary agencies to provide emergency assistance, and the capacity of the local labor market to provide jobs.

President Eisenhower sent his personal representative to Miami to investigate the situation, and in December 1960 the President established a Cuban Refugee Emergency Center in Miami with an initial allocation of $1 million from the President's Contingency Fund under the Mutual Security Act.

In February 1961, President Kennedy formally established the Cuban Refugee Program in the Department of Health, Education, and Welfare. The recommendations developed by President Eisenhower's representative formed the basis of the nine-point program which President Kennedy directed the Secretary of HEW to undertake:

1. Provide all possible assistance to *voluntary relief agencies* in providing *daily necessities* for many of the refugees, for *resettling* as many of them as possible, and for securing jobs for them.

2. Obtain the assistance of both private and governmental agencies to provide useful *employment opportunities* for displaced Cubans, consistent with the overall employment situation prevailing in Florida.

3. Provide supplemental funds for the *resettlement* of refugees in other areas, including transportation and adjustment costs to the new communities, and for their eventual return to Miami for repatriation to their homeland as soon as that is again possible.

4. Furnish financial assistance to meet *basic maintenance requirements* of needy Cuban refugee families in the Miami area and as required in communities of resettlement, administered through Federal, State, and local channels and based on standards used in the community involved.

5. Provide for *essential health services* through the financial assistance program supplemented by child health, public health services, and other arrangements as needed.

6. Furnish Federal assistance for *local public school operating costs* related to the unforeseen impact of Cuban refugee children on local teaching facilities.

7. Initiate needed measures to augment *training and educational opportunities for Cuban refugees*, including physicians, teachers, and those with other professional backgrounds.

8. Provide financial aid for the care and protection of *unaccompanied children*—the most defenseless and troubled group among the refugee population.

9. Undertake a *surplus food distribution* program to be administered by the county welfare department, with surplus foods distributed by public and voluntary agencies to needy refugees.

The Cuban refugee situation can be divided into three distinct phases in terms of the arrival of refugees from Cuba:

| | Number of refugees registered in Miami | Number of refugees resettled from Miami |
|---|---|---|
| 1st phase: Commercial air flights available (until missile crisis. Oct. 22, 1962) | 153,534 | 48,361 |
| 2d phase: No Cuba-U.S. air flights (Oct. 23, 1962, through Nov. 30, 1965) | 29,962 | 46,547 |
| 3d phase: Cuban refugee airlift in operation (Dec. 1, 1965. to present, figures as of June 4, 1971) | 238,889 | 185,986 |
| Total | [1] 422,385 | 280,894 |

[1] An estimated 600,000 to 650,000 Cuban refugees have come to the United States since Castro came to power. Many have never been in need of assistance and have therefore never registered with the Cuban refugee program.

During the *first phase*, between 1,600 and 1,800 refugees a week were arriving in Miami on commercial air flights from Havana. Durthis period, the major efforts of Federal staff and cooperating agencies were devoted to the reception and provision of emergency aid to the hundreds of destitute refugees who arrived daily. Although the refugees expected soon to be able to return to Cuba and were reluctant to move from Miami to other locations farther from their homeland, 32 percent of those who registered with the Cuban Refugee Program were able to be resettled through the efforts of the program and the four national voluntary resettlement agencies working with it (U.S. Catholic Conference; Church World Service, Protestant; United HIAS Service, Jewish; and the International Rescue Committee, non-sectarian).

On October 22, 1962, President Kennedy announced the existence of missiles in Cuba and the imposition of a quarantine on the importation of offensive weapons into the island. The next day, Castro banned all civilians to and from Cuba. This began the *second phase* of the refugee situation. For the first time in nearly 4 years, Miami did not have a large, steady influx of new refugees. Two small streams of refugees continued: those who escaped illegally from Cuba by small boat and made the perilous trip across the Florida Straits and those who reached the United States after first going to another country. In addition, a number of refugees arrived on the return trips of Red Cross ships and planes which delivered medical supplies to Cuba in connection with an agreement for the release of prisoners captured at the Bay of Pigs. During this phase, when relatively few new refguees arrived, the Cuban Refugee Program concentrated on resettlement to opportunities for jobs and homes in other communities and on training programs designed to lead to self-support. Resettlements exceeded new registrations by 55 percent, and substantial reductions were able to be effected in the cost of the program as more and more refugees no longer required Federal financial assistance.

On September 28, 1965, Fidel Castro, concerned with being blamed for refusing to let refugees leave Cuba and for the loss of life of persons who drowned while attempting to escape from Cuba in small boats, said in a speech that he would open a port in Cuba to which all Cubans in the United States could come and pick up their relatives who were still in Cuba. "Now it will be known," Castro said, "who is at fault if someone drowns trying to reach the American paradise, the Yanqui paradise. That! for the well-prepared imperialists. Let's see what they say or do."

President Johnson responded on October 3, as he signed the new Immigration and Nationality Act of 1965 at the Statue of Liberty. "I declare this afternoon to the people of Cuba," the President stated, "that those who seek refuge here in America will find it. The dedication of America to our traditions as an

asylum for the oppressed is going to be upheld."

As a result of the Castro statements, hundreds of boats of all sizes and descriptions set out from Florida to the Cuban port of Camarioca to pick up relatives. Many were unseaworthy and loss of life ensued. The U.S. Coast Guard set up a line of ships to rescue persons from small craft and bring them safely to the United States. As a consequence, hundreds of refugees were pouring into Key West at all hours of the day and night. The situation was chaotic as efforts were made to provide them with emergency aid and accommodations.

In an effort to create a safe and orderly flow of refugees, the United States, through the Swiss Embassy in Havana, negotiated a Memorandum of Understanding with Cuba. Under this international agreement, which President Johnson announced on November 6, 1965, the United States agreed to provide air transportation for between 3,000 and 4,000 refugees a month. The Memorandum provided for priority to be given in this movement to the relatives of Cubans in the United States in order to reunite families that had been split as the result of some members' having come to the U.S. and others not having been able to leave Cuba.

Under the Memorandum, the Cuban refugee airlift was established December 1, 1965. This marked the beginning of the *third phase* of the refugee situation. Two flights, 5 days a week, bring refugees from Cuba to the Miami International Airport. Since the airlift was established (through June 4, 1971), 236,096 refugees have been airlifted to the United States. During this period, resettlements from Miami to homes, job opportunities, and reunion with relatives in other communities have totaled 73.0 percent of new arrivals.

The characteristics of the refugees who have arrived on the airlift are: professional, semi-professional, and managerial workers, 6.0 percent; clerical and sales, 11.4; skilled workers, 9.1; semi-skilled and unskilled, 4.0; service occupations, 3.1; farming and fishing, 2.0; children, students, and housewives, 64.4. This proportion is the same as one could expect in any general family movement, with three out of four persons in an average family consisting of the mother and children. Although the flow of refugees from Cuba has included persons from all walks of life since the early years of the refugee movement, the refugees have always had higher skill levels than would be found in a perfect cross-section of the population of Cuba; this has continued to be the case among the refugees who have arrived on the refugee airlift. With respect to age, 7.2 percent of the airlifted refugees have been over 65 years, and 4.1 percent between 61 and 65.

All of the refugees who have arrived on the airlift are relatives of refugees already in the United States. Practically all are persons who registered in Cuba during the period from November 1965 through May 1966 when Castro permitted persons who wished to leave Cuba to register. During the years since these persons indicated their desire to leave, they have been subjected to continued harassment, loss of jobs, confiscation of property, and forced labor.

Cuban refugees have done exceptionally well during their exile in the United States. Eighty-one percent are fully self-supporting. Those who require Federal financial assistance consist principally of elderly and disabled persons, and of persons who have recently arrived in the U.S. and need assistance only during the initial period of getting started in a new country. Refugee physicians, dentists, teachers, and other professionals have helped to meet urgent employment needs in many parts of the Nation. Many refugees have risen to positions of prominence in business and industry after starting over again at the bottom of the occupational ladder when they first reached the United States.

In the Miami area (Dade County), studies by the First Research Corporation have shown continued, substantial economic advances by Cuban refugees. A September 1968 study showed that families of Spanish origin (nearly 90 percent Cuban) had a total annual income of approximately $342 million. By October 1970, this figure had risen to $588 million. There was also a significant rise in median family income—from $5,200 in 1968 to $7,200 in 1970, a 38-percent increase. Nearly 40 percent of the families own their own homes, the studies showed. Other studies have found that Cuban refugees have established over 6,000 businesses in Dade County, contributing significantly to the overall economic growth of the area.

A nationwide study conducted by the Census Bureau in November 1969, and just released, showed Cuban refugees throughout the United States to have a median family income of $5,957, to have a higher labor-force participation rate than the U.S. population as a whole, and to have a low unemployment rate (2.0 percent). (Current Population Report, Series P–20, No. 213, February 1971.)

[Prepared by the Department of State]

FACT SHEET FOR CUBAN REFUGEE PROGRAM

1. BACKGROUND

In November 1965 the United States and Cuba negotiated a Memorandum of Understanding whereby we agreed to provide air transportation from Cuba to the United States for between 3,000 and 4,000 refugees per month. This understanding arose from a chaotic and untenable situation involving the uncontrolled departure of thousands of refugees fleeing from Cuba toward the United States in chartered boats, small craft, rafts, and inner tubes during October and November 1965. This situation was brought about by an announcement by Cuban Prime Minister Fidel Castro on September 28, 1965 that all Cubans wishing to leave Cuba could do so, and that their relatives in the United States could come to the small Cuban port of Camarioca to get them. Many escapees drowned and strong pressures bore on the United States Government to do something to regularize the situation. Motivated by its humanitarian tradition, the United States negotiated the Memorandum of Understanding, which reestablished orderly U.S. control over refugees entering the United States. Its guiding principle is the "humanitarian task of reuniting divided families."

2. U.S. COMMITMENT

No terminal date was stipulated in the Memorandum of Understanding. Therefore, the United States remains committed to continue the airlift. Unilateral termination of the airlift would renege on the formal U.S. moral and international commitment. It would result in strong pressures from Cuban refugees—many thousands of whom have become U.S. citizens—and their supporters in Congress and the Executive Branch. It would penalize tens of thousands of innocent Cubans who registered to leave in good faith over four years ago and who have suffered harsh denials of their livelihood and personal freedom ever since. For these people acceptance of our offer to come to the U.S. to join their relatives literally brought down upon them the wrath of the Cuban Government. Categorized as "worms" in Cuba, many lost their jobs, became "non-persons" outside of Cuban society and were obliged to perform heavy agricultural labor until their time came to board the "Freedom Flight" to the United States. They have been forced to forfeit all of their property, possessions and savings, and are allowed to carry out only the clothes on their backs and the most meager of personal possessions. For those still awaiting their turn in Cuba, the harsh treatment continues, long after they registered to leave.

3. EFFECT OF AIRLIFT ON CONDITIONS IN CUBA

In numerous speeches during the past year, Castro has remarked that the progress of the Cuban revolution has been hampered by the lack of qualified technicians and managerial personnel in Cuba. A great many trained and educated individuals have left and continue to leave Cuba via the airlift. Those with professional, semi-professional and managerial experience comprise about 6.5 percent of all arrivals, while skilled personnel comprise another 9.3 percent. Furthermore, experience has indicated that as long as hope for escape to freedom exists, people living under oppression resist committing themselves to the regime's goals; but when escape routes are sealed, accommodation to the inevitable becomes the prevailing attitude. Illustrative of this phenomenon is the case of East Germany where the beginning of economic recovery can be said to date from the erection of the Berlin Wall: When the Wall barred future escape to the freedom of the West, the East German population had no real alternative but to accommodate to the Communist regime there. The Refugee Airlift, a route to freedom, forestalls the certainty of accommodation to communism by the Cuban people.

4. PROGRESS OF CUBAN REFUGEES IN THE UNITED STATES

Excellent. The airlift, as of May 1, 1971, has carried 232,001 Cuban refugees to the United States. A nationwide survey conducted by the Census Bureau released in February 1971 showed Cubans in November 1969 to have a median family income of $5,957, a high labor-force participation rate, and a low unemployment rate. In the Miami area, where approximately one-half the Cubans (300,000) in the United States live, a recent study made by a private firm for commercial interests indicated that the median income in 1970 was $7,200. Practically all of the refugees who require assistance for any appreciable period of time are older persons. For instance, in Florida eighty-one percent of the refugees receiving welfare assistance are sixty-one years of age or older. This is indicative of the fact that the vast majority of the refugees—who have any employment potential and whom we help to realize that potential through training, rehabilitation and resettlement—are anxious to work and do go to work as quickly as possible.

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[POPULATION DISTRIBUTION OF CUBAN REFUGEES]

CUBAN REFUGEES HAVE BEEN RESETTLED TO SELF-SUPPORT OPPORTUNITIES IN ALL 50 STATES—THEY HAVE GONE TO MORE THAN 2,400 COMMUNITIES

The 15 states (and D.C.)—outside of Florida that have the greatest numbers are as of May 1971:

| | |
|---|---|
| New York | 76,845 |
| New Jersey | 54,483 |
| California | 36,700 |
| Illinois | 20,724 |
| Louisiana | 7,939 |
| Massachusetts | 7,696 |
| Texas | 5,106 |
| Pennsylvania | 3,697 |
| Connecticut | 3,632 |
| Michigan | 2,580 |
| Ohio | 2,327 |
| District of Columbia | 2,255 |
| Georgia | 2,258 |
| Virginia | 2,027 |
| Maryland | 1,707 |



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| States: | Number of refugees |
|---|---|
| Alabama | 402 |
| Alaska | 1 |
| Arizona | 226 |
| Arkansas | 81 |
| California | 36,700 |
| Colorado | 1,362 |
| Connecticut | 3,632 |
| Delaware | 360 |
| District of Columbia | 2,255 |
| Florida | 11,530 |
| Georgia | 2,258 |
| Hawaii | 30 |
| Idaho | 12 |
| Illinois | 20,724 |
| Indiana | 1,619 |
| Iowa | 548 |
| Kansas | 996 |
| Kentucky | 351 |
| Louisiana | 7,939 |
| Maine | 29 |
| Maryland | 1,707 |
| Massachusetts | 7,696 |
| Michigan | 2,580 |
| Minnesota | 530 |
| Mississippi | 110 |
| Missouri | 1,250 |
| Montana | 152 |
| Nebraska | 470 |
| Nevada | 1,510 |
| New Hampshire | 142 |
| New Jersey | 54,483 |
| New Mexico | 440 |
| New York | 76,845 |
| North Carolina | 842 |
| North Dakota | 46 |
| Ohio | 2,327 |
| Oklahoma | 543 |
| Oregon | 1,042 |
| Pennsylvania | 3,697 |
| Rhode Island | 497 |
| South Carolina | 284 |
| South Dakota | 55 |
| Tennessee | 575 |
| Texas | 5,106 |
| Utah | 15 |
| Vermont | 94 |
| Virginia | 2,027 |
| Washington | 423 |
| West Virginia | 164 |
| Wisconsin | 686 |
| Wyoming | 18 |

Puerto Rico and Others: 23,006.

Total persons resettled from January 1961 to May 1971: 280,417.

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THE 1965 MEMORANDUM OF UNDERSTANDING BETWEEN CUBA AND THE UNITED STATES, NOVEMBER 6, 1965

The President announced today that at 9:00 am CST the Swiss Embassy in Havana, representing United States interests in Cuba, and the Cuban Foreign Ministry had exchanged diplomatic notes establishing procedures and means for movement of Cuban refugees to the United States. The arrangements for the movement were set out in a memorandum of understanding incorporated in the notes.

The full text of the note from the Swiss Embassy to the Cuban Foreign Ministry follows:

"The Embassy of Switzerland presents its compliments to the Ministry of Foreign Relations and, in its capacity as representative of the interests of the United States of America in Cuba, has the honor to refer to recent conversations which have taken place between the Embassy and representatives of the Government of Cuba with respect to the movement to the United States of Cubans who wish to live in the United States.

"The Embassy also has the honor to set forth below the text, in English and Spanish language versions which shall be equally authentic, of the memorandum of understanding agreed upon in those conversations:

"Memorandum of understanding between the Embassy of Switzerland in Havana, representing the interests of the United States of America in the Republic of China and the Foreign Ministry of the Government of Cuba concerning the movement to the United States of Cubans wishing to live in the United States.

"1. The Government of Cuba agrees to permit the departure from Cuba of, and the Government of the United States agrees to permit the entry into the United States of, Cubans who wish to leave Cuba for the United States, in accordance with the provisions of this memorandum of understanding.

"2. In recognition of the prime importance of the humanitarian task of reuniting divided families, the two Governments agree that persons living in Cuba who are immediate relatives of persons now living in the United States will be given, as a group, first priority in processing and movement. The two Governments agree that the term 'immediate relatives' is defined to mean parents of unmarried children under the age of 21, spouses, unmarried children under the age of 21 and brothers and sisters under the age of 21.

"3. The two Governments agree that they will include as members of this first priority group other close relatives living in Cuba of persons now in the United States who reside in the same household as the immediate relatives when such inclusion is required by humanitarian considerations. In order to protect the integrity of the agreed principle of first priority for immediate relatives, the two Governments agree that it will be necessary to verify the relationship and the actual existence of the humanitarian considerations referred to. The two Governments agree that this task of verification will be carried out by the Embassy of Switzerland in Havana and that the judgment of that Embassy will be accepted by the two Governments as final.

"4. The Government of Cuba agrees to present to the Embassy of Switzerland in Havana as soon as possible a list (hereinafter called 'Cuban Master List A') of immediate relatives living in Cuba of persons now living in the United States, and of other persons living in Cuba described in paragraph 3 above, who wish to live in the United States. The Embassy of Switzerland in Havana will transmit Cuban Master List A to the Government of the United States. The Government of the United States for its part, will have prepared a list (hereinafter called 'US Master List A') based on information supplied by persons now living in the United States who have immediate relatives living in Cuba and who are prepared to receive and are interested in receiving such relatives. It is understood that the lists provided for in this paragraph may be prepared in installments and shall be supplemented from time to time.

"5. Those names which appear on both Cuban Master List A and US Master List A will be incorporated by the Government of the United States in a single list (hereinafter called 'Joint Consolidated List A'), which will be transmitted by the Embassy of Switzerland in Havana to the Government of Cuba. With respect to Joint Consolidated List A, there will be a presumption that the persons on the list will be permitted by the Government of Cuba to depart Cuba and will be permitted by the Government of the United States to enter the United States, but final permission will be granted in the form of approval by both Governments of embarkation lists for each flight from Cuba to the United States.

"6. The cases of persons whose names appear on Cuban Master List A or on US Master List A but not on both (and therefore not on Joint Consolidated List A) will be the object of further examination by the two Governments, utilizing the services of the Embassy of Switzerland in Havana as required, with a view to the inclusion of such persons in addenda to Joint Consolidated List A, or, in any case, in the second priority group described below in paragraph 8.

"7. The two Governments agree that from Joint Consolidated List A, and its addenda, embarkation lists for each flight from Cuba to the United States will be drawn. The two Governments agree that they will make every effort to ensure that the following categories of persons appearing on Joint Consolidated List A are transported in the order of priority indicated: First, parents and unmarried brothers and sisters under the age of 21 living in Cuba of children living in the United States under the age of 21; Second, unmarried children under the age of 21 living in Cuba of parents living in the United States; third, spouses living in Cuba of percons living in the United States. Families and other members of the households will be permitted to travel together in accordance with the principles of paragraph 3 above.

"8. When both Governments agree that the persons appearing on Joint Consolidated List A and its addenda no longer require full utilization of the transportation provided, the movement of other persons living in Cuba who wish to live in the United States will begin. First consideration will be given to relatives living in Cuba of persons living in the United States who do not fall within the definition of immediate relatives.

"9. The Government of Cuba agrees to present, in due course, to the Embassy of Switzerland in Havana, for transmission to the Government of the United States a list (hereinafter called 'Cuban Master List B') of all such persons who will be permitted to depart from Cuba. The Government of Cuba agrees to consider, in preparing Cuban Master List B, names of persons living in Cuba submitted by the Government of the United States on the basis of information supplied by friends and relatives living in the United States.

"10. The two Governments agree that Cuban Master List B will form the basis of the preparation of embarkation lists for each flight from Cuba to the United States, in accordance with procedures described below.

"11. The Government of Cuba agrees that, with respect to persons on either Joint Consolidated List A or Cuban Master List B, it will prepare, in consultation with the Embassy of Switzerland in Havana, prospective embarkation lists for individual flights from Cuba to the United States. Such lists will be provided the Government of the United States at least seven days prior to the date of the flight.

"12. The Government of the United States agrees in turn to inform the Government of Cuba without delay, through the Embassy of Switzerland in Havana, of persons on the embarkation lists approved for entry into the United States, with the understanding that final formalities will be completed at the point of embarkation by officers of the US Immigration and Naturalization Service and Public Health Service.

"13. The Government of Cuba agrees to assemble such persons at the airport at Varadero.

"14. The two Governments agree that such persons will be subject to a final departure inspection by officials of the Department of Immigration and the Ministry of Public Health of Cuba and to an entrance inspection by officials of the Immigration and Naturalization Service and the Public Health Service of the United States, at the airport in Varadero. Persons found to be ineligible for departure from Cuba by Cuban officials in accordance with the laws and regulations in force in Cuba or those found by American officials to be ineligible for entrance into the United States under laws and regulations in

force in the United States will not be permitted to embark.

"15. The Government of the United States agrees to provide air transportation to carry persons permitted to depart Cuba and to enter the United States from Varadero to a convenient point in the United States.

"16. The Government of the United States agrees to provide air transportation with such frequency and capacity as to permit the movement of between 3,000 and 4,000 persons per month.

"17. The two Governments agree that the first movement under the terms of this memorandum of understanding will begin not later than December 1, 1965.

"18. The two Governments agree that any problems that may arise in the implementation of this memorandum of understanding will be considered jointly by the Embassy of Switzerland in Havana, representing the interests of the United States of America in the Republic of Cuba, and the Government of Cuba.

"In the course of the conversations which led to the memorandum of understanding set forth above, the Government of Cuba stated its position concerning the departure of technicians and men from 15 to 26 years of age in Cuba who are obliged to perform compulsory military service. The Government of Cuba also stated that it would set forth its position on these matters in a separate note.

"The Government of the United States stated that it would reply, through the Embassy of Switzerland, to the note of the Government of Cuba referred to in the preceding paragraph and would set forth its own position on these matters as it had been expressed in the course of the discussions. Furthermore, the Government of the United States stated it would transmit to the Government of Cuba, through the Embassy of Switzerland, a separate note concerning the position of the Government of the United States on the matter of the inclusion in the movement from Cuba of persons imprisoned in Cuba for offenses of a political nature as that position had been expressed in the course of the discussions.

"The Government of Cuba stated that it would reply to the note of the Government of the United States concerning the inclusion in the movement to that country of persons imprisoned in Cuba for offenses against the revolution and would set forth its own position on this matter as it had been expressed in the course of the discussions.

"The Embassy has the honor to propose that, if the understandings described in the memorandum of understanding set forth above are acceptable to the Ministry of Foreign Relations, this note and the Ministry's reply concurring therein shall constitute an acceptance by the Government of the United States and the Government of Cuba of the terms of the memorandum of understanding, which shall take effect on the date of the reply."

(Spanish language version omitted.)

A concurring note from the Cuban Foreign Ministry to the Swiss Embassy completed the exchange and put the memorandum of understanding into effect.

In addition to these main notes, there were four other notes exchanged separately at about 9:30 am CST. The first of these, from the Cuban Foreign Ministry to the Swiss Embassy, reads as follows (complimentary introduction and close omitted):

"The Government of Cuba, in accordance with the statement in the note containing the memorandum of understanding, and in order to prevent errors in interpretation on the part of, or in relation to, certain persons who, by reason of the social function they perform or because of legal obligations from which they cannot be excused, are subject to certain restrictions in regard to their departure or who do not have the right to leave the country, considers it useful to confirm in writing, and also to publish, what was stated orally in the conversations with the Swiss Embassy which preceded the said memorandum of understanding, in reference to priorities, form and manner of departure of Cubans who wish to join their relatives or live in the United States, namely that in the case of technicians or skilled personnel whose departure from the country may cause a serious disturbance in a specific social service or in production, because a replacement for such person would not immediately be available, the Government of Cuba will authorize the departure of such person within the period during which the trips will take place, but will postpone it until the time when such person may be replaced in the duties which he performs.

"Likewise, and in conformity with the statement in the Cuban note containing the memorandum of understanding, and for the same reasons set forth in the preceding paragraph, the Government of Cuba considers it desirable to confirm hereby, and at the same time to publish, what it clearly stated during the course of the negotiations; namely that no citizen who under the law is included in the first callup for compulsory military service, that is, between 17 and 26 years of age, or who will be included in the callup in the next two years, that is to say, who is at present 15 years of age, has the right to leave the country and therefore will not be authorized to leave."

The Swiss Embassy replied to this note as follows (complimentary introduction and close omitted):

"During the recent discussions which led to the memorandum of understanding of November 6, 1965, the Embassy of Switzerland made clear that it had been the understanding and hope of the Government of the United States that the statement by the Prime Minister of Cuba on September 30, 1965, would encompass persons in these categories who wished to leave Cuba to live in the United States. Thus, for example, there was no suggestion in that broad statement that any technicians who wished to leave Cuba for the United States would be prevented from departing, even temporarily.

"The Government of the United States regrets that at this time the Government of Cuba has not permitted men subject to military service and certain technicians to be included under the terms of the Memorandum of Understanding. The Government of the United States expresses the hope that the Government of Cuba will be willing to reconsider this position expressed in the course of the discussions mentioned above and repeated in the note of the Ministry. The Government of the United States wishes to stress the particular importance which such reconsideration would have in permitting the reunion of many families.

"For its part, the Government of the United States reaffirms its readiness to grant entry to the United States of the persons who are the subject of this note through procedures consistent with those established in the Memorandum of Understanding of this date."

The third separate note was from the Swiss Embassy to the Cuban Foreign Ministry (complimentary introduction and close omitted):

"As the Embassy of Switzerland made clear during the course of the recent conversations which led to the Memorandum of Understanding on the movement of persons from Cuba to the United States, accepted by both Governments on November 6, 1965, the Government of the United States regards with special humanitarian concern the cases of those persons imprisoned in Cuba for offenses of a political nature. It had been the understanding and hope of the Government of the United States that the statement by the Prime Minister of Cuba on September 30, 1965 would encompass persons in this category who wished to leave Cuba to live in the United States.

"The Government of the United States regrets that at this time the Government of Cuba has not permitted political prisoners to be included under the terms of the Memorandum of Understanding. The Government of the United States expresses the hope that the Government of Cuba will be willing to reconsider this position. The Government of the United States wishes to stress the particular importance which such reconsideration would have in permitting the reunion of many families.

"For its part, the Government of the United States reaffirms its readiness to grant entry to the United States of such political prisoners through procedures consistent with those established in the Memorandum of Understanding of November 6, 1965."

The final separate note, a response by the Cuban Foreign Ministry to the note initiated by the Swiss Embassy, read as follows:

"The Ministry of Foreign Relations presents its compliments to the Embassy of Switzerland, representing the interests of the United States of America in Cuba, and in acknowledging receipt of its note dated November 6, has the honor to inform it that the Cuban position on the matter is that expressed in its note of October 12 of the present year."

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[From U.S. News & World Report, May 31, 1971]

## Flight From Cuba—Castro's Loss Is U.S. Gain

The mass flight of Cubans from Communism has turned into a success story. In U.S. they find not only a refuge but a land of opportunity.

In the 12 years since Fidel Castro came to power, nearly 650,000 Cubans have sought refuge in the United States.

Most have found far more than refuge. They have found homes, jobs—and opportunities. Thousands of refugees, in only a few years, have launched new careers in professions and business.

The story of this big wave of immigrants is a success story seldom matched in this country's long history of immigration. Few other nationality groups have taken root so quickly or progressed so rapidly.

### Warm welcome

Some of this rapid progress can be credited to the aid given by the U.S. Government. No other group of immigrants in history has been according such a helpful welcome.

Much of the Cuban success, however, is generally attributed to the efforts and ability of the Cubans themselves.

Talk to the Cuban refugees and you get still another explanation.

"What we have found in America is the land of opportunity—the greatest nation on earth," says Carlos Arboleya, who in nine years rose from an almost penniless refugee to be president of a Miami bank.

The mass migration of Cubans to the United States is still continuing. Each month about 3,600 stream in on an airlift financed by the U.S. Government. These are people Castro let go with the contemptuous remark that they were the "worms" of his Communist society.

In America, however, they are proving, by and large, to be capable, hardworking people who are making major contributions to American life.

### A cross section

The Cuban refugees are scattered widely around the country. But about half of them have settled in south Florida. Nowhere else is the Cuban success story so visible as it is in this area.

Wherever you turn, the Cuban influence can be seen and felt. The new mechanic at

the corner garage may not speak English fluently—but he can fix your car. The Cuban bus boy in the restaurant, the record suggests, may soon be running that restaurant.

Whole hospitals are now staffed by Cuban doctors. A prime example is the 300-bed Pan-American Hospital in Miami. In all, about 2,000 Cuban doctors have settled in the Miami area.

These refugees, records indicate, are good credit risks. Those who have borrowed money have, for the most part, paid it back. Cubans on relief are generally too old or too ill to work.

The Cuban impact on the U.S. is felt at many levels. There is a growing and articulate Spanish-language press. Movie houses in Washington, D.C., in Newark, in New York and in dozens of other cities show films in Spanish for tight-knit Latin-American communities. Across the land, restaurants with Cuban food and entertainment are opening.

Dade County, Florida, which includes Miami, is the hub of Cuban life in the United States.

Mayor Stephen P. Clark of Miami estimated that 350,000 Cubans now live there. Nobody can be positive about the number—but it is known that some Cubans, after resettling elsewhere, return to Dade because of the mild climate and the proximity to other Cubans and the homeland. Cubans tend to dislike the cold North American winters.

TRADE CENTER

Because of the bilingual pool of talent in the Miami-Dade area, more and more American companies have set up their Latin-American trade headquarters there—33 in Coral Gables alone.

Among those companies are Alcoa, Dow Chemical, Chicago Bridge & Iron, Coca-Cola, Goodyear, Atlas Chemical, International Harvester, Johns-Manville and Bemis. Many of these trade headquarters are run by Cubans.

Of course, it's not all clear sailing for the refugees, but in the main their story is one of astonishing achievement.

President Arboleya of the Fidelity National Bank of Miami explains the success formula of his Cuban compatriots in these words:

"They work. The man works, the wife works, the children who are old enough work."

Mr. Arboleya has shown what a refugee can do. In 1960, at age 31, he arrived with his wife, an infant son and $40 in cash. Banking was his field, but banks were not bidding for the services of refugees. He started as an inventory clerk in a shoe factory at $45 a week. Eighteen months later he was the office manager. Eventually, he got a bank job. By 1966, he was executive vice president of Fidelity National. In February of 1969 he became an American citizen—and president of the bank.

RETAINING OLD TIES

Mr. Arboleya, whose son became an Eagle Scout at 13, likes to tell of the special camps for Cuban Boy Scouts in Miami, where the Cuban flag is flown alongside the American flag.

"Our Boy Scouts salute the Cuban flag with respect for our homeland," he says. "But," he adds, "they not only salute the American flag—they pledge allegiance to it."

Tully Dunlap, president of the Riverside Bank in Miami, credits Cuban business with lifting his bank out of the doldrums in the mid-'60's.

Deposits started to move up in 1965, breaking a steady downward trend which set in with the flight of American customers to the suburbs in 1961, Mr. Dunlap says, and "Cuban deposits now total over 16 million dollars and we have 18,000 Cuban accounts."

The New York-New Jersey area is another place where Cubans congregate. Some 75,000 are estimated to be living in New York and 52,000 in New Jersey.

One of them is Dr. Carlos Marquez Sterling, who was a candidate for President of Cuba in 1958.

Today Dr. Sterling is professor of Spanish literature at C. W. Post College of Long Island University at Greenvale, N.Y. He says this:

"Most of the people who have come to the United States from Cuba have succeeded. Their success has been outstanding in many fields—business, medicine, university teaching, accounting, law and transportation."

Oscar Rodriguez was 16 and his brother, Omar, was 20 when they came to New Jersey as refugees in 1960. Their first jobs were as sweepers in a garment factory. Today they run their own garment factory, employing 75 people.

A DOCTOR'S STORY

Dr. Ramon Rodriguez-Torres walked away from his own private hospital in Cuba after Castro took over. The doctor, his wife, two small children and his parents arrived virtually penniless in Puerto Rico. A year later he was in Brooklyn's Downstate Medical Center as an instructor in pediatrics. From there, his advancement was swift.

Dr. Rodriguez-Torres studied for and passed several State medical examinations. He is now a full professor and director of the center's pediatric cardiology department. He also started an intensive-care unit for children at Kings County Hospital—said to be the first of its kind in the U.S.

"My family and I are very proud and happy to be in this wonderful country where we have seen all our work and effort rewarded," he says.

At Milledgeville, Ga., 68 Cubans are among the 113 physicians on the staff at Central State Hospital, the big complex for mental patients. Five of the 10 directors are Cubans, each heading units with 700 to 1,000 patients.

Central State's top heart specialist is a Cuban, Dr. Sergio C. Alvarez-Mena. He is chief of cardiology at the hospital and also associate clinical professor of medicine at the Medical College of Georgia.

Dr. Addison M. Duval, director of Georgia's mental-health division, declares: "We just couldn't have made the improvements that we have without the help these people gave us; it was a mutually beneficial thing."

In Atlanta, where most of Georgia's 5,000 Cubans live, assimilation has been no problem. Cuban leaders estimate there are 100 of their countrymen in various businesses, while about 50 per cent of the adults hold positions as college or university professors, doctors, engineers, accountants or business executives.

A HOUSTON GROCER

Typical of the Cubans who have made good as tradesmen—there are thousands of them—is Hector Cardet, 41, who owns a grocery store in Houston. The store specializes in Cuban foods and is a gathering place for the Cuban community.

Before fleeing Cuba in 1963, Mr. Cardet owned a grocery store in Havana. Like so many others, he reached the U.S. without funds or knowledge of the English language. He found work as a stockman for a chain of convenience grocery stores.

"At night," Mr. Cardet says, "I would load up the back of my car with Cuban-type groceries and sell them door to door to Cuban families in Houston."

In two years, he saved enough to open his own grocery store—and later a restaurant which employs Cubans as waiters and cooks.

Mr. Cardet calls the U.S. "the greatest country on earth." But given the chance, "I'd go back home," he says.

The Cuban population of Ohio has been estimated at 2,300. There are 3,000 Cubans in Michigan. Concentrations of these refugees are found in major cities of both States—especially in Detroit and Cleveland.

Occupations are varied, ranging from the pastor of Our Lady of Guadalupe Catholic Church in Flint, Mich.—Father Eduardo Lorenzo—to an assembly-line worker for the Ford Motor Company in Ypsilanti—Jose A. Cabrera. Mr. Cabrera is also president of the Cuban association of Michigan.

David Caveda, a manufacturers' representative in Columbus and president of the Cuban refugee group there, says he knows of only three Cuban families on welfare, all of them aged. He adds:

"There are no able-bodied Cubans on welfare. We belong to a society where people take care of one another. There is a pattern—the ones established here help the newcomers."

A Cuban refugee in Detroit, Reinaldo Gonzalez, is now an excutive for an auto-parts supplier. In 1961, he joined the company as an export clerk. Now, 10 years and eight promotions later, he is responsible for manufacturing schedules for Federal-Mogul Corporation in Western Europe and Latin America.

Mr. Gonzalez explains his attitude toward America and Cuba:

"I feel . . . the way I feel about my mother and my wife. I love both, and my love for one does not interfere with my love for the other."

As the only Spanish-speaking person in his suburban neighborhood, Mr. Gonzalez has a standing joke with his next-door neighbor: "I'm better off than you are—I don't have a Cuban living next door to me!"

THE CHICAGO SCENE

Between 20,000 and 30,000 Cuban refugees are estimated to be living in the Chicago area. About 500 of these are doctors and there are approximately 100 Cuban lawyers.

One Cuban in Chicago makes this appraisal: "Some have done well, some not so well, depending mainly on how they did in Cuba."

Another refugee took a more positive view, pointing out that a Cuban had to be highly motivated to leave his homeland—overcome the obstacles to getting permission to depart—and then buckle down to work in a strange land. Motivated people, he explained, generally succeed. And, he said: "We were prepared, whether we knew it or not."

In Columbus, Cuban Orlando Alonso, made himself so valuable that he ended up taking over the business when the owner died in 1969.

When Mr. Alonso left Cuba in 1962, he went to work as a truck driver for Columbus Pest Control Company. In a few months, he was chosen to run the business whenever the owner was away. The business had its most profitable year in 1970—under Mr. Alonso's management. He and his wife and three children live in a Columbus suburb. The 18-year-old daughter will soon marry an American.

Cuban family ties, traditionally close, account in part for the low number of failures among the refugees.

A new arrived refugee often will receive money by mail from relatives and close friends who preceded him. A contribution may be $1.50, or it may be $50—whatever the donor can afford.

The established Cuban will give up something he needs and uses every day to help a relative get a foothold. For example, one head of household returned to his Miami home one night to find the table and chairs missing from his kitchen. His wife had given them to a relative just moving into the area.

These close ties, a willingness to help one another and a fanatical belief that hard work is the key to success lie behind the Cuban experience in America.

Few success stories are more dramatic than that of Mr. and Mrs. José Torres and their daughter, Norma. The Torres family arrived in New Orleans in 1967 with nothing but the clothes they wore—and the Braille ruler

Mr. Torres had fashioned from wood. Both he and his wife were blind.

But José Torres was also a skilled cabinetmaker and before long he was hard at work, learning English and setting up shop with borrowed funds.

Business is slow at the moment but he keeps going with sales of doll houses, jewelry cases, candlesticks and liqueur cups. His daughter is an outstanding student in the nursing school at Louisiana State University.

RECORD AS SCHOLARS

In the field of scholarship loans, young Cubans have been especially responsible in meeting their obligations. Congress recently heard testimony that of the 12,800 loans granted to Cubans for college education, only 147 were delinquent—a performance which outstrips the national average.

The Cuban experience in the U.S. is not an unbroken string of economic miracles. Many old persons find they cannot learn English, or that ill health keeps them from working. There are problems of assimilation in some areas—and complaints of discrimination.

In Los Angeles, the Cuban is in a particularly strange situation—he is a minority within a minority, and thus, in effect, invisible to the indigenous community.

There are some 1.1 million Spanish-speaking persons in this area. The presence there of perhaps 50,000 newcomers from Cuba makes scant impression on people in general.

These Cubans appear to have little interest in becoming part of the Mexican-American scene. They have settled instead in a variety of small pockets throughout the city.

MASS TRANSPLANTS

Organizations like the International Rescue Committee and the Cuban resettlement division of the Catholic Welfare Bureau have helped some 35,000 Cubans go from Miami to Los Angeles. It is estimated that an additional 10,000 to 15,000 went to southern California on their own.

About 11,000 Cubans in the area are on welfare. Los Angeles County officials say the relief bill for Cubans comes to a million dollars a month—which is refunded by the U.S. Government.

Observers report a lack of rapport between Cubans and other Spanish-speaking persons there. The Cubans seem to identify more with the "Anglos," whereas Mexican-Americans tend to cling to their old Mexican culture.

There is another big difference. The militant Mexican-American sometimes leans leftward politically. Cuban refugees aren't buying anything that smacks of Communism. It's hard to find a Cuban with a Castro-type beard.

Even in Los Angeles, however, there are bright spots for Cubans. A community spirit, for a time dormant among them, has begun to develop. A Cuban Chamber of Commerce now has 100 members. About 300 Cuban-owned businesses have been established. A biweekly tabloid newspaper—"La Prensa"—has a Spanish-language circulation of 15,000, predominantly Cuban.

And like every other area, Los Angeles has its successful refugees.

A GROWING RESTAURANT

Eddemio Lopez came from Cienfuegos, Cuba, nine years ago—penniless he says, "like everybody." He sold Bibles and encyclopedias door to door. He and his brother saved enough to open a little restaurant. It seated 25. Then the brothers bought an adjoining building and enlarged their operation. Today the prospering restaurant seats 110—and employs 13 Spanish-speaking persons.

In San Francisco, some of the Cubans complain about discrimination, especially when it comes to getting good jobs and job training. Some have had difficulty in finding any jobs at all.

And a discouraged high-school student said: "Florida is the best place for Cubans; there are enough others there to help you, to support your business."

Cubans admit—and express gratitude—that U.S. Government programs help them get started in this country.

On their arrival in Miami on the U.S.-financed airlift, they are welcomed by U.S. officials and given temporary housing in "Freedom House" at the airport. There they register with the Cuban Refugee Program of the U.S. Department of Health, Education and Welfare, and also with a volunteer agency of their choice.

The volunteer agencies arrange transportation for refugees to homes of relatives, with the cost met by the Federal Government. Refugees also receive checks from the Florida welfare department—$100 for a family, $60 for a person. Washington repays Florida for this.

As soon as they reach their relocation city, refugees are eligible for public welfare, with Washington again reimbursing the States.

All told, from the time the Cuban Refugee Program began in February, 1961, through the end of this fiscal year on June 30, the U.S. Government's obligations for aiding Cuban refugees will total 583.8 million dollars.

A GOOD INVESTMENT

Federal officials regard this as a good investment. Howard H. Palmatier, director of HEW's Cuban Refugee Program put it this way:

"We cannot overlook the Cubans' incalculable contribution to our nation. They have paid millions of dollars in local, State and federal taxes. Their presence and efforts have created, directly or indirectly, literally thousands of jobs throughout the United States—which generate even more tax revenues. And perhaps most important, they are still making this contribution."

PROFILE OF THE CUBAN REFUGEES

Number: An estimated 650,000 Cuban refugees have settled in the U.S. since January, 1959, when Cuba came under Red rule.

Location: More than half—about 350,000—now live in or around Miami. The rest have spread to every State, with large concentrations near New York City, Los Angeles and Chicago.

Age: They are slightly older, as a group, than the general population, with a median age in the early 30s, compared with 28 for the U.S. as a whole.

Occupation: Among adults, nearly a third—32 per cent—are trained in clerical or sales work; about a fourth—26 per cent—have experience in skilled trades; 17 per cent have backgrounds in professional, technical or managerial work. The rest, while in Cuba, were in semiskilled jobs, service trades or on farms.

Citizenship: 70,000 refugees have become U.S. citizens. Many thousands more will join their ranks when they fulfill residency requirements.

Welfare rolls: About 75,000 refugees—1 in 9—now are collecting relief, the vast majority of them too old to too ill to work. Few able-bodied Cubans are on welfare.

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## CONCLUSION OF MORNING BUSINESS

The PRESIDING OFFICER (Mr. JORDAN of North Carolina). Under the previous order, morning business is now concluded.

## NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AUTHORIZATION ACT, 1972

The PRESIDING OFFICER (Mr. JORDAN of North Carolina). Under the previous order the Chair now lays before the Senate the unfinished business which the clerk will state.

The legislative clerk read as follows:

(H.R. 7109) to authorize appropriations to the National Aeronautics and Space Administration for research and development, construction of facilities, and research and program management, and for other purposes.

The Senate resumed the consideration of the bill.

Mr. ALLEN. Mr. President, I suggest the absence of a quorum and ask unanimous consent that the time consumed in the quorum call be equally divided between both sides.

The PRESIDING OFFICER. Without objection, it is so ordered, and the clerk will call the roll.

The legislative clerk proceeded to call the roll.

Mr. CANNON. Mr. President, I ask unanimous consent that the order for the quorum call be rescinded.

The PRESIDING OFFICER (Mr. ALLEN). Without objection, it is so ordered.

The Chair might state that time for debate on this bill is under control, the time to be equally divided between the distinguished Senator from Nevada (Mr. CANNON) and the distinguished Senator from Nebraska (Mr. CURTIS). Debate will extend not later than 6 o'clock this evening. Amendments are limited to 1 hour, with the exception of amendment No. 233, the Mondale amendment, on which there will be 1 hour of debate today and another hour of debate tomorrow, and the Javits amendment No. 223 on which debate will be limited to 30 minutes. Amendments to amendments will be limited to 30 minutes, the time to be taken out of the time allotted on the bill.

The Senator from Nevada is recognized.

PRIVILEGE OF THE FLOOR

Mr. CANNON. Mr. President, I ask unanimous consent that the staff members of the Committee on Aeronautical and Space Sciences be allowed the privilege of the floor during debate on the bill.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. CANNON. Mr. President, I yield myself such time as may be necessary for the opening statement.

Mr. President, we have before us H.R. 7109 to authorize appropriations to the National Aeronautics and Space Administration for fiscal year 1972 for research and development, construction of facilities, research and program management and for other purposes.

Mr. President, at this time, I would like to compliment the distinguished chairman of the committee, the senior Senator from New Mexico (Mr. ANDERSON), for his conscientious leadership in formulating the program presented in this bill. I also want to commend the committee's ranking minority member, the Senator from Nebraska (Mr. CURTIS), for his fine

assistance and support to the chairman during the committee's work on this authorization bill.

This is the 14th annual budget for the National Aeronautics and Space Administration. The authorization request for fiscal year 1972 was $3,271,350,000, an amount $2,675,000 above the amount appropriated to this agency for fiscal year 1971. The amount recommended in H.R. 7109 is $3,280,850,000, an amount $9,500,000 above the request and $152,230,000 below the amount approved by the House on June 3, 1971. This is the lowest authorization recommended to the Senate since 1962. This level of funding for 2 consecutive years reflects the completion of manufacturing, assembly and test operations for the launch vehicles and spacecraft for the Apollo program. It also reflects a recognition of the many competing demands for national resources. Yet in the committee's judgment, there is a very real need to maintain and pursue a viable and forward looking space program. This program has provided a sense of great accomplishment for the Nation, it has enhanced the international prestige of the United States, it has led to scientific breakthroughs and established new levels of technology, and it demonstrates, on a daily basis, in the case of communications satellites, some of the practical benefits which have been realized and which provide an indication of future benefits that may be expected as the program moves forward. There is also increasingly solid evidence that space may provide a fertile arena for international cooperation. It is with these many considerations in mind that our committee reviewed the fiscal year 1972 NASA authorization request and formulated the recommendations contained in the bill before the Senate today.

During fiscal year 1971, two Apollo lunar exploration flights—18 and 19—were dropped from the launch schedule, two of the remaining flights—16 and 17—were rescheduled, and the launch of the Skylab workshop and the three visits by astronaut crews were also rescheduled. These changes were made to reduce funding requirements, to reduce the problems in maintaining launch capability for Apollo 18 and 19, and, in the case of the remaining lunar missions, to assure adequate time to evaluate the data from one mission so as to maximize the experimental data return on subsequent flights. Under present schedules, all U.S. manned space flight activity will cease in late 1973.

These changes have had a significant impact on the funding requirements for fiscal year 1972 and subsequent years, principally that of permitting the structuring of a budget, severely constrained, to support a balanced and progressive space program that will fund projects previously authorized and in development and fund those longer range projects which are essential for a meaningful space capability in the years ahead. This is the program represented in H.R. 7109 which our committee is recommending today—a program which, with three major exceptions, agrees with the NASA request. The amount recommended for Research and Development, $2,543,200,000, is $25,500,000 above the NASA request. This increase is the net result of a $43 million addition to the nuclear power and propulsion program, a $2,500,000 addition to the space applications program, and a $20 million reduction in the lunar and planetary exploration program. I will discuss each of these program changes as I proceed through the bill. The committee is recommending $56,300,000 for the construction of facilities, an amount identical with the budget request. For research and program management, the third appropriation category, our committee has recommended a reduction of $16 million in the request resulting in a total of $681,350,000.

RESEARCH AND DEVELOPMENT

The manned space flight programs—Apollo, space flight operations, and advanced missions—are recommended at $1,286,475,000, an amount $144,525,000 below the fiscal year 1971 operating plan. This decrease reflects the continued reduction in manned space flight activities, particularly the completion of Apollo hardware production, assembly and test operations, while maintaining the capability to fly the last three lunar missions now scheduled—Apollo 15, 16, and 17. Although it is not possible to recover money for hardware expenditures for the Apollo 18 and 19 missions, the two launch vehicles and spacecraft are available in the national inventory for other missions and there will be a substantial savings in operating costs as a result of not flying these two Apollo missions. There will be some funding for the Apollo program in fiscal year 1973; however, the $612,200,000 in this bill, a reduction of $302,200,000 from the fiscal year 1971 operating requirements, essentially reflects completion of funding for this highly successful program.

The space flight operations program is recommended at the budget request level of $672,775,000, an increase of $157,575,000 above the fiscal year 1971 operating plan. This increase arises from the accelerating Skylab activities which culminate in the launch of the earth orbital workshop in March 1973. This program consisting of a space laboratory, launched by a Saturn V, followed by three separate long-duration visits by astronauts, has been rescheduled, as I have already mentioned, as a result of overall schedule changes made in the Apollo program. The Skylab slipped approximately 3 months. The committee is recommending $100 million for the space shuttle project to support initiation of the hydrogen/oxygen main engine development, the longest lead-time item, and to continue analytical studies and the technology evaluations essential to determining whether or not this program should proceed into development. NASA has not yet recommended that the space shuttle proceed into development; however, the funds recommended in this bill will support the necessary residual work which must be accomplished in order to make an informed decision on such a recommendation, possibly late in fiscal year 1972. As we discussed in this chamber at some length last year, the space shuttle is a concept which, based upon investigations to date, offers great promise for flexibility, efficiency, and economy in future space operations. This is quite aside from the fact that with the termination of production of our Saturn IB medium payload launch vehicle and of our Saturn V heavy duty launch vehicle, this Nation, except for a few vehicles in inventory, will have only limited payload capability for space activities in the years ahead. The shuttle is contemplated as a recoverable and reusable vehicle which would replace practically all of the expendable type launch vehicle family of both NASA and the DOD. In this regard, I want to stress that this development is strongly supported by the Department of Defense, and the committee has received very specific testimony on this project from Dr. Robert C. Seamans, Jr., Secretary of the Air Force. The request of $100 million for the space shuttle is $20 million above the operating plan for the current year and $10 million less than that requested and authorized in fiscal year 1971.

There have been many misstatements about the purposes and objectives to be served by the space shuttle. It has been stated that this is another manned space flight extravaganza and that it is the first step on a multibillion-dollar manned mission to Mars. Such statements are simply incorrect. Each of the two stages of the proposed shuttle vehicle is manned—manned by pilots, like a Boeing 707 or a DC–8, who are there to deliver the payload and return the vehicle for reuse. A casual observation of the illustrations in the hearings on the desks here will reveal the large cargo bay planned for the orbiter vehicle. With respect to the Mars contention, there is no money and no authorization and no support by our committee of a manned Mars undertaking. What the shuttle really represents is a flexible operating vehicle that appears to offer great potential for introducing efficiencies and economies into space operations. Costs should be reduced by an order of magnitude below the present day cumbersome, expendable launch vehicles—thereby making the shuttle a realistic device for exploring and using space. I believe one of the best summaries of applications envisioned for this vehicle, and which I commend to my colleagues, appears on page 420 of the hearings. I further believe that this information rejects the contentions to which I referred and soundly establishes the reasons why our committee is recommending continued funding for this project in this bill today. In the committee's judgment this vehicle is vital to the viable, progressive, ongoing space program this Nation should have.

The third and final program within the Office of Manned Space Flight is advanced missions which supports planning activities for future programs. Our committee is recommending approval of the budget request of $1,500,000 for this program.

The House has approved increases totaling $81 million for manned space flight programs, $72,500,000 for space flight operations, and $8,500,000 for the advanced missions program. Our committee received testimony from NASA witnesses on these increases and it was

our committee's judgment that appropriate funding was already included in the budget for the programs and projects recommended herein.

The Office of Space Science and Aplications is responsible for the next four programs in the bill—physics and astronomy, lunar and planetary exploration, space applications, and launch vehicle procurement—for which the committee is recommending $732,900,000. This amount is $184,700,000 above the authorization and operating plan for fiscal year 1971, with the increase primarily in the lunar and planetary exploration program.

The committee is recommending $110,300,000 for the physics and astronomy program, an amount $5,700,000 below the fiscal year 1971 operating level. This program will support the initiation of the high energy astronomical observatory project—HEAO—which is strongly endorsed by the scientific community. This is proposed as a four spacecraft project to conduct astronomical observations with the initial launch scheduled in 1975. Aside from this new start for which $13,400,000 is recommended this year, the remaining flight projects and advanced study efforts in this program represent a continuation of activities approved in prior years at relatively consistent funding levels. The committee did not agree with a $2,500,000 addition to this program by the House to increase sounding rocket and balloon launched research activities.

The committee is recommending $291,500,000 for the lunar and planetary exploration program, an increase of $146,600,000 above the amount authorized in fiscal year 1971. The principal increase is $145,400,000 for the Mars 1975 Viking two spacecraft orbiter/lander mission to support flight hardware development. This is a more penetrating scientic mission to Mars and is the logical successor to the Mariner spacecraft launched May 30. You will recall that this project was previously rescheduled from the 1973 launch opportunity to 1975. There is also an increase of $23,600,000 for the previously approved Venus/Mercury 1973 mission again reflecting hardware development in order to meet the launch opportunity. Concurrently, funding reductions are realized in the Pioneer interplanetary and the Mars Mariner 1971 flight projects as these projects reach their advanced phases. Program funding has been $20 million by your committee with specific reference to outer planets mission activities which NASA proposed as a new start in fiscal year 1972 with the initial funding of $30 million. This activity represented a very substantial undertaking over the next several years and based upon the information presented to the committee including that from the National Academy of Sciences' Space Science Board, the committee was not persuaded that it was essential that this particular activity be initiated as proposed by NASA at this time. The committee accordingly reduced the request of $30 to $10 million and recommended that NASA conduct further study of its plans for investigation of the outer planets. The lunar and planetary program also supports the Helios cooperative flight projection with the Federal Republic of Germany.

The space applications program is recommended to the Senate at $185 million, an increase of $2,500,000 above the NASA request. This program supports those activities which are directly related to earth benefits and also represents some less well publicized space activities which are now producing benefits daily. In this regard, I point to the Tiros meteorological satellites which are operated continuously by NOAA and to the communication satellites which are used throughout the world. NASA maintains an active advanced meteorological satellite development program directly in support of NOAA which includes the Tiros improvements project, certain aspects of the Nimbus project, and the synchronous meteorological satellite project. A major increase in funding of $30 million for fiscal year 1972 is recommended for the applications technology satellite project now in hardware development. This project consists of two spacecraft designed to support experiments in advanced meteorological, communications, and general spacecraft technologies. One of the newer and most interesting elements of the space applications program is earth resources survey for which $51 million is recommended—$13.5 million for aircraft surveys and $37,500,000 for two spacecraft and supporting equipment in the earth resources technology satellite—ERTS—project. The first ERTS spacecraft is scheduled for launch in early 1972 and in the interim NASA has been conducting aircraft surveys to develop "ground truth" information, and to aid in sensor development and data handling. As a part of the aircraft program, NASA has initiated a series of regional surveys not only to assist in sensor development but also to help identify the many potential applications which these surveys are thought to offer. The committee in recognition of a very real national concern has added $2,500,000 to the aircraft project to support additional effort for determining the potential benefit of such surveys to identification of causes of air and water pollution. Earth resources survey funding at $51 million is about $9 million below the fiscal year 1971 operating level primarily reflecting the peaking of hardware funding for the ERTS spacecraft. There are nominal funding differences in the smaller meteorological and other earth observation and applications projects within the space applications program; however, the major reason for the total program increase of $18 million over fiscal year 1971 is the net result of the increase for the ATS satellites and the reduction in the ERTS spacecraft project I have discussed.

The committee is recommending the launch vehicle procurement program at $146,100,000—identical to the NASA budget request. This program provides launch vehicles and supporting services for the unmanned spacecraft programs in space science and applications which I have just been reviewing. The recommended amount of $146,100,000 reflects an increase of $21,200,000 over the fiscal year 1971 authorization principally due to procurement of the Titan IIIC and Titan IIID/Centaur vehicles to support unmanned spacecraft missions such as the applications technology satellites F and G and the Mars 1975 Viking missions.

The NASA Office of Advanced Research and Technology administers three program items in this bill for which your committee is recommending a total of $255,825,000, an increase of $43 million over the budget request but an amount $8,375,000 below the fiscal year 1971 operating plan for these same programs. These programs—aeronautical research and technology, space research and technology, and nuclear power and propulsion—support NASA advanced research activities in aeronautics and space. Generally speaking, they emphasize research tasks rather than hardware projects as is found in the other two program areas discussed. The aeronautical research and technology program, for which $110 million is recommended, supports the NASA statutory function for the conduct of advanced research in aeronautics, including activities ranging from propulsion to operating systems to materials and structures to guidance, control and information systems. It is from these research activities over the years that the Nation has attained its supremacy in aircraft development which is evidenced by the predominance of American aircraft on the international air routes of the world. With the view toward solving the noise, pollution, and congestion problems presently experienced in our urban areas and to be expected in other areas in the future, NASA is proposing to initiate with this budget the development of an experimental short takeoff and landing—STOL—airplane which would be used to demonstrate the technical feasibility of building and operating such aircraft and the ability of such operations to address themselves to the problems cited. Such aircraft would utilize short runways and close-in airfields, produce a minimum of noise and require a minimum of real estate and provide a maximum of accessibility and convenience to travelers. This project would consist of two aircraft utilizing quieted engines and employ selected propulsive lift devices which NASA has had under study for some time. The committee is recommending $15 million within the aeronautical program line item for this STOL development with an anticipated total cost for the project of $100 million over the next 4 or 5 years.

The House added $24,500,000 to the aeronautical program with which your committee did not concur.

Your committee is recommending $75,105,000 for the space research and technology program, which will provide for the basic research, applied research, and technology developments to support future space activities similar to the activities supported in the aeronautical research and technology program which are directed toward aircraft applications. This amount represents about a $32 million reduction in this program from the fiscal years 1971 level, part of which is accounted for by reduction in space propulsion and power generation, and in ma-

terials and structures and part of which is due to the transfer of life science activities to the space flight operations program.

Your committee is recommending a major adjustment in the nuclear power and propulsion program—an increase of $43 million in the NASA request for nuclear propulsion, from $15 million to $58 million, with a corresponding increase in the program total, from $27,720,000 to $70,720,000. The other two elements in the program—nuclear power systems and electrophysics—remain unchanged. A highly successful technology program has been carried on in nuclear rocket propulsion for several years. This culminated in ground demonstration testing of the feasibility and technology readiness to proceed with a flight engine development program to adapt nuclear energy to space propulsion. This is a system which technical authorities agree offers essentially twice the space propulsion capability of any known chemical system. This advantage, and the success of the technology program, has consistently been considered by your committee as a sound basis for proceeding with the NERVA engine development which would provide the Nation an outstanding, advanced space propulsion capability for the years ahead.

This would equip the Nation to do the things it might elect to do in the future. Although they play different roles in the space transportation system, the NERVA engine and the shuttle provide the same result—a forward looking, versatile, and advanced space capability. Both were regarded as a vital part of the space transportation system by the President's Space Task Group.

It has been generally recognized that the NERVA engine will require a long development period, thereby necessitating an early start. Such a start was made in fiscal year 1970. The development was continued into fiscal year 1971 with work well underway. However, the NASA fiscal year 1972 budget proposal reduced the development program to work on a few selected components, with no program for an engine in the forseeable future. The reduction was effected in March of this year. In view of this substantial change in this program, your committee held special hearings on February 23 and 24, 1971, on its impact. It was clear that the funding proposed, $15 million, would not support an engine development program. Moreover, it was extremely doubtful that this funding level would maintain the capability to reinitiate a full-scale development program at a later date. Therefore, with its consideration for building a comprehensive base for future space capability, your committee has added $43 million to this program specificially for NERVA engine development and supporting nuclear propulsion activities. The House approved the addition of $39,900,000 to the nuclear power and propulsion program for the NERVA development, which evidences the importance which it attached to this project.

Your committee is recommending $264 million for the tracking and data acquisition program, an amount identical with the NASA request and with that approved by the House. The amount recommended for this program is $26 million below the fiscal year 1971 operating plan as a result of reductions in coverage required of the tracking and data acquisition network and of improved operating efficiencies.

The technology utilization program which supports the identification and dissemination of aeronautics and space technology to the nonaerospace community is recommended at $4 million, the same level as adopted in the fiscal year 1971 operating plan. The House approved $6 million for this program, a $2 million addition. However, your committee believes that the activities of this very worthwhile program can be adequately conducted for the $4 million recommended by the committee.

CONSTRUCTION OF FACILITIES

H.R. 7109 contains $56,300,000 for the NASA construction of facilities program for fiscal year 1972. This amount as well as the items recommended in the bill are identical to the administration's budget request. The facility items represent, almost exclusively, the modernization or upgrading of existing facilities to more effectively support their designed function or to provide a greater capability than that which is offered by their present status. For example, the first item, modernization of the 40′ × 80′ wind tunnel at the Ames Research Center, is an old and largely one-of-a-kind aeronautical research facility which, with the modernization proposed in this project, will continue to serve our aeronautical research needs for many years.

This tunnel has a unique capability to support V/STOL research. In a similar context, the project to modify launch complex 17B at the Kennedy Space Center will provide a capability to launch the workhorse uprated Delta booster. The major exception to the modernization and upgrading type of project I have described is the recommendation in the bill for $20 million to provide facilities for the space shuttle development program. These facilities consist of test stands for the main engine and for certain of the auxiliary propulsion systems, and for expansion of existing thermal test facilities to support development of the thermal protection system for the shuttle air frame. Here again, however, I wish to stress the fact that existing facilities are being modified or expanded to satisfy these new needs, thereby minimizing the extent to which new facilities are being provided.

Your committee made one significant change in the construction of facilities section 1(b) of the bill as presented by the administration and approved by the House—specifically, the identification of each facility project authorized as a line item in the bill. The purpose of this change is to specify the facility authorized and the estimated cost thereof which relates it to its stated function and justified need rather than, as in years past, specifying a sum of money for undesignated facilities at the various NASA locations. The background for your committee's recommendation on this item is discussed at some length on page 89 of the report accompanying the bill.

The House approved the addition of $2,330,000 to the construction of facilities request, for a total C of F authorization of $58,630,000, to provide for expansion of the Visitors Information Center at the Kennedy Space Center. These funds are proposed to support phase one of a three-phase development extending the present facilities into a space information and education center with a total estimated cost of $10 million. Your committee did not concur with the House addition.

RESEARCH AND PROGRAM MANAGEMENT

Your committee is recommending an authorization of $681,350,000 for research and program management—R&PM. This category supports research by NASA employees in Government laboratories, the management of the research and development programs that I have been discussing, and provides funding for activities at the NASA centers such as maintenance, utility services, and the many other supporting services necessary to the operation of a research center. Approximately 70 percent of this appropriation category is allocated to salaries of direct NASA employees—63 percent of whom are scientists, engineers, and technicians.

This appropriations category has been examined most carefully over the years, particularly since the funding requests have continued to increase as the NASA research and development programs matured and reached completion without equivalent new starts to continue the higher levels of space activities which had been experienced in previous years.

Your committee appreciates that with the high percentage of funding in this category allocated to salaries, some portion of the annual increase in attributable to the statutory Federal pay raises; however, your committee has not been convinced that sufficient examination looking toward maximum efficiencies in manpower utilization has been undertaken by NASA. As a result, the committee made a reduction in the amount requested for personnel for fiscal year 1971, and placed a limitation on the amount to be spent for personnel and related costs, a limitation which was adopted by the Congress. The committee believes that further action in the area of manpower utilization is warranted even recognizing that the fiscal year 1972 budget request proposes a reduction of 1,500 positions below that supported in fiscal year 1971.

Mr. MONDALE. Mr. President, will the Senator yield at that point?

Mr. CANNON. I am glad to yield

Mr. MONDALE. In what year did NASA reach its peak spending level?

Mr. CANNON. Is the Senator talking now in terms of the personnel level?

Mr. MONDALE. I am talking about total expenditures for NASA.

Mr. CANNON. 1966

Mr. MONDALE. What was the amount spent that year?

Mr. CANNON. $5.9 billion

Mr. MONDALE. How many people were on the in-house staff of NASA at that time?

Mr. CANNON. In excess of 30,000. I will get the exact figure in just a moment for the Senator.

Mr. MONDALE. Approxmiately 30,000.

Mr. CANNON. 35,708.

Mr MONDALE. From what page is the Senator reading?

Mr. CANNON. That is at page 121.

Mr. MONDALE. What was the total spending level for NASA in the currently expiring fiscal year?

Mr. CANNON. In fiscal year 1971?

Mr. MONDALE. Yes.

Mr. CANNON. $3.368 billion.

Mr. MONDALE. And how many employees were working for NASA this fiscal year?

Mr. CANNON. There are 32,150, of which 2,300 are temporary employees.

Mr. MONDALE. So that, while the space budget has been reduced by $3 billion, the personnel level has been reduced by fewer than 3,000 people; is that correct?

Mr. CANNON. That is correct; by about, roughly, 3,000 people.

Mr. MONDALE. Were that a commensurate reduction of personnel, it would be something like 15,000 people, would it not?

Mr. CANNON. If the reduction were directly related to the number of personnel. But the Senator must remember that much of NASA's work under the $5.9 billion figure was contracted out.

Mr. MONDALE. But there should be some relationship between the number of employees and the level of activity, should there not?

Mr. CANNON. I beg the Senator's pardon.

Mr. MONDALE. Should there not be some relationship between the number of employees and the level of activity at NASA?

Mr. CANNON. There certainly should be, and there is, and that is why, in this bill, we are again requiring NASA to cut down their personnel. We placed limits in last year's authorization bill, and we are placing them again this year. We are forcing a reduction this year of 3,000 personnel in NASA's personnel level.

Mr. MONDALE. It strikes me as peculiar that during the peak days of NASA's efforts, when we were spending $6 billion, and when we were in the most frantic period of research and development and construction of the Apollo program, and the development of the Apollo launching sites and the Apollo tracking stations, and all the rest that related to that, we had 35,000 employees; but today, when the spending levels are at least $2.5 billion less, when the Apollo program is nearly completed, when none of the new programs have gotten beyond the beginning research stage, we would still have a space personnel level equal to that of the earlier frantic days.

Mr. CANNON. Well, I would say to the Senator it is not equal to the earlier days. In the first instance, there have been some substantial reductions, and second, as I pointed out earlier, much of this work was done by contractors. At the period of time when we had our big NASA budget, there were over 400,000 contractor personnel. Now, this year, there are slightly over 100,000. So the number of contractor personnel has been reduced by three-quarters, while NASA's in-house personnel, who are highly specialized, I might say, have been reduced to a much lesser degree.

Mr. MONDALE. What number of personnel are involved in the manned space flight effort today? Are the figures broken down that way?

Mr. CANNON. I will have to have the staff find that. We will have to pull it together; we do not have the separate figures.

Mr. MONDALE. I understand. How much was spent for NASA personnel in 1966; does the Senator have that figure?

Mr. CANNON. Yes; $619.4 million for all research and program management expenditures of which about 70 percent is for NASA personnel.

Mr. MONDALE. $619 million in 1966?

Mr. CANNON. That is true. That is in 1966. Although 1966 was the NASA highest total expenditure year, that was not NASA's actual highest employment year.

Mr. MONDALE. The highest expenditure, that is correct.

Mr. CANNON. NASA's highest personnel point, from the standpoint of civil service employees, was in fiscal 1967. The total research and program management expenditure in 1967, again of which about 70 percent is for NASA personnel, was higher than 1966 at $649.9 million, went on up to $651.5 million in 1968, even though the personnel levels were dropping down, went up to $656.2 million in 1969, when the personnel levels were again dropping down—this is total R. & P.M. expenditures—and then a continuing rise to $707.2 million in 1970 and $708.9 million in 1971; and then the drop back occurs, in fiscal 1972, to $698.4 million.

Mr. MONDALE. So that, while at the peak level of NASA activity, we were spending something like $619 million for salaries, today, when space activity is $2.5 billion less, we are spending on the order of $60 million more for personnel; is that correct?

Mr. CANNON. The Senator is correct. Those figures that I have been quoting as salaries, I want to emphasize, are salaries and other administrative expenditures, but the bulk of that, about 70 percent, is for salaries.

Mr. MONDALE. I thank the Senator.

Mr. CURTIS and Mr. GURNEY addressed the Chair.

The PRESIDING OFFICER. Does the Senator yield?

Mr. CANNON. I think I have the additional information the Senator from Minnesota requested.

As to the number of people involved in manned space flights at the present time, the figures for fiscal year 1972, the request is for 11,986 for the three manned space flight centers, which would be a 619 year-end reduction under the previous year.

Mr. MONDALE. Does the Senator have the figures in that category for 1966, 1967, 1968, and 1969 as well?

Mr. CANNON. No. We can get those, but I have here only the ones for 1971 and 1972.

Mr. MONDALE. Perhaps the staff could supply me with those figures.

Mr. CANNON. Yes; they will be happy to do so.

Mr. GURNEY. Mr. President, will the Senator yield on that point?

Mr. CANNON. I am happy to yield.

Mr. GURNEY. I think one point that needs to be brought up is what the NASA personnel are doing today. For example, in Florida, at the Kennedy Space Center, in Texas, at the Houston Manned Space Flight Center, and in Alabama, at Huntsville, a great many of the personnel are now devoting their time and efforts exclusively to the continuing flight program. The hardware for that program was developed, of course, during the peak spending in NASA, as pointed out by the able floor manager of the bill, in 1965 and 1966. But as far as the flight program is concerned, for which all this hardware was developed, this, of course, continues today, in fact at a greater rate, I think, if the figures were checked, than it did in 1965 and 1966, and it is necessary to maintain these skilled teams of people who do the checking out of the vehicles, who perform the launching operations, and who maintain the tracking stations around the world.

That is the principal reason why the employment figures of NASA has held up over the years. The other important point which I would like to emphasize, as the able floor manager, the Senator from Nevada, brought out, is that during this peak spending, there were about 425,000 people working on the program in private industry, and today there are just a few more than 100,000. As a matter of fact, back in those days—and I think it is still true today, but it certainly was then—about 90 percent of the space dollars went to private industry and private employers.

So this certainly is no point at all that I think the Senator from Minnesota is trying to make, that we have a top heavy Government structure.

These people are necessary to carry on the flight programs that are going on today.

Mr. CANNON. I thank the Senator from Florida.

Just as I yielded to the Senator from Minnesota, I commented on the fact that the committee had not been convinced that sufficient examination looking toward maximum efficiencies in manpower utilization has been undertaken by NASA. Therefore, your committee is recommending an overall reduction of $16 million in the fiscal year 1972 NASA request of $697,350,000, resulting in a total recommendation for R. & P.M. of $681,350,000, and in addition, has inserted as a part of its committee amendment a ceiling on personnel and related costs of $517,916,000, which represents a reduction of $13 million in the NASA request for such costs. The remaining $3 million in the cut is to be applied to the "other expenses" funded under the R. & P.M. category. I would like to mention here that the NASA authorization request for fiscal year 1972 was presented to the committee without provision for the fiscal year 1972 funding requirements to support the Federal salary increases enacted in January 1971. Therefore, authorization for this statutory increase, estimated at $29,285,000, has not been in-

corporated into the committee's recommendation.

The House version of H.R. 7109 was considered on the same basis.

The House increased the NASA request for R. & P.M. by $9,500,000 for a total of $706,850,000, or an amount $25.5 million above the recommendation of the committee in this bill. The committee did not concur with this addition, believing that the level recommended by the committee provides adequate resources within which NASA management can carry out its responsibilities.

LEGISLATIVE CHANGES

The committee has recommended three principal legislative amendments which I have discussed as I proceeded through the contents of the bill, and two conforming amendments associated with the three principal amendments. The first amendment is in section 1(a) and specifies that $58 million of the $70,200,000 authorized for the nuclear power and propulsion program shall be used only for NERVA engine development and related nuclear propulsion activities. A second amendment is a complete substitution of the committee's recommendations in section 1(b) itemizing specific construction of facilities projects rather than presenting an amount for undesignated facilities at various NASA locations as was the practice in previous years. The third amendment is the one I just discussed, that of establishing a ceiling which may not be exceeded, for personnel and related costs within the R. & P.M. authorization.

CONCLUDING REMARKS

Mr. President, I believe that the committee's recommendation reflects a very carefully structured space program for fiscal year 1972. It provides a balance within a very austere budget between support for previously authorized and ongoing projects and for undertaking forward-looking developments which are designed to lay a foundation for maintaining our space capability in the future. In conclusion, I would like to stress once again that this Nation's space program is one of the principal focal points for advancing the state of our science and technology, the source which allows us to maintain a strong national posture and reap dividends for improving the life of our citizens. This, I firmly believe, is clearly evident in the history of our Nation. Mr. President, I urge my colleagues to support H.R. 7109 as presented here today.

Mr. President, I now yield to the Senator from Nebraska (Mr. CURTIS), the ranking minority member of our committee, whose efforts have been outstanding in trying to pull together an effective space bill for NASA this year.

The PRESIDING OFFICER. Is the Senator from Nevada yielding a portion of his time?

Mr. CANNON. I yield on my time, Mr. President.

The PRESIDING OFFICER. How much time is yielded?

Mr. CURTIS. I will use my own time, Mr. President. I yield myself 20 minutes.

Mr. President, I commend the distinguished Senator from Nevada (Mr. CANNON) for his able presentation of the purposes served by H.R. 7109, the authorization bill for the National Aeronautics and Space Administration for fiscal year 1972. Moreover, I wish to commend the distinguished senior Senator from New Mexico (Mr. ANDERSON), the chairman of the committee, for his eadership in bringing this program before the Senate. Finally, I wish to commend the staff of the Senate Committee on Aeronautical and Space Sciences for its support on this legislation.

I believe there are two points to be considered as we debate the NASA authorization:

One, this is a program essential to maintaining America's technological supremacy and to help assure adequate national defense.

Two, this is a lean, fat-free, and barebones budget for America's vital space program.

Some of our colleagues have expressed concern over the size of the space budget. On page 95 of Senate Report 92–146, which is the Space Committee's report on the space authorization bill, is a chart giving the committee's estimates for the NASA budget over the next 5 years. The committee makes the following estimates: for fiscal year 1973, $3.65 billion; for fiscal year 1974, $3.82 billion; for fiscal year 1975, $3.61 billion; for fiscal year 1976, $3.57 billion; and for fiscal year 1977, $3.55 billion. Assuming that current efforts to control and stop inflation in this country are successful, and assuming no unforeseen events, I believe that these figures will prove to be reasonably accurate.

Of the new space programs being undertaken, one in some degree of controversy is the space shuttle. There have been allegations that the space shuttle will cost $20 billion or $100 billion or $200 billion to develop.

No one can say with certainty what the cost will be. However, the highest—I emphasize, the highest—estimate available at the present time is that the total research and development cost will be about $12.8 billion over a period of about 11 years. NASA is now undertaking an intense effort to reduce the projected cost of this program to a range of $9 to $11 billion.

It must be conceded that this is a large sum of money. It can only be justified on the grounds that it will save the taxpayer dollars and assure America's technological supremacy in space.

Our best current estimate on the shuttle is that it will save the American taxpayers billions upon billions of dollars, possibly as much as $14 billion, by the year 1990. The savings will accrue for a number of reasons:

First. The orbiter and booster will be reusable eliminating vehicle losses now experienced on every space shot.

Second. There will be substantial havings through the use of cheaper satellites—cheaper because they will use offthe-shelf components; they will have less redundancy; and we will have the ability to repair them in space.

Three. Great savings will also arise from eliminating such costly losses as the $100 million Orbiting Astronomical Observatory and the $70 million Mariner Mars failures—failures that would not have occurred if a shuttle had been in existence.

Nobody contends that the space shuttle can be justified only on the basis of NASA's requirements for space science and applications. The needs of the military must be taken into account. Based on current and conservative estimates, about one-half of the shuttle payloads will be for the armed services.

As of today, the Soviets are in their 22d day of their space laboratory flight commonly known as Salyut. They are reported to be experiencing no difficulty with their version of the Skylab project. We are told the Russians are even growing their own vegetables. The Russians are learning a great deal about how to offset the effects of weightlessness through the use of specially designed space suits and several mechanical means for exercising the human body. We, on the other hand, only have laboratory, not practical experience, with these matters. It is not now known how long they plan to stay up there on this mission, but they are setting new records with every passing hour. The United States will not have such an orbiting laboratory until 1973.

There have been suggestions that we can do everything we need to do in space for $2 billion a year. We could have a reduced program. As the Senators know, every program can be reduced. But we cannot reduce the level of funding unless we intend to virtually abandon the guts of our space program. We cannot reduce the level of funding unless we intend to surrender our lead in space technology—a technology that will help to solve problems on pollution, weather, health, agriculture, conservation, resources, and a host of other activities necessary to man's survival on earth.

We should not lose sight of the fact that our space budget is almost one-half what it was at its highest peak. We must also bear in mind that as this Nation faces many problems, most of our problems will require technology, in varying degrees, for arriving at solutions. The space program is one of the most important programs that is advancing the technology. Moreover, it is advancing the acquisition of more knowledge and information for man.

Let us not forget that on October 4, 1957, the Soviet Union launched the first manmade satellite into orbit around the earth. Let us not forget that Sputnik I produced severe psychological shock waves here and abroad. Let us not forget that there were dire predictions the United States was giving way to the Soviet Union in technology for both peace and defense.

On July 20, 1969, Neil Armstrong descended from the spaceship Eagle and stepped to the surface of the moon at 10:56 p.m. Eastern Daylight Time. Throughout the world, wherever live television was available, there was instant proof that America had risen to the challenge.

There was unfortunately one notable exception: The Soviet Union did not join in the live telecast of the first man on the moon. Perhaps their television silence was the most eloquent testimony to the success of the Apollo program.

Today, we are laying before the Senate a well-balanced space program designed to maintain and develop the technology we need for the benefit of all mankind.

And as we move into the decade of the 1970's, America will be faced with growing economic competition from Europe, the Soviet Union, and the nations of Asia, notably Japan. We will undoubtedly face growing competitions in every phase of aerospace activities. At the recently concluded Paris air show, the Europeans and Russians showed the desire and ability to compete. To maintain an aerospace leadership will require the kind of determination evoked by the creed of the late coach Vince Lombardi:

Winning isn't everything, it's the only thing.

I am confident that the Congress would never wish to place the United States of America in a position, where sometime in the future, we might be confronted with a technological Pearl Harbor. For these compelling reasons, I ask and urge my colleagues to support your committee's bill as vital to the interests of our Nation.

Mr. President, last Friday, the chairman of the Senate Committee on Aeronautical and Space Sciences and I circulated a letter to our colleagues. Appended to the letter was a fact sheet, entitled "Popular Misconceptions: The Space Program." For the benefit of our colleagues who may not have had an opportunity to read this material, I ask unanimous consent that our letter and the fact sheet be printed in the RECORD.

There being no objection, the letter and fact sheet were ordered to be printed in the RECORD, as follows:

U.S. SENATE,
*Washington, D.C., June 25, 1971.*

DEAR COLLEAGUE: As you know, the Senate will consider the NASA Authorization Bill (H.R. 7109) next Monday and Tuesday. Inevitably, there will be some disagreement as to the merits of particular programs in the space bill—disagreement among persons who are all honestly trying to ensure a worthwhile space program for America and all mankind.

We are writing to you in an effort to set the record straight, as we see it, on some misconceptions concerning the space bill that have recently circulated on "The Hill".

Attached kindly find a fact sheet for your consideration. We hope it will help to clear the air.

Sincerely yours,

CLINTON P. ANDERSON,
*Chairman.*

CARL T. CURTIS,
*Ranking Minority Member.*

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POPULAR MISCONCEPTIONS: THE SPACE PROGRAM

FICTION NO. 1

The space shuttle will be used for a manned mission to Mars.

FACT NO. 1

There is not one dime in the current budget for this purpose. Men will probably go to Mars someday, but certainly not before the end of the century. It is doubtful that any current members of the Senate will ever have to vote on this issue. The shuttle itself will never go to Mars because it does not have that capability.

FICTION NO. 2

The space shuttle will cost $20 billion (or $100 billion or $200 billion) to develop.

FACT NO. 2

No one can say yet what the cost will be: The highest estimate available at the present time is that the total R. D. T. & E. costs will be about $12.8 billion. But, NASA is now making an intense effort to reduce the projected costs of this program and the most likely total cost will be in the range of $9 to $11 billion. Furthermore, nothing is said about how much money the shuttle will save the taxpayer. The best current estimate is that the shuttle will save the U.S. Treasury billions upon billions of dollars by 1990. It should be noted that economic justification does not depend solely on substituting of the shuttle instead of expendable boosters. Tremendous savings will accrue through the use of cheaper satellites—cheaper because they will use off-the-shelf components; cheaper because they will have less redundancy; and cheaper because we will have the ability to repair them in space or bring them back to earth for refurbishment. Finally, the fact is that the greatest savings arise from eliminating such costly losses as the $100 million Orbiting Astronomical Observatory and the $70 million Mariner Mars failure. Both of the costly failures would have been avoided had they been launched in a shuttle.

FICTION NO. 3

NASA's annual budget will rise to $7 billion.

FACT NO. 3

Nobody can predict with any degree of accuracy what the rate of inflation in the U.S. will be over the next ten years. Estimates of NASA's budget including the shuttle for most of the 1970's can be found in Senate Report No. 92–146 on page 95. The peak year is Fiscal Year 1974 at a figure the Space Committee estimates to be $3.82 billion.

FICTION NO. 4

The space shuttle will waste scarce resources.

FACT NO. 4

Currently *all* boosters are dropped in the ocean after one use and all payloads are either burned up in the atmosphere or lost in space after a period of time. The space shuttle system utlimately is designed to reuse both boosters and payloads which, of course, amounts to a substantial saving of scarce resources.

FICTION NO. 5

We will not know whether long-duration flights are possible until the Skylab missions are completed in 1973.

FACT NO. 5

As of June 25, 1971, the Soviets are in their 19th day of their space laboratory flight. They are reported to be experiencing no apparent difficulty. They are even growing their own vegetables. The Russians are learning a great deal about how to offset the effects of weightlessness through the use of specially designed space suits and several mechanical means to exercise the human body. We, on the other hand, only have laboratory experience with these matters. It is not known how long they plan to stay up there on this mission, but they are setting a new record with every passing hour.

FICTION NO. 6

The Space Science Board is against the space shuttle because it concluded that "space science and application by themselves are insufficient to justify the cost of developing the shuttle."

FACT NO. 6

The Space Science Board has not taken a position on the shuttle because all of the facts are not yet available. Nobody contends, however, that the space shuttle should be justified on the basis of NASA space science and application alone. The needs of the military must be taken into account. Moreover, if space shuttle development is justifiable, it will be because it will be utilized to launch virtually *all* of this nation's payloads—science, applications, navigation, communications, earth resources, manned, unmanned, civilian and military.

FICTION NO. 7

We can do everything we need to do in space for $2 billion a year.

FACT NO. 7

Not unless we intend to virtually abandon our space program. Not unless we intend to surrender our lead in space technology—a technology that will help to solve problems on: pollution, weather, health, agriculture, resources, and a host of other activities necessary to man's survival on earth.

We would also have to abandon our currently very promising talks with the Soviets on space cooperation. There would be no use to continue discussions on, for example, common docking mechanisms if we aren't going to have anything to dock to. And, we would decrease our ability to cooperate with all other nations seeking advancement through space technology.

FICTION NO. 8

A study conducted by the Rand Corporation for the Air Force concludes that the space shuttle should not be developed.

FACT NO. 8

The Rand study was not conducted at the request of the Air Force and was based on data that is now obsolete. (In the enclosure to this fact sheet, please find a letter signed by Mr. Henry S. Rowen, President, Rand Corporation, which fully sustains this assertion.) More recent studies suggested by the Rand Corporation show that the space shuttle can have a highly favorable cost-benefit ratio over the period in question. Secretary of the Air Force, Robert C. Seamans, Jr., has testified that the Air Force is encouraged by the trend of current studies and hopes to be able to use the shuttle for *all* of its payloads in the late 1970's. These points were thoroughly clarified in the *Congressional Record* on June 2, 1971.

Mr. CURTIS. Mr. President, I yield back the remainder of my time.

The PRESIDING OFFICER. Who yields time?

Mr. GURNEY. Mr. President, will the Senator from Nebraska yield me 20 minutes?

Mr. CURTIS. Mr. President, I yield 20 minutes to the distinguished Senator from Florida (Mr. GURNEY).

The PRESIDING OFFICER (Mr. BENTSEN). The Senator from Florida is recognized for 20 minutes.

Mr. GURNEY. Mr. President, once again the authorization bill for the National Aeronautics and Space Administration is before the Senate for action. The Senate Committee on Aeronautical and Space Sciences, chaired by the distinguished Senator from New Mexico, has recommended a budget authorization of $3.280 billion. I give my strong support to this entire authorization.

Once again, there will be a concerted effort on the part of some to cut out funds and programs, to strike a serious and crippling body blow at the Nation's space program.

One group of Senators have already announced their intention to try to kill the space shuttle project by taking the funds for that program.

I will direct these remarks in support of that specific provision in the bill.

The space shuttle is a truly new concept in space exploration. Since the in-

ception of our space program this country has relied exclusively on throwaway boosters, spacecraft, and support systems. With the shuttle, for the first time, we will get more than a single flight from a particular mission. In fact, the shuttle will be reusable up to 100 times with a minimum of refurbishment and ground time.

In terms of payload cost, a reusable system, such as the space shuttle provides, will reduce payload launch costs from the current $1,000 per pound to $100 per pound. In terms of economics, the space shuttle is the key to profitable space operation in the future. This holds true for unmanned as well as manned space programs. One of the major expenses now encountered in the preparations for flights of unmanned satellites is the complicated and expensive checkout procedures required. Today, when an unmanned satellite is sent into space, it must be in 100-percent working condition. As a result, an expensive, but necessary, program of testing and retesting is part and parcel of all flights in our space program. In fact, we pay around $20,000 a pound to manufacture and test these nonrecoverable space probes.

The shuttle would open a whole new dimension in this earth satellite portion of our space program.

If a satellite were to be launched, and then fail to operate, it could easily be recovered and brought back to earth for repairs. Periodic maintenance and reconditioning of satellites will then become a reality. Eventually, as our skills improve, we may even develop teams of astronaut maintenance men making regular "house calls" to perform minor repairs in space.

A graphic illustration of the usefulness of this was cited by Arthur C. Clarke in the New York Times, May 22, 1971. Clarke refers to an orbiting astronomical observatory, a satellite costing $50,000,000. After orbit a minor circuit defect caused failure. Yet, a man with a screwdriver might have been able to fix it, Clarke concluded:

> As our applications satellites become larger and more complex, space shuttles will be essential not only to orbit them, but to carry the technicians who must check, service and repair them. In the next decade this will be so obvious that it will seem incredible that intelligent men ever disputed it. But there will be no shuttle in the next decade—unless we start planning it now.

If one tiny part fails to function correctly, then the entire experiment is a total loss. As we know only too well, this has occurred on occasion.

The development of such a program will dramatically reduce the costs of our space efforts. A recent study by Mathematica, Inc., analyzed the costs of our space program and the economics of developing a space shuttle system. I think that their conclusions are worthy of some note.

Before going on, however, I would like to say a few words about the mathematical study by Mathematica, Inc., a Princeton, N.J., research organization, under the direction of Drs. Oscar Morganstein and Klaus P. Reiss. It is a full, comprehensive, and up-to-date report submitted to NASA on May 31 of this year. The report is based upon 8 man-years of work and research. It is as recent as less than 1 month old.

There has been criticism of the space shuttle based on a report by the Rand Corp. The Rand study was made using economic data from 1969. In the fast moving space program this is analagous to the automobile industry using data obtained from research on the Model T Ford.

The Air Force, which commissioned the Rand report, has emphasized that the report is based on economic and technical data from 1969. The Secretary of the Air Force, Mr. Seamans, has stated that the Rand report is not Air Force policy. He has further said:

> The work in question does not represent current economic conditions. We (Air Force) are greatly encouraged by more current studies and it appears that both NASA and DOD requirements can be met with the present, single baseline configuration for the space shuttle.

The mathematical study does, however, take into account the current state of technology and the economy.

So that all Members of this body may be accurately informed, I ask unanimous consent that the executive summary of the Mathematica study be printed in the RECORD at the end of my remarks.

The PRESIDING OFFICER. Without objection, it is so ordered.

(See exhibit 1.)

Mr. GURNEY. Mr. President, at present, only 20 percent of the costs of the space program are recurring launch costs. The other 80 percent of the costs are presently devoted to payload, manufacture, and testing. It would be folly for this country not to reduce this cost. Expected cost reductions by implementation of the shuttle program fall into two areas: The launch system recurring costs, and the costs of payloads. At currently projected usage, the shuttle reduces launch costs from $13 billion to $5.5 billion and reduces payload costs from $40 billion to $26 billion. Overall, Mathematica's analysis indicates that the direct costs of the space shuttle system are expected to be about half of the direct costs of an expendable system of the same scope.

Opponents of the shuttle seek to confuse the Senate by asserting that the program is simply a device for continuing manned spaceflight. They then flatly contend that man has no future in space; that this shuttle is a useless venture. Nothing could be further from the truth.

The space shuttle serves both manned and unmanned spaceflight.

In fact, the Mathematica study indicates that the shuttle is an economically sound proposition even were the United States to abandon manned space programs altogether and continue only on unmanned programs. That is, if this country continues to utilize scientific, commercial, and defense applications of the unmanned space program at the same rate as in the 1960's, the space shuttle is economically justifiable. Indeed, Mathematica calculates that such a shuttle program would be an economic investment with a 10-percent rate of return if it costs even as much as $22.1 billion. NASA currently estimates that the total cost of the space shuttle will come to $12.8 billion.

Thus, even if we were to decide to continue only an unmanned space program, which I personally feel would be a serious mistake, the shuttle has a substantial cost benefit.

Two additional comments should be added at this point. If a substantial manned space flight program is continued, the economic advantages of the shuttle are augmented significantly. Further, if a substantial lunar exploration program were to be implemented, significant reductions in lunar space transportation costs would accrue. However, as I have pointed out, a decision on a manned space program need not be made to justify the shuttle.

As these analyses make clear, the space shuttle is the key to this Nation's future in space. Without it costs remain too high. With it, costs are substantially reduced and the space program can continue to expand the technological base of our Nation and bring the benefits of the space program to our people.

I have spent considerable time discussing costs and technology in this discussion because I believe strongly that we must continue technological development, if our Nation is to progress. Historically, those nations that have failed to develop their technologies have lost their ability to maintain and raise the quality of life of their citizens.

Sir Bernard Lovell, director of Britain's Jodrell Bank Observatory, has offered a significant word of caution:

> If you look at the thousands of years of civilization, you will find that only those communities that have been prepared to struggle with the nearly insoluble problems at the limits of their technical capacities—they are the only communities, the only times that civilization has advanced. The Roman Empire decayed when it ceased to be progressive in this sense, and there are other examples. To a certain extent, you see the beginnings of it in the United Kingdom today, but fortunately not in the United States, and certainly not in the Soviet Union.

We will note that Mr. Lovell laid more emphasis on the fact that Russia is not neglecting technological progress. In fact, if he made a similar statement today, he might well observe that there are beginnings of technological neglect in the United States.

This effort to shoot down the space shuttle is just such a serious attempt to stop technological progress. We will witness other all-out efforts when the defense procurement comes before us.

We witnessed a most successful effort here earlier this year, when the SST was shot down.

The most important factor to be examined in the discussion of a viable and on-going space program is the effect of a continued policy of eliminating projects involving scientific and technological progress.

The first and immediate result of the continuation of such a policy will be the continued dissolution of pools of skilled technical and scientific personnel. We have already fired and dispersed scores of thousands of highly trained technological people. We have literally cut off our technological right arm. We have made

ghost towns out of many space areas. We have created Sahara-like wastelands out of previously verdant green space work areas.

A vast national resource of some of the most highly skilled workers in our history are now selling hamburgers or hotdogs, doing a host of things that any high school drop out could do. Thousands are on welfare, most are bitter and disillusioned.

I do not doubt that years ahead, we will look back in wonderment and inquire, how could a nation be so criminally wasteful of its greatest resource, skilled scientists and engineers, and technical people.

The second factor, long range in effect, holds far more serious import for this Nation and its place in history. Such policies will discourage the entry into the scientific and technological fields of a new generation. It is already clear that there has been a drop in the percentage of college students entering the sciences. To encourage and even accelerate this trend could well mean that within a generation or so we will have reached a situation where this country has little capability in the area of science and technology. At the same time, the technology existing for us at that point will be incredibly obsolete. We will, in effect, become a technological and cultural vassal state—totally dependent upon whatever nations have the foresight to resist the idea that they should sell their future for a mess of porridge. I am saying in short that this Nation cannot and will not survive—as a nation—as a society—as an entity as we know it—unless we make very sure that we do not cast aside our future.

This country has achieved what it has only because it has been a leader in developing new and revolutionary technology. By the development of new ideas, new attitudes, new techniques, and new concepts for the management of large-scale undertakings, the conquest of space has done much to prepare man for a major offensive against the unsolved social and material problems at home.

Some Members of this body have expressed the opinion that what NASA is doing is too remote from the people; that NASA does not provide benefits to the average consumer or community, and that if space funds were devoted to other areas, the Nation would be better off. This view is neither factual nor informative.

Let's take a look at a few facts of what the space program is doing for you and me and our constituents.

At the turn of this century 5,000 Americans were killed by a hurricane in Texas. In 1928, 4,000 people were killed by a hurricane in the West Indies. In 1959, 1,500 lives were lost in a killer storm in Mexico. In 1969 it could have happened again. The most violent storm to hit North America in our recorded history slammed ashore in Louisiana and Mississippi; Hurricane Camille roared out of the Gulf of Mexico with winds clocked at 200 miles per hour. Whole towns were quite literally smashed to bits. Property damage was in the hundreds of millions of dollars. The death toll however, was negligible compared with the catacylsmic force of this monster hurricane.

The reason that so few people lost their lives was the existence of a meteorological satellite. The satellite had been tracking the erratic and destructive force of Hurricane Camille and had provided advanced warning of its path. The Government has estimated that, without satellite warning, some 50,000 people could have died. That is more than all the casualties in Vietnam during the whole war. How can you put a price tag on 50,000 lives?

Weather satellites are constantly upgrading their present ability to predict weather. Within the next few years experiments in programing the weather of the entire world will be begun. By feeding information to a bank of computers, it is expected that global weather forecasting will become a reality before the end of the decade. Meteorologists expect that the computer predictions will be accurate for up to 2 weeks. The National Academy of Sciences has estimated that the United States alone will save billions of dollars each year in preventing losses from storms and floods—in the farming, construction, and transportation industries.

Let us look at the communications industry. It is now almost routine to watch an event labeled as "live—via satellite." We have all witnessed the excitement of competition at the Olympic games in France or Mexico, or the pomp of the induction of the Prince of Wales. The television satellite has made this possible. Although the most visible communication advance, global television is only a small part of this program.

Transoceanic communication costs have been cut in half since 1963, by a 600-percent increase in the number of telephone lines with Europe through our satellite program. As a result of this and the revolution in the computer industry you can pick up any telephone and call anywhere in the world in moments. The cost of single transoceanic phone link has been cut from $16,000 to $600.

Mr. CURTIS. Mr. President, will the Senator yield at that point?

Mr. GURNEY. I yield.

Mr. CURTIS. I appreciate the point the Senator is making in reference to the development of useful technology out of the space program.

Up until recently, the Russian cosmonauts always lost weight in space thereby raising concern for their health on prolonged flights. Now, there is evidence they may have solved the problem of losing weight.

With the permission of the distinguished Senator from Florida, I will read into the RECORD a UPI dispatch that just came over the thicker.

Mr. GURNEY. By all means.

Mr. CURTIS. The dispatch reads:

Moscow.—The Soviet cosmonauts think they have gained a pound or two during their record 22 days in orbit.

The three crewmen aboard the Salyut orbitan station still miss home cooking although their menu is the most varied of any Soviet space mission and includes solid food like beefsteak for the first time.

"We have no scales—they would be useless anyway," Soyuz 11 Commander Georgia Dobrovolsky told ground control Sunday. "But we think we haven't lost weight and maybe gained some. We'll see when we're back home."

Loss of body weight during prolonged space flight has been a common complaint of Soviet cosmonauts. Dobrovolsky, Vladislav Volkov and Viktor Patsayev tried to avert the problen with four meals a day—served hot.

The cosmonauts today marked their 22nd day in space.

I think there is no question that the more activity there is in space, the more useful technology will be developed in many aspects of our daily living and in our economy.

I commend the distinguished Senator from Florida for pointing out these matters.

Mr. GURNEY. Mr. President, I wish to thank the senior Senator from Nebraska, the minority member of the committee, and commend him for the point he has just made in this debate. The item he has read into the RECORD shows that for the first time there has been no loss of weight by the Russian cosmonauts, even though they are now in their 22d day of orbit. I believe that is the longest man has been in space flight. They previously held the record of 18 days and now they are into their 22d day.

As the Senator from Nebraska has brought out, the point of the matter is that this is a continuing research and development program and as each nation, Russia or the United States, make a further experiment in the space program, new knowledge is gained on which to build and construct an even better and more viable space program. That is the point I was making. We see now, with the Russian manned flight that they are learning new knowledge all the time for every day they are spending in space.

Perhaps an even more important example is the forthcoming Indian satellite project. This will broadcast family planning, agricultural, and educational programs to the entire subcontinent—so that they can be picked up by ordinary domestic receivers with about $200 of auxiliary equipment. It needs only one receiver per village to start a social and economic revolution, at a cost of about $1 per person per year. And this applies not only to India, but also the South America, Africa, Oceania—the whole of the underdeveloped world.

The PRESIDING OFFICER. The time of the Senator from Florida has expired.

Mr. GURNEY. Could I have another 15 minutes?

Mr. CURTIS. Mr. President, I yield the Senator 15 minutes.

The PRESIDING OFFICER. The Senator from Florida is recognized for 15 minutes.

Mr. GURNEY. Mr. President, of course, all of us know that we have barely scratched the surface of the potential of communications satellites. A revolution is underway in this field. Nothing less than hope for all mankind lies ahead as we learn how to increase learning and knowledge to all peoples everywhere through communications satellites. This one spin-off alone is worth far more than our total spending for space.

Twenty-five years ago, the computer industry was a small, struggling business. The demands of space flight pushed com-

puter technology forward so fast that it is today an $8 billion-a-year industry, employing 800,000 people. High speed data links can provide coast-to-coast airline and hotel reservations. Businesses have instantaneous inventory information with which to inform purchasing departments, warehouses, shippers, retail outlets, and consumers. The marvelous work of today's computers, however, will soon be surpassed. Computers have gone through three generations as the space program has become more complex and sophisticated. A fourth generation is now underway. Computer technology affects the lives of every American. Again, we see in action a spin-off of our space program.

Coupled with this communications and computer revolution has been an incredible advance in medicine. A single nurse from her desk can today monitor an entire intensive care ward.

This improved patient monitoring is a direct result of NASA advances in monitoring astronaut physical condition during flight.

Our Nation has justifiably become concerned over the effects that our actions will have on the environment. Again, the space program can provide vital support to our program of ecology. Earth observation satellites will ultimately be capable of worldwide monitoring and identification of pollutants in the water, on land, and in the air. It may become very important that the smallest, earliest, sign of pollution anywhere on earth be detected immediately since the rate and manner in which local ecological disturbances may combine and grow will become vitally important. Such comprehensive and constant environmental surveillance can only be accomplished by satellite.

In respect to food production, satellites have already demonstrated their ability to locate crop failures caused by blight or disease. Satellites may also help as to locate, develop, and maintain food sources in the oceans. Of paramount importance both to our understanding of the effects of pollution and to the monitoring of our natural resources is the gathering of reliable baseline data that will help us to know and understand the natural fluctuations of our ecology and to assess the effects of man-made changes.

Finally, we do not and cannot claim that space alone has created all the new productivity we enjoy today; we can say, however, that it would have been significantly less without the dynamic leverage of the space program.

To address this point: The Nation's economic effort over the period of 1959 to 1970 can be measured as totaling at over $8 trillion. Of this, approximately $2.5 trillion was real growth over the 1959 level. Approximately 50 percent of growth in productivity is attributable to the flow of new technical knowledge into the economy. This technical knowledge comes primarily from research and development investments. During this period 25 percent of the Nation's total research and development effort was carried out under the space program. Thus, the space program has had a major influence on the creation of new health, prosperity, and productivity. Can we afford to abandon progress and growth? I do not think that we can.

Moreover, NASA has made its "spin-off" discoveries readily available to the private sector.

NASA has always encouraged commercial utilization of inventions discovered by its employees and contractors during research and development. Their patent policies are among the most generous of any Government agency. Although all inventions discovered in the course of NASA research are NASA property, NASA may waive the rights in an invention to the contractor if doing so is in the public interest. To encourage the earliest possible commercial use, all inventions which have been patented by NASA, or for which it has filed a patent application, are available on a royalty-free basis to American firms. If a NASA-owned invention has not been developed into commercial form within 2 years of its patent, NASA will then make the invention available exclusively to one company in order to stimulate interest in commercial use.

There are many other specific areas in which the space program has offered positive and tangible benefits to this Nation and to the world. It is calculated that there have been 3,000 directly usable spin-offs from space technology. I urge the Members of this body to vote for the NASA authorization and to support rapid development of the space shuttle. Arthur C. Clarke sums it up better than anyone else:

> There was plenty to do in Europe when Columbus left it to embark on a voyage which most people then considered as foolhardy and needless . . .

There is still plenty to do in Europe. But the opening up of a new world did more to revive the stagnant European culture and economy than any internal action could possibly have done. In that sense, at least, Columbus was just in time. Perhaps our reaching into space, as he reached across the Atlantic, is just in time.

It is a pity that no accurate study has ever been made on the dollar benefits from space spin-offs.

I do not doubt that the figure is far greater than the amount this Nation invested in space.

For starters, it surely can be said that a nation's greatest asset is its technology. Nearly all major breakthroughs in the past were from war.

However, in a brief decade the peaceful space program of the United States, has created more technology than in the entire preceding 100 years.

Astronomy received a new lease on life by the space program and our space observations.

We are learning an entire new field of knowledge about space radiation and its very direct effect upon life here on earth.

The space program and its orbiting satellites have opened up whole new vistas in meteorology, oceanography—a science that is just in its infancy—navigation and transportation, a new potential in determining earth resources, as for example detecting crop disease and pollution, new and improved electronics, new medical technology.

The new products from the space program have been legion in number from plastics for pots and pans, to new metals, chemicals, materials of all sorts, new foods, new electrical systems and new energy and power sources.

In closing, I do not think that the most forceful opponent of space would deny the worth of the space program, or contend that we should do away with it.

But if we are to continue the space effort of this Nation, it is imperative that the next big step, the next breakthrough, is to cut the high cost of space flights.

That is what the shuttle program is all about.

It will dramatically cut costs and make it possible for their Nation to conduct 10, 20, 30 times the needed experiments to build up our space technology for direct economic and social benefit for our Nation and all mankind.

That is what is at stake here.

It is not a question of whether we can afford the space shuttle.

The United States cannot afford to do without this program.

Space is a research and development effort, in fact the principal one of this Nation. It is also an exploratory effort.

People and nations must press ahead in efforts of this kind.

There have always been doubting Thomases in our midst.

When our forefathers came to this land, there were people in England shaking their heads at the folly of those fools.

When pioneers struck out from the eastern seaboard to explore and settle beyond the Alleghenies, again there were those who shook their heads.

The Louisiana Purchase was greeted with a hue and cry.

I am sure that Lewis and Clark did not receive unanimous cheers when they set out.

There was plenty of opposition to spanning the continent by railroad.

Who can forget that the purchase of Alaska was called "Seward's Folly"?

Who can forget the first reaction to the horseless carriage—the automobile?

Did anyone think at first that the Wright brothers' invention would ever amount to more than a fool's thrill?

And so on ad infinitum.

So it is with space. There are those today here in Congress who want to stop technological progress, and bury our heads in the motionless sand of status quo. This Nation is not ready for that kind of defeatism. We should reject this thinking out of hand.

EXHIBIT 1

MATHEMATICA STUDY

0.1 INTRODUCTION

[Tables not printed in RECORD.]

This Executive Summary is an abstract of Mathematica's report, *Economic Analysis of New Space Transportation Systems* of May 31, 1971, which was carried out in accordance with the provisions of Contract NASW-2081.

The study conducted by Mathematica examines the economic merits of three alternative Space Transportation Systems[1] for use in the decade of the 1980's:

The Current Expendable System. The system envisages continuing use of the types of expendable launch vehicles in the United States inventory at present.

[1] A Glossary of Terms is included in the Report.

The New Expendable System. As its name implies, this envisages use of a new family of expendable vehicles, designed to have better (economic) performance than the current expendable vehicles.

The Space Shuttle and Tug System (a new Space Transportation System). This system differs in concept from the previous systems in employing reusable rather than expendable launch vehicles. Two major elements are employed: a Space Shuttle which operates between the Earth's surface and Earth orbits of altitudes between 185 and 1,110 kilometers (100 to 600 nautical miles); a Space Tug, which can be transported within the Space Shuttle and which can operate from the relatively low orbits of the Space Shuttle to high Earth orbits such as the synchronous equatorial orbit (35,500 km or 19,230 n.m. altitude). The combined Space Shuttle and Tug System provides a fully reusable launch system able to place payloads into all widely used Earth orbits, and to return payloads to Earth from these orbits.

The costs associated with reaching an Initial Operational Capability (IOC) with these three systems vary widely. The two expendable systems represent modest investments by space program standards, but the recurring costs of operation under them would remain relatively high. The Space Shuttle and Tug System requires a substantial investment, but would substantially reduce the recurring costs of operation. The impacts of the three systems on the costs of the space program of the 1980's also vary widely. Mathematica has analyzed economic benefits and costs of the different systems. The findings, as well as the economic principles applied, are summarized herein.

Figure 0.1 shows the logic of the overall economic analysis performed by Mathematica and the context within which this analysis should be seen as affecting the Space Shuttle decision. Mathematica submits that within this framework a consistent and detailed economic analysis of the fully reusable Space Shuttle has been made. As Figure 0.1 shows, there are other than economic factors that influence a decision of the scope and character of the Space Shuttle; they have to do with political criteria, the ranking of technological preferences, national priorities and other non-economic criteria. The economic analysis is but one important element to be considered in the approach to the decisions relating to the development and use of a new Space Transportation System.

The study conducted by Mathematica makes major use of the results of the studies performed by two other contractors, LMSC (Lockheed Missiles and Space Company) and Aerospace Corporation, as well as facts, plans and assumptions provided by NASA and the Department of Defense. Figure 0.2 shows the flow of inputs to the economic analysis performed by Mathematica.

The contributions of LMSC consisted primarily of estimates of sample payload costs for the expendable and the resuable Space Transportation Systems for the period 1978–1990, based on extensive payload preliminary designs. LMSC first performed an analysis of expected payload costs based on historical experience to determine whether cost reductions could be achieved. To accomplish this LMSC selected four typical satellites and estimated their expected research, development, test and evaluation (RDT&E) costs, first unit costs and operating costs for each of the three Space Transportation Systems considered. Then these four satellites were looked at in great detail at a subsystem level and redesigned to correspond to the three major classes of satellites anticipated for the 1980's space traffic. Aerospace Corporation then used the results of the LMSC effort as a basis to generalize the payload effects across the Baseline mission model supplied by NASA, which incorporates traffic of NASA, the Department of Defense and other users. Aerospace Corporation then provided Mathematica with the life cycle cost streams from 1971 to 1990—RDT&E costs included—for the Current Expendable launch vehicles and payloads, the New Expendable launch vehicle family and payloads, and the fully reusable Space Shuttle Transportation System based on a two-stage Space Shuttle and reusable Space Tug configuration.

In recognition of the problems of accurately predicting the rate of space activity more than a decade in the future, Mathematica introduced many variations of the Baseline model which resulted in analysis of twenty-six scenarios that bracket the most likely possibilities for the 1978–1990 period. All of the aforesaid considerations formed the basis on which Mathematica performed the economic analysis of the new, fully reusable Space Shuttle Transportation System.

It should be emphasized that the systems data used in the analysis were generated for this study principally by NASA, by the Department of Defense, by Aerospace Corporation, by LMSC and to some extent by other contractors. They were not generated by Mathematica. Mathematica reviewed the data generated including the Cost Estimating Relationships (CERs) used by the Aerospace Corporation and is satisfied that they reflect current standards for such efforts and represent the best procedures available at this time.

Aerospace Corporation stated that it tested its cost estimating relationships by estimating costs of well known aerospace systems with good approximation of actual costs. On the other hand, it must be recognized that the fully reusable Space Shuttle Transportation System advances major new areas of technology, and therefore involves cost uncertainties not easily related to present aircraft or spacecraft costs.

The analysis is based on data published by Aerospace Corporation in *Integrated Operations-Payloads-Fleet Analysis*, Mid-Term Report, (6 Volumes), dated March 31, 1971. Aerospace Corporation plans to publish an update of these data in June 1970. Mathematica will undertake a study to assess the impact of the updated data on the findings of this report.

Mathematica is continuing its validation of the cost data and the details of their aggregation from individual components to larger units.

Mathematica has designed the model for the benefit-cost analysis into which the data provided for Mathematica have been inserted. This model is comprehensive and takes into account the relevant concepts provided by advanced, modern economic analysis. The present model has been modified and expanded for general use in cost effectiveness analyses of new Space Transportation Systems (STS).

In the Report only expendable launch vehicle systems and the fully reusable, two-stage Space Shuttle and Tug System are considered. An economic evaluation of other viable alternative concepts has as yet not been made by Mathematica. Assessment of the cost effectiveness of other Space Shuttle configurations to determine the most economic choice can be performed in accordance with the methodology of this analysis, once technical validation is accomplished and comparable technical performance and cost data are available.

### 0.2 STATEMENT OF THE ECONOMIC PROBLEM

NASA is studying the development of a new, fully reusable Space Shuttle Transportation System for the 1980's to replace its Current Expendable Space Transportation System. Table 0.1 gives the complete life cycle cost summary of launch vehicle systems and payloads for the alternative Space Transportation Systems considered in this study. The two-stage, fully reusable Space Shuttle System as estimated by Aerospace Corporation on March 31st, 1971 is expected to have non-recurring launch vehicle costs of approximately $12.8 billion (RDT & E and initial fleet investment costs) in constant 1970 dollars. (Section 0. 3. 7. See also p. 0–31.) In terms of past historical experience in either NASA or the Department of Defense, this is a major research and development project—about half of the cost of the Apollo program of the 1960's—and, therefore, deserves very careful examination and scrutiny.

Any investment in large scale RDT & E projects has either or both of two major economic objectives:

(a) to develop a new good or service,

(b) to reduce (future) production and operating costs.

An example for (a) is the development of space transportation capability of the United States during the 1950's and the 1960's. Today the United States has an Earth orbital space transportation capability and the aim of future RDT & E outlays is mainly (b), that is, the expected reduction of space activity costs; however, added capabilities are also anticipated from such a program.

In the case of the Space Shuttle and Tug System, the expected cost reductions in the 1980's will occur in two major areas: first, the launch system recurring costs will be reduced from $13 billion total to $5.5 billion due to the repeated use of the launch system. Second, the cost of payloads—the major portion of space program costs—will be reduced from about $40 billion to $26 billion due to the reuse, refurbishment and updating of payloads. Once the Space Shuttle System is in operation the total direct costs of the national space program will consist of the recurring launch costs and the total (i.e., nonrecurring plus recurring) costs of the payloads to be carried. Table 0.1 illustrates that recurring launch costs make up about 20 percent or less of space program costs (1978–1990), *while 80 percent or more are due to the total cost of payloads. Therefore, an economic analysis of the New Space Transportation System has to look at payload costs as the major part of total space program costs, and not only at launch costs.*

In economic terms the problem can be stated as follows: What must the future savings in space program costs (launch—as well as payloads) be to justify an RDT&E and Initial Investment outlay on the Space Shuttle of, say, $13 billion? Or, as illustrated in Figure 0.3, one can ask the reverse question: considering the expected cost of the national space program using an Expendable Space Transportation System in the 1978–1990 period and given the expected savings in the operating phase of space programs with the Space Shuttle System, both launch costs and payload costs considered, what are the justifiable non-recurring costs of New Space Transportation System concepts? A convenient way to illustrate all the possible economic configurations of recurring versus non-recurring costs of different technologies is shown by the trade-off line in Figure 0.3. Estimates and configurations below the trade-off line are, in economic terms, better than the Current Expendable System, while configurations of non-recurring costs and recurring cost estimates above the trade-off line are worse than the expected Expendable System costs.

Figure 0.3 shows the trade-off line between the launch costs for one additional flight and the expected non-recurring costs of different systems. Underlying each of these regions of economic choice shown in Figure 0.3 is a very complicated and extensive set of cost estimates, demand estimates, and estimates of other economic variables influencing system choice which will be listed subsequently and which are analyzed in detail in the main Report, Chapters 2.0 and 6.0.

The costs may be subdivided into two major broad categories:

(a) The non-recurring costs associated with the RDT&E and investment phase, *in-*

*cluding both launch vehicle and payload costs.*

(b) The recurring costs per mission or per year for both the expendable and the fully reusable system after the Initial Operating Capability (IOC) date, again *including both launch vehicle and payload costs.*

Figure 0.3 does allow for the correct adjustment of the tradeoff line for payload effects (see 2.4 and 2.6).[1] The fully reusable Space Shuttle and Tug Transportation System is shown with an estimated non-recurring cost of $12.8 billion and an estimated cost per launch (based on incremental costs) of $4.6 million. Alternate (Hybrid) systems that consist of both expendable and reusable elements may have a wide range in expected non-recurring and recurring costs: the one shown has $7 billion in non-recurring costs and a recurring cost per launch of $8 billion, again on an incremental cost basis. The Expendable systems would also have an associated non-recurring cost, to meet mission requirements of the 1980's, of about $1.5 billion, but an expected cost per launch of $13.1 million—averaged over a large family of expendable rockets (from $3.2 million to $27.0 million, see Chapter 6.0, Table 6.3). An analysis comparing the cost of Expendable systems to expected costs of the Space Shuttle and Tug was made on a mission-by-mission and payload-by-payload basis. The figures shown in the summary graph are aggregate, averaged figures. The regions around the point estimate indicate the uncertainty in non-recurring and recurring cost estimates of the various systems.

The particular trade-off line in Figure 0.3 was drawn based on a 10 percent social rate of discount.[2] There are a set of other economic factors that influence the location, the shape, and the slope of the tradeoff line in Figure 0.3; among these are the level of demand for space transportation and the magnitude of payload effects for different systems.

Figure 0.4 illustrates the space program cost streams (annual cost vs. time) associated with the Space Shuttle System and with the Current Expendable System. It reflects the space program activities of the mission model established by NASA and by the Department of Defense for this study. Figure 0.4 summarizes the total life cycle costs for RDT&E, investment and operations phases of both launch vehicle and payloads.

Mathematica introduced considerable variations to these activities, called Scenarios, to cover a broad range of space transportation demand in the 1980's. In Table 0.2 the Scenario 1 (NASA and DoD Baseline model) life cycle cost summary data are presented for the Space Shuttle System. The cost data are given by year from 1971 to 1990 for launch vehicle RDT&E, initial fleet and operation costs as well as for payload RDT&E and operation costs. Total costs are also shown for each year and for each category, all in undiscounted 1970 dollars.

### 0.3 ECONOMIC PRINCIPLES APPLIED IN THE ANALYSIS

Given the expected reductions in space transportation system costs in the 1980's, Mathematica analyzed the circumstances and consequences of an investment in a New Space Transportation System made in the 1970's. For this, total life cycle costs of the investment were used. Mathematica gave additional attention to the costs per flight for the different Space Transportation Systems and their effect upon the demand for space transportation in the 1980's. For the purpose of considering efficient use of alternative transportation systems the incremental costs of space flights are relevant. The actual pricing policy of flight operations is subject to institutional constraints and one has a variety of choices, ranging from total cost recovery down to recovery of incremental cost per flight only; it could also be based on demand elasticities of users. However, the two problems of cost effectiveness and demand analysis (for pricing strategy) should not be confused with each other.

The principal economic considerations are the following:

#### *0.3.1 Cost effectiveness analyses*

Under cost effectiveness analyses, in a strict sense, Mathematica includes only those economic analyses that use a definition of economic benefits which are either directly or indirectly derived from expected cost savings between alternative systems. Within cost effectiveness analyses Mathematica chose two alternative and equally valid approaches that lead to different economic results:

a. *Equal Capability Effectiveness.* These cost effectiveness analyses assume that the same demand (capability) has to be met. Estimates of the *net cost savings* are made that can be achieved when introducing new technology. These cost savings are then compared to the expected outlay of RDT&E and hardware costs of the new system. In Figure 0.5a the approach is illustrated (see Chapter 2.0).

b. *Equal Budget Effectiveness.* These analyses assess whether the direct cost savings implied by (a) above *and* increases in the demand for space transportation induced by the new system up to the same annual budget level justify the expected RDT&E and initial fleet investment over the complete uselife of the new system. The new system is operated with the same budget level that the existing technology requires to meet the space transportation capabilities within each scenario. This approach is indicated in Figure 0.5b (see Chapter 2.0).

Figures 0.5a and 0.5b illustrate these two types of cost effectiveness analyses. Neither approach considers potential additional benefits and options that a fully reusable Space Transportation System can offer the Nation, i.e., capabilities that with the Expendable rocket technology simply are not achievable for technical reasons. In making cost effectiveness analyses in this strict sense, one need only make the assumptions that prior to the development of the New Space Transportation System society is willing to spend, say, $3 billion to place 46 payloads into orbit, per year, (this was the average over the years from 1963 to 1970 for the unmanned programs, excluding the manned space program completely) and that the projected space budget for NASA and the Department of Defense jointly is being spent in an efficient way.

This means that with the existing technology, sizeable cost savings cannot be achieved for the same program capabilities either in the Department of Defense or in the science and applications programs of NASA.

Equal capability analyses and equal budget analyses were performed for a whole range of expected space programs, from 450 to 900 flights, over a 13-year (1978–1990) period for expendable and fully reusable systems. The range of space programs (scenarios) considered is described further in the quantitative summary, Section 0.4.

#### *0.3.2 The measurement of induced benefits from incremental space activities*

When performing "Equal Budget" analyses one has to allow for one basic axiom of economic theory: the decreasing marginal value of goods and services. In keeping with this fundamental principle, as additional missions are added to the existing space program, they increase the total value received by society, by the agency, or by the scientific community; however, the increment in utility received by society or the consumer will be decreasing as the number of missions increases. This holds for NASA, for the Department of Defense, and for other government agencies. The assumptions made for the "Equal Budget" analyses in measuring the benefits of additional space flights beyond those undertaken with the Expendable Space Transportation System in the 1980's are illustrated in Figure 0.6. The horizontal axis shows the number of space flights demanded per year, and the vertical axis shows the price or cost per space flight, including payload costs. (Ignoring, correctly, fixed costs and considering incremental costs; see 0.3.6.).

The direct benefits are the cost savings if the Space Shuttle would undertake the same missions (equal capability) as those done under the expendable Space Transportation System. The demand curve which goes through $P_0$ was constructed under the assumption of a constant budget for NASA and the Department of Defense space activities, launching all the space flights possible within the limits of a given budget. The downward sloping demand curve, therefore, shows a constant U.S. space expenditure; it reflects how changes in the cost per space flight (launch costs and payload costs considered in combination) influence the number of flights demanded with such an assumption. If the nominal cost savings of the Space Shuttle System compared to current technology had been included in the equal budget analyses as a benefit, then a considerable overestimate of the "benefits" of the New Space Transportation System would result.

In general, the "Equal Capability" analyses are the most conservative way of looking at the economic efficiency of New Space Transportation Systems. The "Equal Budget" analyses do allow, in part, for the increased activity to be expected by lower cost systems. The lower and upper limits of space activities for the economic analyses were determined within the context of the history of space flights in the 1960's for the United States and for the Soviet Union, as illustrated in the summary charts in Section 0.4 of this Executive Summary.

Mathematica tested the constant budget hypothesis on the example of Department of Defense payloads in the 1960's and found an elasticity of demand exceeding that implied by the constant budget hypothesis. This would indicate that demand for space transportation in the 1980's with the Space Shuttle System may well be larger than that indicated by the Equal Budget demand curve. To the extent possible the precise shape and location of the demand curve should be established but its determination is a major task.

#### *0.3.3 The social rate of discount*

No proper investment analysis is possible, whether private or public investment is considered, without using a discount or interest rate. For private investment the interest rates in the capital market provide the critical information. For public investment the correct rate is more difficult to determine because the allocation of resources both to and within the government is directed only in part by the forces of the market.

For the government sector the social rate of discount fulfills the function of the interest rate in the private capital market. It reflects the sacrifice that is borne by the economy when resources are withdrawn from other production or consumption in the economy and are instead transferred to a public investment project. Mathematica analyzed the investment alternatives of the Space Transportation Systems for discount rates ranging from 1 percent to 20 percent. The discount rates included in this Summary concentrate mainly around the 10 percent rate of discount. For purposes of comparison, results are also given for 5 percent and 15 percent rates of discount. The 10 percent social rate of discount used for the summary of Mathematica's results is among the highest discount rates used in the federal govern-

[1] These numbers, as well as similar subsequent numbers, refer to sections in the Main Report.

[2] The social rate of discount is discussed in Section 0.3.3.

ment for the evaluation of an investment project of this type. The use of the 10 percent rate, therefore, is a very conservative way to evaluate the economics of the Space Shuttle System.

A survey of the major government agencies for Fiscal Year 1969 indicates a wide variation in the use or non-use of social rates of discount for the evaluation of public research and development projects. The rates used by government agencies varied between 0 percent, i.e., the use of no discount rate to a concentration among major agencies around 4 percent to 5 percent. For some projects, mainly of the Department of Defense, the rates used were 10 percent or more. One of the major advances, yet to be achieved, is the use of a single discount rate to evaluate public investment projects across government agencies. In the light of the present usage, the 10 percent rate used by Mathematica is among the highest applied. A survey of the recommended social rates of discount by economists again leads to the conclusion that a 10 percent rate ranks among the highest rates suggested by different economists. A survey, extending from 1958 to the present, of the rates suggested by economists indicate a range from 4 percent to 13.5 percent. Only two economists out of fifteen suggested in the published literature rates in excess of 10 percent.

One must emphasize that the 10 percent social discount rate was applied to constant 1970 dollars and not to an inflated benefit stream in current dollars over the 1970's and 1980's. This fact adds further conservatism to the economic analysis performed for the New Space Transportation System.

The higher the social rate of discount applied to a project, whether private or public, the less likely is the economic acceptance of such a project. Figure 0.7 shows the net present value of an investment project such as the Space Shuttle as a function of the discount rate applied to the benefit and cost stream over the expected lifetime of the project.

The problems of estimating the discount rate from empirical data, the problem of ranking alternative projects, and the uses and misuses of the internal rate of return have been discussed in considerable detail in this Report and in an earlier paper.[3] The matter is somewhat intricate and for the purposes of a summary we shall not repeat the discussion here. The correct intuitive interpretation of the social discount rate can, however, be explained as follows: When the government undertakes a public investment project, the resources absorbed by the project must necessarily be withdrawn from the pool of investment and consumption resources in the economy. The government can justify the transfer of the resources to a particular project only if it can put these resources to a more productive use than the private sector could have achieved with them. In the case of the Space Shuttle System, this applies to the $12.8 billion for RDT&E and Initial Fleet costs. The *opportunity costs* of using the resources for the public sector are the foregone benefits that would have been produced with these resources by the private sector. The social rate of discount reflects the magnitude of these opportunity costs for government investment projects.

Though Mathematica also shows in the summaries the results for the 5 percent and 15 percent discount rates applied to the Space Shuttle investment decision, we, nevertheless, recommend 10 percent and draw our conclusion based on the 10 percent social discount rate applied to the different space programs.

[3] Heiss, K. P., Reinhardt, U., "On the Principles of Public Project Evaluation." Volume 1, *Cost Benefit Analysis of New Launch Systems*, Mathematica, prepared for the National Aeronautics and Space Administration, Princeton, N.J., July 17, 1970.

*0.3.4 The uselife of RDT&E investments in the Space Transportation System*

The economic uselife of an investment project is normally something short of infinity. This is so because the typical investment project ceases to have economic value when the physical uselife of the project ends. The technology created with the development of the Space Shuttle, however, does not vanish. Mathematica submits that, after careful consideration of all the issues involved in choosing between a finite or an infinite uselife for RDT&E investments, the selection of an infinite uselife for such projects is the correct procedure.

To limit the uselife of these expenditures to, say, the year 1990 assumes that all scientific and technical knowledge used as part of the Space Shuttle development will be lost by 1990, and that the development of whatever new system might be built in 1990 will not have to draw on such knowledge and not have to prove cost effectiveness compared to the 1978 Space Shuttle, but rather the Expendable systems of the 1960's and 1970's. Such an assumption is obviously not realistic and would lead to a serious understatement of the true economic value of RDT&E investment activities.

*0.3.5. Other economic parameters: Program start, gestation period and the initial operational capability date*

In most cost effectiveness analyses the program start and gestation period, as well as the initial operational capability of the system to be developed, are very important variables affecting the cost effectiveness of alternative systems. Mathematica has allowed in the analysis for a considerable variation in the gestation period of the RDT&E program, the Initial Operational Capability (IOC) date, and the program start of the Space Shuttle. The gestation period of the Space Shuttle program was extended by up to 50 percent of the time estimate of the present development schedule. With regard to the IOC date and the slippage of the development program, delays in the IOC date of one and two years have been considered by Mathematica. Although delays in each of these variables (the program start, the lengths of the gestation period, and the IOC date) do influence negatively the net present value of the Space Shuttle investment project, none of them has sufficiently significant effects, within the limits analyzed by Mathematica, to change the decision to accept or reject the Space Shuttle investment. However, the conclusion has to be based on a careful understanding of the complete methodology of the economic analysis. Data points for the evaluation of such space programs are included in the summary charts and the results are reflected in the general economic findings.

*0.3.6. The incremental costs of space flights in the 1980's of different space transportation systems*

Table 0.3 presents an economic breakdown of the launch vehicle life cycle costs of the Space Shuttle and Tug. The total costs are classified into non-recurring and recurring costs. While the non-recurring costs are independent of activity level, the recurring costs may be further classified into activity-level dependent (incremental) and activity-level independent costs.

For the fully reusable Space Transportation System, the incremental or marginal cost is estimated to be $4.6 million per launch for the Space Shuttle and $0.46 million for the Space Tug. Costs independent of activity level are not relevant when measuring the incremental costs. One could calculate *average* costs of space flights by considering the flights of an arbitrary 10 to 13 year space program and allocating to them the total RDT&E costs as well as the initial fleet and operating costs, which would then lead to figures ranging from $25 million to $30 million per launch. The use of this average as a price would prevent the Nation from using the Space Shuttle optimally. The examination of this assertion is presented in Appendix A to Chapter 1.0.

Figure 0.8 illustrates the difference between (a) *total average* cost, (b) the *average operating* cost, and (c) the *incremental* cost for Space Shuttle flights. On the horizontal axis we show again the number of Space Shuttle flights, and on the vertical axis the cost per launch of those flights. While total average costs range from $24 million to $18 million as a function of expected Space Shuttle flights, and average operating costs range from $7.1 million to $6.0 million, several alternative calculations of the incremental costs of additional Space Shuttle flights ranging over many different flight levels, indicate that the incremental cost of Space Shuttle flights is $4.6 million (see 2.5.4). This is the cost incurred when launching an additional flight, e.g., when increasing the flights from 56 to 57 per year. The incremental costs of Space Shuttle flights prove to be very close to this figure when different approaches are taken to determine incremental costs. Also, the incremental costs are found to be constant over a large range of flight levels.

For Expendable launch vehicles the incremental costs per flight are much higher, and close to their average total operating cost. The main reason for this is that with each expendable launch all the flight hardware (and associated testing) is "thrown away." Chapter 6.0 and Table 6.3 of the Report detail the cost range of the Expendable launch vehicles. These costs range from $3.2 million (Scout) to $27.0 million (Titan III L2/Centaur).

When selecting the vehicle assignments (between Expendables and Space Shuttles), one has to include the different mission costs due to payload effects in addition to the incremental launch costs of the Expendable and the fully reusable Space Shuttle and Tug Systems. The process by which vehicle assignments are made on the basis of incremental costs is called "capture analysis." A complete set of these, i.e., choice of Space Shuttle or Expendable modes, has been performed on the Space Shuttle and Tug Transportation System. Analyses of the sensitivity of system selection to changes in incremental costs of the Space Shuttle and Tug System have also been performed in the context of mission capture analyses and are further described in Chapters 2.0 and 6.0 of the Report.

*0.3.7. Risks and uncertainty*

First and foremost, in terms of the acceptability of the Space Shuttle investment, must loom the estimate and the accuracy of the nonrecurring costs in the 1970's to develop a fully reusable New Space Transportation System. Different system configurations which would provide a reusable capability are associated with different levels of research and development efforts as well as initial fleet requirements. With regard to the selection of the best system, the effects of these differences have yet to be fully evaluated. Nevertheless, Mathematica believes that the present estimate for the non-recurring costs of the Space Shuttle and Tug System, as used in the Report, should not be equated with either a "political" price to get the Space Shuttle accepted or with very early estimates of non-recurring costs of research and development investments.

The estimates of the non-recurring costs of the Space Shuttle and Tug System have changed significantly over the past two years. RDT&E costs of the Space Shuttle and Tug System have shifted from the early estimates of $5.2 billion (Space Task Group Report, September 1969) to $9.3 billion (Aerospace Corporation, March 31, 1971).[4] Although further changes in the estimated RDT&E, and the Initial Fleet costs of the Space Shuttle

[4] Both estimates expressed in 1970 dollars.

and Tug System will occur, Mathematica feels that with an efficiently managed development program of the Space Shuttle and Tug System, the cost escalation experience of the early and middle 1960's should not apply to the present non-recurring cost estimates of the Space Shuttle System. This holds in particular if the non-recurring cost estimates are all made in constant 1970 dollars and, therefore, eliminate the artificial effects of inflationary cost escalation that will continue to occur in the 1970's.

Mathematica has also performed a cost uncertainty analysis of the Space Shuttle cost savings to be expected in the 1980's. It should be recalled that the major advantage of the New Space Transportation System, when compared to the Expendable mode, lies in the following areas:

(a) The reduction in: First, payload RDT&E costs; second, payload first unit costs; third, the costs of space programs after 1978 upon inclusion of reuse, refurbishment and update of payloads, made possible by the Space Shuttle System.

(b) In comparison with the Expendable Space Transportation System, the Space Shuttle and Tug System has lower launch costs.

However, these expected cost savings are in the future and by their very nature relatively uncertain as to their particular level as well as to the time by which they can be realized. Mathematica has applied risk analysis methods to the payload and Space Shuttle launch cost streams classified as "activity level dependent" costs. Although the estimation of cost uncertainties will, admittedly, always remain an area of major concern, by applying techniques of risk analysis to the recurring cost streams of the Space Shuttle, Mathematica found the Space Shuttle investment unquestionably superior to the New Expendable System at a 5 percent social discount rate and calculated an 0.86 probability that the Space Shuttle investment will have a rate of return of at least 10 percent.[5] Although by the very nature of large scale RDT&E projects as exemplified by the Space Shuttle investment, an element of uncertainty will persist, the analytic tools available show that the Space Shuttle investment is confirmed to be economically acceptable.

On the other side, there is an additional consideration which favors a Space Shuttle System: the mission reliability as measured by the initial assured functioning of the payload in orbit is significantly higher than that of expendable systems. Empirial evidence shows that the majority of failures of payloads occur very early, within the first several days from launch; these failures can—for all practical purposes—be eliminated by the Space Shuttle System through an in-orbit checkout before payload release. This benefit has not been allowed for in this study. It may have a major effect on the commercial and national security demand for space activities in the 1980's, favoring the Space Shuttle System.

### 0.4 SUMMARY OF THE QUANTITATIVE RESULTS OF THE ECONOMIC ANALYSES

Mathematica evaluated a range of space programs covering the expected range of space activities in the 1980's, on the basis of conservative projections of the history of United States space flights in the 1960's.

In this Report the term "space program" is defined as a particular combination of NASA, Department of Defense, and commercial space applications. The term "space program" is used interchangeably with the term "scenario." "Space program costs" (the costs of a scenario) as used in this Report include the cost of development, construction, launch and operation, and payloads. These costs also allow for the associated support costs such as the cost of launch sites. Excluded are general administrative costs.

The space programs analyzed by Mathematica cover widely different mixes of scientific, defense, and commercial applications of space. About thirty different space programs for the 1980's were analyzed with regard to their economic effects on the choice between Current Expendable technology and a fully reusable Space Transportation System. The payloads and traffic of the Baseline Mission Model (with wide variations provided by the scenarios) and the various Space Transportation System concepts are described in detail in Chapters 2.0, 4.0 and 5.0.

The space program identified as Scenario 1 (736 missions over 13 years, with an average of 56 missions per year, see also Figure 0.4) describes the program requirements established for this study by NASA and the Department of Defense for the 1980's. This program includes a substantial Office of Space Science and Applications (OSSA) budget, a Department of Defense budget in line with current projections of the Department of Defense, commercial space applications of about $300 million a year, and manned space flight activities of only $200 million per year on the average (that is, only Space Station support missions of four to five flights per year were included). Cost streams were estimated for Current Expendable and fully reusable Space Transportation Systems. These cost streams include both launch vehicle and payload costs (RDT&E, investment and operating costs). (See Figures 0.4, 0.17, 0.18, 0.19 and Tables 0.2 and 0.3.) The cost streams were then used as a basis for the different cost effectiveness analyses.

Figure 0.9 summarizes results of "Equal Capability" cost analyses of the fully reusable Space Shuttle. On the horizontal axis a great variety of alternative, postulated space programs are ranked in ascending order based on the average number of flights they imply. The vertical axis shows the economically justifiable[6] (or allowable) reusable launch vehicle RDT&E and Investment costs (in undiscounted 1970 dollars) associated with these alternative space programs. By economically "justifiable" cost in this context is meant the maximum RDT&E and Investment outlays which could be incurred without depressing the net present value of the reusable Space Transportation System, (i.e., the present value of all future benefits minus the present value of all costs associated with the reusable Space Transportation System) to a level below zero, at a 10 percent discount rate. All the benefits attributable to this investment—i.e., cost savings in the recurring launch costs and all of the expected payload cost savings (RDT&E included)—are reflected in the evaluation of these allowable non-recurring launch vehicle costs, as a function of either the flight level or the annual space budget levels. The $12.8 billion lines reflect the 31 March 1971 estimate of these non-recurring costs. Therefore, any particular point on the upward sloping line indicates, on the vertical axis, quite closely, the maximum allowable RDT&E and Investment costs for transportation vehicles associated with the corresponding average annual traffic flow on the horizontal axis. As an example, the 1964–1969 U. S. traffic equivalent is represented by an annual traffic of 51 Space Shuttle flights. This is equal to 663 flights over the 1978 to 1990 period. The allowable RDT&E and Investment costs for this traffic rate are $15.8 billion.[7] (See Figures 0.14 and 0.16). The 1965–1970 equivalent traffic of the USSR was 65 flights per year. This amounts to 845 flights over the 1978–1990 period. If this rate were projected for the United States a total of $20 billion in RDT&E and Investment costs could be incurred for the Space Shuttle System without reducing the net present value of the Space Shuttle System to a level below zero, i.e., without rendering the Space Shuttle System economically unjustifiable. Any other point on the upward-sloping line is to be interpreted analogously. Thus, as long as the *allowable* non-recurring Space Shuttle System costs exceed the *actual*, estimated non-recurring costs ($12.8 billion), the Space Shuttle System is economically better than the Expendable System. The level of space activity (over 13 years) where allowable and actual costs are equal is identified as "break-even point."

Mathematica's Baseline space program for the 1980's, identified in Figure 0.9 as Scenario 3, contains an OSSA budget using the Expendable System of about $900 million for 20 flights per year. This is one-half of the budget and traffic for OSSA projected by Scenario 1, the NASA-DoD Baseline model.

The Department of Defense budget of about $1.2 billion and 28 flights per year on the average, as well as the commercial applications and manned space flight programs, are the same as those of Scenario 1. The other scenarios are variations around the Mathematica Baseline space program for the 1980's. Of particular interest are Scenarios 23 and 24 which reflect historical levels of space funding for OSSA and the Department of Defense, with commercial and other civil applications and manned space flight activities at the level of Mathematica's Baseline space program only. Scenario 23 is based on the 1963 to 1971 average funding level for the different agencies, while Scenario 24 projects for the 1980's a space program based on the funding levels of Fiscal Years 1970 and 1971—historical low points for recent United States space activities.

Even though the different space programs include (1) a drastic variation in the mix of activities between OSSA, the Department of Defense, and commercial applications; (2) a variation in the phase-in of the Space Shuttle—the period between 1978 and 1984 was considered; and (3) different build-up rates, we find an extremely good fit of the different economic results to the line shown in Figure 0.9. One would have expected a wider scatter of the economic answers from benefit-cost analyses of these different programs. If this had been the case, the defined measure of capability by which the space programs were ranked—i.e., the number of space flights—would not have been sufficient to adequately describe and measure the costs of space activities. In that case one would have to estimate not only the overall level of space transportation activities for the 1980's relatively accurately, but also the actual composition of the 1980's space flight programs as they divide up into defense, science and commercial and other civil applications.

In constructing the scenarios the same relative cost distribution of payloads was maintained within each agency. As the different space programs also covered options including and excluding manned space flights the results are divorced from the issue of manned versus unmanned space exploration although all systems considered maintained a manned space flight capability. *The results of the economic analyses indicate that a devision on a future manned program is not required to justify or reject the fully reusable Space Transportation System for the 1980's.*

What this implies is that the complete set of economic analyses (methodologies and results), presented in Chapters 2.0 and 7.0 of the Report, lend themselves to reliable conclusions with regard to the economic desirability of Space Transportation Systems, *once the overall demand for space transportation in the 1980's can be established.*

Furthermore, given the detailed descrip-

[5] In other words, the analysis will show a breakeven on present value at a social discount rate of at least 10 percent.

[6] The upward-sloping line in Figure 0.9 is a least-squares fit to a number of points closely scattered along this line with an $R^2$ of better than 0.99.

[7] Total absolute funding level over about ten years.

tions of the space programs (scenarios), the space history of the United States, and projections of space activities over the 1970's and 1980's in NASA and the Department of Defense—with a potential underestimate of commercial applications—one can draw reasonably accurate conclusions of whether or not a New Transportation System with reuse and refurbishment capability of payloads is desirable, taking into account the expected budgetary environment for space applications in the 1970's and 1980's. Mathematica took the United States *space flight activity* from 1964 to 1969, and made for the 1980's a similar 13-year average projection of space flight activity—not in budgetary terms, but in numbers of flights only. We see that this leads to an "Equal Capability" scenario of 663 flights, roughly in the neighborhood of space programs of Scenarios 2, 7 and 8. Mathematica then took the *historic funding level* of United States space flight activity by agency—excluding the manned space flight program—between 1963 and 1971 as the basis for a budget constrained analysis for the 1980's and again arrived at a flight level corresponding exactly to the number of flights between 1964 and 1969. In the "budget constrained" case the number of possible flights, given the cost estimates for Current Expendable technology was found to be a 13-year total of 663 flights, or the exact 1964–1969 average of 51 United States flights per year. Thus the agreement of these two analyses tends to support the consistency of the economic analysis.

The results of the economic analysis are summarized in Figures 0.9 to 0.16.

Figure 0.9 shows the allowable non-recurring costs for developing, testing and producing the fleet of necessary, fully reusable vehicles as a function of the numbers of flights from 1978 on, with the total flights shown over a 13-year horizon, and using a discount rate of 10 percent. The space flight level varies between 450 flights and 900 flights, the range covered by our analyses. Figure 0.9 shows the allowable non-recurring costs in terms of the *"Equal Capability"* cost effectiveness analysis (see 0.3.1). This line shows the case where no allowance is made for increased space flight activities within each space program due to the greater incentive of using a lower cost Space Transportation System. It assumes that the space activities of NASA, the Department of Defense, and commercial applications will not increase at all when the costs of space missions are reduced by nearly one-half! This is a very conservative way of evaluating any economic investment. Figure 0.9 relates the cost savings of a fully reusable Space Transportation System in the operating phase of the program to the allowable non-recurring costs of developing such a system.

With the "Equal Capability" analysis, a non-recurring cost for the new, fully reusable Space Transportation System of $12.8 billion (undiscounted 1970 dollars) would be justified, at 10 percent, with a space flight program from 1978 to 1990 of 506 flights, or 39 flights per year. We find that the range of allowable non-recurring costs goes from $12.1 billion in the case of Space Program 12 up to $21.4 billion in the case of Space Program 5, the two extremes analyzed by Mathematica (38 flights per year up to 70 flights per year). Space Program 3—the program used by Mathematica as its projection for the 1980's—gives an allowable non-recurring cost of $14.5 billion (undiscounted 1970 dollars in all cases).

Two major points should be added here:

1. If a substantial manned space flight program were added, the economic advantage of the Shuttle would improve.

2. If a substantial lunar exploration program were to be added to the options used in our analyses, significant reductions in lunar space transportation costs could be expected from the Space Shuttle.[8] Scenarios 25 and 26 analyze the efforts of such an option on the economics of Scenarios 1 and 3. Figure 0.15 shows the effects of such an option on the economic results of our analysis. Scenario 25 included the NASA-DoD Baseline (Scenario 1) and Lunar Option 1; and Scenario 26 includes the Mathematica Baseline (Scenario 3) and Lunar Option 1. For both of these scenarios the launch costs of the Space Shuttle are but one-third of the Current Expendable and New Expendable cases. The Lunar option makes use of the Nuclear Shuttle for Earth orbit to Lunar orbit flights.

Figure 0.10 shows the allowable non-recurring costs for the fully reusable Space Transportation System as a function of the annual space program budget in terms of the *"Equal Budget"* cost effectiveness analyses performed at a 10 percent rate of discount. The allowable non-recurring costs for developing a fully reusable Space Transportation System are increased by about 25 percent when compared to the "Equal Capability" analyses of the same scenarios. The "Equal Budget" line shows, for each scenario, what the economic return is, if each space program had allowed for the *same funding level* as that required by Current Expendable technology. Again, the economic analyses give results that fit very closely the "Equal Budget" line shown in Figure 0.10 and lend themselves to similar conclusions as gained from the results presented in Figure 0.9, both at discount rates—in real terms—of 10 percent.

With the "Equal Budget" analyses, a non-recurring cost of the new, fully reusable Space Transportation System of $12.8 billion (undiscounted 1970 dollars) would be justified, at 10 percent, by a space flight program requiring an annual funding of $2.0 billion for NASA and the Department of Defense (launch costs and payload costs). The Mathematica Baseline space program (Scenario 3) for the 1980's now yields allowable non-recurring costs for a New Space Transportation System of about $19.5 billion (undiscounted 1970 dollars). The NASA and Department of Defense requirements of Scenario 1 yield a comparable, allowable non-recurring cost of about $23.7 billion. The States unmanned space program gives an "Equal Budget" figure close to $22.1 billion. That is, *if the United States were to continue to spend for scientific, defense and commercial space applications* (the unmanned U.S. space program) *similar funds as in the 1960's, the economic analysis shows that the New Space Transportation System would still be an economic investment with a 10 percent rate of return if it cost $22.1 billion in non-recurring outlays* (RDT&E and Fleet Investment). In this example, as in all others, we assume that the non-recurring launch vehicle costs are distributed proportionately over time in the same way as shown in Table 0.1.

The strongest, most conservative results of the economic analysis are shown, however, in Figure 0.11. In the analyses summarized in this figure, Mathematica proceeded on an "Equal Capability" cost effectiveness basis for all space programs listed. In addition to this, Mathematica *excluded* in these calculations—at 10 percent—volume and mass (weight) related payload effects that may also be realized with expendable systems. Mathematica included reduced space program payload costs due to the reuse and refurbishment capability of satellites made possible by a fully reusable Space Transportation System. With this analysis the new, fully reusable Space Transportation System breaks even at a space program of 566 flights (1978–1990), or about 44 flights a year (cf. Figure 0.11). The economic analyses, at 10 percent, still indicate allowable non-recurring costs for "buying" a fully reusable Space Transportation System of:

a. $12.9 billion for the projected space program in Scenario 3;

b. $15.4 billion for the projected space program in Scenario 1; and

c. $14.6 billion for the historic flight and funding level of the unmanned United States space program of the 1960's.

All of these allowable funds are expressed in undiscounted 1970 dollars.

If the development of the two-stage, fully reusable Space Shuttle now being considered by NASA were delayed by one year—with a corresponding shift of the Initial Operating Capability date—*the results from our economic analysis do change, but not significantly.* This conclusion is, of course, predicated on the assumption that engineering research and advanced development in the critical areas of the Space Shuttle technology are continued. Similar economic results also hold for a reduction in the rate of the phase-in of the Space Shuttle after its introduction into operation. The scenarios identified as 10, 11 and 12 in Figures 0.9, 0.10 and 0.11, show the economic effects of phasing-in the Space Shuttle over successively longer periods holding the Initial Operating Capability date constant at 1978, while the space program objectives of Scenario 3 are maintained. Scenario 10 phases the Space Shuttle in over a two-year period (1980). For that scenario (538 flights), this delay in the full operation date from 1978 to 1980 reduces the economically justifiable non-recurring program costs from a range of $14.5 billion to $19.5 billion to a range of $14.2 billion to $18.9 billion. The likely economic gains from slippage or stretch-out—with continued or increased funding of research and advanced technology—are greater cost certainty and potential RDT&E cost reductions due to the possibilities of more certain, flexible development scheduling. The economic costs of slippage or stretch-out are the foregone reductions in the expected recurring costs of the space program for the year(s) 1978, . . . in which the Space Shuttle and Tug System is not available—including increased payload costs.

Figure 0.12 and Figure 0.13 show the influence of the different rates of discount used on the results of the economic analyses. MATHEMATICA recommends a 10 percent discount rate as a basis for evaluating the New Space Transportation Systems funding. Nevertheless, Figure 0.12 shows the summary of economic analyses when the evaluation is made at 15 percent on an "Equal Capability" basis. At this high a discount rate the relative advantage of the Space Shuttle naturally decreases. Yet, even with a 15 percent rate of discount and the conservative "Equal Capability" analyses, the fully reusable Space Transportation System does break even at a space program of 845 flights (1978–1990 total) or 65 flights a year. The summary of results indicates that up to $11.4 billion could be spent on a new, fully reusable STS program, if the NASA-Department of Defense model for the 1980's were taken as baseline. At Mathematica's projection of unmanned space activities for the 1980's, the Space Transportation System investment would have an allowable, non-recurring cost of $9.4 billion (at 15 percent), a figure too low to cover the expected non-recurring costs of the new, fully reusable Space Transportation System as estimated by Aerospace Corporation, the Phase B contractors and various centers of NASA.

Figure 0.13 shows the summary of economic analyses performed at a 5 percent dis-

[8] This reduction is due to both the increased advantage of the Shuttle in expanded space programs, and the ability to use a 100 percent load factor in flying hydrogen as a Space Shuttle payload.

count rate, which gives much higher allowable nonrecurring costs since the opportunity cost of time is valued here relatively low, at 5 percent. For Scenario 3, the allowable non-recurring costs increase to nearly $30.0 billion.

Figure 0.14 is a summary of all economic caluculations that were performed at 10 percent, i.e., for "Equal Budget" cost effectiveness, for "Equal Capability" cost effectiveness, and for "Reuse-Refurbishment-Update Payload Effects" only. It also shows Mathematica's estimate of the historic flight and funding levels of the United States and of the USSR, in terms of equivalent Space Shuttle flights (the vertical lines).

Figure 0.15 shows the impact on the economic evaluation of the Space Shuttle System of the addition of the NASA Lunar Option 1. The net increase in economic benefits is due to launch cost savings only since lunar payloads have not been included in the analysis. (The exclusion of Lunar Option payloads, however, cannot adversely affect the economic analysis since some of the payloads may well exhibit favorable cost effects when the Space Shuttle System is used.) The incremental cost savings have been converted into allowable non-recurring costs, and for all scenarios considered, as shown in Figure 0.15, this amounts to an additional $3.0 billion. The allowable non-recurring cost for the Space System evaluated for Equal Capability under Scenario 3 and a 10 percent discount rate is $17.5 billion with Lunar Option 1 and, excluding Lunar Option 1, it is $14.5 billion. The important conclusion to be drawn from this result is that when some large lunar or planetary (or defense) space flight option is considered for the 1980's the Space Shuttle System offers economic advantages also in terms of transportation costs only. These have not been included in any of the other Mathematica scenarios.

Figure 0.16, finally, summarizes the economic calculations done at different discount rates (5 percent, 10 percent, and 15 percent) for the "Equal Capability" cost effectiveness analyses.

The complete set of economic analyses performed by Mathematica on which these results are based, at discount rates from one to 20 percent, and the statistical backup to judge the quality of these results—as conditioned by the validity of the input cost data—are given in Chapter 7.0 of the Report.

Figures 0.17, 0.18 and 0.19 depict the budgetary implications of the following three space programs: Scenario 3, the Mathematica Baseline projection; Scenario 23 which is based on the historic funding level of U.S. programs from Fiscal Years 1963 to 1971; and, Scenario 24, which is based on projections of FY 1970 and FY 1971 funding levels. The Current Expendable funding level in Scenario 23 is about $3 billion (NASA and Department of Defense) and in Scenario 24 it is $2.5 billion. The expected costs for new Space Transportation System operations at the same funding level ("Equal Capability") are also shown.

Figures 0.20 and 0.21 consider the addition of the NASA Lunar Option 1 transportation costs to the life cycle costs of Scenarios 1 and 3. This Lunar option assumes the existence of a Nuclear Space Shuttle for Earth orbit to Lunar orbit transportation. The Lunar payload costs have not been included and potential Space Shuttle payload effects for this traffic has not been allowed for.

All the life cycle costs for transportation and payload costs are given in detail in Chapter 6.0.

0.5 CONCLUSIONS

1. The most conservative economic analyses show, at a 10 percent social discount rate, that the allowable non-recurring costs for "buying" a fully reusable Space Transportation System are:

a. $12.9 billion for an annual activity level of 46 Space Shuttle flights (Scenario 3).

b. $15.4 billion for an annual activity level of 56 Space Shuttle flights (Scenario 1).

c. $14.6 billion for the historic flight level of the unmanned United States space program of the 1960's, corresponding to 51 Space Shuttle flights (Scenario 23).

The present estimate of the actual non-recurring costs of the Space Shuttle and Tug System is $12.8 billion. All of these estimates are made in constant (1970) dollars.

2. The major economic potential identified for Space Transportation Systems in the 1980's is the lowering of space program costs due to the reuse, refurbishment and updating of satellite payloads. The fully reusable, two-stage Space Shuttle is a major system—but conceivably not the only system—identified to achieve this reuse, refurbishment, and updating of payloads. Other technically acceptable systems should be studied to determine the extent and the cost at which they can achieve reuse, refurbishment and updating of payloads. Any such studies must be performed in adequate depth to generate meaningful comparative data for an economic evaluation.

The cost reductions originate in three distinct areas: (a) the Research, Development, Test and Evaluation (RDT&E) phase of new payloads (satellites); (b) the unit cost and operating cost of payloads (satellites) for different space missions; (c) the cost of launching payloads into orbit.

Although it is, perhaps, natural to identify the economic effects of a reusable Space Transportation System primarily as reductions in *launch* costs, it is apparent that the major cost savings lie in the area of *payload* development, construction and operation. For example, with the Expendable System, launch costs constitute only 20 to 25 percent of the cost of a typical United States space program; 75 to 80 percent are payload related costs (see payload costs and recurring launch costs of Table 0.1).

3. The currently projected *non-recurring costs* associated with developing a Space Shuttle and Tug are shown by the economic analysis to be covered by the identified benefits, provided the United States intends to operate a space program with a number of flights equal to the *unmanned* space program activities of the United States in the 1960's.

The *direct costs* (payload and transportation) of space activity carried out by a Space Shuttle System are expected to be about one-half of the direct costs of the Current Expendable Space Transportation System.

These conclusions are based on what Mathematica considers to be realistic and, indeed, conservative projections of space activities in the 1980's—with most of the projected unmanned space programs operating below the level maintained during the 1960's, and with the manned space flight program limited to about $200 million a year.

The analysis of the lunar option has shown that the Space Shuttle System offers economic advantages also in terms of *transportation costs* only, when some large lunar or planetary (or defense) space flight options are considered for the 1980's. Due to the great uncertainty of these options being adopted by the United States, Mathematica did not allow for these advantages in the basic conclusions.

4. The *choice of the social discount rate* has a major influence on the economics of a new Space Transportation System. Differences in the rate applied to the analysis outweigh many other important issues usually raised—and analyzed—in the context of large scale RDT&E projects, including uncertainties in the cost data.

5. The economic justification of a reusable Space Transportation System is independent of the question of *manned versus unmanned* space flight. The space programs used and analyzed by Mathematica are in line with the activity and funding levels of the *unmanned* United States space program of the 1960's (NASA, DoD, and commercial users included). This does not preclude the possibility that the future unmanned space program can be much larger than in the past.

6. This Report analyzes the economically allowable nonrecurring costs of a reusable Space Transportation System. The task of identifying the *best* reusable Space Transportation System among all the viable alternatives requires equally detailed economic consideration.

7. Finally, we state with emphasis: *any investment can only be justified by its goals.* This applies to business as well as to government, hence also NASA. A new, reusable Space Transportation System should only be introduced if it can be shown, conclusively, what it is to be used for and that the intended uses are meaningful to those who have to appropriate the funds, and to those from whom the funds are raised, as well as to the various government agencies that undertake space activities. The space goals can be *military* (to meet military space efforts of other countries or use the potential of space to meet needs of national security), *scientific* (e.g., astronomy, environment), *commercial* (e.g., earth resources applications, communications, weather forecasting) or *political* (rivalry with the space programs of other countries). All these goals will, of course, be mixed into one national space program, representing to various degrees a joint demand for space transportation with a varying mix of payloads.

Mr. GURNEY. Mr. President, I yield back my time.

## THE NATIONAL SCHOOL LUNCH ACT

Mr. MANSFIELD. Mr. President, on behalf of the distinguished acting minority leader, the Senator from Nebraska (Mr. CURTIS), and myself, I ask the Presiding Officer to lay before the Senate a message received today from the House of Representatives and ask for its immediate consideration.

The PRESIDING OFFICER (Mr. BENTSEN). The Chair lays before the Senate a concurrent resolution received today from the House of Representatives, which will be stated.

The assistant legislative clerk read as follows:

H. CON. RES. 346

*Resolved by the House of Representatives (the Senate concurring)*, That in the enrollment of the bill (H.R. 5257) to extend the school breakfast and special food programs, the Clerk of the House be, and he is hereby, authorized and directed to make the following correction, namely, after the enacting clause insert the following: "That the National School Lunch Act (42 U.S.C. 1752) is amended by adding at the end of the Act the following new section:"

Passed the House of Representatives June 24, 1971.

Mr. MANSFIELD. Mr. President, the substance of this matter is not changed. This has already been passed by both Houses. This is a technical change and the purpose here is to bring about the correction.

The PRESIDING OFFICER. Is there objection to the present consideration of the concurrent resolution?

There being no objection, the concur-

rent resolution (S. Con. Res. 346) was considered and agreed to.

## AUTHORIZATION FOR THE SECRETARY OF THE SENATE TO RECEIVE A MESSAGE FROM THE HOUSE ON H.R. 9271 AND FOR THE COMMITTEE ON APPROPRIATIONS TO FILE A REPORT

Mr. ELLENDER. Mr. President, I ask unanimous consent that the Secretary of the Senate be authorized to receive a message from the House tonight during the adjournment of the Senate on H.R. 9271, making appropriations for the Treasury Department, the U.S. Postal Service, the Executive Office of the President, and certain independent agencies for the fiscal year ending June 30, 1972, and for other purposes, and that the bill be referred to the appropriate committee.

I ask further, that the Committee on Appropriations have until midnight tonight to file a report on H.R. 9271 after the bill has been received and appropriately referred.

The PRESIDING OFFICER. Without objection, it is so ordered.

## MESSAGE FROM THE PRESIDENT

Messages in writing from the President of the United States were communicated to the Senate by Mr. Leonard, one of his secretaries.

## REPORT OF COMMODITY CREDIT CORPORATION—MESSAGE FROM THE PRESIDENT

The PRESIDENT pro tempore laid before the Senate the following message from the President of the United States, which, with the accompanying report, was referred to the Committee on Agriculture and Forestry:

*To the Congress of the United States:*

In accordance with the provisions of Section 13, Public Law 806, 80th Congress, I transmit herewith for the information of the Congress the report of the Commodity Credit Corporation for the fiscal year ended June 30, 1970.

RICHARD NIXON.

THE WHITE HOUSE, *June 28, 1971.*

## REPORT ON AGRICULTURAL EXPORT ACTIVITIES UNDER PUBLIC LAW 480—MESSAGE FROM THE PRESIDENT (H. DOC. NO. 92–135)

The PRESIDENT pro tempore laid before the Senate the following message from the President of the United States, which, with the accompanying report, was referred to the Committee on Agriculture and Forestry:

*To the Congress of the United States:*

I am pleased to transmit to the Congress the 1970 annual report on agricultural export activities carried out under Public Law 480. In a year which saw more than its share of disasters around the world, Public Law 480 concessional sales programs and donations once again reflected the desire of the people of the United States to try to help others improve their own circumstances by improving the agricultural foundation of their economies.

The Public Law 480 program demonstrated its flexibility in 1970 both by responding quickly to the immediate needs of countries in distress, and by using food assistance to promote long range development in developing countries. One important example of the program's scope and success was our aid to victims of the earthquake in Peru—much of which was channeled through voluntary relief agencies.

The Public Law 480 program also provided increasing benefits to the United States. Currencies generated by the program together with the increasing volume of payments received under past long term credit sales agreements, resulted in a contribution of more than $300 million to our balance of payments in 1970. In addition, this program has placed increasing emphasis on helping recipient nations develop their own economies and thus become better export markets for the United States.

Public Law 480 has now been extended through 1973. As our efforts move forward, we will continue to stress both trade development and food assistance through this highly esteemed program.

RICHARD NIXON.

THE WHITE HOUSE, *June 28, 1971.*

## EXECUTIVE MESSAGES REFERRED

As in executive session, the Presiding Officer (Mr. BENTSEN) laid before the Senate messages from the President of the United States submitting sundry nominations, which were referred to the appropriate committees.

(The nominations received today are printed at the end of Senate proceedings.)

## DELIVERY TO THE SENATE OF DOCUMENT ENTITLED "UNITED STATES VIETNAM RELATIONS, 1945–1967"

Mr. ELLENDER. Mr. President, I wish to inform the Senate that at 12:07 this afternoon there was delivered to my office at room 209 set No. 10, volumes 1 through 47, "United States Vietnam Relations, 1945–1967," with an accompanying letter, which reads as follows:

THE SECRETARY OF DEFENSE,
*Washington, D.C., June 28, 1971.*

Hon. ALLEN J. ELLENDER,
*President Pro Tempore, U. S. Senate,*
*Washington, D.C.*

DEAR SENATOR ELLENDER: Pursuant to the decision by the President and our subsequent discussion and arrangements, I am having delivered herewith the 47-volume study entitled: "United States Vietnam Relations, 1945–1967."

The study remains classified TOP SECRET-SENSITIVE and is delivered in accordance with our understandings as to the special security measures which will be taken by you to protect those materials in the volumes, the disclosure of which could have a grave and immediate danger to the national security.

As you are aware, an intensive review of the study is now in process for the purpose of declassifying as much of the material as possible consistent with the interest of national security and in consideration of the widespread unauthorized disclosures by the newspapers in recent days. Every effort is being made to expedite this review and we anticipate that a large portion of the documents will be declassified pursuant to these guidelines.

I have been informed by my security people that they have provided you with the assistance and information you needed to ensure that only members of your body will be permitted access to the documents and that they are controlled and protected as required by law or regulation.

A copy of the study is being delivered simultaneously to the Speaker of the House.

Sincerely,

MELVIN R. LAIRD.

I wish to state, Mr. President, that I have personally delivered the 47 volumes to the office of the Secretary of the Senate of the United States, and they will remain there until further disposition is made of them by the Senate.

Mr. President, I ask unanimous consent to have printed in the RECORD a copy of a letter I received from Secretary of Defense Laird, dated June 28, 1971.

There being no objection, the letter was ordered to be printed in the RECORD, as follows:

THE SECRETARY OF DEFENSE,
*Washington, D.C., June 28, 1971.*

Hon. ALLEN J. ELLENDER,
*President Pro Tempore, U.S. Senate,*
*Washington, D.C.*

DEAR SENATOR ELLENDER: In further implementation of our discussions and understandings, one copy of a TOP SECRET-SENSITIVE study entitled "Command and Control Study of the Tonkin Gulf Incident, 4–5 August 1964" is attached herewith. The disclosure of material in the Study would present a grave and immediate danger to the national security.

Accordingly, with respect to the custody and handling of the attached Study, I must stress the utmost importance of adhering to the security arrangements mentioned in my letter of this date which transmitted to you the 47 volume study entitled "United States Vietnam Relations, 1945–1967."

Sincerely,

MELVIN R. LAIRD.

## NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AUTHORIZATION ACT, 1972

The Senate resumed the consideration of the bill (H.R. 7109) to authorize appropriations to the National Aeronautics and Space Administration for research and development, construction of facilities, and research and program management, and for other purposes.

The PRESIDING OFFICER. Who yields time?

Mr. CANNON. Mr. President, I yield to the Senator from Georgia such time as he may require.

Mr. GAMBRELL. Will the Senator yield me 15 minutes?

Mr. CANNON. I yield 15 minutes.

Mr. GAMBRELL. Mr. President, as a member of the Committee on Aeronautical and Space Sciences, I have followed the presentation of the budget for NASA, and I join in commending the distinguished chairman of that committee, the Senator from New Mexico (Mr. ANDERSON), and also the presentations made here today by the distinguished Senator from Nevada (Mr. CANNON). I should like to join in the remarks made by the Senator from Nebraska (Mr. CURTIS) as to his reasons for supporting the budget that has been presented here.

It seems to me that our continuing support of the space program in this country is based on several considerations. One is the obvious need to continue our exploration, our discovery, and our development, particularly, of the earth sciences that we can promote through space exploration. Certainly we need to be concerned with the national defense aspects of space exploration and development. I think as we go through a process of realining some of our priorities for expenditure of our national resources, we need to be concerned, in this area, with the maintenance of our aerospace production capabilities for the future; and, therefore, in deciding between what programs we will continue and what programs we will discontinue or defer, we need to be certain that we do not dismantle the aerospace capability that we have built up at great expense over the years, and I believe that some programs should be maintained in order to keep our aerospace team alive, so to speak, and at work.

I have gone over what has been presented by the administration as the budget for NASA this year with a pretty sharp eye toward economy. I think the members of the committee will verify that I have probably exercised as much economy in my approach to the matter as anyone. It has already been indicated that this economic approach to the space program is not original this year, but that over the past 3 or 4 years, the space budget has been cut almost in half.

It seems to me that in cutting back, the primary programs that we could cut back or defer were those which would fall into a category that I would classify as those that were being pursued merely to satisfy a certain amount of scientific curiosity. Men since the beginning of time have wondered what was out there among and beyond the stars and planets. I think these are things that our country and our citizens are interested in, but it seems to me that they are things we can do, in the fullness of time, at a time when we can afford to do them, and not necessarily next year.

There are other programs that are pursued or have been proposed which I think fall into a classification of simply satisfying a desire to enhance our national prestige. If that is the only justification that is put forward for a program, I would say that it is one which we can lay aside in the interest of economy, when we have national budget deficits, over a period of a couple of years, running up to $30, $40, or $50 billion.

Lastly, I think these programs ought to be carefully examined for economies in this year's budget which may be deferred to a future year. That is to say, we should ask ourselves, Must it be commenced this year? Must it be carried on at the spending levels which are recommended for this year?

I think all of these questions have been given due weight, and I think the overall budget proposal which we have in the committee report this year satisfies these demands that those responsible not pursue programs which are merely to satisfy curiosity, merely enhance our prestige, or do not involve programs which can reasonably be deferred from this year into a future year.

Two points have been mentioned in criticism of this year's budget. One has to do with personnel. Have there been adequate personnel cuts from this year's budget? Are the cuts in personnel from the years of highest spending levels comparable to the cuts in overall spending levels?

It has already been mentioned that the personnel level cutback from approximately 35,000 or 36,000 to approximately 30,000 or 29,000 personnel this year certainly is not comparable to a nearly 50-percent reduction in the overall budget of the space program. But we have seen in this Chamber, time after time, and in our committee hearings of many committees of the Senate, the problems of unemployment in this country. Every time the issue comes up, the principal point mentioned is that the principal source of unemployment, the principal nagging problem of unemployment, is in the aerospace industry. Obviously, among the contractors with the Government in aerospace activity, there have been tremendous cutbacks, which reflect the cutbacks in the overall aerospace budget.

It is a matter, I think, of some interest that one of the principal organizations in this country which has concerned itself with the reordering of our national priorities, the National Urban Coalition, has recently published a document entitled "Counterbudget, a Blueprint for Changing National Priorities 1971–76."

It is apparent from even a casual review of this document that it represents a great deal of examination of and effort on the changing of national priorities. It is particularly interesting to note that with respect to NASA this document concludes that—

> NASA budgets in the $3 billion to $4 billion range are appropriate, given the magnitude of our past investment and the challenge of the tasks ahead.

This study states that the Nation should not mount during the 1970's a manned Mars program and that is precisely the position which has been taken by our Senate Committee on Aeronautical and Space Sciences.

However, this document recognizes that a large and expensive technological complex is essential to maintain any realistic space capability at all and that with the investment already made, substantial returns can now be expected from continued, incremental annual expenditures.

It is most interesting to note that the "Counterbudget" does support undertaking the development of the space shuttle. The only limitation the study places on this development is that a space spending peak of $3.8 billion per year be established for the years 1972–76 and that development of the shuttle be accommodated within this total, stretching the development timetable if the total shuttle program cost estimates are higher than estimated. In other words, lengthen the development schedule rather than exceed the $3.8 billion per year. It may be obvious, but I would like to emphasize that the $3.8 billion per year recommended in the "Counterbudget" is over $500 million above that which is in the bill before the Senate today.

In summary, Mr. President, I think it is most significant that one of the most current and comprehensive documents on the changing of national priorities provides a strong endorsement to a viable, ongoing national space program, which includes the space shuttle activities.

Finally, Mr. President, in relation to the space shuttle, it seems to me that the space shuttle effort fits within the guidelines I have adopted of protecting and pursuing those programs which are justifiable, as against considerations of mere curosity or against considerations of mere national prestige.

The space shuttle, as I understand it—and I do not believe that any of the opponents disagree—is something that will be on our shelf as part of our space inventory for some time. There is a suggestion that it might be deferred to a future year. It seems to me that if we can commence and continue our study and our development of it, this is a useful way of keeping our aerospace production teams and research endeavors in operation.

This is a vehicle that will be used. It is a system that will be employed because of economies that are inherent in its capability of going out and returning from space, of going out and salvaging some breakdown that has developed in a system. It seems to me that because of the economies that are inherent in this vehicle, it will be used, and we might as well go ahead and get into it. It will be a valuable tool in our space inventory for many years to come.

Mr. President, I yield back the remainder of my time.

The PRESIDING OFFICER. Who yields time?

Mr. MONDALE. Mr. President, I should like to make certain inquiries of the manager of the bill.

The PRESIDING OFFICER. Does the Senator from Nevada yield time for that purpose?

Mr. CANNON. I yield for the purpose of questions and answering the questions.

Mr. MONDALE. Can the Senator give us the current estimate on the cost of the space shuttle?

Mr. CANNON. We do not have a current estimate on the cost of it because the studies are still in progress, and we do not know what the ultimate recommendation will be. But the highest estimate, which certainly is not a very meaningful estimate, is $12.8 billion for research, development, testing, facilities, the initial fleet of vehicles, and the space tug.

Mr. MONDALE. Has that estimate risen over previous estimates given in past years?

Mr. CANNON. Some early estimates were smaller than that figure, before any advanced detailed studies and planning had been conducted. Yes, this estimate is higher than some of those originally.

Mr. MONDALE. Based upon our experience with weapons systems pur-

chases and space systems purchases in the past—and understanding the inflationary trend in which we are now involved—would it not be prudent to anticipate further cost escalations in this system?

Mr. CANNON. It would be prudent, based on certain circumstances. If we estimate that this is going to be carried out over a period of 10 years, I think we would have to figure in an inflationary factor. Sometimes that factor is not high enough, and Congress contributes to it.

For example, with respect to the costs of the space program—the Senator asked me earlier about some of the salary costs—the salary costs have risen by $180 million since 1967, solely by reason of pay increases that Congress approved. That is within the control of this body, not within the control of some other body, or some outside agency, because of an inflationary factor. But $180 million of increased cost in the space program comes about by reason of salary increases voted by this body.

Mr. MONDALE. It is my understanding that last year, NASA estimated that the space shuttle would cost approximately $7 billion and that today the estimates are $12 billion or $13 billion.

I believe Representative KARTH of Minnesota estimates something like the figure the Senator from Nevada has suggested, $12 to $13 billion.

We have had—without blaming anybody—many, many occasions, both in the space program and in the military program—as a matter of fact, in most programs—sharp cost escalations over initial cost estimates.

Would it not be prudent to assume that we would experience the same cost escalations above the current estimates of the space shuttle?

Mr. CANNON. Again, I would simply point out that this is not a precise estimate, because the whole project is still under study. We do not know what the final form of the program will be. Therefore, a precise estimate could not be made until that should occur. When the planning studies are completed and a precise program decided upon, we can have a meaningful estimate. But the figure I gave is the highest ballpark figure we have received up to the present, based on the knowledge that is available now, without the studies having been completed. I reiterate that that figure would include roughly $3 billion for initial investment for vehicles.

Mr. MONDALE. Mr. President, the original Rand study of the cost-effectiveness of the space shuttle originally estimated the shuttle's cost at $9 billion. A second, later estimate was $11½ billion. The $9 billion estimate was 2 years ago, but the latest estimate was $11½ billion. I understand that the mathematical study estimated the cost of the space shuttle at somewhere in the $12 billion range.

I believe that Representative KARTH who, I think we all recognize, as one of our outstanding space experts, estimated $12 to $14 billion.

So that the estimates today from the two studies would indicate that the current cost figure is somewhere in the $12 billion range.

Mr. CANNON. That is correct. The figure is $12.8 billion, that this is without having a precise plan developed and includes $3 billion for acquisition of space vehicles which the earlier estimates did not include, I might add.

I think I should point out to the Senator that the so-called Rand study was not an official Rand study as such, and that the letter from Rand has already been made a part of the CONGRESSIONAL RECORD. Furthermore, the Department of Defense requirements were not costed out in the so-called 1969 estimate which was based on a smaller and less versatile, reusable shuttle than is now being considered. So I do not believe that the so-called Rand study, if we want to call it that—and we have heard a lot about Rand studies, I may say, recently, I do not think this one was classified secret but we have heard a lot about Rand studies recently—should be related to being a study with particular reference to the space shuttle now under consideration.

Mr. MONDALE. As I understand it, the Rand study was, in fact, a study commissioned by the U.S. Air Force to determine the benefit-to-cost ratio of the proposed space shuttle.

Mr. CANNON. The Senator is exactly incorrect. It was not commissioned by the U.S. Air Force. The Rand Corp. responded in a letter to Senator ANDERSON on May 31 to that effect, and that letter has already been placed in the CONGRESSIONAL RECORD. I could place it in there once again.

Mr. MONDALE. Referring to that letter in the CONGRESSIONAL RECORD, on page 17575 of June 2, 1971, I quote Mr. Henry S. Rowen, the president of the Rand Corp., as follows:

> You questioned whether this was "an Air Force Study" which normally means a study conducted by Air Force personnel and drawing conclusions properly attributable to the Air Force. This was not such a study. This work was conducted by Rand under USAF contract F-44620-67-C-0045.

Is that not accurate?

Mr. CANNON. That is exactly accurate, because it says it is not a study commissioned by the Air Force.

Mr. MONDALE. Did the Air Force pay under contract for a study by Rand?

Mr. CANNON. This is under an annual contract, an ongoing contract. This was never commissioned specifically as an Air Force study on this shuttle program. That is the distinction. The letter speaks for itself, although perhaps it should define the Air Force contract, which is an ongoing contract.

Mr. MONDALE. I have a copy of the report issued by the Rand Corp. entitled, "The Space Shuttle as an Element in the Space Program." It says that this research is supported by the U.S. Air Force under project Rand contract number so and so, monitored by the Director of Operational Requirements, Development Plans, R. & D., Headquarters, U.S. Air Force. Is that accurate?

Mr. CANNON. I think if the Senator would read the cover sheet, he will find that it covers that with a complete disclaimer on the cover sheet. This is one of those situations where a little knowledge is sometimes a dangerous thing.

I should like to read the letter from the Secretary of the Air Force, if I may.

It reads:

> DEAR MR. CHAIRMAN: This is in response to an inquiry from a member of your Committee staff concerning a Rand Corporation report (RM 62-44-1-PR) which analyzes the NASA Space Shuttle Parogram. This report, which was prepared by Project Rand using Air Force funds, may be misconstrued by certain parties as representing Air Force policy.

Mr. MONDALE. No one has said that.

Mr. CANNON. Continuing—

> To the contrary, this report and its conclusions are the work of the authors alone. In fact, the title page carries a disclaimer that the work does not represent the policy of even the Rand Corporation, much less the Air Force.
>
> The work in question is based on 1969 data; therefore, it does not represent current economic considerations. Using current data, National Aeronautics and Space Administration is conducting the economic analyses on the shuttle as a national system using combined NASA and Department of Defense traffic models. As you are probably aware, the NASA Phase B Space Shuttle Definition Studies, which should better define the program scope, costs and schedules, are still underway.

I am not quoting now, but that has not been completed.

Back to the letter:

> Until results from these and from on-going Air Force analyses are available, data to perform final cost effectiveness analyses will not be available.
>
> Should you desire additional information regarding this report or the Space Shuttle Program, I will be happy to provide it for you.
>
> Sincerely,
>
> ROBERT C. SEAMANS, JR.

Mr. MONDALE. No one has argued that it is the policy of the Air Force to be against the shuttle, or the policy of the Rand Corp. to be for anything. What we are talking about is a report funded by the Air Force which states that the shuttle is not cost effective. There is a difference between now and the time of that report, and the difference is $2 billion in increased cost, which will make it even less cost effective—rather, cost disastrous. As a matter of fact, to say that this study has nothing to do with the Air Force, but instead was paid for by the Air Force and conducted under one of its official contracts, it seems to me, is to raise a distinction without any substance.

Mr. CANNON. Mr. President, I think perhaps I had better read again from the letter from the president of the Rand Corp. in which he said:

> Our report, like most Rand analyses, was intended to illuminate issues, to reduce areas of uncertainty, and thus assist decision makers in reaching rational choices. We believe our report served this purpose. However inasmuch as it was based on earlier data, the quantitative aspects should be reviewed for currency. In any case it should not be used as the sole basis for decision.

It seems to me that the distinguished Senator is trying to compare apples and oranges here, which is not what we are really trying to do. Does the Senator contend that the Rand report was based on current data and that the space shuttle is not cost effective? If he does, he is wrong. The report does not support that position.

Mr. MONDALE. Mr. President, in my remarks I stated that the Rand report is based on a $9 billion cost estimate and concludes that the shuttle could not be justified on a cost basis. And the only difference between then and now is that the cost is $11 or $12 billion. So the cost is 20 or 25 percent more than when the study was conducted.

Mr. CANNON. Mr. President, as I said earlier—and apparently the Senator was not listening—the original study was based on a smaller, less versatile reusable shuttle than they propose at the present time. Furthermore, the cost items figured in by Rand did not include the vehicles. The cost is up another $3 billion for the purchase of vehicles alone.

Mr. MONDALE. Mr. President, let me ask the Senator whether NASA stands behind the Mathematica study, the study which NASA commissioned through the so-called Mathematica Corp., for $600,000, to study the cost effectiveness of the program. Do they stand behind that study?

Mr. CANNON. I do not know. I understand it is not yet completed. I do not know whether they do or not.

Mr. MONDALE. Mr. President, I have a copy of it here. In a letter, NASA says that this argument for the cost effectiveness of the space shuttle is based on the Mathematica study.

In the summary of the Mathematica study, for which we paid $600,000, they state on page 60 the maximum cost of the shuttle to be cost effective as against the number of flights. I believe this study actually supports my position, because the present estimate of the cost shuttle is already nearing the maximum figure beyond which Mathematica says makes the shuttle no longer cost effective.

Does NASA stand behind that study?

Mr. CANNON. Mr. President, I would think that NASA would stand behind it. But I cannot speak for them. The study is not yet complete. The data are not complete. The form of the space shuttle has not been decided on. It would seem to me that, since the distinguished Senator from Minnesota has an amendment to offer, I think he should offer it at this point. We could then debate the merits of the amendment.

Mr. MONDALE. Mr. President, the Senator has been most generous to me in his willingness to respond. At some point I am prepared to call up my amendment and to make my opening argument. However, I would like to establish a few more points, taking a few more minutes to do so, if it might be possible.

What does the estimated NASA authorization figures reflect for the cost of the shuttle over the next few years? Does the Senator have those estimates?

Mr. CANNON. Mr. President, we have the outside figures, not the precise figures.

In 1971 it is 80 percent of the $100 million.

In 1972, it is $100 million.

In 1973, it ranges from $415 million to $465 million.

In 1974, it ranges from $1,240 million to $1,365 million.

In 1975, it ranges from $1,450 million to $1,560 million.

In 1976, it ranges from $1,565 million to $1,770 million.

In 1977, it ranges from $1,650 million to $1,805 million.

In 1978, it ranges from $1,500 million to $1,755 million.

Mr. MONDALE. Mr. President, those estimates, which I have also received from NASA, are based upon a cost estimate which is roughly $3 billion below the current estimate. Is that correct?

Mr. CANNON. No, that is not correct. And that is only preliminary, as I have pointed out in many instances before. This is a preliminary development of cost data from the various contractor studies.

Mr. MONDALE. Mr. President, I thank the Senator.

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## SALINE WATER CONVERSION ACT OF 1971

Mr. MANSFIELD. Mr. President, I ask unanimous consent that the Senate proceed to the immediate consideration of Calendar No. 80, S. 991.

May I say that a 3-hour time limitation had been set aside for this bill for consideration tomorrow, but the differences have been worked out and with the approval of the Senate and with its consent, I will offer an amendment very shortly.

The PRESIDING OFFICER (Mr. BENTSEN). The bill will be stated by title.

The legislative clerk read the bill as follows:

S. 991, to authorize the Secretary of the Interior to continue a program of research, development, and demonstration of processes for the conversion of saline and other chemically contaminated water for beneficial use and for the treatment of saline and other chemically contaminated waste water to maintain or improve the quality of natural waters, and for other purposes

The PRESIDING OFFICER. Is there objection to the present consideration of the bill?

There being no objection, the Senate proceeded to consider the bill, which had been reported from the Committee on Interior and Insular Affairs with an amendment to strike out all after the enacting clause and insert:

TITLE I

SEC. 101. The Act of July 3, 1952 (66 Stat. 328), as amended, is hereby further amended to read as follows: "That the Congress in consideration of the Federal responsibility for water resource conservation by means of comprehensive planning, planning and construction of water resource development projects, administration of the navigable waterways, and maintenance of water quality standards finds that the technology for the conversion of saline and other chemically contaminated waters is vital to all these areas of responsibility. It is the policy of the Congress, therefore, to provide for the development and demonstration of practicable means to convert saline and other chemically contaminated water to a quality suitable for municipal, industrial, agricultural, and other beneficial uses and to improve the quality of saline and other chemically contaminated waste waters to protect the quality of natural waters.

"SEC. 2. The Secretary of the Interior is authorized and directed to:

"(a) conduct, encourage, and promote basic scientific research and fundamental studies to develop effective and economical processes and equipment for the purpose of converting saline and other chemically contaminated water into water suitable for beneficial consumptive uses or for the purpose of treating waste waters to achieve qualities suitable for disposal into surface streams, groundwater bodies, or the ocean;

"(b) pursue opportunities arising during the course of research and studies authorized by subsection (a) of this section which have potential practical applications unrelated to water treatment in order to advance the work to the stage where such studies and research can be published in an effective form for utilization by others;

"(c) conduct engineering and technical work including the design, construction and testing of pilot plants, test beds, and modules to develop desalting processes and plant design concepts to the point of demonstration on a practical scale;

"(d) study methods for the recovery and marketing of byproducts resulting from the desalination of water to offset the costs of treatment and to reduce impact on the environment from the discharge of brines into lakes, streams, and other waters; and

"(e) undertake economic studies and surveys to determine present and prospective costs of producing water for beneficial consumptive purposes in various parts of the United States by the saline water processes as compared with other standard methods, and by means of mathematical models or other methodologies prepare and maintain information concerning the relation of desalting to other aspects of State, regional, and national comprehensive water resource planning: *Provided,* That in carrying out this function, the Secretary shall coordinate these studies with planning being performed under the provisions of the Water Resources Planning Act (79 Stat. 244), as amended.

"SEC. 3. (a) The Secretary is authorized and directed to conduct preliminary investigations and to explore potential cooperative agreements with non-Federal utilities and governmental entities in order to develop recommendations for Federal participation in the construction, operation, and maintenance of prototype plants utilizing desalting technologies for the production of water for consumptive use.

"(b) The Secretary is authorized and directed to report to the President and to the Congress, not later than one year after the date of this Act, his recommendation as to the best opportunity for the early construction of a large-scale prototype desalting plant. In making his selection the Secretary shall consider the following:

"(i) plant size and process type best suited, within the presently available technology, to demonstrate the practicability of construction and operation of a large-scale plant for water supply on a reliable basis and best suited to provide information on the management problems and economics of such operations;

"(ii) availability of cooperating entities or utilities willing and capable of entering into agreements and contracts providing a market for water and an operating agency for the plants;

"(iii) availability of cooperating entities or utilities willing and capable of entering into agreements and contracts providing an energy source for the plants;

"(iv) the availability of a site and the environmental considerations of an energy source and brine disposal; and

"(v) the need for the development of new water sources in the location.

"(c) In carrying out the provisions of this section, the Secretary shall utilize the expertise of the water and power marketing agencies of the Department of the Interior and of other Federal agencies as may be applicable to insure that the economic, financial, and engineering analyses of any potential plant and the agreements among participants

which may later result will give full consideration to the integration and compatibility of the water production, energy use, and possible energy production of the prototype plant with the water and power systems of the region.

"(d) The Secretary is authorized to accept financial and other assistance from any State or public agency in connection with studies or surveys relating to saline water conversion problems and facilities and to enter into contracts with respect to such assistance, which contracts shall detail the purposes for which the assistance is contributed.

"SEC. 4. In carrying out his functions under this Act, the Secretary may:

"(a) make grants to educational institutions and scientific organizations and enter into contracts with such institutions and organizations and with industrial or engineering firms;

"(b) acquire the services of chemists, physicists, engineers, and other personnel by contract or otherwise;

"(c) utilize the facilities of Federal scientific laboratories;

"(d) establish and operate necessary facilities and test sites at which to carry on the continuous research, testing, development, and programing necessary to effectuate the purposes of this Act;

"(e) acquire secret processes, technical data, inventions, patent applications, patents, licenses, land and interests in land (including water rights), plants and facilities, and other property or rights by purchase, license, lease, or donation;

"(f) assemble and maintain pertinent and current scientific literature, both domestic and foreign, and issue bibliogaphical data with respect thereto:

"(g) cause on-site inspections to be made of promising projects, domestic and foreign, and, in the case of projects located in the United States, cooperate and participate in their development in instances in which the purposes of this Act will be served thereby;

"(h) foster and participate in regional, national, and international conferences relating to saline water conversion;

"(i) coordinate, correlate, and publish information with a view to advancing the development of low-cost saline water conversion projects; and

"(j) cooperate with other Federal departments and agencies, with State and local departments, agencies, and instrumentalities, and with interested persons, firms, institutions, and organizations.

"SEC. 5. (a) Research and development activities undertaken by the Secretary shall be coordinated or conducted jointly with the Department of Defense to the end that developments under this Act which are primarily of a civil nature will contribute to the defense of the Nation and that developments which are primarily of a military nature will, to the greatest practicable extent compatible with military and security requirements, be available to advance the purposes of this Act and to strengthen the civil economy of the Nation.

"(b) The Secretary will cooperate with the Environmental Protection Agency to insure that research and development work performed under this Act makes the fullest possible contribution to the improvement of processes and techniques for the treatment of saline and other chemically contaminated waste waters and to insure that the experience, expertise, and data regarding desalting technologies which have been acquired in the performance of the Saline Water Conversion Act and which will be acquired in performance of this Act will not be needlessly duplicated by other programs.

"(c) The fullest cooperation by and with the Atomic Energy Commission, the Department of Health, Education, and Welfare, the Department of State, and other concerned agencies shall also be carried out in the interest of achieving the objectives of this Act.

"(d) All research within the United States contracted for, sponsored, cosponsored, or authorized under authority of this Act, shall be provided for in such manner that all information, uses, products, processes, patents, and other developments resulting from such research developed by Government expenditure will (with such exceptions and limitations, if any, as the Secretary may find to be necessary in the interest of national defense) be available to the general public. This subsection shall not be so construed as to deprive the owner of any background patent relating thereto of such rights as he may have thereunder. Within six months of the date of this Act, the Secretary shall publish rules in the Federal Register to give effect to the provisions of this subsection and shall subsequently publish all revisions in the same manner.

"(e) The Secretary may dispose of water and byproducts resulting from his operations under this Act. All moneys received from dispositions under this section shall be paid into the Treasury as miscellaneous receipts except where such operations may be undertaken as a part of a Federal reclamation project in which case the financial provisions of Reclamation Law (32 Stat. 388 and Acts amendatory thereof and supplementary thereto) will govern.

"(f) Nothing in this Act shall be construed to alter existing law with respect to the ownership and control of water.

"SEC. 6. The Secretary of the Interior may issue rules and regulations to effectuate the purposes of this Act.

"SEC. 7. (a) There are authorized to be appropriated such sums, to remain available until expended, as may be specified in annual appropriation authorization Acts to carry out the provisions of this Act during the fiscal years 1973 to 1977, inclusive, and to finance, for not more than three years beyond the end of said period, such grants, contracts, cooperative agreements, and studies as may theretofore have been undertaken pursuant to this Act and such activities as are required to correlate, coordinate, and round out the results of studies and research undertaken pursuant to this Act.

"(b) The Secretary shall submit to the President and to the Congress not later than December 31, 1975, a report on—

"(i) the status of research and development work in progress under the provisions of section 2, subsections (a), (b), (c), and (d), along with a program for the orderly termination of these activities in accordance with subsection (a) of this section; and

"(ii) the status of work in progress under the provisions of subsection 2(e) and section 3 along with recommendations for the integration of these remaining functions within the ongoing water resource programs of the Department of the Interior.

"(c) Not more than 2 per centum of the funds to be made available in any fiscal year for research and development under the authority of this Act may be expended, subject to the approval of the Secretary of State to assure that such activities are consistent with the foreign policy objectives of the United States, in cooperation with public or private agencies in foreign countries for research useful to the program in the United States.

"Sec. 8. As used in this Act—

"(a) the term 'Secretary' means the Secretary of the Interior;

"(b) the term 'saline water' includes sea water, brackish water, mineralized ground or surface water, and irrigation return flows;

"(c) the term 'other chemically contaminated water' includes agricultural runoff, municipal and industrial effluent, mine drainage, and naturally contaminated waters which contain chemicals not susceptible to removal by conventional sewage treatment methods but susceptible to removal by desalting processes;

"(d) the term 'United States' extends to and includes the District of Columbia, the Commonwealth of Puerto Rico, and the territories of Guam and the Virgin Islands;

"(e) the term 'pilot plant' means an experimental unit of small size, usually less than one hundred thousand gallons per day capacity, used for early evaluation and development of new or improved processes and to obtain technical and engineering data;

"(f) the term 'test bed' means an intermediate-sized, experimental desalting plant of up to two million gallons per day capacity used for further evaluation and refinement of processes in the field and designed to facilitate the incorporation of experimental features for performance testing and to permit process changes and improvements as required;

"(g) the term 'module' means a section or integral portion of a desalting plant which is used initially to study large-scale technology and critical design features in preparation for subsequent prototype construction;

"(h) the term 'prototype' means a full-size, first-of-a-kind production plant used for the development, study, and demonstration of full-sized technology, plant operation, and process economics.

"SEC. 9. This Act may be cited as the 'Saline Water Conversion Act of 1971'."

TITLE II

SEC. 201. There is authorized to be appropriated to carry out the provisions of the Saline Water Conversion Act of 1971 (66 Stat. 328), as amended (42 U.S.C. 1951 et seq.), during fiscal year 1972 the sum of $27,025,000 to remain available until expended as follows:

(1) Research and development operating expenses, not more than $15,675,000;

(2) Design, construction, acquisition, modification, operation, and maintenance of saline water conversion test beds and test facilities, not more than $7,385,000;

(3) Design, construction, acquisition, modification, operation, and maintenance of saline water conversion modules, not more than $1,425,000; and

(4) Administration and coordination, not more than $1,540,000.

Expenditures and obligations under any of such items may be increased by not more than 10 per centum, except item (4) which may be increased 2 per centum, if such increase is accompanied by an equal decrease in expenditures and obligations under one or more of the other items.

Mr. MANSFIELD. Mr. President, I send to the desk an amendment and ask for its immediate consideration.

The PRESIDING OFFICER. The amendment will be stated.

The legislative clerk proceeded to read the amendment.

Mr. MANSFIELD. Mr. President, I ask unanimous consent that further reading of the amendment be dispensed with.

The PRESIDING OFFICER. Without objection, it is so ordered; and, without objection, the amendment will be printed in the RECORD at this point.

The text of the amendment is as follows:

On page 12, line 15 after the word "beneficial" insert the word "consumptive."

On page 12, line 16, delete the word "waste".

On page 12, line 25, insert a semicolon after the word "uses" and delete the words "or for the purposes of treating waste waters."

On page 13, delete lines 1 and 2.

On page 18, amend subsection 5(b) to read as follows:

"(b) The Secretary will cooperate with the Administrator of the Environmental Protection Agency to insure that research and development work performed under this Act

makes the fullest possible contribution to the improvement of processes and techniques for the treatment of saline and other chemically contaminated waters and to avoid the duplication of the experience, expertise, and data regarding desalting technologies which have been acquired in the performance of the Saline Water Conversion Act."

On page 21, amend Subsection 8(c) to read as follows:

"(c) the term 'other chemically contaminated water' refers to waters which contain chemicals susceptible to removal by desalting processes;"

Mr. MANSFIELD. Mr. President, as I said it is my understanding that this matter has been worked out among the various interested parties, that agreement has been reached which is satisfactory to all concerned, and that the amendment, which is now before the Senate, would implement the agreement.

The PRESIDING OFFICER. The question is on agreeing to the amendment.

The amendment was agreed to.

Mr. MANSFIELD. Mr. President, I now move adoption of the committee substitute, as amended.

The PRESIDING OFFICER. The question is on agreeing to the committee amendment in the nature of a substitute, as amended.

The amendment, as amended, was agreed to.

Mr. MANSFIELD. Mr. President, I ask unanimous consent that a statement by the distinguished Senator from Washington (Mr. JACKSON), chairman of the Committee on Interior and Insular Affairs, and a statement by the distinguished Senator from California (Mr. TUNNEY) be printed in the RECORD.

There being no objection, the statements by Senators JACKSON and TUNNEY were ordered to be printed in the RECORD, as follows:

Mr. JACKSON. Mr. President, the purpose of this measure is to authorize the Secretary of the Interior to continue with a program of research, development, and demonstration of processes for the desalting of saline waters which has been underway since 1952.

The program has proven to be very successful and useful. A substantial industry in the manufacturing and construction of desalting facilities has come into being in the United States in recent years in large measure because of the leadership of the Federal saline water conversion program conducted by the Secretary of the Interior through the Office of Saline Water. Although commercial production of water by desalting plants in the United States is still limited to small plants and specialized situations, desalting is becoming an ever more significant water supply factor in many parts of the world. With the continued improvement of technology and increasing demands for water, desalting promises to be a critical factor in the long-range water program for many areas of the United States. A vigorous saline water conversion program is required to insure that the capability will be available when needed.

The existing authority of the Saline Water Conversion Act provides for continuation of the program through Fiscal Year 1972. Annual authorization of appropriations are required, however. S. 992 would extend the basic authority for the program for an additional five fiscal years, through Fiscal Year 1977. It would also redirect the program to reflect experience with the program in recent years and to conform it to the current needs of the nation.

As amended by the Interior Committee, S. 991 also includes the provisions of S. 716, a bill recommended by the Administration to authorize Fiscal Year 1972 appropriations totalling $27,025,000 for the Office of Saline Water.

As amended by the Committee, S. 991 would substitute a new text for the existing Saline Water Conversion Act (66. Stat. 328, as amended). The most significant objectives of the new language are to bring the desalting effort into closer coordination with ongoing conventional water resources planning efforts and to accelerate work leading to development of a large-scale prototype desalting plant. It is imperative that a large scale prototype be put into operation at the earliest possible date. Experience with the plant can provide realistic information on reliability and management costs which are necessary for planners at the Federal, state, and municipal level to assess the feasibility of desalting as an alternative to conventional water supplies.

Mr. President, there is a close relationship between the work being done by the Office of Saline Water on the technologies for purifying saline waters for beneficial use and similar problems confronting the advanced waste treatment research program of the Environmental Protection Agency in removing chemical contaminants from waste waters.

As reported, S. 991 contains language which was intended to insure that these two research efforts would be closely coordinated and that the research funded by each of these agencies would not be duplicative but would make maximum contributions to advancing technologies useful to both efforts. Since the bill was reported, however, questions have been raised about the appropriate dividing line between the programs.

I have discussed this matter with my colleague from West Virginia (Mr. Randolph), the distinguished Chairman of the Public Works Committee, which has jurisdiction over the Environmental Protection Agency's advanced waste treatment program. We share the desire that these two programs be closely coordinated for efficient management of Federal research expenditures. We are agreed, however, that neither program should be inhibited in pursuing its authorized mission by unnecessary legislative constraints. Most importantly, the saline water conversion program should not be precluded from doing necessary research on the desalting of attractive sources of water supply, such as our major estuaries, simply because chemical contaminants other than naturally occurring salts may be involved.

On the other hand, the advanced waste treatment program should not be prevented from pursuing new research in waste treatment technologies which have desalting applications.

Mr. President, the Senior Senator from Colorado (Mr. ALLOTT), who is the ranking minority member of the Interior Committee, a cosponsor of this bill (S. 991), and a longtime supporter of this program, has authorized me to say on his behalf that he does not object to the substance and intent of the amendments to be offered. I have discussed this program with him on many occasions, and he shares my interest in moving this program forward to the point of large-scale application, so that the Nation may benefit at the earliest practical date from the research conducted under this program in a tangible way.

Mr. President, I am proposing perfecting amendments to S. 991 as reported by the Committee which will clarify this intent and the agreement of the Committees regarding the relationship between the two programs.

Mr. TUNNEY. Mr. President, I am especially pleased that the chairmen of the Committees on Interior and Insular Affairs and Public Works, Mr. JACKSON and Mr. RANDOLPH, have developed language to assure that the program of the Office of Saline Water is continued and that the research in converting saline water for beneficial consumptive uses will go forward. The amendment before the Senate will assure that we will not create a possibility of duplicating the efforts of the Office of Saline Water and the Environmental Protection Agency. The amounts of money available for research in the areas of water supply and waste water treatment are too small for us to afford the luxury of either agency duplicating the work of the other. The technical corrections proposed by Senator JACKSON will, I believe, succeed in rationalizing the efforts of each to the ultimate benefit of the Nation.

The bill was ordered to be engrossed for a third reading, was read the third time, and passed, as follows:

S. 991

An act to authorize the Secretary of the Interior to continue a program of research, development, and demonstration of processes for the conversion of saline and other chemically contaminated water for beneficial use and for the treatment of saline and other chemically contaminated waste water to maintain or improve the quality of natural waters, and for other purposes

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,*

TITLE I

SEC. 101. The Act of July 3, 1952 (66 Stat. 328), as amended, is hereby further amended to read as follows: "That the Congress in consideration of the Federal responsibility for water resource conservation by means of comprehensive planning, planning and construction of water resource development projects, administration of the navigable waterways, and maintenance of water quality standards finds that the technology for the conversion of saline and other chemically contaminated waters is vital to all these areas of responsibility. It is the policy of Congress, therefore, to provide for the development and demonstration of practicable means to convert saline and other chemically contaminated water to a quality suitable for municipal, industrial, agricultural, and other beneficial consumptive uses and to improve the quality of saline and other chemically contaminated waters to protect the quality of natural waters.

"SEC. 2. The Secretary of the Interior is authorized and directed to:

"(a) conduct, encourage, and promote basic scientific research and fundamental studies to develop effective and economical processes and equipment for the purpose of converting saline and other chemically contaminated water into water suitable for beneficial consumptive uses;

"(b) pursue opportunities arising during the course of research and studies authorized by subsection (a) of this section which have potential practical applications unrelated to water treatment in order to advance the work to the stage where such studies and research can be published in an effective form for utilization by others;

"(c) conduct engineering and technical work including the design, construction and testing of pilot plants, test beds, and modules to develop desalting processes and plant design concepts to the point of demonstration on a practical scale;

"(d) study methods for the recovery and marketing of byproducts resulting from the desalination of water to offset the costs of treatment and to reduce impact on the environment from the discharge of brines into lakes, streams, and other waters; and

"(e) undertake economic studies and surveys to determine present and prospective costs of producing water for beneficial consumptive purposes in various parts of the United States by the saline water processes

as compared with other standard methods, and by means of mathematical models or other methodologies prepare and maintain information concerning the relation of desalting to other aspects of State, regional, and national comprehensive water resource planning: Provided, That in carrying out this function, the Secretary shall coordinate these studies with planning being performed under the provisions of the Water Resources Planning Act (79 Stat. 244), as amended.

"SEC. 3. (a) The Secretary is authorized and directed to conduct preliminary investigations and to explore potential cooperative agreements with non-Federal utilities and governmental entities in order to develop recommendations for Federal participation in the construction, operation, and maintenance of prototype plants utilizing desalting technologies for the production of water for consumptive use.

"(b) The Secretary is authorized and directed to report to the President and to the Congress, not later than one year after the date of this Act, his recommendation as to the best opportunity for the early construction of a large-scale prototype desalting plant. In making his selection the Secretary shall consider the following:

"(i) plant size and process type best suited, within the presently available technology, to demonstrate the practicability of construction and operation of a large-scale plant for water supply on a reliable basis and best suited to provide information on the management problems and economics of such operations;

"(ii) availability of cooperating entities or utilities willing and capable of entering into agreements and contracts providing a market for water and an operating agency for the plants;

"(iii) availability of cooperating entities or utilities willing and capable of entering into agreements and contracts providing an energy source for the plants;

"(iv) the availability of a site and the environmental considerations of an energy source and brine disposal; and

"(v) the need for the development of new water sources in the location.

"(c) In carrying out the provisions of this section, the Secretary shall utilize the expertise of the water and power marketing agencies of the Department of the Interior and of other Federal agencies as may be applicable to insure that the economic, financial, and engineering analyses of any potential plant and the agreements among participants which may later result will give full consideration to the integration and compatibility of the water production, energy use, and possible energy production of the prototype plant with the water and power systems of the region.

"(d) The Secretary is authorized to accept financial and other assistance from any State or public agency in connection with studies or surveys relating to saline water conversion problems and facilities and to enter into contracts with respect to such assistance, which contracts shall detail the purposes for which the assistance is contributed.

"SEC. 4. In carrying out his functions under this Act, the Secretary may:

"(a) make grants to educational institutions and scientific organizations and enter into contracts with such institutions and organizations and with industrial or engineering firms;

"(b) acquire the services of chemists, physicists, engineers, and other personnel by contract or otherwise;

"(c) utilize the facilities of Federal scientific laboratories;

"(d) establish and operate necessary facilities and test sites at which to carry on the continuous research, testing, development, and programing necessary to effectuate the purposes of this Act;

"(e) acquire secret processes, technical data, inventions, patent applications, patents, licenses, land and interests in land (including water rights), plants and facilities, and other property or rights by purchase, license, lease, or donation;

"(f) assemble and maintain pertinent and current scientific literature, both domestic and foreign, and issue bibliographical data with respect thereto;

"(g) cause on-site inspections to be made of promising projects, domestic and foreign, and, in the case of projects located in the United States, cooperate and participate in their development in instances in which the purposes of this Act will be served thereby;

"(h) foster and participate in regional, national, and international conferences relating to saline water conversion;

"(i) coordinate, correlate, and publish information with a view to advancing the development of low-cost saline water conversion projects; and

"(j) cooperate with other Federal departments and agencies, with State and local departments, agencies, and instrumentalities, and with interested persons, firms, institutions, and organizations.

"SEC. 5. (a) Research and development activities undertaken by the Secretary shall be coordinated or conducted jointly with the Department of Defense to the end that developments under this Act which are primarily of a civil nature will contribute to the defense of the Nation and that developments which are primarily of a military nature will, to the greatest practicable extent compatible with military and security requirements, be available to advance the purposes of this Act and to strengthen the civil economy of the Nation.

"(b) The Secretary will cooperate with the Administrator of the Environmental Protection Agency to insure that research and development work performed under this Act makes the fullest possible contribution to the improvement of processes and techniques for the treatment of saline and other chemically contaminated waters and to avoid the duplication of the experience, expertise, and data regarding desalting technologies which have been acquired in the performance of the Saline Water Conversion Act.

"(c) The fullest cooperation by and with the Atomic Energy Commission, the Department of Health, Education, and Welfare, the Department of State, and other concerned agencies shall also be carried out in the interest of achieving the objectives of this Act.

"(d) All research within the United States contracted for, sponsored, cosponsored, or authorized under authority of this Act, shall be provided for in such manner that all information, uses, products, processes, patents, and other developments resulting from such research developed by Governmental expenditure will (with such exceptions and limitations, if any, as the Secretary may find to be necessary in the interest of national defense) be available to the general public. This subsection shall not be so construed as to deprive the owner of any background patent relating thereto of such rights as he may have thereunder. Within six months of the date of this Act, the Secretary shall publish rules in the Federal Register to give effect to the provisions of this subsection and shall subsequently publish all revisions in the same manner.

"(e) The Secretary may dispose of water and byproducts resulting from his operations under this Act. All moneys received from dispositions under this section shall be paid into the Treasury as miscellaneous receipts except where such operations may be undertaken as a part of a Federal reclamation project in which case the financial provisions of Reclamation Law (32 Stat. 388 and Acts amendatory thereof and supplementary thereto) will govern.

"(f) Nothing in this Act shall be construed to alter existing law with respect to the ownership and control of water.

"SEC. 6. The Secretary of the Interior may issue rules and regulations to effectuate the purposes of this Act.

"SEC. 7. (a) There are authorized to be appropriated such sums, to remain available until expended, as may be specified in annual appropriation authorization Acts to carry out the provisions of this Act during the fiscal years 1973 to 1977, inclusive, and to finance, for not more than three years beyond the end of said period, such grants, contracts, cooperative agreements, and studies as may theretofore have been undertaken pursuant to this Act and such activities as are required to correlate, coordinate, and round out the results of studies and research undertaken pursuant to this Act.

"(b) The Secretary shall submit to the President and to the Congress not later than December 31, 1975, a report on—

"(i) the status of research and development work in progress under the provisions of section 2, subsections (a), (b), (c), and (d), along with a program for the orderly termination of these activities in accordance with subsection (a) of this section; and

"(ii) the status of work in progress under the provisions of subsection 2(e) and section 3 along with recommendations for the integration of these remaining functions within the ongoing water resource programs of the Department of the Interior.

"(c) Not more than 2 per centum of the funds to be made available in any fiscal year for research and development under the authority of this Act may be expended, subject to the approval of the Secretary of State to assure that such activities are consistent with the foreign policy objectives of the United States, in cooperation with public or private agencies in foreign countries for research useful to the program in the United States.

"SEC. 8. As used in this Act—

"(a) the term 'Secretary' means the Secretary of the Interior;

"(b) the term 'saline water' includes sea water, brackish water, mineralized ground or surface water, and irrigation return flows;

"(c) the term 'other chemically contaminated water' refers to waters which contain chemicals susceptible to removal by desalting processes;

"(d) the term 'United States' extends to and includes the District of Columbia, the Commonwealth of Puerto Rico, and the territories of Guam and the Virgin Islands;

"(e) the term 'pilot plant' means an experimental unit of small size usually less than one hundred thousand gallons per day capacity, used for early evaluation and development of new or improved processes and to obtain technical and engineering data;

"(f) the term 'test bed' means an intermediate-sized, experimental desalting plant of up to two million gallons per day capacity used for further evaluation and refinement of processes in the field and designed to facilitate the incorporation of experimental features for performance testing and to permit process changes and improvements as required;

"(g) the term 'module' means a section or integral portion of a desalting plant which is used initially to study large scale technology and critical design features in preparation for subsequent prototype construction;

"(h) the term 'prototype' means a full-size, first-of-a-kind production plant used for the development, study, and demonstration of full-sized technology, plant operation, and process economics.

"SEC. 9. This Act may be cited as the 'Saline Water Conversion Act of 1971'."

TITLE II

SEC. 201. There is authorized to be appropriated to carry out the provisions of the Saline Water Conversion Act of 1971 (66 Stat. 328), as amended (42 U.S.C. 1951 et seq.), during fiscal year 1972 the sum of $27,025,000 to remain available until expended as follows:

(1) Research and development operating expenses, not more than $15,675,000;

(2) Design, construction, acquisition, modification, operation, and maintenance of saline water conversion test beds and test facilities, not more than $7,385,000;

(3) Design, construction, acquisition, modification, operation, and maintenance of saline water conversion modules, not more than $1,425,000; and

(4) Administration and coordination, not more than $1,540,000.

Expenditures and obligations under any of such items may be increased by not more than 10 per centum, except item (4) which may be increased 2 per centum, if such increase is accompanied by an equal decrease in expenditures and obligations under one or more of the other items.

## NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AUTHORIZATION ACT, 1972

The Senate resumed the consideration of the bill (H.R. 7109) to authorize appropriations to the National Aeronautics and Space Administration for research and development, construction of facilities, and research and program management, and for other purposes.

The PRESIDING OFFICER. Who yields time?

Mr. MONDALE. Mr. President, I yield myself such time as I might require to call up my amendment to the pending bill.

The PRESIDING OFFICER. The Senator from Minnesota is recognized.

AMENDMENT NO. 233

Mr. MONDALE. Mr. President, on behalf of Senators CASE, JAVITS, PROXMIRE, and myself, I call up our amendment No. 233 to H.R. 7109, the NASA authorization bill.

The PRESIDING OFFICER. The amendment will be stated.

The legislative clerk proceeded to state the amendment.

Mr. MONDALE. Mr. President, I ask unanimous consent that further reading of the amendment be dispensed with.

The PRESIDING OFFICER. Without objection, it is so ordered; and the amendment will be printed in the RECORD.

The amendment ordered to be printed in the RECORD is, as follows:

On page 11, line 2, strike "$672,775,000" and insert in lieu thereof "$555,175,000".

On page 11, beginning with line 24, strike out through page 12, line 10.

At the end of the bill, add the following new section:

"SEC. 9. None of the funds authorized to be appropriated under this Act shall be available for design and development of the space shuttle, for space shuttle facilities, and for studies and design of the space station."

Mr. MONDALE. Mr. President, our amendment would delete $137.6 million from this authorization. Of this amount—

$17.6 million is for preliminary work on a permanent space station;

$100 million is for further development of the space shuttle;

$20 million is for shuttle facilities.

These funds represent merely the tip of an iceberg. For with its proposed shuttle and station, NASA is once again embarking on a multi-billion dollar space extravaganza—which will cost between $20–25 billion over the next decade, and perhaps even more.

If we proceed with this project, NASA's annual budget will be in the $7 billion range by the late 1970's. In contrast, we can have a truly useful and scientifically productive space program by relying on unmanned, instrumented flights. Such a program—according to Dr. James Van Allen and other eminent space scientists—would cost no more than $2–2½ billion per year, and it would not involve the enormous investment required for the shuttle and station.

At the outset, then, it should be clearly understood that there is a great deal more at stake here than the $137 million we seek to delete from this bill. What is really at stake is the question whether we will spend billions over the next several years on a space program of doubtful value; or whether, instead, we will commit ourselves to a far less expensive and a far more useful and scientifically-oriented program which the American taxpayer will support.

Last year, the shuttle and station were presented by NASA as a joint project—the basis of what NASA called a new epoch in manned space flight. The Agency justified the shuttle primarily as a reusable "logistical truck" for carrying men and supplies to a permanent space station in earth orbit.

In our unsuccessful effort to stop this project in 1970, we pointed out that the shuttle/station was the first essential step toward NASA's goal of a manned landing on Mars—a program with an estimated cost of $50 to $100 billion.

Realizing the impact of this argument, NASA claimed that it had no immediate plans for a manned Mars landing. But they continued to insist that the shuttle and station were intimately related and that NASA's objective was development of a manned orbiting station—supplied by a reusable shuttle.

That was last year. This year—in defending its authorization for fiscal year 1972—NASA now argues that the shuttle is no longer related to development of the station and that it can be justified on its own merits.

In a letter of May 28, 1971, to the Senator from New Mexico (Mr. ANDERSON), NASA stated that:

The space shuttle program does not represent a commitment to a "huge manned space program" . . . The space shuttle can be justified by its potential contributions to programs relying entirely on unmanned spacecraft. Decisions on future manned space programs, such as space stations or further manned exploration of the moon, can and have been decoupled from the decision on the space shuttle.

Thus, in an incredible "about face" over a 1-year period, NASA has completely changed the shuttle's mission and its justification. As one NASA official put it:

This does present a reversal of priorities. Initially, we thought of the shuttle only in terms of the station; now the shuttle is to the fore alone.

Dale D. Myers, NASA's Associate Administrator for Manned Space Flight, was even more candid in an interview with the National Journal. In the March 13, 1971, issue of that journal, he is quoted as follows:

It took us some time to face up to the fact that widen open manned exploration of the planets and outer space was just not in the cards after the conclusion of the Apollo—and the the country was not ready to support Apollo-sized space budgets.

But even as this debate begins, NASA is still unsure of the type of shuttle it wants and the purpose of that shuttle. On June 16, 1971, the agency issued a release stating that it was actively examining a "phased approach" to the—

Development of a reusable space shuttle system in which the orbiter vehicle would be developed first and initially tested with an interim expendable booster.

In short, NASA is now considering deferring a two-stage reusable shuttle in return for a shuttle which is only reusable in part. And they are doing so in order to reduce the enormous budget peaks which will inevitably result from development of the shuttle originally requested by NASA.

It is interesting to note that as NASA moves toward this new type of partly reusable shuttle, it undercuts its own cost arguments on behalf of the shuttle. In testimony before the Senate Committee on Aeronautical and Space Sciences, Secretary of the Air Force Seamans—a supporter of the original shuttle—stated:

Present plans call for both the booster and orbiter stages of the shuttle to be recoverable and hence reusable. If we do not recover both stages, it's hard for me to see how the cost can be kept down.

Regardless of the merits of this new shuttle, one clear fact emerges from this pattern of shifting justifications and changing designs: NASA desperately wants this multi-billion dollar shuttle project, and will seek any plausible purpose to justify its development. In its June 16, 1971 release, the agency revealed that it was still groping for a program to fit the shuttle. The release concluded that—

We believe that the additional studies we are now undertaking, together with those previously undertaken and now being completed, will put us in a position to make a decision this fall on the technical and programmatic approach to be followed in the Space Shuttle program.

What we see, then, is a classic case of a program and agency in search of a mission. Instead of the normal process of presenting a clear and consistent justification for a program—and then seeking to fund it—NASA wants to continue this project on a "fund now, justify later" basis.

Indeed, what we see today is an agency predominantly involved in the Moon-Apollo program, which is now coming to a close, frantically seeking to develop a new space extravaganza at a multi-billion-dollar price tag in order to substitute for the discontinuance of the Apollo program.

We are not being asked to spend billions to meet real and pressing needs. Rather, we are being asked to support a multibillion-dollar effort which NASA believes is essential to its future.

The National Journal, in an objective article on the shuttle controversy, stated what many believe to be the real motivation behind NASA's drive to build the shuttle:

"NASA has no alternative," the article observed, "to development of the shuttle if the space program is to remain well-funded and if the agency is to remain an important one."

One thing is certain: If the shuttle's development proceeds, NASA will not only remain well funded; it will return to and even exceed the enormous budgets of the peak Apollo years.

The development costs alone of this program are staggering. Estimates of these costs have drastically increased over the past several years.

In September 1969, the space task group report estimated the shuttle's development cost at $5.2 billion. In 1970, NASA estimated $7 billion for development of the shuttle.

This year, the Agency is not so optimistic. In part, NASA is trapped by the findings of its own outside studies—the same studies on which it depends to justify the shuttle. One such study by the Aerospace Corporation, estimated a $9.3 billion shuttle development cost. And the mathematica study—on which NASA most heavily relies—recently estimated a $12.8 billion cost for development of the shuttle and initial fleet investment.

According to an independent evaluation by the Rand Corp.—expressed in a letter of May 31, 1971, to Senator ANDERSON—the costs of developing and testing the shuttle now total $11.35 billion.

From these various estimates, the shuttle's development costs now fall in the $9–12 billion range. And even if you assume the lowest possible estimate of $9.3 billion, this is an increase of over $2 billion from last year's NASA estimate of $7 billion.

There is every reason to believe that these estimates will escalate as the program proceeds. Congressman KARTH of Minnesota—one of our leading experts on the space program—recently warned NASA and the aerospace industry of the importance of holding down the shuttle's costs:

"The present estimates of [the shuttle's] development costs," he said, "are somewhere between $12 and $14 billion. Now! Today! . . . So, if NASA's planning estimates are now approaching 12–13 billion dollars as are those of the Aerospace Corporation and Mathematica, and if the experience supported by the GAO report on major DOD systems is contagious, we could be talking about a 15–20 billion dollar figure I mentioned as a possibility out of sheer theory and some ignorance 12 months ago.

"I would predict that the politics—if not the economics—will not justify a 20 billion dollar figure, or one even approaching that amount! The realities of those kinds of figures means that during the heavy budgetary development years of FY 74, 75, 76, and 77, we would need to authorize and appropriate annually between 3 and 4 billion dollars for the shuttle alone."

Even if NASA could keep these development costs at the lowest possible level, the annual budget requests for shuttle development will rise sharply beginning in fiscal year 1973. According to a $9 billion shuttle development estimate, NASA projects the following budget requests: $465 million in fiscal year 1973; $1.365 billion in fiscal year 1974; $1.560 billion in fiscal year 1975; $1.770 billion in fiscal year 1976; $1.805 billion in fiscal year 1977; and $1.755 billion in fiscal year 1978.

By the late 1970's, then, NASA's annual budget will be in the $7 billion range. Thus, NASA's own projected budget requests provide the best evidence of the magnitude of the commitment entailed in approving this year's authorization.

Yet NASA maintains—as it did last year—that they are "not presently at a decision point for commitment to shuttle development and the fiscal year 1972 budget request does not involve such a commitment." This claim is made despite the fact that of the $100 million authorized for shuttle development in this bill, $58 million is allocated for development of the shuttle's main engine.

We therefore will be authorizing the building of an engine for a project which NASA insists does not yet involve a Congressional commitment.

And if we continue to approve these authorizations, without fully considering the enormous budgetary implications, we will soon be told that it is too late to stop this project—too late because of the funds already invested.

At the very least, we must ask why this massive commitment of funds is required. For it is clear that without the shuttle, we can continue to launch both manned and unmanned payloads with conventional boosters.

According to NASA, the shuttle will eventually save us a great deal of money. NASA repeatedly claims:

Its primary objective is to effect a significant reduction in the cost of space transportation.

On many occasions, NASA argues that the shuttle will reduce the cost per pound of payload in orbit by a factor of 10. Associate Administrator Myers has started that:

The significant impact of the shuttle on payload costs is clearly demonstrated when launch cost as low as $75 per pound of payload for the shuttle is compared to $800 per pound for the Saturn V and $900 per pound for the Titan-3C.

Yet, when pressed on this analysis, NASA admits that these savings do not include the amortization of the billions required to develop the shuttle; rather the savings result from NASA's calculations of the cost of an operation once the shuttle is developed.

But even after the shuttle is developed, it has been estimated that it will cost several hundred million dollars to procure each shuttle—and these procurement costs are likely to increase.

On the other hand, the launch vehicles to be replaced by the shuttle cost from $3.5 million to $20 million for each vehicle. Given the extremely high development and procurement costs of the shuttle, the alleged savings from shuttle use will occur only if the scope of U.S. space activities is greatly expanded in future years.

The one study on the economics of the shuttle which was not contracted and paid for by NASA found that the shuttle cannot be justified on cost grounds.

An October 1970, Rand Corporation report for the Air Force—RM–6244–1–PR—concluded that the shuttle's development is not easy to justify.

Mr. President, I ask unanimous consent that the Rand Report be inserted at this point in the RECORD.

There being no objection, the report was ordered to be printed in the RECORD, as follows:

THE SPACE SHUTTLE AS AN ELEMENT IN THE NATIONAL SPACE PROGRAM

(By R. D. Shaver, D. J. Dreyfuss, W. D. Gosch and G. S. Levenson)

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PREFACE

In September 1969, the President's Space Task Group recommended that the Department of Defense and the National Aeronautics and Space Administration jointly develop a low-operating-cost space transportation system (STS), the principal element of which would be a two-stage, fully reusable, low-operating-cost earth-to-space shuttle. Although a space shuttle may make the transportation of men and materials into space more efficient, and may also reduce the cost per pound of payload in orbit, compared with present booster systems, many important questions remain unanswered:

1. What levels of space traffic are necessary to justify economically the development of a shuttle?
2. What should the size and operating characteristics of the shuttle be?
3. When should development start?
4. How would the shuttle help the Air Force and NASA realize their respective goals?
5. How will technological obsolescence affect operations, in view of the expected 20-year (or longer) operational lifetime of the STS?

This Memorandum concentrates on questions of economic justification and potential STS funding problems. It is believed that the economic issues discussed here will have important implications for future Air Force actions on the STS and on possible alternative booster programs.

This is an interim report of an STS study that is presently under way at Rand. Additional results will be published when the study is completed.

This Memorandum is an updated version of RM–6244–PR, which was published in April 1970. The original report was based on research completed in January 1970, before the fiscal 1971 budget was announced. Changes and modifications in the mission models and system concepts have occurred since the original report was prepared; the more significant of these have been incorporated in this revision. These changes, however, do not affect the basic conclusions of the original report. Neither the original nor this updated version reflect the more recent changes in the DOD and NASA space budgets.

A talk based on the text of the original report was presented at the AIAA Advanced Space Transpotration Meeting in Cocoa Beach, Florida, on February 5, 1970.

SUMMARY

The concept of a two-stage, fully reusable launch vehicle that can place a 50,000-lb payload into low earth orbit is currently being studied by the Department of Defense (DOD) and the National Aeronautics and Space Administration (NASA) for possible inclusion in a future space transportation system. Although such a vehicle has been recommended for development by the President's Space Task Group (STG), that development is not easy to justify. Based on traffic rates derived from conservative options in the STG and DOD space plans, this space shuttle, with an estimated RDT&E[1] cost of almost $9 billion, could show a net (undiscounted) transportation cost saving of $2.8 billion by 1990. However, shuttle development would require a peak civilian space budget in excess of $7.0 billion in 1975, about double the present level. Other annual funding levels, while not as large as the peak levels, still exceed current budgets by significant amounts. Alternative space plans might be adopted that would alleviate budget peaks by slipping various elements in the basic space plan (e.g., reduce shuttle operations), but none of those examined in this study resulted in savings in space transportation costs sufficient to compensate for the space shuttle's RDT&E and investment costs through 1990. Also, while a saving of $2.8 billion seems large, total NASA program costs for a variety of plans range from about $75 billion to about $140 billion (1975 to 1990), and any program uncertainties could cancel these savings or make them appear small by the time they are predicted to be realized.

Some transportation cost savings might be augmented by redesigning satellites to use the excess payload potential of the shuttle, by employing the shuttle to recover and reuse satellites, or by using the shuttle for satellite maintenance in orbit. Very preliminary estimates have shown cost savings directly attributable to satellite redesign to be between $150 million and $200 million per year. These savings could strengthen the economic rationale for the shuttle.

While primary emphasis has been placed on a shuttle with a 50,000-lb payload capability, preliminary cost estimates indicate that there is little difference in total space transportation costs through 1990 for design payload weights as low as 25,000 lb, as long as the cargo-bay volume remains at 15-ft diameter and 60-ft length. Furthermore, the funding peaks in the civilian space budget would not be reduced markedly by designing the space shuttle for a smaller payload weight. At the same time, considerations such as flexibility in satisfying unanticipated future requirements and the ability to realize promised satellite cost savings argue for the larger shuttle.

It appears that estimated costs for individual designs of generic shuttles having a given payload capability would not vary significantly, using presently available cost-estimating techniques. Also, the total space funding requirements over the next 20 years are not significantly different for plans that use the shuttle for space transportation and those that accomplish the same missions without the shuttle. All of these results indicate that criteria other than cost should be used to evaluate the desirability of the space transportation system.

I. INTRODUCTION

Despite the recommendations of the President's Space Task Group (STG) for expeditious development of an earth-to-orbit shuttle system, (1) and the strong support of various governmental agencies for such program, (2–4) the prospects for an operational space shuttle before 1980 are not bright. The long-range attractiveness of a low-recurring-cost reusable space transportation system (STS) whose prime element is the shuttle is widely acknowledged—many feel that such a system will be necessary to exploit the full potential of space. Nevertheless, the appropriateness of and justification for immediate shuttle development are being challenged on two principal grounds: (1) the development risks are too high, and (2) national funding priorities presently exclude a space program sufficiently large to warrant shuttle development. (5) Others question the depth and completeness of the favorable analyses advocating this development. (6)

We need not repeat the criticisms of shuttle development here. Instead, by reviewing the case for shuttle development, we shall illuminate some potential trouble areas. Since the most persuasive case for the shuttle derives from its supposed economic advantages, the bulk of our remarks will deal with funding of space programs and the effects of shuttle developments and operation.

The STG, the Department of Defense (DOD), the National Aeronautics and Space Administration (NASA), the President's Scientific Advisory Council (PSAC), and many engineering and scientific organization and societies, e.g., the AIAA (7) have all identified the shuttle as an important element in a future national space program. In the time period since these reports were made public, support for their proposals within the administration and the Congress has not mounted noticeably, and both the administration and the Congress are now deeply immersed in reducing "nonessential" government spending. Space programs are particularly visible targets for cost reduction, and those that lack solid scientific worth or are unduly expensive are certain to be questioned. Still, strong pressures for maintaining current U.S. preeminence in manned space flight remain; many feel that Congress would act favorably on a modest proposal to support a civilian space program, possibly at a dollar level somewhat less than one-half of one percent of the GNP per year, on the grounds that it would help basic scientific research, maintain a viable national technology base, contribute to national security, and build national pride and prestige.[2] Assuming the existence of a modestly funded manned-space-flight program, it remains to be determined whether a shuttle system should be developed to support this program.

II. IS THE SHUTTLE ECONOMICALLY ATTRACTIVE?

Could the RDT&E[3] costs of the shuttle be recovered within an acceptably short period of time? To address this question completely, the analyst must consider (1) estimated space traffic rates (hence, national space plans), (2) shuttle design (size, configuration, etc.), and (3) the availability of the requisite technology. This Memorandum will not address questions about technology or their relevance to the desirability and philosophy of shuttle development;[4] nor do we treat the important questions of which shuttle design or configuration is the most attractive. Further, we have restricted our attention to new two-stage launch vehicles that are fully reusable, LOX–$LH_2$ rocket-propelled, and have vertical-takeoff and horizontal land-landing capability, automatic self-checkout, and other desirable features that make routine shuttle launch and recovery operations conform more nearly to aircraft-like operations than to current launch-vehicle procedures. Our primary consideration is a shuttle having a 50,000-lb. payload capacity and a 10,000-cu ft cargo bay; secondary consideration is given to shuttles having a cargo bay of the same volume but smaller design payloads.[5]

To estimate space traffic rates, we have used the STG National Space Plan Option III and DOD Space Plan B, a modest military space plan that emphasizes current, well-defined military support missions.(1) Because of the generally conservative traffic-rate estimates implied by these plans, this is a more severe test of the economic justification of the shuttle than would result from using the more ambitious plans found in the STG report.

For simplicity, in this study the shuttle will be regarded as economically desirable if after a specified period the total savings over other methods for accomplishing the same total effort exceed the costs of the shuttle's RDT&E and investment. (This very narrow definition will be expanded later.) Obviously, the total number of shuttle launches required during that period importantly affects the shuttle's desirability; heavy traffic favors the shuttle concept, while light traffic favors the use of current or new expendable launch systems. In estimating traffic rates from the various space programs defined by the STG and DOD, care must be taken to determine which payloads (and how many) can fit in the shuttle's cargo bay and how many launches are needed to support the various military, unmanned civilian, and manned NASA programs (scheduled crew rotations, space-station logistics, in-orbit propellant-transfer demands, etc.).

Given our tentative launch-traffic estimates (both DOD and NASA launches), an estimated cost for shuttle RDT&E plus facilities of $9.0 billion, an assumed 100-flight useful lifetime, and a two-week-shuttle turnaround time, the money recovered by the shuttle would exceed its cost after about 11 years of operation (late in 1987).[6] The annual launch cost savings in the mid- and late 1980s would often exceed $1 billion per year. Ignoring other factors, our estimated traffic rates (about 60 launches per year in the mid-1980s) seem to justify initiation of shuttle development.[7] However, neither NASA nor DOD alone would have sufficient space traffic by 1990 to warrant separate shuttle developments.

The estimates of the shuttle's useful lifetime and its turnaround time were taken directly from the STG report. (1) Together, those estimates largely determine the total number of vehicles to be purchased over a specified time and therefore strongly influence conclusions about shuttle desirability. We have estimated a requirement for 10 shuttles (exclusive of the three vehicles required for test and evaluation) through 1990 to support the basic space plan. Were the vehicles never to crash, wear out, or become too obsolete to use, the space plan could be supported with only three shuttles, saving $3.3 billion in investment. Similarly, if turnaround times were doubled (four weeks rather than two), we would have to add three more vehicles, at an incremental cost of $1.3 billion. If the shuttle's useful lifetime was halved (50 flights rather than 100), six additional vehicles would be required, at a cost of $2.45 billion. The final decision to develop a fully reusable shuttle must, of course, reflect much more than a simple cost summary. For example, the space plan used to generate a traffic model should be analyzed carefully, since the average yearly expenditure required for it is larger than the current (and declining) space budget, and the amount by which its peak funding exceeds current funding levels is substantial. This latter peak, occurring as early as 1975, is particularly troublesome as it is caused primarily by the shuttle's development schedule. These points are discussed in more detail later in this Memorandum.

As well as we can estimate at this time,[8] the civilian space plan proposed by the STG cannot be implemented if the NASA budget is limited to $4 billion, or even $5 billion, per year (see the Appendix for a brief description of the major hardware items and their estimated costs). Excluding all consideration of a manned flight to Mars, a follow-on manned lunar exploration program, and a 50-man orbital space base, the joint fund-

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ing of the shuttle and an earth-orbital space station could lead to a NASA budget in excess of $7 billion in 1975.[9]

Slippage of the shuttle's initial operational capability (IOC) date past that of the space station would help reduce these funding peaks. At the same time, such delays could seriously perturb current space planning.

Other hardware would have to be modified or developed to support crew rotations to and from the space station. If new expendable boosters were developed and the Apollo Spacecraft modified, this hardware would then tend to encourage further delay in the shuttle's development schedule by weakening the uncertain case concerning the shuttle's economic advantages. Not only would there be a desire to exploit the new expendable boosters at least to the point of recovering their development costs (savings over current launch hardware), but also the existence of a new, cheaper-than-current launch system would increase the shuttle's break-even level of launching traffic, hence moving the break-even point further into the already uncertain future. Previous justifications for rapid shuttle development have hinged explicitly upon acceptance of the STG space plans, and hence on a large space funding peak in the mid-1970s. Thus, the case for shuttle development is still open.

If the shuttle is desirable economically but may not be funded because of annual budget limitations, then it is important to extend the analysis to include alternative space plans that may be more acceptable from a funding standpoint and to reassess shuttle cost benefits for these new plans.

### III. IS THE SHUTTLE ECONOMICALLY DESIRABLE, GIVEN ALTERNATIVE SPACE PLANS?

To generate alternative space plans that still attempt to satisfy the objectives for U.S. activities in space described by the STG, we have modified the basic STG Option III by delaying, stretching, or eliminating various program elements in the basic plan (which we shall call Plan 1). These modifications suggest seven alternative plans (see Table 1): Plans 2, 3, and 4 aim at reducing NASA's mid-1970s funding problems, and Plans 5 through 8 represent attempts to reduce the overall space budget level by eliminating the lunar exploration program. Some plans achieve both goals, but only at the cost of decreasing the scope of the national space program. None are recommended as replacements for those in the STAG report; rather they serve as comparisons for the purposes of our analysis.

TABLE 1.—ALTERNATIVE SPACE PLANS, IOC DATES FOR MAJOR PROGRAM ELEMENTS

| Program element | IOC date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Plan 1 | Plan 2 | Plan 3 | Plan 4 | Plan 5 | Plan 6 | Plan 7 | Plan 8 |
| Space station | 1977 | 1977 | 1981 | 1981 | 1977 | 1977 | 1981 | 1981 |
| Space base | 1984 | 1985 | 1987 | 1987 | 1984 | 1985 | 1987 | 1987 |
| Lunar station | 1981 | 1983 | 1983 | 1983 | (1) | (1) | (1) | (1) |
| Lunar base | 1983 | 1985 | 1985 | 1985 | (1) | (1) | (1) | (1) |
| Shuttle | 1977 | 1982 | 1977 | 1981 | 1977 | 1982 | 1977 | 1981 |
| Nuclear ferry | 1981 | 1983 | 1983 | 1983 | (1) | (1) | (1) | (1) |
| Lunar tug | 1983 | 1985 | 1985 | 1985 | (1) | (1) | (1) | (1) |

[1] Program eliminated.

In examining these alternatives, we shall focus on several closely related issues regarding the shuttle and its development:

1. At what level of the annual nonmilitary space budget is a space shuttle economically advantageous?
2. Should the shuttle and a space station be developed simultaneously, and if not, which should be given priority?
3. If the shuttle's IOC is delayed into the 1980s, how are the current civilian and military space plans affected? And should a new expendable launch vehicle be developed in the interim?

The remainder of this Memorandum will be concerned primarily with the first issue; the others are touched on only in passing. We have subdivided the alternative space plans into five interrelated programs:

1. A manned earth-orbital program consisting of a 12-man space station that grows to a 50-man base and scientific and experimental modules located near the station; the cost of supporting the station is included (along with the transportation costs).
2. A manned lunar exploration program consisting of a 6-man orbiting lunar station, a 6-man permanent lunar base, scientific modules for both the station and the base, and hardware to construct the lunar base; the transportation costs are included.
3. A program containing all the elements of the STS, including their RDT&E costs, investment costs, and support costs.
4. A residual program including all other (unmanned) civilian programs and overhead costs.
5. A military space program.

Table 2 lists the major elements of these programs and the Plan 1 schedules for each.

TABLE 2.—PLAN 1 SCHEDULE FOR PROGRAM-ELEMENT PROCUREMENT AND YEARLY SHUTTLE FLIGHTS

| Item | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Number of items to be procured** | | | | | | | | | | | | | | |
| Manned earth-orbital program: | | | | | | | | | | | | | | |
| Living module | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Working module | 1 | 0 | 0 | 0 | 1 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nuclear-power module | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Manned lunar program: | | | | | | | | | | | | | | |
| Lunar-station module | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lunar base | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| STS program: | | | | | | | | | | | | | | |
| Shuttle | 2 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Nuclear ferry | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 |
| Lunar tug | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| Saturn V | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 2 | 0 | 2 | 0 | 2 | 0 | 2 |
| Saturn V (downrated) | 1 | 0 | 0 | 1 | 3 | 0 | 5 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Orbital fuel depot | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Number of shuttle flights** | | | | | | | | | | | | | | |
| NASA | 14 | 9 | 10 | 12 | 36 | 34 | 42 | 41 | 39 | 40 | 39 | 39 | 46 | 46 |
| Military | 27 | 22 | 24 | 22 | 17 | 20 | 20 | 17 | 17 | 20 | 20 | 20 | 20 | 20 |

The breakdown in year-to-year total obligational authority (TOA) for the various programs is shown in Fig. 1 [not printed in the RECORD]. Costs for all of the unmanned portions of the basic space plan are taken directly from Refs. 1 and 3. We shall not vary these costs as we examine alternative plans, except as necessary because of changes in the STS, on the assumption that neither the scientific nor military programs will depend explicitly on the existence of the shuttle but will be funded on their own merits. We have arbitrarily placed the shuttle's entire RDT&E and investment costs under NASA's budget. This, of course, accentuates NASA's budget problems while lessening those of the DOD.[10]

The previously mentioned NASA funding peak in 1975 is evident in Fig. 1, as is a somewhat lesser peak in 1981 (due to preparations for the lunar program and the space base). The cumulative space-plan costs through 1990 are estimated to be $141 billion, an average of $7.0 billion per year (an average NASA budget of $4.9 billion per year). Figure 2 compares annual NASA costs for Plans 1 through 4 (those plans that include a lunar program). The attempts to reduce the funding peak in the mid-1970s by delaying various program elements are seen to be effective, although a peak occurs between 1980 and 1982 for Plans 2 and 4 because of concurrent shuttle and lunar-program developments. Plan 3, in which the space station is delayed but not the shuttle, does not result in as great a decrease in the 1975 peak as do Plans 2 or 4, but it has no sharp peak in the early 1980s. The total costs of each space plan are shown in Table 3. The differences among the totals seem small.

TABLE 3.—TOTAL COSTS THROUGH 1990 FOR PLANS 1 THROUGH 4

| | Cost (billions) | |
|---|---|---|
| | NASA | NASA plus military |
| Plan: | | |
| 1 | $97.6 | $141.4 |
| 2 | 97.4 | 142.7 |
| 3 | 94.6 | 138.4 |
| 4 | 94.9 | 139.0 |

Figure 3 shows comparative year-by-year costs for Plans 5 through 8. (These plans are, in essence, Plans 1 through 4 without a lunar-program component.) The cost trends noted for Plans 1 through 4 also occur in these four plans, except that peaks caused by the lunar program in the early 1980s are

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reduced. The total cumulative costs are less than those for plans 1 through 4, as shown in Table 4.

TABLE 4.—TOTAL COSTS THROUGH 1990 FOR PLANS 5 THROUGH 8

| | Cost (billions) | |
|---|---|---|
| | NASA | NASA plus military |
| Plan: | | |
| 5 | $80.4 | $124.2 |
| 6 | 81.4 | 126.7 |
| 7 | 78.3 | 122.1 |
| 8 | 77.9 | 123.0 |

It is possible to consider each of these eight alternative plans without a shuttle, replacing it with Titan III and Saturn V derivatives and modified Apollo hardware where necessary. Ignoring the effects on space planning arising from funding considerations,[11] we have examined the cost differences that would result from removal of the shuttle in each plan. Figure 4 shows the cumulative savings or cost increases caused by development and use of the 50,000-lb-payload shuttle for each plan. In only the base case, Plan 1, does the shuttle demonstrate a net monetary gain by 1990, and even under this plan, the savings seem to be marginal. Unanticipated increases in the shuttle's RDT&E or operating costs would quickly deplete any savings indicated, and because of the basic uncertainty in our cost estimates, such increases cannot be ruled out.

If the entire STS were to be abandoned (i.e., the shuttle, the nuclear ferry, the lunar tug, the orbital fuel depots, and the orbit-to-orbit chemical shuttle for synchronous-orbit flights), the total costs to accommodate the projected space traffic through 1990, using the basic space plan, would be increased by $3 billion over the costs that would result if only the shuttle were abandoned. Since this cost differential appears after an operational lifetime of less than 10 years for the lunar-specific elements, a lunar program using existing hardware (modified as necessary) seems inefficient, i.e., the nuclear ferry is a worthwhile investment compared to employing existing hardware.

Even though there are apparent large differences in pace among Plans 1 through 4, their total costs through 1990 are nearly identical. Delaying various program elements within the plans does not produce sharp decline in total expenditures; such delays only vary the years in which these expenditures occur. Clearly, different plans are not equivalent in their effects on U.S. manned-spaceflight activities. Delaying the space station would affect many aspects of these activities; similarly, delaying the shuttle's IOC date past that of the space station would increase costs for both NASA (about $300 million per year for support of the 12-man station) and the DOD (about $150 million per year). We urge further study of the tradeoffs between funding-peak problems associated with concurrent shuttle and space-station development, the loss to U.S. manned-space-flight activities associated with funding the shuttle first, and the added yearly cost penalty (to both NASA and DOD) associated with giving priority funding to the space station.

### IV. WHAT IS A GOOD SIZE FOR THE SHUTTLE?

There continue to appear in the literature discussions about shuttle size and selection. Protagonists for shuttles smaller than that recommended in the STG report argue that the decreased capability per launch would be compensated for by the decreased cost of development and procurement, and in addition might lessen development risks. We will test this assertion for shuttles sized to carry payloads between 25,000 and 50,000 lb by estimating their RDT&E, investment, and launch-operations costs through 1990.

The estimated RDT&E costs for a space-shuttle development program are shown in Fig. 5 as a function of design payload for a constant cargo-bay volume of 10,000 cu. ft.[12] The costs do not vary directly with design payload; only modest RDT&E cost savings result from a large pay-load reduction. Total space-program transportation costs (through 1990) for Plan 1 (which includes the lunar program) and Plan 5 (no lunar program) are shown in Fig. 6 for space shuttles with design payloads of 25,000, 40,000, and 50,000 lb. Included in these costs are RDT&E, investment, and operational costs of an orbit-to-orbit shuttle.[13]

Several cost factors interact to make total transportation costs insensitive to design payload; (1) RDT&E costs decrease only slightly with decreasing design payload weight at a fixed payload volume; (2) reducing the design payload increases the number of shuttle flights for those missions the shuttle can support, thus increasing both operational and investment cost per mission; (3) smaller-payload shuttles cannot support all the project missions, forcing the use of expendable launch vehicles for some payloads; and (4) the orbit-to-orbit shuttle frequently cannot be recovered as shuttle design payloads are decreased, so an increasing number of orbit-to-orbit shuttles must be expended rather than recovered and reused. These cost advantages and disadvantages tend to cancel each other for the range of design payloads considered. Thus total cost provides little basis on which to choose between different shuttle sizes.

Several other factors influence the selection of a size of a shuttle. These include (1) annual funding problems; (2) future mission-model uncertainties; (3) obsolescence; and (4) uncertainties in current cost estimates. Although we have touched only on the first of these factors (and we note that the annual funding peaks for a 25,000-lb payload shuttle would be nearly as great as those shown earlier for a 50,000-lb design), the other considerations would appear, on balance, to favor larger shuttles.

### V. WILL SATELLITE COST SAVINGS JUSTIFY THE SHUTTLE?

Transportation cost savings are not the only benefits promised by the shuttle development. It is often asserted that the availability of a low-cost earth-orbital STS will produce significant savings in total space-system costs, over and above those directly associated with launch vehicles. Satellite R&D and hardware costs could probably be substantially reduced if satellites did not have to be designed to an irreducible minimum weight but could take advantage of the excess shuttle payload capacity. Recovery and reuse of satellites might pay a handsome cost dividend for certain satellite systems, while in-orbit maintenance might save money for others. The magnitude of these additional savings is often implied to be great, or at least sufficient to erase any nagging doubts about the desirability of the shuttle, but it has remained unquantified. Such savings are difficult to measure but bounds can be crudely estimated.

In seeking an upper bound to payload cost savings, we ask, "How much money, in theory, is invested in satellite programs whose cost will be affected by the existence of a low-launch-cost shuttle, and what fraction of this investment can be recovered by changes in satellite design or system operation?" In practice, only a moderate portion of the entire space budget will be influenced by the development of the shuttle (ignoring launch costs and procedures). Some space programs, particularly those involving manned space flight, are already designed to take advantage of the shuttle. Other missions, such as placing hydrogen fuel in orbit for nuclear ferry flights to the moon, are simply not subject to cost-benefit tradeoffs. Still, many unmanned satellites, mainly military, mostly modest in volume and weight, are theoretically subject to design or operational changes resulting from reduced launch and recovery costs per payload. For the military and civilian space programs mentioned above, which might be benefited by the shuttle, we have tentatively estimated the total costs to be between $1.5 billion and $2.0 billion per year.

Were all these costs recoverable, or nearly recoverable, the shuttle would quickly pay for its R&D costs, and few would question its worth. However, ignoring satellite recovery and reuse, the savings resulting from redesigning satellites are likely to be less than the reductions in launch costs,[14] which we estimate to be between $300 million and $400 million per year. Assuming that each shuttle flight costs on the average only one-tenth as much as a current launch operation, we estimate total satellite cost savings of between $150 million and $200 million per year. These savings are not negligible; nor are they stupendous. Figure 7 shows the sum of transportation and satellite cost savings for Plans 1, 4, and 5, using the lower of these two bounds.

Potential satellite cost savings do affect shuttle selection and the development schedule. Smaller shuttles offer less potential than large shuttles for realizing satellite-redesign cost savings. In fact, many future payloads that require synchronous orbits already approach the equivalent of a 25,000-lb low-earth-orbit requirement; thus the possibility of satellite redesign being affected by the lower launch costs of a smaller shuttle is already doubtful. Also, most satellite systems involved are likely to be funded, whether or not a shuttle is developed. Thus programs calling for early shuttle development are favored.

We have said little about potential cost savings arising from recovery, reuse, or in-orbit maintenance of satellites. Such savings probably affect a smaller percentage of the total budget than do those from satellite redesign, but a higher fraction of the former may be actually recoverable. No inclusive estimates of cost savings from satellite recovery, reuse, and in-orbit maintenance exist, but is an order-of-magnitude estimate, we place them at about equal to those from satellite redesign. We also note that the two satellite cost savings are not directly additive. The same satellite systems are involved in both, and the two options are competitive methods for reducing system costs.

### IV. OTHER CONSIDERATIONS

If neither total transportation cost savings nor total satellite cost savings are sufficient to justify the shuttle's large RDT&E expense, it is still possible that other attributes of the shuttle might trip the decision in favor of it. (11) Most of these attributes involve convenience of operation or an enhanced use of space. We shall not discuss convenience here; however, arguments about the increased use of space imply a major impact on the space program and deserve further consideration.

It seems inevitable that low-cost transportation to earth orbit will open up space to an extent that cannot be fully anticipated. If space transportation resembles other transportation systems, in effect, the impact of low-cost space transportation may be difficult to overestimate. But how low does this cost have to be for space to be fully exploitable? Surely, space transportation systems have a long way to go before they will be available to the general public. Tourism, for example, would require that recurring costs be reduced by at least an order of magnitude below those attributed to the shuttle. (12) Moreover, it does not seem likely that commercial enterpreneurs will become involved in space in the next 20 years, al-

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though there is some disagreement on this point. (13)

What, then, are the space activities that present shuttle designs are supposed to engender? Probably not scientific missions. Some space-exploitation missions, e.g., communications or navigation, might be created, but the biggest impact of the shuttle will probably be in the military domain. Military missions that have unique capabilities when performed from space have already been identified and, where justified, acted upon. There are other missions, however that have ground-based competitors, and the cost-effectiveness of these missions will undoubtedly be sensitive to launch-vehicle costs.[25]

Some space systems that lack ground-based counterparts have not received serious consideration for funding simply because they are too expensive. Some of these programs (usually experimental feasibility investigations) would clearly benefit from low-cost transportation. As has been true in many similar nonspace enterprises, promising but nonessential programs might be funded if they were inexpensive, in the hope that the additional expenditures would produce a useful system. The ultimate worth of untried programs is impossible to estimate; only direct experience is likely to help.

This brief discussion by no means settles the question of whether or not new mission potentials justify a shuttle development. Some new space programs would likely be funded once a shuttle became operational, and no doubt, some of these would turn out to be very worthwhile. To attempt to justify the shuttle on this basis would, however, be risky—a gamble on an uncertain future.

### VII. OBSERVATIONS AND CONCLUSIONS

The space shuttle promises many future advantages, including cost savings, if the STG schedule for an orbiting space station, space base, and lunar programs can be implemented. However, serious funding difficulties exist that may force rescheduling of the STG programs, in which case near-term development of the currently proposed two-stage fully reusable shuttle may or may not be desirable. Viewed over the long term, the shuttle has definite merit, but its immediate economic justification depends on the pace that is finally adopted for the national space program.

Our studies to date have produced these tentative observations:

1. Cost considerations provide little basis for selecting an optimum shuttle size; on the other hand, flexibility in meeting unanticipated launch requirements, potential for satellite cost savings, and growth potential favor a larger rather than a smaller shuttle.

2. Cumulated over a time period of 20 years, the differences between total space funding requirements for shuttle-supported and no-shuttle plans are insignificant. This may suggest that cost criteria should be regarded as secondary in the evaluation of shuttle desirability.

3. The STG schedules calling for shuttle IOC by 1977 should be studied further. Such an IOC date at once raises two concerns: Is present technology adequate to plan on only a five-year R&D and procurement program (from 1972 to 1977)? And could adequate funding be obtained to support such a program within so short a time span, while the program itself remains subject to question?

4. Shuttle system appears most advantageous with an early IOC date and heavy expected space traffic. However, early IOC dates cause large, near-term funding peaks. While these peaks can in some measure be reduced through judicious rescheduling of the various space-program elements, the amount of early funding required and the need for immediate program start are still formidable problems. Furthermore, any significant delay in the shuttle's IOC date will seriously reduce whatever economic advantage the shuttle has over competing, nonreusable systems.

Finally, it may be that the proper way to take a longer view of a new STS is to consider it as the first in a long line of reusable launch systems, leading eventually to a truly low-cost, high-utility system. It is possible that within 50 years, space will be frequented by vacationers, tourists, and industrial, manufacturing concerns, as a result of launch systems descended from the first reusable shuttle. At some time the urge to start toward that goal will be great enough to warrant the development of a reusable space transportation system. The principal question is whether that time is now.

### APPENDIX—HARDWARE DESCRIPTION

To compare the budgets of the proposed alternative space plans over the next 20 years, it is necessary to consider the costs of the various hardware items required in each plan. The items considered are *representative* of the types that would be required but are not necessarily those currently being studied by NASA, nor are they necessarily the elements that NASA would actually procure for a given plan. General descriptions of the major hardware items and their development and production costs are given below.

#### *Space shuttle*

The space shuttle represents a unique type of vehicle. There are no previous historical data upon which its development and production costs can be based; therefore, analogs of current hardware cost data and estimating relationships have been applied.

Assumptions about applicable estimating relationships have been made by breaking the space shuttle into appropriate components for which there are available data. The major-component breakdown and the relevant data base are as follows:

1. Structure: high-speed aircraft.

2. Propulsion: Liquid-rocket and turbojet engines.

3. Subsystems: manned-spacecraft components, primarily non-structural, such as avionics, environmental control systems (ECS), electrical power, etc.

4. Thermal protection: high-temperature materials.

The gross weight and estimated costs of the 50,000- and 25,000-lb.-payload shuttles are given in Table A–1. Estimated costs for the 40,000-lb.-payload shuttle were obtained by interpolation between the 25,000- and 50,000-lb.-payload shuttles.

TABLE A–1.—ESTIMATED COSTS FOR VARYING PAYLOAD CAPABILITY

[In millions of dollars]

| Payload (lb.) (polar launch) | R.D.T. & E. | Facilities | First unit [1] | Launch operations [2] Fixed | Launch operations [2] Recurring |
|---|---|---|---|---|---|
| 50,000 | 8,735 | 250 | 436 | 1.0 | 2.52 |
| 40,000 | 8,100 | 250 | 385 | 1.0 | 2.22 |
| 25,000 | 7,400 | 250 | 342 | 0.9 | 1.97 |

[1] First-unit costs are following ground-and flight-test articles. These costs include spares and AGE at 30 percent. Other numbers of units can be estimated by using a 95 percent cumulative-average log-linear learning curve.

[2] The fixed launch-operations costs include propellant, launch control and recovery, program integration, command and control facility, equipment maintenance, etc. First-flight recurring costs are based on 0.75 percent of first-unit shuttle costs less spares and AGE for refurbishment, and were arbitrarily selected to follow a 90 percent cumulative-average log-linear learning curve.

#### *Space station and base*

We have assumed that the space station and base would be built from common modules that would require the development of only three unique modular forms. The complete 50-man base would consist of the following modules: maneuvering, zero-g, artificial g, nuclear power, hub, hangar, warehouse, hospital, living quarters, and assorted booms and fairings.

The core, zero-g, warehouse, hospital, and living-quarters modules have been assumed, for the most part, to be common and have been designated the A Module, for estimating purposes. The hub and hangar modules have been assumed common and designated the B Module. The third module, the nuclear-powered module, is unique and has no commonality with the other two. Development costs are related to the three forms of modules, although there are functional differences among them all. The assumptions on commonality were based on similar form, structural weight, and subsystems (reaction control, electrical power, communications, ECS, and crew stations and controls).

The components of the large space base would be grouped in eight A Modules, four B Modules, and two nuclear-power modules. The initial small space station (12 men) would require only one A Module and one B Module. Weights and costs of space-station and base components are given in Tables A–2 and A–3, respectively. The modules of the space station and base would be equipped for experiments to be performed in earth and lunar orbit and at the base. First-unit cost for equipped experimental and scientific modules would be from $120 million to $160 million.

TABLE A–2.—WEIGHTS OF SPACE-STATION COMPONENTS

| Subsystem | Weight (pounds) A module | B module | Nuclear-power module |
|---|---|---|---|
| Structure | 64,000 | 45,700 | 47,200 |
| Adapter | 2,600 | 2,600 | ---- |
| Electrical power | 6,000 | 2,750 | 4,700 |
| ECS | 9,000 | 3,000 | ---- |
| Communications | 2,110 | 1,100 | ---- |
| Stability and control | 170 | ---- | ---- |
| Navigation and guidance | 1,500 | ---- | ---- |
| Crew system and display | 8,260 | 2,000 | ---- |
| Shielding | ---- | ---- | 100,000 |
| Electrical power (nuclear only) | ---- | ---- | 26,450 |

TABLE A–3.—COSTS OF SPACE-STATION COMPONENTS

| Module | Cost (in millions of dollars) Development | 1st unit | Launch operations |
|---|---|---|---|
| A module | 2,500 | 190 | 90 |
| B module | 1,065 | 96 | 53 |
| Nulcear power | 250 | 70 | 0 |

#### *Lunar station and base*

Two modules would be used for the lunar station and one for the lunar base. The station, which is to be capable of housing 12 men, would consist of a living module and a zero-g module; the lunar base, also to be capable of housing 12 men, would be a single module. Because there are major differences between the station and the base, additional development cost is incurred for the latter, although other costs are common to both station and base. Weights and costs of lunar-station and base components are shown in Tables A–4 and A–5, respectively.

Footnotes at end of article.



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TABLE A-4.—WEIGHTS OF LUNAR STATION AND BASE COMPONENTS

| Subsystem | Weight (pounds) | | |
|---|---|---|---|
| | Zero-g module | Living quarters module | Lunar-base module |
| Structure | 40,000 | 40,000 | 40,000 |
| Adapter | 2,600 | 2,600 | 2,600 |
| Electrical power | 14,000 | 14,000 | 16,000 |
| ECS | 5,000 | 5,000 | 7,500 |
| Communications | 650 | 200 | 650 |
| Stability and control | 200 | 200 | ---------- |
| Navigation and guidance | 1,000 | 0 | 0 |
| RCS | 900 | 900 | ---------- |
| Crew system and display | 3,000 | 5,000 | 3,000 |

TABLE A-5.—COSTS OF LUNAR STATION AND BASE

| Item | Cost (in millions of dollars) | | |
|---|---|---|---|
| | Development | First unit [1] | Launch operations [1] |
| Lunar station | 2,800 } | 190 | 90 |
| Lunar base | 1,400 } | | |

[1] Costs are common to station and base.

The construction module that would be used to build the lunar base has a gross weight of 10,000 lb, a development cost of $75 million, and a first-unit cost of $25 million.

A lunar-descent stage would also be required to place payload on the moon (the lunar base, the construction module, etc.). This stage would have a gross weight of 150,000 lb., a development cost of $380 million, and a first-unit cost of $16 million.

*Space booster*

For those periods when the shuttle is not in use or when payloads are of such volume or weight that the shuttle cannot accommodate them, we have assumed that several boosters would be employed, including the Saturn V (SIC, SII, SIVB, and IU), Saturn VD (SIC, SII, and IU), Titan III-D, and Titan III-M.[16] Costs for the first units of these boosters procured after development are given in Table A-6. (The costs used in this study reflect the learning-curve effects of these prior units.)

TABLE A-6.—COSTS OF SPACE BOOSTERS

| Booster | Cost (In millions of dollars) | |
|---|---|---|
| | 1st unit | Launch operations |
| Saturn V | 215 | 40 |
| Saturn VD | 185 | 25 |
| Titan III-D | 31 | (1) |
| Titan III-M | 26 | (1) |

[1] Costs included in hardware.

*Six-man Apollo spacecraft*

For those alternative space plans in which the shuttle operation would be delayed or in which there would be no shuttle, a six-man modified Apollo spacecraft would be used. This vehicle would have a gross weight of 20,000 lbs., a development cost of $1 billion, a first-unit cost of $300 million, and a launch-operations cost of $73 million.

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FOOTNOTES

[1] Research, development, test, and engineering.

[2] See Refs. 8, 9, and 10 for arguments supporting this position.

[3] Research, development, test, and engineering.

[4] This topic is treated in Ref. 5.

[5] In this Memorandum, a 50,000-lb-payload shuttle is a shuttle that can place 50,000 lb of discretionary payload into a 100-n-mi-high circular polar orbit. Its payload capacity for other orbits varies, being as high as 80,000 lbs at 100-n-mi-high circular orbits of 28.5-deg inclination.

[6] In most cases, our conclusions are based on comparisons of the shuttle with current launch systems. When other launch systems are used as a comparison, we shall so note.

[7] In this preliminary study, we have generally not considered such economic factors as discount rates and inflation, although these will be important considerations in any final decision.

[8] Our current estimates are quite crude. At the completion of the ongoing NASA space-base studies, substantial improvements in these estimates should be possible. Nevertheless, we do not feel that this crudeness alters our principal results.

[9] The annual funding estimates developed at Rand and those in the STG report (for Option III) compare as follows:

| | Costs (in billions of dollars) | | |
|---|---|---|---|
| | Fiscal year 1974 | Fiscal year 1975 | Fiscal year 1976 |
| Rand estimate | 6.4 | 7.1 | 6.7 |
| STG estimate | 5.0 | 5.4 | 5.5 |

These differences are almost entirely attributable to contrasting estimates of the shuttle's RDT&E costs, the STG estimate being only $5.0 billion, compared to our estimate of $9.0 billion, or possibly more.

[10] It might be suggested that the DOD provide funds for a portion of the shuttle development, on the basis that the shuttle is responsive to their transportation needs. One possibility would be for the DOD to pay a percentage of the total costs commensurate with its projected use rate. Another would have the DOD and NASA share the costs at the same ratio as their anticipated launch cost savings. Regardless of the total costs subsumed in the military budget, we will anticipate funding-peak problems, and, in fact, the burden might be shifted to two agencies rather than one.

[11] It might be noted that removing the shuttle program altogether diminishes most of the funding-peak problems mentioned above, i.e., if the shuttle is not developed, much of the pressure for delaying other programs would be relieved.

[12] Other studies (e.g., classified work by I. Rattinger, et al., Aerospace Corporation) have demonstrated that the ability of the space shuttle to support military, lunar, and interplanetary flights is drastically curtailed if the volume of the cargo bay is reduced significantly below this figure. However, total RDT&E costs appear to be a strong function of this bay size. Whether shuttles of smaller bay size are worth considering depends on the anticipated mission model but preliminary investigations indicate that small-volume shuttles do not support the military and deep-space requirements sufficiently to amortize even the smaller RDT&E costs.

[13] The costs of Saturn and Titan launch vehicles required for launching NASA payloads that exceed either the volume or weight capabilities of the shuttle are not included in Fig. 6. Most of the large NASA hardware (e.g., space-station and space-base models) for earth-orbital and lunar missions are launched using the Saturn vehicles. In the case of the delayed IOC of the shuttle, Titan vehicles are used for operational resupply.

[14] This tentative conclusion was reached by Carl Builder, of Rand, in a theoretical analysis of the relative savings resulting from a new low-cost booster and redesigned satellites. He discovered that if satellite design were assumed to be optimized for current high-cost boosters and then reoptimized to make use of a new low-cost shuttle, it would be possible to estimate the total savings without detailed design knowledge. For example, if the launch costs are reduced by 90 percent, two-thirds of the total savings will be the result of differences in launch costs, and only one-third will be due to satellite redesign.

It is possible that future systems using current launch hardware would not be optimally designed, for whatever reasons present systems are not minimum-cost. The existence of a shuttle could have a catalytic effect, spurring changes in present satellite design and management practices. In that case, the shuttle could produce cost savings larger than those indicated by present studies.

[15] An enhanced use of space could increase the total costs of the space program. It is assumed in this discussion that other, nonspace costs could be reduced by an even greater

margin, thus showing a net gain for the country as a whole.

[16] The Titan III–D and Titan III–M are uprated versions of the Titan III–C.

Mr. MONDALE. Mr. President, according to Rand:

The total space funding requirements over the next 20 years are not significantly different for plans that use the shuttle for space transportation and those that accomplish the same missions without the shuttle. All of these results indicate that criteria *other than cost* should be used to evaluate the desirability of the space transportation system.

Since NASA's primary justification for development of the shuttle is that it would be more economical than existing boosters, the findings of this Rand report are extremely significant. If the shuttle is not cost-effective—as Rand concludes—then there is no basis whatsoever for spending billions to develop it.

Using traffic rates based on NASA and Defense Department estimates, the Rand report considered eight alternative space plans for use of the shuttle. Only in one of these eight plans—which envisions a $140 billion space program over a 15-year period—did the shuttle demonstrate a net monetary gain by 1990. And Rand concluded that even those savings "seem to be marginal."

Moreover, since the report was written last fall, the research and development cost estimates of the shuttle have increased by almost $3 billion—from $9 billion to approximately $11.5 billion—the figure cited in Rand's May 31, 1971, letter to Senator ANDERSON.

This increase thus obliterates even the marginal savings originally projected by Rand.

Most significantly, Rand makes it clear that unless we are committed to a greatly expanded space budget, the shuttle makes no economic sense at all.

According to the Rand report, the decision to proceed with the shuttle will mean a NASA spending level of $75 billion to $140 billion between 1975 and 1990—depending on which options are adopted. In short, it will mean a vastly expanded space program—designed primarily to accommodate more costly manned space adventures.

The report observes that shuttle development requires a peak civilian space budget for 1 year in excess of $7 billion, about double the present annual budget. Other annual funding levels, the report notes, will not be as large as the peak levels, but would also exceed current budgets by significant amounts.

While these budget peaks could be somewhat alleviated by deferring various types of missions, the report points out that—

None of those (plans) examined in this study resulted in savings in space transportation costs sufficient to compensate for the space shuttle's research, development, test, engineering and investment costs through 1990.

For as the report observes, reducing shuttle operations reduces the shuttle's cost-effectiveness. Heavy traffic and heavy payload favors the shuttle concept, while light traffic favors the use of current or new expendable launch systems.

For example, under one NASA projection for use of the shuttle between 1978 and 1990, there would be 970 NASA missions—or an average of 74 missions per year. The weight of the payloads launched would peak at a maximum of over 6 million pounds in a single year, or 3,000 tons.

Yet, during the decade of the 1960's, NASA exceeded 30 launches per year only once—36 in 1966. And in terms of the weight of cumulative payload launched, 1969 was NASA's biggest year with 442,348 pounds—221 tons—over 97 percent of which was attributed to the four Apollo flights.

It is obvious that a system designed to place in orbit up to 3,000 tons of payload per year is intended to do far more than accommodate unmanned, instrumented flights. For in 1969 and 1970, the total payload of such unmanned flights was approximately 5 tons for each year.

Given these realities, eminent space scientists like Dr. James Van Allen and Dr. Thomas Gold strongly oppose the shuttle. They argue that there is little scientific and utilitarian justification for such an expanded space program and that real progress can be made in space with light-weight, instrumented flights.

Dr. Van Allen argues that any space program must meet two objectives—utilitarian uses of space technology and scientific exploration:

The first of these objectives should be dominant. A well designed program of space applications can be closely matched to human needs and desires and can be essentially self-justifying, i.e., it can "pay its own way". I am thinking here primarily of the areas of efficient radio communication with all of its immense potential for advancing the educational and cultural levels of many millions of persons throughout the world as well as for routine technical purposes, and of reconnaissance in its broadest sense. *Both of these applications can be well served by a relatively small number (say 50) of long-lived, unmanned satellites in the 1,000 to 10,000 lb. class. Updating and replacement of elements of such world wide operational systems are envisioned as requiring no more than 10 launches per year.*

Proponents of the shuttle claim that the shuttle offers savings in cost for the accomplishment of these objectives. According to Dr. Van Allen, these claims are based on:

(a) Gross over-estimation of the volume of space traffic (i.e., tons of payload into orbit per year) that can be reasonably anticipated;

(b) Substantial under-estimation of the developmental and operational costs of the shuttle program.

Dr. Thomas Gold, who is a member of the President's Science Advisory Committee and director of Cornell's Center for Radiophysics and Space Research, also believes that shuttle development would be a drastic mistake:

It seems impossible to justify it economically except if a great increase in the weight to be sent into orbit, and in the NASA budget, could be foreseen, and even then only after very many years of usage. The recent study by the Rand Corporation documents this clearly. We have no reason now to expect such a very large expansion. The technology of payloads is improving so that more and more can be achieved within a given weight limitation. One can foresee improvements in reliability that make the return capability less important. A large proportion of the traffic to earth orbit will be to high synchronous orbits where the advantages of the shuttle are less pronounced.

Dr. Brian O'Leary, an astronomer and a former scientist-astronaut, shares this opposition to the shuttle:

Once again NASA seems to be preoccupied with the philosophy of developing a transportation system rather than the business of exploring space. From a scientific point of view, it is obviously more advantageous to have a mission tailored to your needs rather than to have your experiments coming as an afterthought to an operational program. The unmanned science and applications satellites and planetary probes are good examples of missions tailored to science . . . perhaps most significantly from the taxpayers point of view, it is a plain fact that nearly all tasks in space sciences and applications can be done as effectively with existing unmanned spacecraft at one to ten percent the cost of existing manned spacecraft.

Mr. President, I ask unanimous consent that letters to me from Dr. Van Allen, Dr. Gold, and Dr. O'Leary be inserted in the RECORD at this point.

There being no objection, the letters were ordered to be printed in the RECORD, as follows:

THE UNIVERSITY OF IOWA,
*Iowa City, Iowa, May 31, 1971.*

Hon. WALTER F. MONDALE,
*U.S. Senate,*
*Washington, D.C.*

DEAR SENATOR MONDALE: I am writing to again express my distress at the emphasis that the National Aeronautics and Space Administration is giving to the space shuttle/space transportation system as the dominant element of its future program. I do so, not as an outside, mindless critic of the national space program, but as one who has worked in space exploration as a profession since late 1945 and expect to continue to do so for many more years.

Advocacy for the space shuttle rests primarily on the intuitive belief that anything that is technologically conceivable should be done and that, somehow, the outcome will justify the effort. This belief is held with religious fervor within the aeronautics industry and kindred elements of the government. I well understand the foundations for such a belief and have myself been an adherent to it in various contexts. Yet at some level of cost and resources in a tax-supported technological effort, responsible public policy requires the demonstration of specific human benefits on a scale commensurate with the effort. Corresponding criteria in the private sector are agreed by all concerned parties to be fundamental to survival in the market place.

The recent action of the United States Senate in discontinuing public support for development of the supersonic transport is a case in point. I consider that the space shuttle program is "cut from the same cloth" and should be subjected to corresponding cost-benefit considerations.

In the early stages of space exploration, human adventure and the recovery of national prestige following the Soviet success with Sputnik I were driving forces in our national effort. But at the present stage we should, in my judgment, shift our emphasis forthrightly and explicitly to two and only two objectives:

(a) Utilitarian uses of space technology, both civil and military, and

(b) Scientific exploration.

The first of these objectives should be dominant. A well designed program of space applications can be closely matched to human needs and desires and can be essentially self-justifying, i.e., it can "pay its own way". I am thinking here primarily of the areas of efficient radio communication with all of its immense potential for advancing the educational and cultural levels of many millions of persons throughout the world as well as for routine technical purposes, and of reconnaissance in its broadest sense. Both of these applications can be well served by a relatively small number (say 50) of long-lived, unmanned satellites in the 1,000 to 10,000 lb. class. Updating and replacement of elements of such world wide operational systems are envisioned as requiring no more than 10 launches per year.

Scientific exploration, the second objective, is of a different nature. It feed man's deep-seated intellectual interest in the origin of the physical universe and in its detailed workings at the present time. This interest is increasingly widespread as the general educational level of our citizenry is raised. As a teacher and lecturer in the physics and astronomy of the solar system, I am ever more impressed by the broad popular interest in purely scientific matters. The close-in study of the huge outer planets by space techniques is a case in point. I believe that the support of science for its own sake is a proper function of the federal government, without apology or obfuscation. It is one of the fields of endeavor that enables man to have a higher purpose in life than bare survival as an animal.

Advocates of the space shuttle do, perhaps, join me in enthusiasm for the above objectives. But, at least ostensible, they rest their case on representations that the shuttle technique offers important savings in cost for the accomplishment of these objectives. I have studied these claims and conclude that they are based on:

(a) Gross over-estimation of the volume of space traffic (i.e., tons of payload into orbit per year) that can be reasonably anticipated;

(b) Substantial under-estimation of the developmental and operational casts of the shuttle program; and

(C) Apparent disregard for other techniques for the reduction of the costs of space exploration that are either available at present or can be reliably forecast (e.g., long-lived observatories, improved schemes, for data reduction and display, improved efficiency in the manufacture of conventional boosters and of guidance and control systems, adaptation and rework of surplus military boosters, etc.).

Even if their claims are valid, they visualize growth of the annual space budget of the National Aeronautics and Space Administration to some $7 billion in the mid 1970's, whereas I estimate that the proper objectives of the national space program can be met in a vigorous and effective way by unmanned techniques at the annual level of some $2 billion. In general support of this comparison, I call attention to the following facts:

(a) The President's budgetary request for NASA for the fiscal year 1972 totals $3.27 billion of new obligational authority.

(b) Of the total, about 50% is devoted to science and applications in all of their ramifications, a thoroughly vigorous program.

(c) The other 50% is devoted to manned flight. Yet during FY 1972, only two actual flight missions are contemplated—Apollos 15 and 16. Even these two flights depend primarily on existing facilities and previously paid-for flight hardware. The flights have little utilitarian significance and relatively restricted scientific objectives as viewed in the larger context of space science with all of its richness and diversity.

Let me conclude by remarking that I do not contest the eventual feasibility of a space shuttle system, given sufficient technical resources. My position is essentially that an effort of this magnitude is inappropriate to the national context of the 1970's. Moreover, I fully expect that concentration on such a development during this decade would seriously detract from and diminish the realization of the many meritorious and clearly defined objectives that our national space program has within its capability at a reasonable and justifiable cost, i.e., a cost that will enjoy widespread and durable public support.

Sincerely yours,

J. A. VAN ALLEN,
*Head of Department.*

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CORNELL UNIVERSITY, CENTER FOR RADIOPHYSICS AND SPACE RESEARCH,
*Ithaca, N.Y., June 5, 1971.*

Hon. WALTER F. MONDALE,
*U.S. Senate,*
*Old Senate Office Building,*
*Washington, D.C.*

DEAR SENATOR MONDALE: We all have to be very much concerned that the sharply limited funds that will be available to the space program in the next few years are allocated to the best advantage. In terms of valuable applications and rich scientific knowledge and understanding, there is very much to be gained. Our lead in both areas has important consequences economically, militarily and, not least, for the esteem accorded us by other nations.

The proposed space shuttle would have many of the advantages claimed for it, but nevertheless I consider it a most unwise step to take at the present time. It seems impossible to justify it economically except if a great increase in the weight to be sent into orbit, and in the NASA budget, could be foreseen, and even then only after very many years of usage. The recent study by the Rand Corporation documents this clearly. We have no reason now to expect such a very large expansion. The technology of payloads is improving so that more and more can be achieved within a given weight limitation. One can foresee improvements in reliability that make the return capability less important. A large proportion of the traffic to earth orbit will be to high synchronous orbits where the advantages of the shuttle are less pronounced.

The shuttle will have to be used until 1990 or longer before there is any possibility of amortizing it. In deciding on such a very long range technological program, one is deciding to freeze technological evolution for many years. Major improvements in booster technology can be expected within the next 20 years, resulting from the continued military requirements for expendable boosters; yet none of these can contribute to the NASA or military peacetime space program without detracting still further from the utility of the shuttle.

A military program of many launches of expendable boosters will need to be carried out in any case to assure correct performance and reliability. If the shuttle were to take over all civilian and military space projects, then more military test shots without useful payloads will be required.

A definite decision in favor of the development of very large space stations in the late 70's and through the 80's would change all these arguments. A continuous requirement to supply and exchange personnel could readily consume a volume of traffic that would put the shuttle economically ahead of expendable boosters. Thus the development of the shuttle now should be regarded really as a decision in favor of a massive program of manned earth orbital flight exercises. Such a step, a major commitment for the future, should not be taken lightly. We should not allow ourselves to drift towards a policy which we would not now consciously be willing to embark upon.

At the present time there is no clear understanding of the utility of such space stations. Manned flight to Mars or other planets may be attempted one day, but probably only after much superior means of propulsion have been devised. A program for the shuttle now would hinder rather than help in that regard, since it will divert funds away from other areas of technological advance.

Remote control methods can be devised to accomplish in earth orbit all that men can do and at very much lower cost. The economic importance of the development of remote control machinery is likely to be very great for many applications other than those in space, such as mining, manufacturing, deep sea prospecting, drilling, etc. The space program can make a major contribution in the development of that technology if this, rather than manned flight, were to be the first priority.

It is clear that the decision in favor of the shuttle would commit us now, for very many more years than we can see ahead, to a line of activity of doubtful value. As a major and very visible expenditure, it would be most critically viewed by many people, and one must fear that a large and ill-justified item would become a focal point of opposition to space expenditures altogether, and that all of NASA, and even the most desirable space efforts would then suffer.

Our present policy in space should be to concentrate on applications and on genuine scientific discovery. In the applications field there are many great things to be done. Communication systems will completely change patterns of commerce and reduce the need for passenger transportation. The direct global distribution of very many channels of television to individual receivers on the ground would have a very great impact and economic importance. Many educational programs and programs of cultural value could then be made available on a worldwide basis. In the scientific area the understanding of the planets will give new insights into the structure and derivation of our own planet. This in turn will improve our capability of adjusting its resources to human needs.

Heavy, long-lived, long lead time institutional programs may be thought desirable within NASA to stabilize the organization, but they stand in the way of most of the worthwhile tasks that NASA could undertake at present. We must therefore find ways of giving NASA the continuity that this great organization clearly requires, without forcing upon them a pattern that is not in the best interests of science, space applications, or indeed any of the national needs.

Yours very sincerely,

T. GOLD,
*Director.*

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CALIFORNIA INSTITUTE OF TECHNOLOGY,
*Pasadena, Calif., May 4, 1971.*

Hon. WALTER F. MONDALE,
*U.S. Senate, Old Senate Office Building,*
*Washington, D.C.*

DEAR SENATOR MONDALE: I would like to again express my deep concern about NASA's plans to develop a space shuttle. When a new technological development costing tens of billions of dollars is first introduced to the American people, it is clear that questions must be raised about such a system's role in a wide range of competing national priorities before any commitments can be made. In this context you have been one of precious few individuals who has publicly questioned the wisdom of proceeding with a space shuttle at this time. After taking a careful look at NASA's proposal, I find myself in complete accord with your feelings. In particular, I cannot see the relevance of the space shuttle, and therefore of an expanded space program, to the pressing problems facing our nation

this decade. These are my thoughts as an American citizen.

But as a space scientist, I am also concerned about the role of the space shuttle in terms of NASA's internal priorities. Although NASA claims the system to be inexpensive, the research and development of the shuttle are estimated to cost $11 to $12 billion. Such funds would not only dominate NASA's budget of the 1970's, but would also inflate it to a peak annual funding somewhere between $6 and $10 billion, a range greater than the amount NASA spent during the peak year of Apollo. I worry mostly because, once again, NASA seems to be preoccupied with the philosophy of developing a transportation system rather than the business of exploring space. From a scientific point of view, it is obviously more advantageous to have a mission tailored to your needs rather than to have your experiments coming as an afterthought to an operational program. The unmanned science and applications satellites and planetary probes are good examples of missions tailored to science. In Apollo, unfortunately, the tendency has run in the other direction, and I am afraid that the space shuttle portends the same. Perhaps most significantly from the taxpayers point of view, it is a plain fact that nearly all tasks in space sciences and applications can be done as effectively with existing unmanned spacecraft at one to ten percent the cost of existing manned spacecraft.

Why, then, does NASA claim that the space shuttle represents a "low cost space transportation system" and an "essential element in implementing a balanced space program"? Their argument rests on the premise that, because of its reusability, the recurring cost per pound of payload for the shuttle would be considerably less than for expendable boosters. This allows more payloads and bigger payloads, both manned and unmanned, to be hoisted into Earth orbit at a lower cost *rate* than with existing launch vehicles. Moreover, satellites can be more easily refurbished and perhaps even brought back to Earth for repair or for data return.

But let us look at the details. NASA plans to launch one shuttle per week, each one containing approximately 40,000 pounds of payload. To carry less payload on any mission would accordingly reduce the economy of the shuttle in any tradeoff analysis with existing systems. To have less shuttle launches would also reduce the shuttle economy. The shuttle would therefore place into Earth orbit more than two million pounds of payload per year, a rate which is five to ten times our present rate. The total tonnage of all payloads put into space to date by both the United States and the Soviet Union would be reached in about two or three years of shuttle operation. Is it desirable to put 20 tons of material per week into space? How much will the added payload cost? Note that we have the additional constraint of scheduling, that is, one needs to satisfy the rigid weight and volume requirements of the shuttle and to lump diverse payloads together into an orbit of given inclination. On the other hand, expendable boosters represent a broad spectrum of payload-launching capabilities which can be tailored to the needs of a given experiment. In the case of the shuttle an experiment would compete with several others aboard the spacecraft and therefore must be tailored to the needs of the aggregate and of the shuttle launch schedule.

Moreover the short seven-day orbital lifetime maximum of a shuttle, because it is manned, implies the existence of a permanent space station. How many billion dollars would such a station cost to develop? Will Saturn 5's be needed to launch the larger modules comprising the space station because of the limited payload volume of the shuttles? The interrelation between the space shuttle and station further constrains the economics of the shuttle and are absent in NASA's discussions this year, in contrast to discussions last year. Finally one wonders how the development of a lunar base could also fit in with the inflationary NASA budget attributable to research and development of the space shuttle and station.

In spite of these basic economic problems confronting the shuttle, let us assume that it is indeed worthwhile to launch more than two million pounds of payload into earth orbit each year and that an greatly expanded NASA budget during the 1970's is acceptable. Which system is now economical, the shuttle or the expendable booster? Stated somewhat differently, how many years will it take before the total cost of sending these payloads with existing boosters exceed that of sending them with space shuttles? Although various studies conflict there appears to be a general consensus that at least one decade of operation is required before the shuttle becomes less expensive even under the most optimistic assumptions about the shuttle's economy. The short-run higher cost of the shuttle is attributable to the $11 to $12 billion required for research and development during the peak funding years in the 1970's plus the interest on that money projected into the 1980's and 1990's.

The economy argument alone convinces me that proceeding with NASA's space shuttle, as presently configured, is nonsense, *even if one wished to place two million pounds of payload into Earth orbit per year.* It is not a low cost transportation system; it is a very expensive transportation system. I believe that these facts will become more and more apparent in further revelations, paticularly when or if the funding is drastically stepped up, as it must for the shuttle to become a reality. Evidently NASA has not carefully perceived the political and economic climate in which they are operating. Moreover, I believe they have not been honest in assessing their motivation for proposing the space shuttle. In my opinion, the primary reason is not economics; rather it is a commitment to a new technology which would serve as a "make work" project for NASA and its contractors in a crippled aerospace industry. It is not difficult to imagine, however, that once the shuttle becomes operational at the end of the decade and the funds have already peaked out, aerospace may once again search for a new space technology in order to maintain its accustomed pace. Ironically, such a move would probably supercede and invalidate the economy of a steady multi-decade shuttle plan.

Would this not be a good time to make work for the aerospace industry in solving domestic problems through engineering? For the tens of billion of dollars needed to shuttle a privileged few into space, one could shuttle millions of people around our cities. Both shuttle systems cost the same, both shuttle systems would require the valuable skills of the engineer, but only one shuttle system would seem to appreciably raise the value of human life.

I do not feel, however, NASA should fold or dissolve. I believe it can continue its valuable work in space science and applications in a predominantly unmanned mode.

I do think there is a desperate need for establishing centers for assessment of new technologies, like the space shuttle, free from the controls and vested interests of the Government agencies involved. It is currently impossible to debate the technical details of new programs like the space shuttle from an adversary point of view. Nevertheless, I believe you have done an excellent job of raising significant issues about the shuttle and commend you for your work.

Sincerely,

BRIAN O'LEARY.

Mr. MONDALE. Mr. President, perhaps most significantly, skepticism about the shuttle is shared by the National Academy of Sciences. In a 1971 report entitled "Priorities for Space Research, 1971–1980," the Academy's Space Science Board made the following observation on the proposed development of the shuttle and station:

> The absence of recommendations concerning the shuttle and space station should also be noted. These were considered as vehicles for the support of science, but we found the concepts too vaguely defined with respect to costs and engineering difficulties to permit any realistic assessment of the potential values to scientific research and applications. Nor was the Study able to evaluate the economics of the shuttle, because it depends so strongly on the volume of space traffic, which in turn is dependent upon many user activities besides those included in the present frame of reference. It is clear that space science and applications by themselves are insufficient to justify the cost of developing the shuttle.

One of the key reasons why I think we see growing concern about the shuttle and station, and the space program generally, is the growing number of top space scientists who are objecting to the nonscientific orientations of the space program. Somewhere along the line, NASA lost the confidence of the independent scientific community, and it has gone more and more into manned space flight efforts—with little scientific and utilitarian returns—and has increasingly ignored the scientific advice of the best space scientists of this country.

So we have Dr. Van Allen, one of the original scientists who proposed the space program, Dr. Gold of the Cornell, and Dr. O'Leary, a former scientist-astronaut, and the National Academy of Sciences raising strong doubts about this program.

Mr. CANNON. Mr. President, will the Senator yield?

Mr. MONDALE. I yield.

Mr. CANNON. The Senator mentioned the National Academy of Sciences. I would like to read a statement from Dr. Charles H. Townes, who is Chairman of the National Academy of Sciences' Space Science Board, a professor of physics at the University of California, and a Nobel laureate. I quote him:

> A successful space shuttle, including further lowering of costs and the possibility of assembly and adjustment of equipment in space, should produce a marked change in the style with which science and development should be pursued with vigor.

I thought it would be well to have that from the Chairman of the National Academy of Sciences' Space Science Board.

Mr. MONDALE. Mr. President, will the Senator yield?

Mr. CANNON. I yield.

Mr. MONDALE. Is the Senator reading from the Academy's report?

Mr. CANNON. I am reading from the statement of Dr. Townes, who is Chairman of the National Academy of Sciences' Space Science Board, and professor of physics, University of California.

Mr. MONDALE. Permit me to read from the Academy report, which takes an entirely different view. It says:

> It is clear that space science and applications by themselves are insufficient to justify the cost of developing the shuttle.

The Academy's Space Science Board took that position. I think it represents a growing concern on the part of the scientific community, raising doubts about these wasteful expenditures.

NASA has again demonstrated its flexibility in responding to these criticisms of the shuttle—particularly to those expressed in the Rand report. In its May 28, 1971, letter to Senator ANDERSON, NASA made the following comment about the Rand conclusions:

> NASA is not seeking to justify the space shuttle program on purely economic grounds. The principal justification for the space shuttle is the new capability it can bring to both our civilian and military space programs for versatile and efficient operations in space. NASA will look to the economic studies now underway as providing yardsticks for assessing some of the economic factors involved, not as the justification for undertaking the program.

Until the Rand report was released, NASA continually argued that the shuttle's objective was to reduce the costs of space flight. Faced with an independent analysis challenging the economics of the shuttle, NASA now claims that cost considerations are not crucial in evaluating the need for the shuttle.

Once again, it's a case of "now you see it, now you don't."

NASA's primary defense of the shuttle has rested on several studies it commissioned for approximately $2 million. The principal study is one done by Mathematica—conducted under a $600,000 NASA contract. It concludes that if the civilian and military space effort over the next 20 years is maintained at the level of the last 8 years, the accrued savings from space shuttle operations would about equal the shuttle's cost—which the report estimates at $12.8 billion—including research, development, and the production costs of the initial shuttles. The report points out that if the level of space activity greatly increases, both in terms of number of flights and weight of payloads, the "savings" from using a shuttle instead of conventional boosters would increase.

The Mathematica study relies on data produced by NASA and two other NASA contractors, Lockheed and Aerospace Corp. and based on this data, it concluded that the major cost savings from the shuttle result from reduced costs of payload development, construction, and operation.

This report is at odds with the Rand study of October 1970; but it should be kept in mind that the Rand study was contracted for by the Air Force, which has no real vested interest in the shuttle.

If you assume no substantial increase in future space budgets over those of the 1960's, then Mathematica concludes that the shuttle will only "save" over a 20-year period its own development and initial procurement costs. Thus, unless we greatly expand the future space program, even Mathematica shows no real advantage to developing the shuttle.

And if the costs of shuttle development and procurement increases over the present $13 billion Mathematica estimate, which is very likely, considering inevitable cost overruns, the shuttle then would no longer be "cost effective" even under Mathematica's assumptions.

So even NASA's own studies, when placed alongside the estimates of the cost of the shuttle and anticipated further cost increases, would lead to only one conclusion—that the space shuttle program is not cost effective.

Mr. CANNON. Mr. President, will the Senator yield?

Mr. MONDALE. I yield.

Mr. CANNON. I point out that the Apollo program did not increase in cost. The Apollo program came out close to the original cost estimate. As I said earlier, it could be that the cost will go up if the Congress continues to vote pay raises for Government employees, such as it has. These increases have increased NASA personnel costs by $180 million since January 1967. But the Apollo program was right on target. It was estimated right where it came out.

Mr. MONDALE. That is correct, but I find it hard to believe there will not be cost overruns. Indeed, the cost estimates have increased by $2 billion to $3 billion in the last year alone. While the Apollo program, it is conceded, stands out, it stands out impressively because it is about the only program that I can think of where there have not been massive cost overruns. We have often seen in weapons systems cost overruns of 200 to 250 percent.

Although Mathematica's conclusions conflict with the Rand Study, the fact remains that regardless of what assumsumptions one wishes to make, the space shuttle commits us to an expanded space program over the next two decades—with large funding peaks in the late 1970's.

The inflated spending for a space shuttle is inevitable because at least $12 billion is required for research, development, testing and evaluation before it can operate. This most recent estimate is an upward revision of $2 billion from the earlier estimate adopted by Mathematica, and it somewhat modifies their conclusions about the economy of the shuttle.

Dr. Brian O'Leary has pointed out that in order to get the shuttle operating by the end of the decade, at least $3.5 billion must be spent during the peak year 1977 in the development and procurement of shuttles and for shuttle facilities. This money is in addition to a minimum of $1.5 billion of administrative costs required to sustain NASA that year, and $1 billion or more for programs not related to the shuttle. This implies a rock bottom NASA budget of $6 billion in 1977. A more realistic budget is undoubtedly higher.

The investment in the shuttle would vastly expand the space budget over the next two decades. In their baseline cases, Mathematica and aerospace project $44 billion to be spent on the shuttle and its payloads—which will be launched between 1978 and 1990. Mathematica and aerospace claim that some $11 to $14 billion in payload costs can be saved over the next two decades by using the space shuttle rather than using expendable boosters.

On the other hand, the Rand study projects only a $2 billion savings.

If the Rand payload estimate proves to be more reliable than the Mathematica estimate, then the total amount spent on shuttles and shuttle payloads to be launched between 1978–90 in this baseline case would be about $55 billion. And this does not even include about $2 billion per year for NASA institutional costs, space station costs, lunar exploration costs, planetary missions and the costs of payloads too big to fit into a shuttle. What we have, then, is more than $100 billion to be spent in space in the next two decades.

According to Dr. O'Leary, there is considerable evidence that the Rand study is in fact more realistic than the other studies in assessing payload savings attributable to shuttle use. First, there are those payloads whose design and cost remain essentially fixed regardless of the existence of the shuttle: planetary probes, lunar missions, space stations, and other equipment which is too large to fit into a shuttle.

But as Dr. Van Allen has observed, even the cost of payloads conducive to shuttle use cannot be reduced a great deal, since the major cost of most scientific payload is in its electronics. Dr. O'Leary put it this way:

> As space scientist, I am well aware that the cost of electronics designed for a given task cannot be appreciably reduced by making them bigger or sloppier; the days of the vacuum tube are over.
>
> As far as other components are concerned, it will still be nearly as expensive to design and prepare the apparatus. A space experiment, regardless of how it is launched, must still be space-qualified, and I cannot conceive of a piece of scientific apparatus whose cost per unit weight would go down appreciably just because it goes up in a shuttle.
>
> In fact, for this very reason, many missions have not been weight-limited; rather, they have been cost-limited. For example, in the Mariner 6 and 7 missions to Mars, only 900 of 1500 allowable pounds were used for payload; no money remained to instrument the rest of the spacecraft. There are numerous other examples of cost rather than weight limiting space science and applications payloads. Why send 20 tons of material into earth-orbit each week if 20 pounds can do the job? One can easily imagine a requirement of nearly empty shuttle flights because of cost constraints."

Nevertheless, the Mathematica study states that it is even possible to run the shuttle between 1978 and 1990 at the same funding level for both military and civilian space programs during the next 20 years as that during the last 18 years. In this case, which they call Scenario 23, the Mathematica claims that the shuttle cost would about equal shuttle savings. However, the ever increasing estimate of shuttle research and development costs—which have risen by about $2 billion just since the writing of their report—plus the probable overestimate of shuttle payload savings amounting to several billion dollars, would easily obliterate the apparent equality of Scenario 23. Moreover, funding for the space program at this level would be devoted almost entirely to the shuttle; and such a budget would virtually squeeze dry other activities in space, such as lunar and planetary exploration and even manned space flight.

We must determine, then, whether we want to commit ourselves to a rather narrowly confined space program—which emphasizes the development and operation of a transportation system for the next two decades at funding levels un-

avoidably higher than our present spending. We must determine the need for and the purpose of the shuttle.

As the Mathematica report itself concludes:

Finally, we state with emphasis: any investment can be justified by its goals. This applies to business as well as government, hence also NASA. A new, reusable Space Transportation System should only be introduced if it can be shown, conclusively, what it is to be used for and that the intended uses are meaningful to those who have to appropriate the funds, and to those from whom the funds are raised, as well as the various government agencies that undertake space activities.

While the debate this year has focused almost exclusively on the shuttle, the space station is very much a part of this picture. While the station has been deferred to avoid enormous annual budgets, there is $17.6 million in this year's authorization for further work on this project.

However, in testimony before the Senate Aeronautical and Space Sciences Committee, Dr. Low of NASA indicated that the station's development might be expedited:

I think it is a question of timing as to when we should move out with the space station. I am not sure we need to wait until the shuttle and the Skylab are fully developed. It may well be that as our space program moves out into the 1970's that we would decide sooner rather than later to start the full development of the space station as well.

In suggesting that the station's development need not await the completion of Skylab, NASA is at odds with the earlier testimony of Secretary Seamans, who told the Committee that—

We should wait until we have had further experience with the Skylab program and the shuttle before we embark on a space station mission. Knowledge derived from Skylab will give us a greater understanding of the role that man can perform in space and only after a thorough investigation and analysis of the shuttle, can we predict with reasonable accuracy our ability to resupply such a station economically and to ferry astronauts, scientists, and engineers back and forth from the space platform.

There is ample basis for Secretary Seamans' concern that development of the station is premature. For this project is based on the assumption that man can function effectively in a space environment for long periods of time. But at this point, we simply do not know the feasibility of long-duration operations in such an environment.

A 1969 report by the House Subcommittee on Space Science and Application stated that:

If there is an ultimate limiting factor (to exploring space), it may well be the length of time through which man can endure the influences of the hostile environments encountered beyond the earth. The extent and limits of human frailty or endurance have not yet been established.

Weightlessness and other special effects of the space environment may be extremely deleterious and even fatal to man after extended space flight. The Biosatellite III mission resulted in the death of a monkey after 8½ days of a scheduled 30-day flight. Medical experts believe that the monkey died of an excessive loss of body fluids due to weightlessness.

According to news accounts, the Soviet cosmonauts aboard Soyuz 9 were troubled with instability of the cardiovascular system and difficulty in sleeping after their record space flight of nearly 18 days. A number of American scientists feel that the medical results of this flight reinforce their view that many unanswered questions remain about the biomedical effects of long-duration space flight.

Mr. President, I ask unanimous consent to have printed at this point in the RECORD an article appearing in today's Washington Post, indicating some of the health problems experienced by the cosmonauts following 18 days spent in space aboard Soyuz 9.

There being no objection, the article was ordered to be printed in the RECORD, as follows:

TWO RETURNED COSMONAUTS COULDN'T WALK AT FIRST

SEATTLE, WASH., June 27—Russian scientists say two cosmonauts who spent 18 days in space aboard Soyuz 9 a year ago were unable to walk without help after their return to earth.

The three scientists said, however, that the cosmonauts returned to normal physical activity a few days after the flight. The various physical effects of prolonged weightlessness proved only temporary.

The inability to stand up and walk unassisted "was very distinct and particularly distressing," said Russian scientists Yuri G. Nefyoduv, L. I. Kakurin and A. D. Yegorov.

Their report was made Saturday during a session of the Committee on Space Research convention which lasts until July 2. Many of the world's leading space researchers are presenting papers at the meeting.

"During the first three postflight hours the cosmonauts found it difficult to keep the upright posture and had to be assisted while walking," the scientists wrote. "Next day after return, their walk was still inadequate and erect positions were maintained with great efforts."

Cosmonauts Andrian Nikolayev and Vitaly Sevastinanov returned to nearly normal physical activity 11 days after the flight, the scientists said.

The Russians said other physical changes—in weight loss, bone density and pulse rate—were expected and not significantly different than those experienced during shorter space flights.

Mr. MONDALE. Mr. President, I ask unanimous consent that a letter of June 29, 1970, from Dr. W. Ross Adey, director of UCLA's Space Biology Laboratory—describing the biomedical problems of long-duration space flight—be inserted at this point in the RECORD.

There being no objection, the letter was ordered to be printed in the RECORD, as follows:

UNIVERSITY OF CALIFORNIA,
LOS ANGELES,
*Los Angeles, Calif., June 29, 1970.*

Senator WALTER F. MONDALE,
*Senate Office Building,*
*Washington, D.C.*

DEAR SENATOR MONDALE: With Senate action now pending on the Space Shuttle, I submit for your consideration the following viewpoints as important in the determination of priorities in the space program in the coming decade. I write as a concerned biomedical scientist who has participated in the space program for the past ten years, both as an investigator in manned and unmanned flights, and as a member of committees and review bodies with an advisory role to both government and NASA.

Priorities in the space program since its inception have placed major emphasis on manned programs, with particular emphasis on the engineering aspects of needed hardware for reliable mission accomplishment. Although there can be no quarrel with the development of spacecraft engineering with reliability assured for manned flight, the price paid has been very high, so high that it appears to have been markedly detrimental to a balance between manned and unmanned space developments. Moreover, emphasis within the manned program has been on man as a test pilot in evaluation of engineering goals, rather than as a biological system himself, requiring the same careful long-term and detailed evaluation if the goal of long-term space flight is to be accomplished.

Biomedical information currently available is not adequate in critically important areas for the design or construction of space stations or interplanetary spacecraft. Specifically, we do not know whether it will be necessary to provide artificial gravity by some form of rotation or part or all of the spacecraft. Biomedical evidence from the U.S. manned program, and particularly from the recent U.S. monkey biosatellite flight, and from the Soviet Soyuz–9 manned flight, all indicate that there are significant problems of cardiovascular instability, body weight loss, and associated disturbances on daily body rhythms and certain nervous functions.

Yet to build spacecraft with a full artificial gravity as on earth, provided by rotation, predicates systems of very large dimensions for acceptable human comfort. Moreover, levels of gravity much less than 1 G may be adequate to prevent medical deterioration, and it is possible that drug and hormone therapy, properly developed, may greatly assist on long missions.

No adequate biomedical basis for these engineering systems is now available, either in the NASA or in the biomedical community. Therefore, it is imperative that NASA collect comprehensive biomedical data as an engineering baseline for design of future spacecraft for prolonged human occupancy.

It is here that there are grounds for concern. NASA has a long history of making commitments to biomedical investigations, which have been repeatedly reduced or even shelved in favor of mission goals of a primarily engineering character. The proposed medical studies in the Skylab missions were initially designed to overcome many deficiencies in the current status of space medicine and physiology. Every effort should be made to safeguard the prime importance of the biomedical aspects of these missions.

In this context, development of a Space Shuttle should be reviewed in terms of its potential contribution to acquisition of needed biomedical information. Its use as an adjunct to physical and life science investigations should be evaluated against likely progress of biomedical research in the Skylab program in the absence of such a vehicle. Medical and psychological studies planned for Skylab will provide much needed information relevant to design of spacecraft for prolonged human occupancy. They are expected to settle many basic issues concerning needs for artificial gravity.

Therefore, it is submitted that the program for a Space Shuttle might well remain in the phase of fundamental research and feasibility investigations in the Skylab program. At the same time, avoiding commitment to heavy expenditure in this area would afford an excellent opportunity to redress the traditional imbalance between manned spaceflight programs and other more modest but highly important developments. These include fundamental space biology related to medical problems of man in space,

and studies in the physical sciences in planetary programs, as well as in areas of the NASA Space Applications program.

Thank you for your consideration.

Sincerely,

W. Ross Adey, M.D.,
*Director, Space Biology Laboratory.*

Mr. MONDALE. Mr. President, NASA, of course, is most concerned about these important medical problems. The Skylab project, scheduled to begin in 1973, will be an earth orbiting manned station designed to determine the feasibility of manned operations in a space environment over extended periods of time. This project will utilize modified hardware already developed in the Apollo program.

The Skylab will be placed into earth orbit and each of three manned missions will rendezvous and dock with the workshop. The first of these missions will last for 28 days, and the second and third will each last for 56 days. According to the report of the House Space Committee, these missions "are a prelude to the operation of a space station and space shuttle" and their greatest importance "will be to demonstrate during long-duration manned flights the interassociation of man and his experiments."

These Skylab missions are crucial to the future of long-duration manned space flight. For, after hearing the testimony of a series of medical experts, the House Subcommittee on Space Science and Applications found that "the warning flags are already flying" with respect to the possible deleterious effects on men exposed to the hazards of long-duration flight. The subcommittee's report came to the following conclusion:

The ability to predict man's endurance tolerance to the environment of space, particularly prolonged weightlessness, is limited. The consensus is that current knowledge based on flights up to 14 days is adequate to proceed with planning the proposed 28-day SkyLab mission. But it is illogical to conclude from the results of successful short flights that long duration flights can be scheduled without risk of unacceptable consequences. Accordingly, present knowledge is considered inadequate to safely proceed with the proposed 56-day flight, or longer flights to the planets, without adequate testing and satisfactory monitoring of astronauts on the 28-day flights, in carefully planned scientific experiments beyond any yet undertaken in manned flight.

In short, until this Skylab experiment is completed in 1973, we will not know whether man will be able to use the space station.

Even if it is demonstrated that man can survive in such an environment, the station will undoubtedly have to be tailored to solve various biomedical problems. It is, therefore, senseless to spend millions of dollars on design and definition before we know the answers to these problems.

As one Congressman noted, it is strange, indeed, to begin funding for a giant space station before we have even flown the small one which is supposed to test the concept of space station flight.

But NASA is more concerned about the budgetary impact of the station than these medical problems. Last year, they estimated the station would cost $7 billion to develop, and it is quite likely that these costs—like the shuttle's cost—have dramatically escalated.

Despite these enormous costs, NASA is still keeping a foot in the door—hoping to proceed as soon as possible with rapid development of the station.

In the meantime, the Agency claims that the shuttle has been "decoupled" from the station, and can be justified independently of the station. But this argument presents NASA with a very basic dilemma: with the station, it has a $20 to $25 billion program over the next decade which even NASA knows Congress and the American taxpayer will not support and it has a program which depends on the unknowns of long duration manned space flight; "decoupled" from the station, the shuttle is left without a primary purpose and without the activity needed to allow it to begin to make sense from a cost point of view.

I am afraid that if NASA has its way, it will resolve this dilemma by pushing ahead with the station. One commentator put it very well:

The shuttle, he said, is a bundle of oddities such as even the space age has not seen before. It is really only half of a bigger project sonorously labeled the Space Transportation System." The other half is a large manned orbital station and is what the shuttle originally was meant to shuttle to and from. Only it's becoming apparent that there isn't enough money to build the two halves concurrently. So the shuttle will be built first. And when it is built, probably it will have no place to go (fifty times a year) until the space station comes along five or six years later.

If the shuttle is built, it will be awfully hard not to drop the other shoe and come up with several billion dollars more for a space station to shuttle to. So by getting the half billion or less that it will need for the shuttle over the next few years, NASA stands a good chance of ensuring the future of manned space flight for the next two decades.

By developing the shuttle and station, NASA will insure the continued dominance of manned flights over unmanned flights—despite the fact that many of our most prominent space scientists strongly favor an unmanned, instrumented program. The recent success of the Soviet unmanned flights to the moon—Luna 16 and Luna 17—has reinforced the increasing objections in the scientific community to another massive U.S. commitment to manned space flight.

To these scientists, unmanned flights are far more economical than manned flights and produce more advantageous applications of space technology.

For example, Dr. Thomas Gold made the following observation about the relative value of manned and unmanned space flight:

The unmanned space program is more economical by far and can be more effective than a manned program in both scientific exploration and the economically advantageous applications of space technology. We have recently seen that sample return from Mars and other planets will be achieved by unmanned means long before there is any serious question of manned flights to these bodies. Very important consequences for our understanding of the solar system and possibly of the origin of life will come from such sample return missions.

Similarly, in the applications program there is no case for the expense of manned flight. All tasks now contemplated can be done by remotely controlled instruments much more economically.

Dr. Van Allen has often advocated a reorientation of our space program toward unmanned flights. As he stated last year:

I am totally unpersuaded that men in spacecraft are important or even useful in any way that is commensurate with the effort required to maintain them there. In fact, their presence degrades almost all of the objectives in space that I consider important. And I hold this view despite the fact that I am a devoted admirer of astronauts at the level of personal courage and professional competence. I favor the indefinite deferral of major engineering studies of space shuttle and other space transportation systems which contemplate the establishment of manned space stations and other facilities of this nature.

Dr. Brian O'Leary recently wrote that:

We should encourage science looking for a mission rather than a mission looking for science; we should ask how we can best perform a mission manned or unmanned, not what we can do with the man.

In these times of conflicting, uncertain goals both inside and outside NASA, I think the unmanned planetary program provides a good example of what can be done. The Mariner 6 and 7 flyby missions gave us remarkable pictures and valuable scientific information, yet each cost less than 15 percent of the price of sending two test pilots to the moon.

It is clear that a useful and scientifically productive unmanned space program would cost far less that the manned program envisioned by advocates of the shuttle/station. The Russians claim that an unmanned flight costs one-twentieth as much as a manned flight designed for the same task—and our own experts agree that unmanned flights are a great deal cheaper than manned operations.

In its study on the future of the space program, the Space Science Board of the National Academy of Science, made the following observation about manned space flight:

It should be noted that none of the new starts in BASE missions identified by this Study requires the participation of man. The cost of scientific investigations is increased enormously by the requirement to "man-rate" hardware for use in manned flight, quite aside from the great costs of the vehicles and the life-support systems. These comments are concerned only with the coupling of man to a science program; they do not refer to a manned program per se, for there may be entirely valid reasons, unrelated to science, to conduct manned ventures in space.

According to Dr. Van Allen—

The proper objectives of the national space program can be met in a rigorous and effective way by unmanned techniques at the annual level of some $2 billion.

In contrast to the $7 billion space budget which will be required by development of the shuttle and station.

To Dr. Van Allen, an effort of the magnitude of the shuttle and station—

. . . is inappropriate to the national context of the 1970's. Moreover, I fully expect that concentration on such a development during this decade would seriously detract from and diminish the realization of the many meritorious and clearly defined objectives that our national space program has within its capability at a reasonable and justifiable cost, i.e., a cost that will enjoy widespread and durable public support.

What is at stake here, then, is a basic fight over priorities.

First, there is the issue of the priorities within the space program itself. It is a controversy between the Van Allens and other prominent space scientists—who want a useful and scientifically oriented instrumented space program which the taxpayer can afford—and those who want large NASA budgets, dominated by manned space flights.

Ironically, those who advocate the Van Allen view are often accused of being "antispace." But when you consider the fact that almost every human and scientific benefit resulting from the space program has been produced by the unmanned aspect of that program, this charge is difficult to understand.

Furthermore, the real threat to the space program comes from those whose primary concern lies in rebuilding NASA's budget and prestige—regardless of the merits of particular programs. As Dr. Gold stated—

> It is clear that the decision in favor of the shuttle would commit us now, for very many more years than we can see ahead, to a line of activity of doubtful value. As a major and very visible expenditure, it would be most critically viewed by many people, and one must fear that a large and ill-justified item would become a focal point of opposition to space expenditures altogether, and that all of NASA, and even the most desirable space efforts would then suffer.

There is also a more fundamental issue of priorities involved in this debate. For we are not simply making a decision about a particular space project—we are deciding the allocation of limited Federal resources.

To those who will argue that the $137.6 our amendment seeks to delete is nothing to get excited about—and in the context of multibillion dollar space and military programs, they may have a point—I would point out that each of us can go to his home State and have pointed out to him people—

Who are losing homes because of spiraling property taxes;

Who cannot afford a decent education for their children;

Who are suffering from a deteriorating environment;

And who are experiencing the decline of almost any public service from transportation to police protection.

I wonder why few seem to realize or care that $137 million is—

Over seven times what the Federal Government plans to spend in fiscal year 1972 for the health care of migrant children;

Five times what we plan to spend for bilingual education;

Thirteen times what we will spend to prevent school dropouts; and

$27 million more than we will spend for education of the handicapped—$137 million is over three times the budget of OEO's emergency food program—which the administration is seeking to terminate.

But it is not just the poor and the handicapped who are affected by ignoring the implications of a $137 million expenditure. This figure is $12 million more than the administration has budgeted for Federal air pollution programs, $37 million more than the President's special request to fight cancer, $82 million more than the budget of the Federal Bureau of Narcotics and Dangerous Drugs, and $9 million more than has been budgeted for highway safety.

Hopefully, when the cost of completion implications of the shuttle and station are understood, the distortion of priorities represented by this project will become clear.

Even assuming that the station is not developed and that the shuttle's development cost is held to $9 billion—which is most unlikely—this expenditure would still be an enormous waste of resources.

For $9 billion, we could build water treatment plants to serve 90 million Americans. Or we could build solid waste disposal facilities to rid every municipality in the United States of unsightly trash and keep our cities clean for 5 full years.

For $9 billion, we could buy 333,000 homes worth $27,000 apiece. How many American families have saved a lifetime to purchase a $27,000 home? How many homeowners now worry that property taxes are soaring while our schools are failing their children?

Nine billion dollars is nearly double all local and Federal expenditures each year for the construction of urgently needed schools. And for $9 billion, we could operate a great private college like St. Olaf in Minnesota tuition-free for 1,125 years.

Fifty-two million people, or one out of every four now living in the United States, will be stricken with cancer. One and a half million of us will die in the next 5 years unless we can find a cure. Yet the shuttle will cost at least 43 times what the Federal Government is spending annually to find a cure for cancer.

In fact, for $9 billion, we could triple the Federal Government's combined outlays to fight crime, pollution, and cancer. Is a shuttle 3 times more important than safe streets, clean air and water, and freedom from deadly diseases?

If these illustrations were not enough, just think what we could do for $12 billion, much less for the $25 billion which both the shuttle and the station will cost.

In terms of priorities, then, this debate is no less important, indeed it may be more important, than that over the SST.

Some of the proponents of the shuttle and station maintain that those of us who oppose this project and who opposed the SST are "antitechnology."

But what the New York Times said about the defeat of the SST applies to the shuttle and station as well:

> The end of the SST does not mean a flight from technology. What Americans want is more and better technology which will help meet the urgent problems of the day. An automobile that can provide adequate personal transportation at reasonable cost without poisoning the atmosphere would be welcomed enthusiastically by all Americans.
>
> The list of needed technological advances of this sort is endless. The goal is technology that meets human needs without exacting a price—environmental or economic—that overbalances the gain. The defeat of the SST will be particularly valuable if it reminds businessmen, engineers and scientists that technology exists to serve people, not people to serve technology.

I think that is the heart of the issue here today. We need to expand our technology, but that technology must be expanded in the area of greatest human need, whether it is in education, transportation, health, or the environment.

What is proposed to be done here is to spend $9, $12, or $15 billion to build a space transportation system to transport one, two, three, or four people and an unspecified amount of materials into an earth orbit.

I cannot believe that this is a wise, intelligent, or scientific application of this Nation's resources.

Voting against the shuttle and station is not joining an antitechnology crusade. Rather, a vote against this space extravaganza will demonstrate that in a democracy, the people have a right to demand that technology serves human needs.

Mr. President, I yield the floor.

The PRESIDING OFFICER. Who yields time?

Mr. CANNON. I yield myself 10 minutes.

Mr. President, I oppose amendment 223 offered by the Senator from Minnesota (Mr. MONDALE).

The Space Committee, after studying the space shuttle, concluded that the space shuttle program should be supported. The committee believes that the space shuttle represents a concept that will result in a reusable transportation system which will not only reduce the direct cost of transportation from the earth's surface to earth orbit, but will permit accompanying substantial reductions in the costs of payloads. To explain, in a little more detail Mr. President, a reusable space shuttle system would be cost effective just because it reduces launch costs by saving the high cost of the expendable launch vehicle systems. But, it turns out that this does not represent the primary cost saving brought about by having a space shuttle. The major cost of a space system is the payload. Payloads are expensive when using expendable boosters. The payload must be kept small so it is miniaturized. It must be highly reliable so redundancy is built into the payload. These factors make it very complex necessitating an enormous amount of testing in order to achieve high reliability. When the space shuttle is available earth orbital payloads will not have to be miniaturized and off the shelf subsystems can be used because the shuttle will have the capability to reach spacecraft in orbit either to repair them there or bring them back to the surface of the earth if that is necessary.

Mr. President, the Senator's amendment would halt NASA's work on the shuttle and space station thereby forcing the United States to continue to use costly and less efficient throwaway boosters. The recommended shuttle authority of $120 million which the Senator's amendment would cut out of the bill would deny the United States the option of a cheaper and more flexible means of getting from the earth's surface to low-earth orbit.

The Senator has referred to a number of the supposed studies—the so-called Rand study and the Mathematica studies. I should like to refer to the Mathe-

matica study for a moment. One review says:

> The Mathematica study indicates that unless the United States is to all but abandon its future unmanned space flight program, development of the space shuttle/space tug system is demanded on the basis of the tremendous amounts of money it will save in launch and payload costs.

They give an example:

> Taking one view of the space program plan—based on the requirements established by the Defense Department and NASA for the 1978 to 1990 time period—Mathematica, using "the most conservative economic analyses"—projected a cost savings for the shuttle of $14 billion over using current expendable vehicles.

This is the saving over the cost that would be necessary if we used expendable vehicles, such as are being used today, based on the projection of the Defense Department and NASA for the number of missions that would be required per year over that period of time.

So if the Senator is truly interested in having more money to spend on education, more money to spend on health and welfare programs, here is a way to save $14 billion to do it, instead of talking about the relationship between the respective costs.

I might point out for the Senator's benefit that from 1960 to the present time, the amounts expended in the field of health have gone up approximately 700 percent above what they were in 1960. The amount spent in the field of education has gone up approximately 600 percent above what it was in 1960.

So if the Senator really wants to find money to spend in these areas, let us reduce the cost of these space vehicles that are now used and are going to be used for most of the 1970's—we can cut the cost and save $14 billion, according to the analysis of the report to which the Senator referred a few moments ago.

I do not know why the Senator is against NASA's looking for a cheaper way to do things.

Mr. President, the principal argument for the shuttle is that if it is developed it will provide the United States with a more economical, more efficient and more flexible means to explore and use space. Shuttle studies to date—and NASA is still studying additional shuttle concepts—show that a space shuttle will save substantial sums not only by reusing the boosters and the orbital vehicle, but, as I have said, in spacecraft costs. Mr. President, the only prudent thing to do since we are going to continue to have a space program is to find ways to cut the cost and stop using expensive throwaway launch vehicles and that is what NASA is trying to do.

Mr. President, tomorrow we are going to have an amendment from the Senator from New York (Mr. JAVITS), the intent of which will be to cause NASA to use recycled materials.

I do not know of anything more important to recycle in the space program than those boosters we have been throwing away since the beginning of the space age.

The Senator from Minnesota has argued that the space shuttle is another manned space extravaganza which will cost between $20 and $25 billion. That is simply incorrect. First of all, while the shuttle vehicles, both the booster and the orbiter, will be piloted by men much as airplanes are piloted, they will be used to put all payloads into space except the very small payloads presently handled by the Scout vehicle or the extremely large payloads such as might be handled by a Saturn V. The estimate of $20 to $25 billion is simply spurious and the Senator from Minnesota cannot point to any space shuttle study that provides such an estimate for a shuttle research, development, and testing.

The Senator's amendment would also cut $20 million from the bill for facilities—facilities that are needed for long lead time space shuttle engine development and for advanced technology. The $20 million recommended by the committee will provide funding of $13 million for main engine test stands, funding of $1.5 million for auxiliary propulsion test facilities and funding of $5.5 million for thermal protection development facilities.

The main engine facilities represent modifications of existing Government-owned propulsion test facilities, and these modifications are in this request because engine developments, based upon experience, are the key factor in space vehicle programs and require the longest development time. Allowance must also be made for the necessary construction and activation work so as to provide the test capability to support any future development effort. These facilities do not exist, they do not duplicate any facilities in existence and they should be authorized in this fiscal year so that they can be provided on a well planned and orderly basis, properly phased on the engine development work. It is not realistic to defer this request and then provide these facilities later on an accelerated basis to support the other engine development activities. If we do it that way it will cost more.

The auxiliary propulsion and the thermal protection system facilities are in fact technology development facilities rather than support for main line shuttle development. The auxiliary propulsion facilities would be used to determine the feasibility of using gaseous, as opposed to liquid, hydrogen, and oxygen, for attitude control of the shuttle. This is a new concept and this technology needs to be explored whether the shuttle air frame goes into development or not. Again, these facilities are modifications and additions to existing NASA test facilities.

The thermal protection system, along with the engines, is considered the most critical and difficult technology development in the shuttle program. Briefly, this is the development of materials that can handle the very high heat loads, particularly on the orbiter vehicle, experienced without replacement or refurbishment after an individual flight. The funds recommended in this bill are to expand existing thermal development capabilities at several NASA centers to perform the research and to develop the materials that can satisfy these tremendously demanding thermal requirements. These are not mainline shuttle airframe test facilities—they are facilities to support the "homework," the technology that must be developed for the shuttle vehicle. These facilities, in addition to serving an immediate need, will be available to support other NASA aeronautical and aerospace research activities which involve the thermal properties of materials.

Mr. President, all of these facilities need to be initiated this year to support the critical technical developments of the highly complex shuttle program. It takes time to build these facilities. The phasing has been carefully examined and the NASA request is considered to be fully justified. These facilities are required to support the shuttle study and technology development work authorized in other sections of this bill.

The Senator from Minnesota, in support of his amendment, has stated that it makes no sense to continue development of the shuttle and station until data on long-duration space flight are available from the Skylab project in 1973. I want to make two points on this assertion:

First, the space station is not in development, there is no money for space station development in this bill, and there is no schedule by NASA for initiating such a development at this time. I cite very specific testimony by Dr. Low, Deputy Administrator of NASA, before the Space Committee that appears on pages 13 and 371 of the fiscal year 1972 authorization hearings. The $17,600,000 for space station activities in this bill is for study and definition of what such a space station should be and what experiments could be conducted in it. I think this is a most worthwhile effort—work that should be performed so that later on we can make intelligent decisions about the merits of proceeding into development with a space station.

Second, the space shuttle is not dependent on the space station. The shuttle is envisaged as a transportation system that will, as the Senator from Nevada has already stated, carry satellites to orbit, repair or retrieve satellites for refurbishment, and otherwise serve in a transport role. If a space station is developed, it appears that the shuttle would be an efficient and economical method of supporting such a station. But a space station is not necessary for a shuttle system development—the two projects are not interconnected in this regard.

In summary, Mr. President, the space shuttle authority of $100 million is necessary to permit further investigation of a cheaper, more efficient and flexible means of getting from the earth's surface to low-earth orbit. The facilities money of $20 million is important to advanced technology and to support development work on the long leadtime item, the engine. The space station money of $17.6 million is nothing more than study money. There is no development money for the space station in this bill. Considering that the Soviet Union is today orbiting a space station about 2 years before we will launch our Skylab missions, it does not seem unreasonble to me that the United States put some effort into studying this capability and it did not seem unreasonable to the committee.

Mr. President, I urge that the amendment proposed by the Senator from Minnesota be rejected.

Mr. MONDALE. Mr. President, I yield myself 5 minutes.

The PRESIDING OFFICER (Mr. ROTH). The Senator has only 1 minute remaining.

Mr. MONDALE. I ask the able manager of the bill to yield me 4 minutes.

Mr. CANNON. I yield 4 minutes on the bill to the Senator.

Mr. MONDALE. Mr. President, NASA's position is that the shuttle program is cost effective. They continue to maintain that, despite the fact that the distinguished committee composed of the National Academy of Sciences, in its 1971 report, concluded:

> It is clear that space science and applications by themselves are insufficient to justify the cost of developing the shuttle.

They continue to do so, despite the fact that a research project conducted by the prestigious Rand Corp. under contract with the Air Force, concluded that the space shuttle could only be justified on grounds other than cost. They continue to do so, despite the fact that their own mathematic study, full of all kinds of assumptions—submitted to them by the space program and other NASA contractors—shows that if there is a slight overrun in cost between now and 1990, it will not be justifiable on the basis of cost.

Based upon a lot of experience that we have had in the past with NASA and DOD programs, I think it does not press the imagination much to assume that there will be substantial overruns in the cost of the space shuttle. Indeed, the estimates have risen from $2 to $3 billion in the interval of a single year. Therefore, there is little basis for this authorization.

If I could ask the distinguished manager of the bill, Is information available as to the number and types of boosters and space and command modules now in the inventory of the space program?

Mr. CANNON. I do not recall those figures offhand, but they are in the hearings in table form.

Mr. MONDALE. Very well. If the staff member could refer us to the page, we will appreciate it.

One final question: Did the Senate Committee on Aeronautical and Space Sciences hear from any of the critics of the proposed shuttle during its hearings on this bill?

Mr. CANNON. We did not hear from any. The Senator from Minnesota (Mr. MONDALE) is the only vocal critic of the program so far. We did not hear from any other critics. I will point out in just a moment, on my own time, that even the Senator's reference to the report of the National Academy of Sciences does not say what the Senator contends it says. We did not hear, no, from any critics of the program.

Mr. MONDALE. Did the Senator hear from Dr. Van Allen or Dr. Gold, or Dr. O'Leary?

Mr. CANNON. We did not hear from Dr. Van Allen. He did not request to testify and we did not ask him to testify. We normally hear all witnesses who request to be heard on the subject. We did not get any requests from witnesses with any degree of expertise on this subject.

Mr. MONDALE. As the Senator knows, there has been widespread concern expressed about the shuttle and station programs—which could involve at least $20 to $25 billion of expense, and even higher expenditures. Would it not seem prudent to hear from some of the critics of the proposal before approving it?

Mr. CANNON. It would, if there were any, but I think the reason is that if there are, in truth, any critics, they recognize there are not enough facts available to oppose the program. The studies show that. The study that the distinguished Senator used himself a few minutes ago, the Mathematica study, shows that it is an economically feasible program. The National Academy of Sciences' report that the Senator also cited as saying it is not feasible, did not say that at all. The Senator cited only one part of their report and I should like to read the rest of it, as follows:

> The absence of recommendations concerning the shuttle and space station should also be noted.

I want to reemphasize that—

> The absence of recommendations concerning the shuttle and space station should also be noted.

In other words, they did not make any recommendations.

Continuing to read:

> These were considered as vehicles for the support of science, but we found the concepts too vaguely defined with respect to costs and engineering difficulties to permit any realistic assessment of the potential values to scientific research and applications. Nor was the Study able to evaluate the economics of the shuttle, because it depends so strongly on the volume of space traffic, which in turn is dependent upon many user activities besides those included in the present frame of reference.

Now I come to the sentence the Senator used:

> It is clear that space science and applications by themselves are insufficient to justify the cost of developing the shuttle.

That is absolutely correct because it is the intention to use the shuttle for DOD missions as well as NASA missions. The projection user by the Mathematica study is based on the combined missions of NASA and DOD, per year, and, according to their studies:

> Using the most conservative economic analysis, the study projected a cost savings for the shuttle of $14 billion over using current expendable launch vehicles.

Mr. MONDALE. Is it then the position of the floor manager that if use of the shuttle were limited to civilian space applications, it could not be justified; that only when one adds the military uses, it becomes a justified expenditure?

Mr. CANNON. It would depend on the number—this goes back to the number of missions—if we are going to have only one mission, it would not pay to have a reusable system; or if we are going to have only two missions, it would not pay to have a reusable system. It gets to the number of missions required. If the NASA space program were going to have 56 missions a year for NASA alone, they would save $14 billion. If that figure came from both NASA and the DOD, we would still save the same $14 billion. It is based on the number of missions contemplated.

Mr. MONDALE. I thought I understood the Senator to say that he agrees with the sentence appearing in the report of the National Academy of Sciences, that—

> It is clear that space science and applications by themselves are insufficient to justify the cost of developing the shuttle.

The Senator went on to say that this was correct, but that to justify the shuttle, you must include the military uses for the future. If I understood the Senator correctly, then one must turn to the military uses of the shuttle to find a basis to justfy the cost; is that not correct?

Mr. CANNON. Do not quote me for saying that statement is valid, because that is in the report of the National Academy of Sciences and they say they did not study it. I read that a little earlier:

> The absence of recommendations concerning the shuttle and space station should also be noted. These were considered as vehicles for the support of science, but we found the concepts too vaguely defined with respect to costs and engineering difficulties to permit any realistic assessment of the potential values to scientific research and applications.

So they said they did not have enough information to study it and make a valid assessment. That is all they say.

Mr. MONDALE. I read that sentence:

> It is clear that space science and applications by themselves are insufficient to justify the cost of developing the shuttle.

And that comes from an independent space science board established by the National Academy of Sciences; but, in any event, I should like to turn to the question of military application——

Mr. CANNON. Before the Senator gets off that, I frankly do not see what bearing that particularly has on it. I go back to the chairman of the board where he says—and this is Chairman Townes who chaired the board of the National Academy of Science from whose study the Senator is reading:

> A successful space shuttle, including further lowering of costs and the possibility of assembly and adjustment of equipment in space, should produce a marked change in the style with which science and space applications are carried out . . . I believe its study and development should be pursued with vigor.

That is the chairman of the board.

Mr. MONDALE. I am not in a position to comment——

Mr. CANNON. If I may interject here, the Senator asked for our current inventory of hardware and he will find that on page 376 of the hearings.

Mr. MONDALE. I thank the Senator.

If I might turn for a moment now to the question of the role of the space shuttle for military purposes. I believe I am quoting accurately from the Secretary of the Air Force in his appearance before the Senate committee.

The PRESIDING OFFICER. The time of the Senator has expired.

Mr. CANNON. Mr. President, I yield myself 3 additional minutes.

The PRESIDING OFFICER. The Senator is recognized for 3 additional minutes.

Mr. MONDALE. Mr. President, I thank the Senator.

I believe I am accurately quoting the Secretary of the Air Force when he stated:

I cannot sit here this afternoon and say that the space transportation system is an essential military requirement. I think—I believe that it is important to national security. I hope it goes ahead. But it is not in the same category with systems like the B–1 and the F–15 and the Minuteman programs that we have a hard time funding as it is.

So I saw little opportunity to also have a major space vehicle development system as part of the Air Force budget.

That is a quotation from the record on page 363. Is not the Secretary of the Air Force really saying that in the range of needs which are seen for the Air Force, the space shuttle is not very important and, in fact, not important enough to cause the Air Force to contribute a single dime to its development?

Mr. CANNON. I do not think that is the case at all. Quite a while ago, several years ago, we got NASA and the military departments together and they signed an agreement with each other so that they could work out the necessary programs and we would not have two agencies trying to go in the same direction. NASA is the lead agency on this program. What Dr. Seamans is saying is that he cannot precisely identify the programs as an essential military requirement; he cannot say that this program is essential to the national security. He does say that he thinks it is important to the national security and he hopes that we will go ahead with it. They do propose—the Department of Defense and the Air Force—to carry on space missions in the future, in the 70s and into the 80s.

The PRESIDING OFFICER. The time of the Senator has expired.

Mr. CANNON. Mr. President, I yield myself 3 additional minutes.

Mr. MONDALE. Mr. President, will the Senator yield further?

Mr. CANNON. I yield.

Mr. MONDALE. Mr. President, he further said on page 362:

Well, as far as our military missions are concerned, we are now able to carry out all of the functions that I have indicated which are satisfying all of our present needs that we could visualize in space. And these are very important missions, and I did not mean by the way I wrote my statement to minimize their importance.

Is it not the case that in the past, where the Air Force and NASA have cooperated on a project which is of importance to each agency, the Air Force and the Department of Defense have contributed something to such efforts run cooperatively with NASA?

Mr. CANNON. Mr. President, I do not recall. If the Senator asked about a specific program, I could tell him. However, I do not recall because we did work out an agreement just for that purpose.

Mr. President, I hate to have the Senator read a sentence and not read the balance of the paragraph or to read a paragraph and not read the next paragraph relating to that. Therefore, I would like to read the paragraph following that which the Senator read, quoting Dr. Seamans:

We see this space transportation system as a way of carrying out these functions at a lower cost and with more flexibility, and, in time undoubtedly we would think of additional functions that are important which we could, in turn, perform more readily by virtue of the space transportation system.

So if there is any doubt in the Senator's mind, the Air Force and the Department of Defense support the program.

Mr. MONDALE. Mr. President, there is no doubt in my mind about that. But they will not put up a penny of their own money. They will not on the record say that it is an essential military requirement. And we go back to the earlier points. We cannot justify this spending on a civilian basis, but we must proceed on the basis of the military requirement to give it the component of necessity. The Secretary testifies that it is not essential. It seems that we have general concern whether we should spend $14 billion or $18 billion in these times of great need in other areas.

Mr. CANNON. Mr. President, does the Senator desire that we go back and request the Department of Defense to come in and request separate funding rather than have one program and have it managed by a civilian agency?

Mr. MONDALE. I would very much like to see it if this is really a military weapon. I would like to see the Department of Defense come up and justify it on its own grounds.

Mr. CANNON. Mr. President, no one justifies that and no one has made that contention at any time.

Mr. SYMINGTON. Mr. President, will the Senator yield?

Mr. CANNON. I yield to the Senator from Missouri.

Mr. SYMINGTON. Mr. President, I say to the Senator from Minnesota that no one in this town is more anxious to see this program go ahead than the Secretary of the Air Force. He came out of the space program.

The PRESIDING OFFICER. The time of the Senator has expired.

Mr. CANNON. Mr. President, I yield myself 5 additional minutes.

The PRESIDING OFFICER. The Senator is recognized for 5 additional minutes.

Mr. SYMINGTON. Mr. President, this is an application which to my mind is desirable from a military standpoint and also from other standpoints that have to do with our future—for example, our environment which has recently become one of the most important questions. I know that the Senator from Minnesota is deeply interested in that.

I think that the study of a space shuttle could be as important to future conclusions and actions with respect to our environment as any other program we have.

Mr. President, I rose only to assure the Senator from Minnesota that Dr. Seamans is extremely interested in the space program. I would also add that if this were not a program of NASA, I am confident, based on my experience, that the Department of Defense would be eager to see it develop.

For some reason, the United States has emphasized the orbiting of the moon. That was a superbly successful scientific achievement. On the other hand, as the able Senator from Minnesota well knows, the Soviet Union has been consistently developing its capability to orbit the earth which involves matters that are considerably more important from the standpoint of our prosperity and our security—and I am thinking of environment when I use those words.

As we pursue the more glamorous adventures such as exploration of the moon, I would hope that the Senator would give consideration to the importance of not eliminating the possibility of future discoveries with respect to the environment.

We know that our environment today is being badly affected. We also know that if we take a globe, we cannot express this thin ribbon that is called the atmosphere with even a thin veneer, from the standpoint of relative distance.

It has now become clear that one of the most important things for all the people in the world regardless of nationality or geography, is to recognize the vital necessity of preserving this thin ribbon that has had a bearing on all life from the beginning of mankind.

One of the best ways to do that would be, in my opinion, to be able to orbit the earth with maximum intelligence, which this space shuttle would allow.

Mr. ANDERSON. Mr. President, would the Senator yield?

Mr. SYMINGTON. I yield.

Mr. ANDERSON. Mr. President, I am happy to say that the Senator from Missouri was in New Mexico recently and visited the Los Alamos Scientific Laboratory where he viewed the progress that laboratory has made in its work, particularly its space-related work. It has made a very great contribution. Here is a Senator who has seen the results and can testify about them. The Senator did a fine job all the way through. He is to be complemented for the time and effort he has put into understanding these complicated matters.

Mr. SYMINGTON. Mr. President, I thank the able chairman of the Aeronautical and Space Sciences Committee with whom I have had the privilege of working for many years.

I observe in closing that this world is getting to a point in a telescoping space and nuclear age where the more we find out how to preserve what creates life on this planet, and the more we work on it, the better off we will be.

Surely we can spend money with the full knowledge that this research could come back to us manifold, not only from the standpoint of the security—and I use that word in its fullest sense—but also the prosperity of the people of the world.

Mr. MONDALE. I thank the Senator for this generosity.

Mr. President, my time has expired. Will the Senator from Nevada yield to me?

Mr. CANNON. I yield 5 minutes to the Senator from Minnesota.

Mr. MONDALE. Mr. President, in response to the comment made by the able and gifted Senator from Missouri, my point with respect to the military aspect

of the shuttle was simply this. The Secretary of the Air Force testified before the committee that a shuttle was not essential. He would like to have it, but he testified it was not essential, and he saw that the priority was such that he saw the opportunity to have a major space vehicle developed as a part of the Air Force budget.

He further testified there would be cost advantages in the shuttle versus the expendable booster, but the Air Force study by the Rand Corporation concluded that the shuttle could not be justified on cost grounds so one wonders about the basis on which the Secretary makes that point.

The second point I wish to make is that the Senator is quite correct that there are uses for space, based upon many, many important practical needs on earth, and many important scientific needs. But through unmanned scientific space flights we can do the same thing at one-tenth or less the cost of manned flight. Manned flight is the most expensive scientific investment we can make in space.

We have had many Senators who have referred to the many things we have learned through space but I marvel at the fact that virtually all those are dividends of unmanned space flight, which costs less with no risk to human life. The Secretary said that the end of this decade we will be spending $7 billion compared to a space budget that will be only $2 billion and be more useful than the one costing $7 billion or perhaps $8 billion.

We have learned a good deal about communications and weather from outerspace and we have benefited greatly in the fields of communication such as radio, television, and the international satellite, but those are less expensive unmanned satellites that do not stay in the air, and they do not get sick, and they respond to controls on earth.

The National Academy of Sciences and Dr. Van Allen said that space control had gotten out of the hands of scientists into the hands of people who are asphyxiated on a manned space extravaganza.

Mr. SYMINGTON. Mr. President, will the Senator yield?

Mr. MONDALE. I yield.

Mr. SYMINGTON. There is a way that a discussion can be handled between friends to make them enemies. You can go to one group and say, "Did you hear what so-and-so said about you?" When they say, "No," you tell them. Then, you can go to the other group and follow the same procedure and both are very angry and get into trouble.

The point I wish to make is that because Secretary Seamans, who once ran NASA and is now head of the Air Force believes there are certain programs that should be in the Air Force, he should not be placed in a position of considering this to be an unimportant program.

I have watched evolution of many of the programs the Senator makes reference to.

We had the long-range F–8 which was canceled for the B–70. Then, the B–70, the long-range bomber, was canceled—at a cost of several billion dollars—because the B–52 with the Skybolt missile would be better.

After spending a great deal more money, we gave up the Skybolt on the ground that the Dynasoar was better, then we gave up on that because we said the Dynasoar would not be as good as the manned orbital laboratory called MOL. At the additional expense of the American taxpayer we then canceled out the MOL. This closes the diagram.

On many of the programs that the able Senator opposed I have agreed with him in the past, and no doubt will agree with him in the future, but I do believe we should be allowed to have a manned space shuttle program.

The Senator mentioned the Rand report.

As I understand it, this report, written by four employees of Rand and printed in October, 1970, is quote as indicating that some doubt exists on the economic advantage of the shuttle. This was the view at that time by the authors who recommended additional economic studies. This has been done in the Mathematica studies. The quoted Rand report has not only been refuted by the Air Force Secretary Robert Seamans, but also by Henry Rowen, president of Rand.

There is no portion of the future space activity spectrum which will benefit more from prompt Space Shuttle development than the general realm of unmanned satellites.

The Senator from Minnesota questioned unmanned satellites. Therefore, I think it important to point out that the shuttle's large cargo bay can be used to carry many satellites at once, placing each in its optimal orbit, yet at far lower costs than existing expendable systems. With shuttle standing by, each satellite may be checked-out in orbit after deployment, confirming the satisfactory performance of all satellite systems.

Mr. CANNON. Mr. President, will the Senator yield?

Mr. SYMINGTON. I yield.

Mr. CANNON. Is it not a fact that quite recently we lost two of our unmanned missions at a cost of $170 million, both of which might have been saved had it been a part of the shuttle system?

Mr. SYMINGTON. The Senator is correct. I was coming to that.

It will be recalled we twice failed to successfully place the Orbital Astronomical Observatory satellite in orbit, once due to a primary battery failure, once due to a launch insertion problem. In both cases, had the Space Shuttle been available to place the OAO in orbit, this $100-million satellite would have either been repaired in orbit or safely returned to Earth for subsequent reflight.

In addition to avoiding the stockpiling of duplicate satellites to replace those lost on launch, the Space Shuttle concept offers very significant savings in the development and production costs of the satellites themselves. Again, the size of shuttle's cargo bay and shuttle's low-cost-per-pound-to-orbit relax the familiar size and weight limits which have contributed to the complexity and high cost of satellites. With shuttle as our reusable space transporter, future satellites may be built with more conventional fabrication techniques, not only saving years in development time, but sharply reducing their design, development and fabrication cost.

Shuttle's capability for routine satellite inspection and repair will enhance the reliability of our unmanned satellite programs. Approximately 300 American satellites are now in orbit, many of these are quiescent, but only for want of a new battery or minor adjustment. Heretofore, we have had no means for revisiting these satellites for routine maintenance, but shuttle will make the economies of satellite upkeep a reality. When a satellite's performance can best be served by major modifications, such as installation of a newly developed camera, shuttle's crew will retrieve the satellite and carry it home for overhaul and subsequent reflight.

Shuttle may be used as a test bed for development of the promising equipment including sensors and photographic techniques without the cost of a satellite experiment. During a portion of a routine mission, a scientist passenger aboard shuttle may perform orbital research on a variety of promising equipment, returning to Earth for major adjustments and data evaluation. When optimized, this newly developed equipment may then be installed in orbiting satellites during inspection visits, if necessary under the supervision of the scientists themselves. In this way, shuttle again offers the operational flexibility so that unmanned satellite performance may be enhanced by periodic contact with the inspection and modification skills of man.

Wisest continuation of our beneficial programs in space demands that we utilize the most efficient means for transport to space. Shuttle's multi-purpose capability utilizes an optimal blend of manned and unmanned characteristics. Where space activity can best be performed with unmanned satellies—as in weather observation, data delay, national defense and communications applications—these satellites may be most efficiently placed using shuttle. Conversely, man's capability to observe, make judgment decisions and recognize opportunity may be fully utilized in performing experiments, routine satellite inspection, and maintenance. Man's role in the shuttle is completely consistent with that of a flight crew in commercial aircraft.

We have truly evolved to a point where manned and unmanned space activity can both be made more productive and less costly through the development and multipurpose use of the reusable space shuttle.

Mr. President, I now ask unanimous consent to insert at this point in the RECORD some additional remarks as to why I support not only the space shuttle program, but other important activities undertaken by NASA.

As we discuss the NASA authorization bill for fiscal year 1972, also its provisions for the funding of various space activities, let us consider the significance, and the contribution of those activities to the problems of our times. When one does, there would appear to be strong relationship between NASA and current

and future problems. That I believe is especially true when one considers the relationship of this program to our national security.

I am not thinking of national security in the limited sense of defensive systems operating from space. These no doubt will become increasingly important in the future, but are, in effect, the responsibility of the Department of Defense, not NASA. Rather, one thinks of the more fundamental security of our Nation in terms of its capability to both survive and prosper in the future in the absence of overt external military threats.

Consider for a moment the thin blue boundary called atmosphere which separates us from extinction. On those increasingly rare bright smogless days, the sky truly seems as big as the whole outdoors; but our atmosphere, that lifegiving blanket which protects us from the sterile blackness of the universe, is actually both finite and fragile; in fact, if the earth were reduced to the size of a basketball, one single coat of paint would then be thicker than the atmosphere upon which we depend for survival.

All of us are now properly concerned as to whether that thin lifegiving band can tolerate indefinitely the contaminations spewed forth by modern civilization without becoming so altered as to become inhospitable to the continued existence of mankind.

There is no unified body of scientific opinion on the matter. Some scientists express the view that we may already have begun an irreversible alteration to our atmosphere. Others, equally reputable, hold that environmental pollution must be looked upon as a set of local problems, with no overall global significance. All, however, will agree upon two things: First, the level of pollution, thermal as well as particulate, will increase enormously in the next few decades as the population and living standards of the world increase; second, today we do not have the capability to evaluate any resultant worldwide trends in atmospheric behavior.

There is no likelihood that the worldwide energy consumption trends now foreseen will be altered downward in the near future; and we have yet to face up to the task of reducing the atmospheric pollution rates which can only accompany the production and consumption of that energy. We are in a position now, however, to hasten the development of techniques and technologies essential to evaluate both the impact and the meaning of atmospheric pollution, through the support of this NASA program.

Whether atmospheric pollution is only a set of local problems, or is in fact of international significance will only be determined by acquiring dynamic global data on the long-term constituency and behavior of the atmosphere. These data must be three dimensional, including altitudinal variations.

The greatest promise for acquiring such data on a continuing long-term basis lies with space satellite systems; and the technical basis for such systems has already been demonstrated in large measure. Other NASA research activities now underway or planned for the near future show great promise for the satisfactory development of the remaining necessary elements of an atmospheric monitoring system.

The elements of the NASA activities which bear upon ultimate development of this critically needed system are not to be found in any single isolated project or program line of the proposed budget. Rather, in keeping with the complicated nature of the problem to be solved, work is being carried out in a broad variety of activities which should yield the ingredients for the ultimate solution.

As one might expect, the greatest effort is being carried out in the meteorological research and development activities conducted as part of the earth observations program.

This latter work has been a keystone in the space applications program of NASA since its creation in 1958. In close collaboration with the National Oceanographic and Atmospheric Administration, NASA has developed successively improved families of satellites that have been placed into operation by NOAA as part of its worldwide weather observation program.

The NASA funded R. & D. program has resulted in a steady flow of new sensor techniques and technologies which have enabled the weather satellites to progress from the initial collection of daytime cloud-cover photographs to today's infra-red day and night photographs, along with vertical temperature profiles through the atmosphere.

Experimental research now underway shows promise for extending the satellite data-collection capacity to the measurement of ground and sea surface temperatures.

These techniques and systems being developed by NASA that are now being applied to short term weather observations and forecasts will also be applicable to the larger atmospheric monitoring problem previously outlined. In addition, however, the monitoring task will have to incorporate techniques and concepts now being explored in the scientific measurements which NASA is conducting in its aeronomy program—the scientific study of the earth's atmospheric—also in the detection and evaluation of atmospheric pollutants as part of its broad earth observations program. It is a fact that atmospheric monitoring may ultimately draw some of its greatest contributions from the NASA planetary exploration activities.

Earlier I referred to the earth's atmosphere as not only finite but fragile, in the sense that relatively small perturbations of the atmospheric may have drastic implications on the earth's surface environment. To illustrate this observation, one should remember that the last great ice age ended only about 20,000 years ago, shortly before the dawn of civilized man.

We do not know the causes of these cataclysmic events, but believe they must have been associated with some upsetting of the delicate heat balance of the Earth, caused by an evolutionary change in the atmosphere.

Any evaluation of long term atmospheric trends must include a differentiation between natural evolutionary trends, over which man has little impact and control, and trends induced by mankind's own stewardship of this earth. Fortunately, through the capabilities afforded us by the NASA space program, we now have access to other planetary atmospheres than our own. These we can study so as to gain a better understanding of atmospheric evolutions. There are increasing reasons to believe that studies of other planetary atmospheres may provide keys to the understanding of our contemporary atmospheric circulations and behavior.

As but one example, it is believed that the rapid rotation of the earth introduces some of the more important forces which influence large-scale circulations of the atmosphere. Venus, on the other hand, rotates very slowly—about once a year—so a study of the circulation of the Venusian atmosphere should enable us to evaluate a comparative situation in which a major earth variable is removed.

From such missions, strongly recommended by the scientific community, there may also come important concepts which will expedite the interpretative computer modeling of our own global atmospheric observations.

At the outset of these remarks I referred to the relationship of the NASA program to our broad national security; and the large number of NASA activities that are, and can be, brought to bear on the long term evaluation of this global atmospheric problem is but one example of the relevancy of this program to our security.

The space program has shown the new possibilities which we, as a Nation, have within our grasp to cope with the problems of a highly dynamic and expanding world society. Just as air and water pollution have erupted in recent years as major if not catastrophic problems in so many areas of the world, so do other problems which lie on the horizon.

Increasingly, we are finding that our really critical decisions, whether in business or in government, must deal with input influences which arise from broad areas which in turn will have output effects that extend beyond local, even national boundaries. Furthermore, such is the current pace of mankind's development that many of these problems cannot be treated as isolated and static. They should be acted upon now in their far-flung contexts.

In these fields, space borne systems offer a great potential for improving the quality of our decisions. Experience has shown that satellites can be effectively operated in orbits which bring this entire globe under observation on a repetitive basis, while the satellites themselves can be simultaneously accessible to widely disbursed points on the earth. By operating such satellites in conjunction with modern high speed, high capacity computers, we will have the capability of acquiring, transmitting, and converting vast amounts of globally acquired data into useful, decisionmaking information; and on a timely basis.

The principal obstacle to the wide-scale utilization of space systems does not lie in technological uncertainties, for the remarkable achievements of NASA have already shown that we have the capability to solve complex problems; rather in the high costs associated with the conduct of space activities.

In our present mode of operations, not only are the complicated launch vehicles expended in a single use, but the spacecraft themselves must incorporate the costly perfection needed to assure continuous and reliable operation over the desired mission life without attendance or routine maintenance.

NASA's studies are convincing that we can vastly improve both of these situations by developing and using a reusable earth-to-orbit shuttle. They have not yet asked for a firm development commitment for such a shuttle, but are asking in this budget before us for funds to continue detailed studies from which a configuration for such a development can be selected. I believe this approach is prudent and should be supported.

It is for these reasons that I support this bill.

Mr. MONDALE. Mr. President, would the manager of the bill yield me 5 more minutes?

Mr. CANNON. I yield 5 minutes to the Senator from Minnesota.

Mr. MONDALE. Mr. President, let me attempt to briefly review the points previously made.

The report by the distinguished National Academy of Science stated:

> It is clear that space science and applications by themselves are insufficient to justify the cost of developing of the shuttle.

In other words, the Academy of Sciences concluded it could not be justified on the basis of space science and applications. Then the Rand study, commissioned by the Air Force, concluded that the shuttle could not be justified on the basis of cost——

Mr. CURTIS. Mr. President, will the Senator yield?

Mr. MONDALE. I have only 5 minutes.

The Rand study for the Air Force is sought to be dismissed on the basis of a letter from President Rowen of the Rand Corp., but a careful reading of that letter shows that this report commissioned by the Air Force was intended to illuminate issues, reduce areas of uncertainty, and thus assist decisionmakers in reaching rational choices. In other words, the study was to help understand the cost-effectiveness of the proposed shuttle. That is all it did.

The other point is that many other scientists have concluded that the shuttle could not be justified either on the basis of utilitarian needs or on the basis of technology or scientific exploration.

I ask unanimous consent to have included in the RECORD a letter from perhaps the most distinguished space scientists in the country today, Dr. Van Allen, who opposes the expenditure of this money for the space shuttle on the ground that it is wasteful. I ask my colleagues to give it careful study.

There being no objection, the letter was ordered to be printed in the RECORD, as follows:

THE UNIVERSITY OF IOWA,
*Iowa City, Iowa, May 31, 1971.*

HON. WALTER F. MONDALE,
*U.S. Senate,*
*Washington, D.C.*

DEAR SENATOR MONDALE: I am writing to again express my distress at the emphasis that the National Aeronautics and Space Administration is giving to the space shuttle/space transportation system as the dominant element of its future program. I do so, not as an outside, mindless critic of the national space program, but as one who has worked in space exploration as a profession since late 1945 and expect to continue to do so for many more years.

Advocacy for the space shuttle rests primarily on the intuitive belief that anything that is technologically conceivable should be done and that, somehow, the outcome will justify the effort. This belief is held with religious fervor within the aeronautics industry and kindred elements of the government. I well understand the foundations for such a belief and have myself been an adherent to it in various contexts. Yet at some level of cost and resources in a tax-supported technological effort, responsible public policy requires the demonstration of specific human benefits on a scale commensurate with the effort. Corresponding criteria in the private sector are agreed by all concerned parties to be fundamental to survival in the market place.

The recent action of the United States Senate in discontinuing public support for development of the supersonic transport is a case in point. I consider that the space shuttle program is "cut from the same cloth" and should be subjected to corresponding cost-benefit considerations.

In the early stages of space exploration, human adventure and the recovery of national prestige following the Soviet success with Soutnik I were driving forces in our national effort. But at the present stage we should, in my judgment, shift our emphasis forthrightly and explicitly to two and only two objectives:

(a) Utilitarian uses of space technology, both civil and military, and

(b) Scientific exploration.

The first of these objectives should be dominant. A well designed program of space applications can be closely matched to human needs and desires and can be essentially self-justifying, i.e., it can "pay its own way." I am thinking here primarily of the areas of efficient radio communication with all of its immense potential for advancing the educational and cultural levels of many millions of persons throughout the world as well as for routine technical purposes, and of reconnaissance in its broadest sense. Both of these applications can be well served by a relatively small number (say 50) of long-lived, unmanned satellites in the 1,000 to 10,000 lb. class. Updating and replacement of elements of such world wide operational systems are envisioned as requiring no more than 10 launches per year.

Scientific exploration, the second objective, is of a different nature. It feeds man's deep-seated intellectual interest in the origin of the physical universe and in its detailed workings at the present time. This interest is increasingly widespread as the general educational level of our citizenry is raised. As a teacher and lecturer in the physics and astronomy of the solar system, I am ever more impressed by the broad popular interest in purely scientific matters. The close-in study of the huge outer planets by space techniques is a case in point. I believe that the support of science for its own sake is a proper function of the federal government, without apology or obfuscation. It is one of the fields of endeavor that enables man to have a higher purpose in life than bare survival as an animal.

Advocates of the space shuttle do, perhaps, join me in enthusiasm for the above objectives. But, at least ostensibly, they rest their case on representations that the shuttle technique offers important savings in cost for the accomplishment of these objectives. I have studied these claims and conclude that they are based on:

(a) Gross over-estimation of the volume of space traffic (i.e., tons of payload into orbit per year) that can be reasonably anticipated;

(b) Substantial under-estimation of the developmental and operational costs of the shuttle program; and

(c) Apparent disregard for other techniques for the reduction of the costs of space exploration that are either available at present or can be reliably forecast (e.g., *long-lived* observatories, improved schemes, for data reduction and display, improved efficiency in the manufacture of conventional boosters and of guidance and control systems, adaptation and rework of surplus military boosters, etc.).

Even if their claims are valid, they visualize growth of the annual space budget of the National Aeronautics and Space Administration to some $7 billion in the mid 1970's, whereas I estimate that the proper objectives of the national space program can be met in a vigorous and effective way by unmanned techniques at the annual level of some $2 billion. In general support of this comparison, I call attention to the following facts:

(a) The President's budgetary request for NASA for the fiscal year 1972 totals $3.27 billion of new obligational authority.

(b) Of the total, about 50% is devoted to science and applications in all of their ramifications, a thoroughly vigorous program.

(c) The other 50% is devoted to manned flight. Yet during FY 1972, only two actual flight missions are contemplated—Apollos 15 and 16. Even these two flights depend primarily on existing facilities and previously paid-for flight hardware. The flights have little utilitarian significance and relatively restricted scientific objectives as viewed in the larger context of space science with all of its richness and diversity.

Let me conclude by remarking that I do not contest the eventual feasibility of a space shuttle system, given sufficient technical resources. My position is essentially that an effort of this magnitude is inappropriate to the national context of the 1970's. Moreover, I fully expect that concentration on such a development during this decade would seriously detract from and diminish the realization of the many meritorious and clearly defined objectives that our national space program has within its capability at a reasonable and justifiable cost, i.e., a cost that will enjoy widespread and durable public support.

Sincerely yours,

J. A. VAN ALLEN,
*Head of Department.*

Mr. MONDALE. Mr. President, finally we are told the shuttle cannot be justified alone on the grounds of civilian space exploration, but because of its military uses it becomes a valid and cost-effective vehicle. But a direct response to a question by the Secretary of the Air Force before the Senate Space Committee showed that it was not essential to military requirements that such a transportation system be used; that it was of such low priority, that money from the Air Force budget was not being allocated to its use.

Further, it is stated that this program is essential to our environmental problems. Has one of leading evironmentalist asked for a single dime to be used for both this program to help solve environmental problems? Does anyone doubt that the $10 billion to $15 billion that we will waste on this program could not be spent on environmental programs that we must have? If we spend billions of dollars on this program, we will have that many billions less to solve our environmental problems, to educate our children, to feed the hungry, and to do all the other things in health and other areas which this country needs so urgently.

For these reasons I strongly hope this amendment will be adopted tomorrow by the U.S. Senate.

Mr. CANNON. Mr. President, I yield 1 minute to the Senator from Maine (Mrs. SMITH). Then I will yield 5 minutes to the Senator from Florida (Mr. CHILES).

Mrs. SMITH. I thank the distinguished Senator for yielding to me.

Mr. President, by letter of June 9, 1971, James C. Fletcher, Administrator of the National Aeronautics and Space Administration, notified me that he had decided to terminate the present operation of the NASA executive lunch room as soon as other arrangements can be made. He stated:

> A basic condition to be met by any new arrangement will be that the charges to each executive will not be less than what he would pay for the same meal elsewhere.

I commend this forthright action of Dr. Fletcher. It is in sharp contrast to the policy of his predecessor.

This is the final result of action I initiated more than a year ago when on February 26, 1970, I asked the Comptroller General of the United States to review the operation and administration of the NASA headquarters executive lunchroom. Under the direction of the Comptroller General, the General Accounting Office conducted an investigation of the NASA executive lunchroom.

That investigation disclosed what I consider to have been serious abuse of the taxpayers by NASA executives in the operation and administration of the lunchroom affording such bargains as to approach a status of freeloading at taxpayers' expense.

NASA executives receiving annual salaries as high as $30,000 or more paid the nominal amount of only $10 a month for a potential of 20 to 22 lunches. Potentially, this was at an average as low as that of less than 46 cents a lunch for soup, sandwich, green salad, beverage and dessert—and once a week a hot food course, cafeteria style.

The attractiveness of this low rate is indicated in the fact that NASA records reveal that the average regular attendee ate 15 meals per month in the lunchroom. Until after the investigation was started, the members could have guests dine free of charge as long as the number of meals consumed by the member and his guests did not exceed the total number of meals to which the member was entitled during the month. In other words, they could even make up for the few meals missed by subsequently having guests free for such missed meals.

The General Accounting Office costed out these NASA executive lunchroom meals at $4.03 per meal. I do not know where anyone, whether they be high paid executives or not, could get such a bargain lunch—paying as little as less than 46 cents for a $4.03 meal.

But that is not all of this disgraceful situation. A considerable amount of the food for the NASA executive lunchroom was purchased from a military commissary—Fort McNair—in violation of military regulations. A coverup was made by NASA personnel on these purchases by removing from the cash register receipts the printed statements of "U.S. Army Commissary Fort McNair" at the top of the receipt and "purchases for personal use only" at the bottom.

During the investigation by the General Accounting Office, NASA officials callously acted deceitfully on these illegal commissary purchase records and practice in that: First, they represented that certain food purchases had been made at commercial food stores when, in fact, they had instead been made at the Fort McNair Commissary and the deceitful practice of altering the cash-register receipts as set forth above was continued even after the investigation was being conducted and second, they represented that this practice of purchasing at military commissaries had stopped pursuant to oral instruction issued late in 1969 or early 1970 when, to the contrary, purchases were still being made at the Fort McNair Commissary in March and April 1970. Dr. Fletcher himself has acknowledged that NASA officials misrepresented "that the practice had been stopped when, in fact, it had not been stopped."

While this is not a matter of either earth-shaking or "out-of-this-world" proportions, it raises a question as to the credibility of NASA and particularly when it defends its budget before Congress. For if we cannot believe NASA on the small matters, then can we believe NASA on the big matters and on the billion dollar portions of NASA's programs?

This has been going on at NASA for more than 5 years since 1966—and even more significantly, for more than a year after the investigation was started. This is nothing less than a record of callousness and arrogance. It certainly does not speak well for NASA at the executive level.

I have no criticism of Dr. Fletcher on this matter for he inherited it. I have only praise for him in cleaning the situation up to the extent of ordering the termination of the NASA executive lunch room operation and an end to this freeloading by NASA executives at taxpayers' expense. His action is a measure of restoration of credibility to NASA. My criticism is of his predecessors who authorized, approved—and even condoned this operation after it had been pointedly called to their attention.

I wonder if there are any other 46 cent bargain executive lunchrooms for $30,000 and above executives in our Federal Government. Because I wonder, I have requested the Comptroller General to make an overall investigation for any similar operations in the Federal Government.

Mr. CANNON. I yield 5 minutes to the Senator from Florida.

Mr. CHILES. Mr. President, I should like to address my remarks to the amendment, and to state that I think this country's need for a space program did not end when we landed a man on the moon.

The mover of the amendment, the distinguished Senator from Minnesota, talks about the cost estimates, and his fear that the costs are going to greatly exceed what NASA has estimated. He says the outstanding example to date of a cost that did not exceed the estimate was the NASA project in regard to lunar exploration itself in connection with the Apollo mission.

It seems to me the fact that NASA was right on target with that estimate and none of the others is hardly an indictment of NASA. I think the fact that NASA is in difficulty here today is hardly the result of their failures, but rather the result of their successes. NASA's success is a part of the reason they are in trouble with this program today; for because we so far outstrip the Russians in their capabilities and in having placed a man on the moon, much of the public has lost its enthusiasm for the space program.

But I think our responsibility as Members of Congress is not just to determine whether this is a program that now has the attention and the enthusiasm of the people, but whether it is necessary for us to go forward with it as a Nation, and whether the program is going to make sense for the future of this country.

I think we have to weigh and to determine, in answering that question, not just the scientific feasibility of it, our space science capability, or just its economic feasibility, but we must look to the whole range of the program. Is it necessary for our defense? In the future, for the defense of this country, will it be necessary for us to keep pace with the Russians and their space exploration?

Certainly it is easy to see the amount of attention that Russia gives to its space program, with an economy that is much smaller than ours, and a gross national product that is only a fraction of what ours is. We see the portion of their gross national product that they allocate to space, the number of space missions and shots that they make every year, and the attention that they are devoting to space; and the fact that we did outdistance them in placing a man on the moon is certainly not something for us to become embarrassed about when we see the tremendous attention which they are paying and the amount of their technology that they are devoting to this effort. We can be sure they are not interested in just the space science aspects or just in economic feasibility, but we know they are interested in defense capability, and in what potential there is for defense and offense in the use of space. That, I think, is something that we also have to consider.

The other matter to which I should

like to call the attention of the Senate is the argument on priorities. I think it is very easy to make an either/or argument in regard to space, that if we devote this amount of money to space, then we are taking away food out of the mouths of hungry children; that if we devote $145 million to space, how many library books we could have, how many food programs we could have—one could make that argument as to many, many programs, Mr. President. In fact, if one wanted to pursue that argument, one could ask, how much do we spend on beer in this country each year? If we spend the billions of dollars we spend on beer, do we entitle ourselves to have a space program to protect mankind in the future? How much do we spend each year for aspirin in this country? How much do we spend each year for cigarettes?

I think the either/or argument, while it is very appealing, is not the proper way to argue. The proper argument is whether for this country, with its capabilities, with its gross national product, with the ambitions of its people, this program makes sense, that in the future we determine we are going to keep up with the Russians, that we are going to try to maintain a lead, that we have spent an awful lot of money to develop Are there potentials in space we have not realized, which we are only on the point of attempting to realize, and is this something that fits into our overall budget, with the gross national product that we have in this country, that we should pay attention to this as well as to the halt, the lame, the hungry children, and everything else?

To try to make an either/or argument, Mr. President, I do not think is fair. I do not think it is fair to the people of this country, and I do not think it is fair to this program. I do not think it is the proper way to argue the matter.

Mr. President, when I look at the gross national product of this country, at what our capabilities are, and at what our aspirations and our ambitions are, I cannot do otherwise than favor a space shuttle. It appears to make sense in line with what we have done to date in space, and in line with the programs that NASA has projected for the future.

The PRESIDING OFFICER. The time of the Senator from Florida has expired.

Mr. CANNON. I yield the Senator 2 additional minutes.

Mr. CHILES. Mr. President, I repeat, I think that NASA, because of its record of success, has problems here today, not because of its record of failure, as is the case in connection with so many programs. I say, let us go forward with the future of this program. Let us not allow our country to get into a situation where we will have to catch up from behind. Let us try to determine that we will hold our own space today. I believe we should vote down the amendment of the distinguished Senator from Minnesota, and follow the recommendations of the committee in regard to the appropriations for this program.

Mr. CANNON. Mr. President, I yield myself 2 minutes.

The distinguished Senator from Minnesota has tried to make it appear that all of the scientific community in this country is opposed to the shuttle concept. As I have already pointed out, Chairman Townes of the National Academy of Sciences Space Science Board, and professor of physics at the University of California, completely supports our posture.

I also have some letters addressed to the chairman of the committee, which I shall ask to have printed in the RECORD. The first is from Prof. A. J. Dessler, professor of space science at Rice University, who points out that scientists have no special expertise in this area, and that a unanimous expression of opposition on their part might have an adverse effect on the pending legislation.

He goes on to point out that we should be aware that opinions of space scientists regarding this project are mixed, and states that he feels we should go ahead and have an objective evaluation of the program.

I ask unanimous consent that his letter be printed in the RECORD.

There being no objection, the letter was ordered to be printed in the RECORD, as follows:

RICE UNIVERSITY,
DEPARTMENT OF SPACE SCIENCE,
*Houston, Tex., June 25, 1971.*

Senator CLINTON P. ANDERSON,
*Chairman, Committee on Aeronautical and Space Sciences, U.S. Senate, Washington, D.C.*

DEAR SENATOR ANDERSON: Because of my recent involvement as a member of the Executive Committee on the Summer Study on Priorities for Space Research 1971–1980 carried out by the National Academy of Sciences, and because of my career involvement in space science (Science Advisor for the National Aeronautics and Space Council, 1969–70 and Chairman of the Department of Space Science at Rice University before that), I have become increasingly concerned regarding statements on the future of the Space Shuttle made by some of my scientific colleagues. This project is largely a technological matter, and, although scientists have no special expertise in this area, a unanimous expression of opposition on their part might have an adverse effect on pending legislation. You should be aware that the opinions of space scientists regarding this project are mixed.

It may seem odd, but it is a fact that many scientists are extremely conservative with regard to technological progress, especially when it is in an area that impinges on their research. This is especially the case when their research is going well and they only wish it were scaled up in its present, or slightly improved, form. They often see a proposed new technological program as a potential threat that may cause the postponement or delay of some research they might wish to do.

I have most recently been distressed by our apparent withdrawal from any long-range commitment to retain our lead in the exploration of space. The Space Shuttle represents a possible avenue of technological development that could prove, a decade hence, to be a vital ingredient in this nation's posture with regard to space exploration. No positive assurance can be given that the Shuttle will prove to be a viable development. On the other hand, it is not now possible for any one to foretell the size and scope of our space program ten years from now. Forecasts even five years in advance have often proved inaccurate when predicting technological progress.

I would hope that work on the Space Shuttle could be continued to the point that its feasibility and economic benefit could be objectively evaluated and the scope of our future space program better defined. A relatively small investment in this program at the present time will place us in a good position to make a more rational evaluation of how much to spend on our efforts in space and where this money is best spent. We should not place ourselves in the position of abandoning projects because some express uncertainty or doubt. Especially when, as with the case of the Space Shuttle, our future efforts may well be dependent on them.

Yours truly,

A. J. DESSLER,
*Professor of Space Science.*

Mr. CANNON. I also have a letter from Courtland D. Perkins, chairman of the Department of Aerospace and Mechanical Sciences, Princeton University, and chairman of the USAF Scientific Advisory Board. He supports the space shuttle program and points out the advantages, because of the tremendous cost of payloads, ranging up to $20,000 a pound in orbit, and how those costs could be reduced in the event we had a resuable shuttle; and he urges us to support the NASA shuttle program.

I ask unanimous consent that his letter be printed in the RECORD.

There being no objection, the letter was ordered to be printed in the RECORD, as follows:

PRINCETON UNIVERSITY,
*Princeton, N.J., June 25, 1971.*

Hon. CLINTON P. ANDERSON,
*Chairman, Committee on Aeronautical and Space Sciences, U.S. Senate, Washington, D.C.*

DEAR MR. CHAIRMAN: I have written the enclosed letter to Senator Case supporting the space shuttle and it occured to me that it might also be useful to you as Chairman of the Committtee on Aeronautical and Space Sciences.

Sincerely,

COURTLAND D. PERKINS,
*Department of Aerospace and Mechanical Sciences, Princeton University, and Chairman, USAF Scientific Advisory Board.*

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PRINCETON UNIVERSITY,
*Princeton, N.J., June 25, 1971.*

Hon. CLIFFORD P. CASE,
*U.S. Senate,*
*Washington, D.C.*

DEAR SENATOR CASE: I think few would debate the fact that this country's response to the challenge of space has been the greatest technical achievement in history, culminating in the spectacular success of our Apollo program. These successes have covered the complete spectrum of capabilities of manned and unmanned programs; space science; space exploration; and space utilization including communications, weather surveillance, and many important military potentials. Our space program has not only impacted on all these factors but has greatly enhanced this country's technical image and leadership and is certainly an important factor in today's political environment.

As a result of this great program, we find this country's technical prestige very high and that we have a brilliant new technical capability with great potential along many lines. We look out on a menu of possibilities that appears almost unlimited in scope. No other program has such deep potential for science and technology and future impact on our way of life, nor is there any other program that has the potential for maintaining our technological lead and prestige before an unsettled world.

As we look out onto this broad new spectrum of space possibilities, we find that the

major limiting factor in what we can do is the very large cost involved. These costs are high because of the large energy requirements to boost payloads into space. These energy requirements could be met in the technology of the '50s and '60s only by throw-away, staged, rocket-propelled boosters. To be sure throw-away systems worked the first time, costly check-out and reliability approaches were required.

Ever since the start of the space program in late 1957, every study of these operations has looked longingly for new approaches to the launching problem. We needed higher energy fuels but the most attractive potential of all was reuseability. Up to the present, none of these approaches has shown enough promise to warrant the large development expenditures involved, and we have continued with our high cost operations that have required the difficult motivation of prestige to fund. A motivation that is still real enough but one that becomes much less viable as time goes on.

The potentials of a fully recoverable launching system has been recognized by nearly everyone that has studied our space operations, manned or unmanned, NASA or DOD. The ultimate in such a system was proposed some years ago in an Air Force study. This system involved a launcher that could take off horizontally from a runway, fly out and accelerate into orbit with its payload all in one stage, place the payload into orbit, check it out, refurbish malfunctioning payloads, recover some, and re-enter and fly back to the starting point. This deal system was called "aerospaceplane" but it was found that the technology involved in such a solution was just not available.

These studies did show, however, that fully recoverable systems had two major cost benefits: one, the reduction of the actual launch cost from the present $1,000 per pound in orbit to $100 per pound; the second, just as important and in many cases even more so, was the reduction in design severity on the space payloads due to the potential for check-out in orbit refurbishment and re-use. Today's enormous cost of payloads range up to $20,000 per pound in orbit. A fully recoverable launch system permits a significant reduction in this important cost element.

The development of a new launch system depends on the technology available and the rate at which payloads are to be launched. There is a close relationship between these launch costs and the build-up of space payloads. If the cost can be dramatically reduced, we can afford to do many things that we could not do today. New programs in space science, applications, exploration, and military programs would multiply rapidly, giving these large reductions in cost. Very careful studies made over the past few years have identified the fact that technology has developed to a point where a fully recoverable launch system can be identified. This system has been called the shuttle and involves a two-staged winged system requiring a vertical take-off with a normal horizontal landing. This system has a real engineering solution involving an acceptable stretch in the technologies involved. The costs of this system have been studied by many during the past several years, but the most sophisticated cost study was performed recently by Mathematica, Inc., of Princeton, and reported to the NASA in May 1971. This study shows that the shuttle system can realize the cost advantages accruing to recoverable systems with the payload potential forecast conservatively today.

Many of us feel that with the lower launch and payload cost potentials, we will see a great increase in space activity all across the board.

In summary, our space program has been a spectacular success for this country, has added to our technological leadership, and has been an element of national prestige. We are just learning how to use this great new capability for many purposes that include earth applications, science, explorations, and military operations. All of these activities, whether accomplished in manned or unmanned systems, will be enhanced with the availability of a fully recoverable and, as a consequence, less costly launching system. The NASA shuttle program is technically feasible, is timely and important to this country's next advance in space activity.

I urge you to support the NASA shuttle program in the present Congressional activities.

Sincerely,

COURTLAND D. PERKINS,
*Chairman, Department of Aerospace and Mechanical Sciences, Princeton University, and Chairman, USAF Scientific Advisory Board.*

Mr. CANNON. I also have a letter from Dr. Brian O'Brien, from North Woodstock, Conn., who also points out that if we fail to develop a reusable space transportation system, and another nation does so, he fears that our position in world competition may be very seriously impaired. Dr. O'Brien is from MIT. I ask unanimous consent that his letter be printed in the RECORD.

There being no objection, the letter was ordered to be printed in the RECORD, as follows:

NORTH WOODSTOCK, CONN.,
*June 25, 1971.*

Hon. CLINTON P. ANDERSON,
*Chairman, Committee on Aeronautical and Space Sciences,*
*U.S. Senate,*
*Washington, D.C.*

DEAR MR. CHAIRMAN: It has occurred to me that a letter which I have written to Senator Weicker, copy of which is enclosed, might be of some use to you in evaluating the space shuttle question.

Sincerely yours,

BRIAN O'BRIEN.

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NORTH WOODSTOCK, CONN.,
*June 25, 1971.*

Hon. LOWELL P. WEICKER,
*U.S. Senate,*
*Washington, D.C.*

DEAR SENATOR WEICKER: I am writing to point out certain matters pertaining to the proposed space shuttle which may possibly be of use to you in evaluating this question.

A few scientists, including some of my fellow members of the National Academy of Sciences, have gone on record against the development of the space shuttle on the ground that cost of development is not justified by scientific experiments in space and practical space applications as presently envisaged. I believe that the point of view which this expresses is both narrow and unimaginative.

I shall not attempt to comment on the economic trade-offs involved since detailed studies of these are being made and will be available to you. Rather, I would like to emphasize what seems to me a far more compelling reason for the United States to undertake development of a reusable shuttle to provide low cost transportation to and from space.

The existence of such a space transportation system would change completely our methods of operating in space. In contrast to the present long lead time required to prepare for a space mission, a shuttle could be ready and available on very short notice to meet whatever needs might develop in the national or international scene. Once the initial investment is made, the cost per launch will be so greatly reduced that missions could be undertaken which would be economically out of the question when using expendable boosters.

Mankind is clearly committed to the exploitation of space, and I believe that any nation which lacks the fullest capability for this must inevitably fall behind as a world power. If we fail to develop a reusable space transportation system and another nation does so, I fear that our position in world competition may be very seriously impaired.

Since development of a space shuttle will require a number of years, it is important that the long lead time items be undertaken at the earliest possible date. I hope you will agree with the thoughts expressed above and will make every effort to further such development.

Sincerely,

BRIAN O'BRIEN.

Mr. CANNON. Mr. President, what is the parliamentary situation?

The PRESIDING OFFICER. The parliamentary situation is that the bill is open to further amendment. The Mondale and Javits amendments will be laid before the Senate tomorrow at approximately 1 p.m. The Senator from Nevada has 16 minutes and the Senator from Nebraska 31 minutes remaining.

Mr. CANNON. Mr. President, would it be in order for me to suggest the absence of a quorum, and to request that other Senators be notified that if they have additional amendments, they must be presented today, prior to our going over to tomorrow. Is that the correct parliamentary situation?

The PRESIDING OFFICER. Amendments will be in order tomorrow. They will not be debatable.

Mr. CANNON. Amendments will be in order tomorrow, but they will not be debatable?

The PRESIDING OFFICER. That is correct.

Mr. CANNON. So that if other Senators have amendments they desire to present and debate, it will be necessary that those amendments be disposed of prior to our going over until tomorrow?

The PRESIDING OFFICER. That is correct.

Mr. SPARKMAN. Mr. President, will the Senator yield me 3 minutes?

Mr. CANNON. I yield 3 minutes to the distinguished Senator.

Mr. SPARKMAN. Mr. President, over the years, I have listened with a great deal of interest to the debates with respect to the space program. Some time ago, I ran across a little article that reminded me very much of some of the things we have been running into in the course of these debates. This article is entitled "Columbus Had Trouble, Too." I will read it:

COLUMBUS HAD TROUBLE, TOO

Columbus, it appears, had about as hard a time finding support for his revolutionary idea of sailing west to reach China as do space officials today who want to land on Mars and explore the other planets.

One of the 15th-century navigator's appeals for help was to the Senate of his native state of Genoa.

The Senate of Genoa, however, recognizing it knew little about oceanic exploration, did what comes naturally to senators of any age or state: They appointed a committee to study his suggestion.

After months of debate they finally got out a report—which has only recently been

discovered in a monastery library in southeastern Spain. The report ran—964 pages!

The Senate committee also sent Columbus a letter, which, in brief, discouraged his westward voyage. Its letter ended with these memorable passages:

"We feel that you will be quite pleased with the output of this progressive, forward-looking committee of profound scholars. Incidentally, there was one additional member of the committee, a rather rash and impetuous young engineer, lately of Florence, who was sent in place of the ailing Dr. Taglatti of the University of Milan. Though he came highly recommended, he showed his immaturity and poor judgment by advocating that the voyage itself be initiated immediately.

"Investigation proved him to be quite eccentric (he talks of flying machines and fancies himself an artist), and he was therefore dismissed from the committee. He is the son of a Florentine notary, and in case you desire to contact him, his name is Leonardo da Vinci."

I thank the Senator for yielding.

Mr. CANNON. I ask the Senator whether that report has ever been declassified. [Laughter.]

Mr. SPARKMAN. We might appoint an investigating committee to look into it.

THE SPACE SHUTTLE

Mr. BROOKE. Mr. President, the Senate is now considering an amendment which would delete $137.6 million, earmarked for the space shuttle and space station, from the NASA authorization bill.

Last year I supported a similar authorization on the grounds that it was necessary to proceed with the research in order to determine whether such technology was both technically and economically feasible. This year, once again, I will support the authorization. I do so, however, in the clear understanding that passage of the pending request represents no congressional commitment to full development of the space shuttle and the space station.

I have several concerns about this particular project. Not least is the projected cost: Official estimates of the development costs of the space shuttle run as high as $10 billion in this decade. This is a great expense, particularly at a time when we are reducing our expenditures in defense and space in order to provide more adequately for the immediate needs of our people. The $10 billion could represent the major portion of our allowable expenditures for space research in all of the 1970's. By investing this much in a single project, we risk foreclosing our options in terms of developing other technology which might, in the long run, prove more beneficial both in terms of space exploration and in terms of its "spin-off" value here on earth.

We are now very close to knowing whether the space shuttle/space station concept is indeed operable. Inasmuch as the preliminary studies are now nearing completion, I believe it would be unwise to deny the research and scientific communities the opportunity of making the final investigations necessary to determine the feasibility of this complex project. But I would urge both the scientists at NASA and those who oversee them to give the most serious consideration to other alternative programs, including remote-control devices and the development of more sophisticated boosters.

Space research and space technology alike can lead to continuing progress in terms of advancing the frontiers of human knowledge and expanding the limits of human capabilities. But the scientific community must be free to pursue the fullest range of alternatives; it must not lock itself in by its own investments. Before further funds are made available for the space shuttle, I am hopeful that the many questions surrounding its workability will have been answered satisfactorily.

COMMENTS OF THE MATHEMATICA SPACE SHUTTLE STUDIES

Mr. CANNON. Mr. President, the cost effectiveness of the space shuttle has been analyzed for NASA by Mathematica Inc. This organization is considered among the leading firms in the country involving economic analysis. The chairman of the company is Dr. Oskar Morgenstern, a world renown mathematical economist. Among his numerous publications is the classical work entitled "Theory of Games and Economic Behavior" which he coauthored with the late John von Neumann.

Mathematica has just completed a study titled "Economic Analysis of New Space Transportation Systems." This independent study concludes that the space shuttle is a cost-effective system. The findings of the economic study of the space shuttle system may be expressed in two very simple statements. First, the direct cost of space activity to a shuttle-owning nation will be about one-half of the direct cost to a nation relying on expendable launch systems; and second, the nonrecurring costs associated with becoming a shuttle-owning nation are shown by contemporary economic theory to be justified if the nation intends to operate a space program with a level of activity represented by about 40 shuttle flights per year.

Benefits of the use of the system include effects on both transportation cost and payload cost. It is the payload costs that are frequently lost sight of in discussions of the importance of the space shuttle in the space programs of the future.

THE SPACE SHUTTLE PROGRAM

Mr. BUCKLEY. Mr. President, the Congress is being asked to authorize $137.6 million for continued development of the space shuttle, which is the major component in our proposed space transportation system. Before discussing the wisdom of this authorization, I think it might be useful to provide a brief description of the proposed operation of the space shuttle.

At the present time, technology limits our ability to place satellites and other vehicles in space at low cost; medium to large size payloads cost from $15 to $55 million in launching costs alone, depending on the rocket used, and each rocket booster can be used only once. The space shuttle is an innovation which would enable us to reuse the rocket booster up to 100 times. The basic notion is to construct a two-stage vehicle. The first stage, the shuttle stage, would lift the second stage, the orbiter, with the mission payload to an altitude of 40 miles. At this point, the first and second stages separate. The first stage, the shuttle stage, then returns to earth for reuse. The second stage, the orbiter, places a satellite or other space vehicle into orbit of up to 600 miles above the earth. The orbiter then returns to earth, landing like an ordinary aircraft, for reuse. A second element of the space transportation system, the space tug, which is to be developed at a later stage, would be able to move the satellite or other space vehicle from the 600-mile orbit to other, higher orbits, depending upon the purpose of the vehicle.

A space shuttle will make possible a number of missions which cannot be performed economically, if at all, by current techniques. Let me cite a few examples:

It will be possible to place satellites into orbit and return them to earth for repair.

Because the orbiter is manned, malfunctioning satellites can be repaired in orbit. Thus, satellites cost tens of millions of dollars will not be permanently lost in the event of a minor malfunction, as happened with the $80 million orbiting astronomical observatory satellite several months ago.

Very large and complex space vehicles can be delivered in sections to a low earth orbit and assembled. This approach would be prohibitively expensive with existing techniques.

Because the shuttle is to be designed for rapid response, it would permit the space rescue of stranded astronauts. This would materially reduce the risk of space research programs involving manned space flight, and avert the kind of tragic accident which nearly befell our Apollo 13 astronauts a year ago.

Because the space shuttle would fly more like an ordinary aircraft, with relatively slow rates of acceleration we have known with conventional techniques, scientists and other individuals without specific training as astronauts could participate in space flights.

It is apparent that the space shuttle has some unique advantages which cannot be offset by the more intensive use of existing rockets and present-day techniques. It is, however, important to consider whether or not the space shuttle makes economic sense in relation to the functions which can be performed by existing systems.

There are two costs which are crucial elements in making a judgment as to whether or not the shuttle is a useful investment for the United States to make. The first of these costs is the launching cost per flight. At the present time, the United States has a number of rockets capable of placing relatively small to extremely large payloads into orbit. The cost of these nonreusable rockets ranges from about $7 million per flight for the Thor-Delta to $55 million per flight for the Saturn 1B. The cost per flight of the space shuttle, on the other hand, would not vary with the size or weight of the payload—it would remain constant at $5 million per flight.

The second element of cost to be considered is the cost of the payload; that

is, the satellite or other space vehicle which is to be lifted into orbit. It should be emphasized that payload costs constitute from 75 to 80 percent of a typical U.S. space program, launch costs constituting the remaining 20 to 25 percent. The shuttle would be a worthwhile investment if it is likely that it would make possible significant savings in the cost of satellites and other space vehicles lifted by them. As a member of the Committee on Aeronautical and Space Sciences, I have heard a great deal of testimony from scientists and engineers with expertise in the design and production of space vehicles that the space shuttle would reduce payload costs by 50 percent. The reasons for this are quite simple: First of all, because the payloads are not subject to the very high rates of acceleration of conventional rockets, they do not need to be as ruggedly built as present payloads. Second, because of the large, standard carrying capacity of the shuttle and the low cost per trip, far less expense and ingenuity will need to be expended in minimizing the weight and size of the individual payloads. Third, because of the fact that satellites and other space vehicles can be returned to earth, costly features designed to provide extreme reliability will not be necessary.

A recent study of these operating cost factors as well as the R. & D. and investment cost factors of the space shuttle and space tug has been made by Mathematica, Inc., under the leadership of Dr. Oskar Morgenstern, the eminent Princeton University economist. This study was made to determine whether or not the economic savings of the space shuttle were outweighed by its cost.

The Mathematica study assumes a 13-year space program involving only 500 flights, or an average of about 39 space flights per year—in contrast with the recent actual experience, based on averages for the 5-year period from 1964–69, of 50 flights per annum for the United States and 61 flights for the Russians. On the basis of this low estimate of future flights, Mathematica's study nevertheless concluded that the shuttle would produce enough savings in launch and payload costs to be equal to a 10-percent return on a conservatively estimated $12.7 billion research, development and investment cost. Recent modifications in NASA's space shuttle program which were made subsequent to the Mathematica study suggest that reductions in the estimated R. & D. costs for the program will be achieved.

It should be remembered that the savings are based upon data that is already well known. The cost of the space shuttle program is unlikely to be substantially in error because most of the technology upon which it is based came about as the result of "fallout" from other NASA and Department of Defense aeronautics and space programs. Thus the technological risk in the space shuttle is relatively low.

A Rand study of the space shuttle program published in October 1970, and on which the sponsors of amendment No. 233 rely in arguing for the termination of the shuttle program, was based on information that is now obsolete, according to a letter of May 28, 1971, from Henry Rowen, president of Rand Corp., to Senator CLINTON P. ANDERSON, chairman of the Committee on Aeronautical and Space Sciences. The information on the economic and substantive aspects of the space shuttle were based on preliminary plans known to Rand in 1969 and early 1970. Mr. Rowen states that because the study was based upon earlier data, it should not be used as the sole basis of decision. This observation holds true for the estimate published in the Rand study that the program would cost as much as $7 billion in 1975. This figure was based upon the inclusion of a space station in the space shuttle program. It has been definitively established that a space station is not part of the space shuttle program, and therefore cannot be included in the calculation.

Finally, there is the national defense implications of the space shuttle. The Soviet Union is now launching more than twice as many military space vehicles as the United States. Unless a less expensive means of placing military spacecraft in space is found, the increasing personnel costs on the Defense Department may make it impossible for the United States to protect its own vital interests through the legitimate military uses of space. The space shuttle program will provide a vital component of our national defense effort.

Mr. President, the space shuttle program merits the wholehearted support of the Congress and of the public. It opens up an entirely new dimension in our space capacity which ought not to be aborted by the mindless attitude of antitechnology which flourishes in some parts of our country. The scuttling of this critically important program with all that is implied will not only serve to further demoralize an already highly demoralized industry, but it will also add to the economic dislocation already existing in a number of areas dependent on the aerospace industry. We simply cannot afford, as a nation, any further dislocations and disruptions in an area of high technological sophistication which has already contributed so much to every area of our national well-being—improvements in medical techniques, communications, meteorological observations, air and land transportation, to mention just a few. I urge my colleagues to reject the amendment now under debate.

SUMMARY OF U.S./U.S.S.R. DISCUSSIONS ON LAUNCHING AND RENDEZVOUS, HOUSTON, JUNE 21–25

Mr. CANNON. Mr. President, representatives of the Soviet Academy of Sciences and of NASA, led by Academician Boris N. Petrov and Robert R. Gilruth, respectively, met June 21–25 in Houston pursuant to the October 1970 agreement on the development of requirements for compatible rendezvous and docking systems.

The meeting last week brought together for the first time three joint working groups charged with defining the technical requirements for compatible docking systems.

The conclusions agreed at the end of the week, subject to confirmation by the Soviet Academy and NASA within 2 months, comprehend the principal areas of technical requirements for compatible systems. Fundamental or detailed agreement has been reached on a wide variety of important items, such as the coordinate systems, beacons, and communications systems necessary for the rendezvous phase; the alinement and stabilization standards and functional requirements for the docking phase; and certain aspects of hatch and airlock arrangements, crew transfer procedures, and cabin atmospheres as required for the docked phase. There was also agreement on an optimum docking concept and on an overall approach to the remaining work to be done, including the need for test programs.

A major step forward was agreement for studies of experimental space flights to test the technical requirements which are being developed. As has been reported now in the press, such experiments could involve rendezvous and docking between a spacecraft and a space station of the Apollo type and the Salyut type, and, perhaps subsequently, between a Soyuz-type spacecraft and a Skylab.

Much of the material discussed will now be refined by each side over the summer and the results will be exchanged, together with a number of questions still outstanding—such as precise approach velocities for docking and optimum hatch sizes—in the hope that a next meeting in Moscow in late November will permit the two sides to finalize the list of basic technical requirements. It is important to note, however, that a great deal of the work already done is highly specific and quantified.

There appears little question that last week's meetings have accelerated progress toward a capability of the two nations to assist each other's astronauts and to operate together in space as may be agreed in the future. It seems clear from the character of the discussions that there is a real will on the Soviet side to work this out in the most effective way.

COMPARISON OF U.S.-SOVIET SPACE LAUNCHES

Mr. President, the United States has clearly achieved a position of world leadership in space exploration, space science, and space technology. But that leadership is under continual challenge by a capable and determined competitor—the U.S.S.R. To understand that, all one needs to do is look at the statistics of the successful launches during the past few years. Mr. President, I include a brief table showing these statistics in the RECORD at this point:

| | *United States* | *U.S.S.R.* |
|---|---|---|
| 1966 | 73 | 44 |
| 1967 | 57 | 66 |
| 1968 | 45 | 74 |
| 1969 | 40 | 70 |
| 1970 | 29 | 81 |
| 1971 (June 25) | 14 | 39 |

Let me read a few of these numbers:

In 1966, the United States had 73 successful space launches and the Soviet Union had 44.

In 1968, the United States had 45 suc-

cessful space launches and the U.S.S.R. had 74.

In 1970, the United States had 29 successful space launches and the U.S.S.R. had 81.

So far this year the United States has had 14 successful space launches and the U.S.S.R. 39.

Since the beginning of the space age, the United States has had a total of 528 successful space launches and the U.S.S.R. has 504; it is clear that the U.S.S.R. is closing in on the United States lead in space. In fact, the Soviets have launched 80 percent of their payloads since 1965, whereas we launched 80 percent of our payloads before 1968.

Mr. President, during the past few years while we have been greatly concerned with Vietnam and our domestic problems and have instituted sharp and drastic reductions in the U.S. space effort, the Soviets have been rapidly building up their space program. As a result, our national space capability has steadily diminished while that of the Soviet Union has been increasing rapidly. We should expect that our space leadership will soon disappear. Certainly, there is no more dramatic example of this than the Soviet's "Salyut" space station with three men aboard, orbiting this country while a similar U.S. capability—the Skylab—will not be launched until at least a year and a half from now.

This rapid loss of our space leadership is of great concern to me and I think to most Americans. Living with and knowing the importance of scientific undertakings and technological development to our national security and to the steadily improved life of man during the last couple of centuries, how can we let our space leadership disappear, since our space program represents science and technology at its best. I do not think we can—I do not think the American people want the Congress to do that. But if the Senate accepts the amendment of the Senators from Minnesota, Wisconsin, New York, and New Jersey, we will be going mighty far down that road.

Mr. President, as a world leader in space science and technology, we owe this investment to this Nation and to all of its future generations. The space program for the most part is directed to the future and I think we had better give some thought to that.

Mr. President, I strongly urge the Senate to reject the amendment of the Senators from Minnesota, Wisconsin, New Jersey, and New York in order for us to preserve the space leadership of the United States.

NOTIFICATION TO SENATORS

Mr. President, in order that Senators' offices might be notified that if Senators desire to present amendments and to debate them, they must do so prior to our going over until tomorrow, I suggest the absence of a quorum.

The PRESIDING OFFICER. The clerk will call the roll.

The legislative clerk proceeded to call the roll.

Mr. CANNON. Mr. President, I ask unanimous consent that the order for the quorum call be rescinded.

The PRESIDING OFFICER. Without objection, it is so ordered.

NATIONAL SECURITY ASPECTS

Mr. THURMOND. Mr. President, I would like to address myself briefly to the national security aspects of this bill. At this time the Department of Defense does not have a space mission per se. However, they do operate in space when such operations are competitive with nonspace means of accomplishing military missions. This includes competing in cost as well as on a functional basis. They are currently operating space-based systems for navigation, communications, surveillance, meteorology, mapping, charting, and geodesy. These missions require that payloads be placed in a variety of orbits with varying inclinations. Such systems operating at great distances from earth can cover large geographic areas, they can operate at high data rates, and they can operate reliably for long periods of time without logistics support. These unique advantages are almost impossible to duplicate by systems operating in other media.

The present method of conducting space operations is an outgrowth of the ballistic missile experience developed in the late 1950's and 1960's. After over a decade, these launch vehicles and payloads are still useful for only a single mission. At this time, these launch vehicles and their upper stages represent approximately one half of the cost of the DOD space programs.

Mr. President, the versatility and flexibility of the space shuttle and its low operational cost will be of significant value to the Department of Defense. The shuttle development is, therefore, fully supported by the DOD as reported to the Congress by Dr. John S. Foster, the Director of Defense Research and Engineering.

Dr. Seamans, the Secretary of the Air Force, in testimony to the Committee on Aeronautical and Space Sciences, stated that:

> Although previous Air Force studies have indicated that we would achieve operational advantages through a reusable system, we have faced the problem of development costs which were too great to be justified on the basis of Air Force Applications alone. Studies by NASA based on their needs, indicated similar conclusions. We find however, that mission application by both agencies may afford an acceptable rate of amortization. . . . When the operational system is achieved, we would expect to use it to orbit essentially all DOD payloads, "phasing out" our expendable booster inventory with the possible exception of very small boosters such as Scout.

Mr. President, although there is great interest in increasing mission flexibility and capability over present systems, there is a primary desire to reduce the cost of space operations. Cost reduction will become even more important in the future because other high-priority national programs require attention. It is for this reason that in the summer of 1969 the President's space task group recommended that an economical space transportation system be developed which would be a major improvement in terms of cost and operational flexibility over the present systems. As you know, NASA was given the prime responsibility for defining and developing the space transportation system, with the goal of reducing the cost of space operations by an order of magnitude to approximately $100 per pound in low earth orbit.

Cooperation has existed between the Department of Defense and NASA on this program since the inception of the shuttle concept. In April 1969, the Secretary of the Air Force and the Administrator of NASA established terms of reference for the phased study of space transportation systems, and in February 1970, they established the NASA/USAF Space Transportation System Committee which coordinates program requirements and plans for the space shuttle.

By agreement, NASA will produce the shuttle for joint utility by both agencies. The Air Force acts as the executive agent for DOD and they are responsible for determining DOD needs and transmitting these technical requirements to NASA for inclusion into the shuttle design. The cooperation between NASA and DOD, which is so essential to timely success of this program, is continuing. NASA will make the final decisions in terms of the space shuttle requirements, with the support, advice, and cooperation of the Department of Defense. This will enable the Nation to achieve a necessary operational capability in a timely and orderly manner, at a minimum of cost. The requirement for the shuttle is obvious, the approach is sound, the projected cost is reasonable, and the goals are achieveable.

Mr. President, for these and other important reasons I urge that this body support the full amount contained in this bill.

THE SPACE SHUTTLE

Mr. CURTIS. I yield myself 30 minutes under the bill.

Mr. President, I rise for the purpose of stating what I believe is the case for the shuttle. Some points should be cleared up for the RECORD in reference to the shuttle proposal.

Much has been said on the floor of the Senate about a so-called Rand report. The fact is there is no such Rand report. It is merely a report by several Rand employees. Moreover, it is 2 years old. It is out of date, and finally, it does not purport to be a complete economic analysis.

I invite attention to the letter of Secretary Seamans, dated May 28, 1971, which was placed in the RECORD on June 2. I shall read one paragraph of that letter:

> DEAR MR. CHAIRMAN: This is in response to an inquiry from a member of your Committee staff concerning a Rand Corporation report (RM 62-44-1-PR) which analyzes the NASA Space Shuttle Program. This report, which was prepared by Project Rand using Air Force funds, may be misconstrued by certain parties as representing Air Force policy. To the contrary, this report and its conclusions are the work of the author's alone. In fact, the title page carries a disclaimer that the work does not represent the policy of even the Rand Corporation, much less the Air Force.

That letter is signed by Robert C. Seamans, Secretary of the Air Force.

Also, remarks have been made here which might leave in doubt whether or not the Air Force supports NASA in their space shuttle effort as it is outlined for the 1972 fiscal year. I invite attention to the hearings on this measure, volume I. The witness is none other than the Honorable Robert C. Seamans, Secretary of the Air Force, and the portion I read is found on page 352:

The Air Force supports the proposed NASA fiscal year 1972 space shuttle effort.

Mr. President, nothing could be clearer and less ambiguous.

If we properly plan and manage such a system, its service to the Nation could eventually parallel that of modern aviation. When viewed in proper perspective, aircraft have become very economical to operate, even though some are very large, complex, and costly. By building a space vehicle for repeated usage, it is not unreasonable to expect that comparable reductions in costs can be achieved and that significant advantages in the way we operate and perform our missions will be possible. I also believe that an economical reusable space transportation system will open new avenues for a greater range of applications of space.

Thank you very much, Mr. Chairman.

Mr. President, the National Aeronautices and Space Administration after carefully considering the many possibilities for useful new space activities in this decade, has chosen to concentrate a major portion of its effort on the development of a versatile, economical new space transportation system called the space shuttle.

America's future in space—and all that implies for America's future prosperity and security—now depends to a large extent on decisions to be taken this year on starting development of the space shuttle.

The Committee on Science and Astronautics of the House of Representatives and the Committee on Aeronautical and Space Sciences of the Senate have already given their strong backing to the space shuttle program.

But the space shuttle as presently defined is a new and startling concept. It is different in many ways from any previous program in space or aeronautics. It promises to open the space frontier in the way the railroads opened the West, or in the way the DC–3 airplane began the great expansion of commercial aviation.

Its broad scope, its many benefits, and its costs and schedules need to be fully and clearly explained to all the Members of the Congress and to the public. The purpose of my remarks is to help fill this need.

WHAT IS THE SPACE SHUTTLE?

The space shuttle is an important new invention. It will provide a simpler, safer, and cheaper way to send men and machines into earth orbit, to support them there, and to bring them back to earth.

It will take off like a rocket, fly in orbit as a spaceship, and land like an airplane. Its development will bring about major new advances in aerospace technology.

It will be used as the launch vehicle for a wide variety of useful satellites and as an orbiting laboratory for missions lasting up to 7 days.

It will serve science, the national economy, and the national defense. It will facilitate international cooperation in space.

It is the logical step for this country to take now to exploit our space successes of the past decade. After years of planning and strenuous efforts to identify the highest priority tasks in space for this decade, the space shuttle stands out clearly as the most challenging and the most promising. We need it to stay in the space age. And we need it to stay competitive in the space age.

WHAT WILL THE SPACE SHUTTLE LOOK LIKE?

NASA and the aerospace industry are still considering several concepts for the space shuttle, and a decision is expected in late summer or early fall of this year.

The concept that seems the best so far calls for a two-stage reusable vehicle with external fuel tanks that can be jettisoned. Both the booster stage and the orbiter stage will be able to land like an airplane and can be used for 100 or more missions.

The two-stage reusable concept is the one that I shall describe here.

The general appearance and size of the two stages will hardly be startling. The average air traveler, seeing the two stages parked on an airstrip, might not give them a second glance The expert, however, would recognize them as revolutionary new aircraft/spacecraft capable of opening orbital space above the earth to routine travel and use.

Each stage of the shuttle will look much like a large jet airliner, but will have a much fatter body, a shorter wingspread, and rocket engines mounted on the tail.

In one version under current study, the booster stage would be only 38 feet longer than a Boeing 747 airliner and the orbiter would be 26 feet shorter than the Boeing 747. The two stages together, joined for a vertical launch, would not stand as high as the Saturn/Apollo combination and would not weigh as much.

Both stages will use the same new rocket engine, about the same size as the J–2 engine developed for the upper stages of the Saturn V, but more efficient and more powerful, thanks to recent technological advances. The booster will have 12 of the new engines, the orbiter two.

The propellant used in these engines will be liquid oxygen and liquid hydrogen, which have been used so successfully in the J–2 engines of the Saturn V.

Both stages will also have conventional air-breathing jet engines to facilitate landing, or for flying from one airport to another.

It is believed that the orbiter can be landed safely on return from some types of space mission without the conventional jet engines. If these engines are not mounted, the orbiter's payload capacity would be increased by some 20,000 pounds.

Each stage will be flown by a crew of two.

The orbiter will also be able to carry 12 passengers or up to 65,000 pounds of payload—or 20,000 pounds less if conventional jet engines are also onboard.

The passenger area or cargo bay of the orbiter will be 15 feet in diameter by 60 feet long. Hatches on top of this cargo space will open wide in orbit to facilitate easy unloading and deployment of large spacecraft.

With these hatches open, cameras, telescopes, and other instruments in the orbiter can be accurately trained on the heavens or the earth.

The orbiter will also be fitted with a space age "hitching post"—a structure extended out from the cargo bay to which satellites can be docked for check-out or repairs.

HOW WILL THE SPACE SHUTTLE OPERATE?

The aim of the shuttle designers is to have it operate as nearly like a commercial airliner as possible.

The booster and orbiter stages will be firmly joined together for launch, with the orbiter riding piggyback. The takeoff will be vertical, like the present launch vehicles which the shuttle will eventually replace, but much more gentle, with a maximum pressure of only 3 G's on crew and passengers. This means that shuttle passengers do not need to be trained astronauts. Anyone in good health can make the shutle trip to orbit and back.

After the two stages have reached an altitude of about 40 miles, near the upper fringes of the atmosphere, the booster and orbiter will separate, and the booster's crew will pilot it back to an airplane-type landing at the take-off point. At T plus 30 minutes, the booster will be safely back at its base.

Meanwhile, the orbiter's two rocket engines will carry it into orbit, where it will operate for up to 7 days. When its mission is completed, its crew will take it out of orbit and guide it back to earth for an airplane-type landing at the takeoff point or at another designated airfield.

The orbiter will be able to change course to right or left as much as 1,100 nautical miles as it comes back to earth from its orbital path. This "cross-range capability" is necessary to enable it to land at its takeoff point after just one orbit around the earth. This is an important safety factor and also meets a requirement of the U.S. Air Force for certain of its missions. Because the earth is turning as a spacecraft orbits above it, a spacecraft without "cross-range capability" could land at its takeoff point only at intervals of about once a day.

Both stages of the shuttle will be designed and built for easy maintenance and checkout, just as airliners are, and should be available for new missions every 2 weeks.

Both stages will also be designed and equipped for easy handling by the crew, and for prelaunch checkouts by the crew just as an airliner is checked out on the runway.

The shuttle crews will have greater autonomy in flight than any previous space crews have had, and will not need to rely so much on instructions or commands from an earth-based mission control.

WHAT WILL THE SPACE SHUTTLE DO?

The space shuttle will have many uses—and many users. Its services will be available not only to NASA but to the Department of Defense and other

departments of the Government, to international agencies, and to private industry for commercial uses of benefit to mankind.

The shuttle, because it will be reusable and will take payloads to orbit at one-tenth the present cost, or less, will make today's one-shot launch vehicles obsolete. Eventually the shuttle will replace all of the launch vehicles now in use by NASA and the Department of Defense, except the Scout for very small payloads, and perhaps the Saturn V, or something like it, if there are very large and heavy payloads which cannot be broken down into shuttle-sized packages.

Here are some of the things the shuttle and its crew and passengers will be able to do:

Carry scientific or applications satellites—weather, earth observation satellites, and so forth—to earth orbit and make sure that they are properly deployed and in working order.

Rendezvous with all kinds of satellites, to repair or resupply them, or take them back to earth.

Carry out a wide variety of scientific and practical manned missions in space, including Air Force missions, using the orbiter itself as a space laboratory for periods of up to 7 days.

Rescue astronauts—or cosmonauts—stranded in earth orbit.

Deploy spacecraft equipped with their own propulsion systems—such as a large weather satellite plus an Agena rocket—and launch them to geosynchronous—stationary—orbit or on deep space missions.

Assemble modules in orbit to build a large space station, or the NERVA nuclear-powered rocket, or spaceships bound for the moon or planets, if and when these future programs are decided on.

Provide fresh crews and supplies for a future space station, and return exposed films and other experimental data to earth.

Launch, refuel, and resupply other vehicles operating in earth orbit, such as the proposed Space Tug.

WHY DO WE NEED THE SPACE SHUTTLE NOW?

We need to start development of the space shuttle now to pull together the great technological advances made in space propulsion and space transportation in the last decade and to put them to practical use for the benefit of mankind.

Unless and until we have the space shuttle, we cannot take full advantage of the heavy investment in space capabilities we have already made.

The shuttle will cut the costs and increase the benefits of using space in many ways. To begin with, it will reduce the cost of putting a pound of payload in orbit from $1.000 to as low as $100. But that is only the beginning.

Because of the shuttle's large cargo space, spacecraft need not be built so compactly, so they will be much easier to design, manufacture, and check out and can use many more standard parts, which are, of course, much less expensive than parts which have to be custom made to save space or weight.

Because the shuttle launch will be much more gentle than present launches, spacecraft and other equipment need not be so ruggedly built.

Because the shuttle crew can repair expensive spacecraft in orbit, or return them to earth for repairs, the spacecraft will be less costly to build in the first place and expensive backups will not be required.

Because of the much greater reliability of the shuttle as a launch vehicle, the chance of losing a spacecraft due to rocket failure—at a cost of many millions of dollars and years of scientific effort—is much less.

Many of our most productive satellites now require very large antennas or other devices that unfold or extend. Because the shuttle crew will be on hand to deploy them, they can be constructed much more simply and the risks of malfunction will be greatly decreased.

Because of the shuttle's gentle ride and extra room for passengers, scientists can often accompany their own experiments into space, which will make the experiments much simpler to design and build and much more productive.

As the costs of space operation come down, scientists, government agencies, and businessmen will be able to identify many new ways in which the shuttle and the satellites it takes to orbit can be used for the good of mankind.

If development of the shuttle is begun soon, an efficient manufacturing and test schedule can be followed, and operational flights can begin by the end of this decade.

Delay in starting development of the shuttle would be costly in many ways. Delay would prolong the use of present launch vehicles, which are more costly and less reliable. It would require continued use of highly expensive spacecraft and lead to discouraging losses. Delay would deny us a space rescue capability. Delay would discourage creative thinking on how space can be used. Delay would lead to further decline in our abilities as a nation to compete in space and to advance our science and technology. Delay would leave our Defense Department out on a limb with no program underway or in prospect for using the great potential of routine manned flight in space for national defense.

Delay in the shuttle program would in all probability surrender our hard-won lead in manned space flight capabilities to the Soviet Union and would surely decrease any desires the Soviet Union may have for significant cooperation in space.

At the present time, very competent teams of aerospace specialists are at work, in NASA and industry, planning for and designing the shuttle. If there is undue delay in getting the shuttle started, these teams will be disbanded and our ability to advance aerospace technology will be further eroded.

HOW ABOUT ALTERNATIVE CONCEPTS AND APPROACHES?

Present plans for the space shuttle have evolved from several years of intensive study of various candidate concepts. These studies have been conducted by NASA, the Department of Defense, and the aerospace industry.

A principal aim of the studies has been to identify the concept which promises the best combination of low development costs and low operating costs, in addition to meeting other essential requirements. Several concepts have been studied, including:

A reusable two-stage system in which the orbiter has external propellant tanks that would be jettisoned after reaching orbit.

A reusable two-stage concept with internal tanks.

A 1½-stage concept consisting of an orbiter plus large propellant tanks which would be jettisoned before entering orbit.

A single-stage concept.

A concept which would use solid rocket "strap-ons" to give the booster added thrust on takeoff.

Concepts which would use the Saturn I–C or Titan III as expendable booster stages.

The preferred concept which is emerging from NASA studies is the first one listed above: a delta wing two-stage reusable configuration in which the orbiter has external propellant tanks that would be jettisoned after reaching orbit.

Alternate approaches in the development plan for the shuttle are also being studied. Most of NASA's studies to date have been based on a concurrent approach in which development and testing of both the orbiter and the booster stages would proceed at the same time. NASA is now concentrating studies on the advantages and disadvantages of a phased approach. Under a phased approach, the orbiter would be developed first and initially tested with an interim expendable booster. Full-scale development of the reusable booster would be started later. These studies, together with those previously undertaken, are expected to put NASA in a position to make a decision this fall on the technical and programmatic approach to be followed in the space shuttle program.

A detailed comparison of the advantages and disadvantages of the various concepts is, of course, a very complex technical process. The important thing for Congress to know is that NASA, the Department of Defense, and the aerospace industry are thoroughly investigating all possibilities to have the information required to choose the concept and approach that best meet the needs of the country at a reasonable cost.

WHAT WILL THE SPACE SHUTTLE COST?

NASA has given Congress careful preliminary estimates of what the cost of the shuttle program will be, and what the savings will be compared with using percent methods for launching and building satellites.

Preliminary estimates received from vehicle definition contractors indicate that the development costs of the shuttle will be in the $8 to $9 billion range, depending on the shuttle configuration, spread over about 8 years. The highest 11-year estimate we have is $12.8 billion. These estimates would include one operating site and the manufacture and test of two boosters and two orbiters.

NASA is also considering the need to develop a smaller vehicle called the Space Tug, which would be carried to orbit by the shuttle and used in orbit to supplement and extend the capabilities of the shuttle. The tug would be used, for example, to move spacecraft to different positions in earth orbit, or to higher orbits than the shuttle can reach. Development costs for the Space Tug have been estimated at about $600 million.

NASA studies so far indicate that the shuttle can be operated for a cost of about $5 million per launch, less than it costs to use any current launch vehicle except the small Scout. The Titan IIIC costs more than $20 million to place about 28,000 pounds of payload in low earth orbit, and the Saturn IB costs more than $50 million to orbit about 40,000 pound of payload.

The shuttle will orbit up to 65,000 pounds of payload—or up to 45,000 pounds if conventional jet engines are used to facilitate the orbiter landing—at a cost of $5 million per launch. Important as these savings and launch costs will be, the savings in the development and procurement of payloads will be far more significant. When the shuttle is available, it will be possible to recover satellites for refurbishment and reuse. The size and weight carrying capability of the shuttle will free payload designers from present constraints in weight on volume which make design difficult and costly. Moreover, the shuttle will provide a capability to give payloads a final checkout in orbit and to repair or service payloads in orbit. These new modes of operation offer promise of major savings in payload costs.

The savings made possible by the shuttle will depend on the number of missions flown by NASA, the Air Force, and other users in the period 1978–90.

Studies made for NASA by an independent economic analysis firm—Mathematica, of Princeton, N.J.—show that an average rate of 40 missions per year over this 13-year period would result in savings equivalent to an annual return of 10 percent on the Government's investment in the shuttle. Fifty-five missions per year would increase the annual return to 15 percent.

The Mathematica analysis is based on these nonrecurring costs: $9.3 billion for development of the shuttle, including one operational site, three boosters, and three orbiters; $600 million for development of the space tug; $1.7 billion for procurement of one additional booster and two orbiters, plus refurbishment of three boosters and three orbiters; $600 million for a second operational site; and $500 million for additional procurement of the space tug; making a total of $12.7 billion in nonrecurring costs.

The PRESIDING OFFICER. The time of the Senator has expired.

Mr. CURTIS. Mr. President, I yield myself 3 additional minutes.

The PRESIDING OFFICER. The Senator is recognized.

COST—EFFECTIVENESS

Mr. CURTIS. Cost effectiveness studies like the Mathematica study are helpful in considering a long-range investment like the space shuttle. They can give us the assurance that we are on the right course.

But it is very important to keep in mind that the purpose of building the space shuttle is not just to save money. The space shuttle is being built because it provides a new capability that is needed—needed for more effective uses of space for national security purposes, for science, for practical applications; needed to give new opportunities to use space to serve mankind.

The great present and potential value of satellites for weather, communications, and national security purposes has already been demonstrated.

WE MUST CONTINUE THE QUEST

Next year our first Earth Resources Technology Satellite will demonstrate how we can use space to get data on our earth and environment. We need to help manage our natural resources.

Experiments have already been carried out in Apollo for using the zero gravity and total vacuum of space for new laboratory techniques and industrial processes of great potential value.

Scientific satellites have made great advances in increasing our understanding of the fundamental forces at work in the universe. We are learning, for example, about new sources of energy more powerful than any we could imagine a few years ago. We are learning why our planet has an atmosphere that sustains life as we know it and why other planets do not.

So far we have gotten only an inkling of what can be done in space for the good of mankind. But we have surely seen enough to encourage us to continue the quest.

As of now, the key to greater benefits from space is greater use of space; and the key to greater use is a cheaper, safer, and more flexible way to get men and machines into orbit, to support them there, and to bring them back to earth.

This key is the space shuttle.

Mr. President, I yield back the remainder of my time.

Mr. ANDERSON. Mr. President, what is the parliamentary situation?

The PRESIDING OFFICER. The Senator yielded back the remainder of his time.

Who yields time?

Mr. ANDERSON. I yield back the remainder of my time.

The PRESIDING OFFICER. All time has been yielded back. What is the pleasure of the Senate?

Mr. ANDERSON. I suggest the absence of a quorum.

The PRESIDING OFFICER. The clerk will call the roll.

The assistant legislative clerk proceeded to call the roll.

Mr. HARRIS. Mr. President, I ask unanimous consent that the order for the quorum call be rescinded.

The PRESIDING OFFICER. Without objection, it is so ordered.

## SUGAR ACT AMENDMENTS, 1971

Mr. HARRIS. Mr. President, this week the Senate Finance Committee, of which I am a member, will meet in executive session to mark up H.R. 8866, the Sugar Act Amendments of 1971.

The purpose of this legislation is to amend and extend the basic provisions of a sugar policy that dates back to 1934. This approach does not question the fundamental assumptions of our sugar policy. I am convinced that such questioning is necessary.

I am dissatisfied with the present U.S. sugar policy, both in its foreign and domestic aspects.

I question a policy which:

First, in the name of protecting our domestic sugar industry, must buy all of its sugar from foreign suppliers at an artificially high price, well above the world market price, and also gives direct governmental subsidies to domestic producers;

Second, embodies a major, yet unsupervised, foreign aid prgram;

Third, rewards with a valuable subsidy a nation like South Africa;

Fourth, disregards its expressed aims of insuring that benefits to quota countries filter down to their sugar workers, and which neglects the sugar workers in our own country.

Mr. President, our present sugar policy is so archaic and unwieldy that my first inclination is to scrap it in its entirety and begin anew. There have been several proposals to this effect, including one recently by Representative PAUL FINDLEY that would call for the United States to acquire all of its foreign sugar on a competitive bidding basis. His proposal would still protect our domestic sugar industry while removing the foreign aid component from our sugar program.

At the present time, I do not feel that a complete revision of our sugar policy is feasible. This does not mean that we must commit ourselves to a 3-year extension of the existing Sugar Act. There are several positive steps that we can take this year with a view toward establishing a comprehensive U.S. sugar policy for the future.

Mr. President, I was appalled, when representatives of the administration appeared before the Senate Committee on Finance and in answer to my questions stated that there was really no rhyme nor reason to either their proposal in regard to the Sugar Act or the bill which had come to us from the House of Representatives. They stated the bill was primarily based on history.

I am frankly puzzled by this entire mess. I think the way the sugar quota system is set up now is certainly a mess, and really needs to be comprehensively reworked. Therefore, I am announcing today my intentions to offer in the Finance Committee a series of amendments to the Sugar Act of 1971 to achieve this purpose.

The first of these amendments would extend the current act for only 1 year during which time a body of specialists in foreign affairs, developing economies, farm policy, consumer needs, and labor conditions could investigate the Sugar Act, measure its impact, and propose alternatives to the present system.

I think, Mr. President, that the State Department ought to support this proposal, because I would think it would be

terribly embarrassing for our representatives and our diplomats and ambassadors abroad to try to explain to one country why its quota was lessened and another's was raised, or, for that matter, why we continue the general historic quota system we have. If, on the other hand, were to inaugurate, as we ought to in such a serious matter, some system of standards, qualifications, or criteria for these foreign sugar quotas, and then applied them fairly, we would at least, whether or not each country thought the formula was fair, be able to say to them that the formula cuts fairly in regard to all countries.

That is not presently the case, because, as has been admitted by everyone involved in this matter, there is not any formula. There are no criteria.

Any such study group proposal should include operating guidelines calling for investigation of the following:

The minimum wage structures and fringe benefit programs of current and prospective quota nations, with investigation into how these structures and programs are actually administered.

During the course of our hearings before the Finance Committee, I questioned at some length the gentleman who represents Brazil in this matter. I asked him to supply me the figures on what portion of this public benefit that Brazil receives, because of having a special quota with us, is passed along to the sugar factory workers and what portion of it is passed along to sugar farm workers. Mr. Arthur Nemir, who as I understand it is paid some $180,000 a year to represent Brazil in this matter, was unable to supply those figures at the hearing.

The impact, in detailed breakdown, of the premium dollar on the industry and society of current and prospective quota nations, including whether continuation of the quota to a particular nation perpetuates a regressive sugar economy.

Alternatives to the current Sugar Act system of allocating quotas—and I mean by that measures such as that advocated by Representative FINDLEY for the purchases by bid of our foreign sugar needs, and perhaps the reinstitution of tariffs or other nonquota devices similar to what was in effect prior to 1934. None of these measures am I willing to bind myself to at this time; but I think that this 1-year study could consider the various alternatives and come back to us with a system that makes some sense. The present system makes no sense.

Impact of the Sugar Act and its quotas on the foreign policy of the United States and of participating nations toward the Republic of Cuba.

The necessity and advisability of quotas to developed nations.

Mr. President, I have a special bias in this matter which has to do with our special interest in Latin America. I also have a personal bias in regard to the problems of developing nations—their need to trade, their need to earn foreign credits—and our own enlightened self-interest is involved in helping to build up the economies of developing countries, particularly in Latin America.

I have always been puzzled by the fact that it has never become fashionable among columnists or among others in this country—and certainly not in the State Department—to be interested in Latin America, though we are in the same hemisphere and are joined by a land bridge.

President Nixon, following the trip of Governor Rockefeller throughout some Latin American countries and the publication of his report, said that we were going to take a greater interest in Latin America and that he was going to see that the policy of this country gave some preferential treatment in trade to developing countries, and he particularly has mentioned that policy in regard to Latin America. That, it seems to me, is a justified policy. It is a good sentiment, but up to now it has only been sentiment. I would like to see us consider this sugar quota business, if it is to be continued, in the light of that announced policy; and I hope President Nixon and his administration would be willing to join in this proposal for a 1-year extension of the sugar quota and the study which should go into these matters.

For too long, historical precedent alone has been the basis for this country's sugar policy. One of the major obstacles to reform of the Sugar Act has been its complexity. My amendment would subject the act to a comprehensive review, and for the first time would enable us to create with planning and foresight a sensible U.S. sugar policy.

Regardless of whether the above amendment is adopted, I intend to press for several more amendments to H.R. 8866. We should correct the gross inequities presently contained in the Sugar Act even with the knowledge that we intend to change its basic structure in the future.

The first of these amendments would suspend the sugar quota for South Africa, which presently enjoys a sugar quota of 60,003 short tons.

There can be no moral, political, or economic justification for granting a sugar quota to South Africa, whose policy of apartheid has been condemned by the United Nations as a crime against humanity.

Mr. President, there is no reason why idealism and morality should stop at the water's edge. This country ought to show to the world an example of its ideals by practicing its ideals and by practicing what we profess. I would say that if America stands for any one proposal or concept, it surely would be the innate worth and value of every human being. Therefore, I think it is intolerable for us to continue to bestow a special favor—and I am not talking about trade relations or diplomatic relations now—upon the Republic of South Africa at the cost of the American consumer and at the cost of the American housewife, which includes black and white and brown and other minorities in this country who have to pay the increased cost of this sugar quota. We should not confer that kind of special favor on the Republic of South Africa, to the detriment of our own citizens, when that country, as a matter of conscience and deliberate policy, is forcing the subjugation of one race by another. We cannot continue our intolerable acquiescence—as a matter of fact, support—through that kind of subsidy of such indecent and inhumane program.

Second, I propose to offer an amendment that would grant the President the discretionary authority to levy an impost on all sugar imported into the United States under the quota of any nation in which the benefits of participation in the Sugar Act are determined not to be accruing in a substantial degree to those persons engaged in the sugar-producing industry of that foreign nation.

I mentioned earlier the country of Brazil and the inability of their representative here to state what portion of this American subsidy would actually flow into the hands of the sugar workers, either in factories or on farms. I thought it was a rather puzzling fact that he was not able to furnish that information at the hearing. Yet, I know that in northeastern Brazil there is terrible exploitation of workers; and not much interest has been shown, it seems to me, in correcting those terrible conditions.

The money collected under this special impost on a country which did not show that it was not exploiting its labor would be placed in the Treasury of the United States under a special trust fund to be used for the financing of U.S. aid projects beneficial to the interests of those engaged in the sugar-producing industry of the nation upon which such an impost is levied.

Mr. President, we did this in regard to the Dominican Republic, when Trujillo was in control of that country. We levied a 2-cent impost, or tax, which was to be returned in the form of foreign aid which could specifically be shown to go for the workers who otherwise would have benefited if the proper kinds of improvements were made in the sugar industry generally.

Mr. President, as long as we maintain a sugar policy that constitutes an enormous source of foreign aid, we have a responsibility to see that our aid reaches those people for whom it is intended. These people are not millionaire sugar plantation owners. They are the workers who are all too often forced to work under subhuman conditions.

A statement presented before the Finance Committee this month by Prof. Joseph A. Page of the Georgetown University Law Center documents the nature of this problem with respect to the Brazilian sugar industry. Professor Page, who has had the opportunity to observe at first hand the sugar industry of northeastern Brazil and its impact on the millions of peasants living and working there, spoke of "poverty, hunger, disease and ignorance" as the main characteristics of life in the sugar zone. He spoke of an infant mortality rate during the first year of life estimated at 60 percent, of a nutrition study whose director has charged that "lack of proper nourishment during early years is producing a legion of mentally retarded human beings in the northeast."

I believe we have a responsibility, as

decent human beings, to do what we can to pressure toward alleviation of these kinds of subhuman conditions.

Professor Page then described the sugar industry in northeastern Brazil that, with government collusion, has "consistently demonstrated its incapacity and/or unwillingness to modernize and reform itself" in a way that would alleviate the monstrous working and living conditions of the Brazilian peasants. Only by the subsidy they receive under the Sugar Act, charges Professor Page, can the industry profitably continue "to produce sugar inefficiently, and at great human cost."

Mr. President, I spoke about some of the representatives and their appearance before the Finance Committee. I should like to add at this point that I see no reason why a foreign country, if we are going to continue these quotas even for the short run, should have somebody represent them before committees. I believe they ought to be able to appear themselves. If they need others to represent them and present their cases, that is fine; but I think they ought to be free not to do so. They have diplomatic relations with our Government. I do not see why they should have to hire people to represent them before committees. Some of the people representing foreign countries are fine people, and some of my friends represent such countries. But I believe that ought to be voluntary on the part of a country.

Mr. President, I repeat, as long as the United States maintains its current sugar program, we have a responsibility to prevent the occurrence of situations like the one that exists in northeastern Brazil. My amendment would fulfill that responsibility

The remaining amendments that I intend to offer directly concern the domestic aspects of our sugar policy.

The first amendment in this category would set a ceiling on government payments to domestic sugar producers of $20,000 per farm. I supported such a limit on farm subsidies for all commodities when that was presented to the Senate, I believe, in the session before last. It was eventually compromised on a limit of $55,000 per farm which I then supported and do now support. It is not being fully enforced. I hope that we can write more rigid enforcement into it so that people cannot circumvent the law by dividing up farms. If we cannot get the $20,000 per farm limit on sugar subsidies which we should have like those in other commodities, then we should try for the $55,000. That may be our first practical step this year.

The justification for unlimited Federal farm subsidies always has been the protection of the small, family farmer. The facts are, however, that increasingly Federal farm payments are being paid out to giant corporate operations, while the small farmer gets less and less.

This ceiling would be consistent with the measure approved last week by the House of Representatives to set a $20,000 ceiling for payments under the cotton, wheat, and feed grain programs. Only sugar and wool are exempt from a similar ceiling.

The amendment also would provide for three additions to be made to the list of conditions under which a domestic sugar producer is eligible to receive Government payments. The added conditions are:

That the "fair and reasonable" wages provided for in the act shall constitute a decent minimum hourly wage;

That the housing for sugar workers and their dependents shall satisfy the applicable State or Federal housing and sanitation requirements, whichever are more stringent;

That the grower shall not employ nonresident alien farmworkers in his sugar beet or sugarcane operation.

Similar provisions to the three enumerated above are contained in a bill introduced by my distinguished colleague from Illinois, Senator STEVENSON, and I commend him for his work on this important subject. I also commend the distinguished Senator from Massachusetts (Mr. KENNEDY) and others who have been deeply involved in the South African quotas and other matters relating to the sugar bill.

Mr. President, I wish to add a few remarks concerning the wages and living conditions of our own sugar workers. Unfortunately, we have ignored the miserable conditions that exist among these workers in our own backyard. Allow me to quote from a statement in the RECORD of June 10, 1971, by Representative SPARK MATSUNAGA, of Hawaii, concerning an amendment he offered to the Sugar Act providing for a minimum wage for fieldworkers:

> I offered this amendment because of the hearings on the extension of the Sugar Act held by the Agriculture Committee, I heard shocking testimony presented by certain witnesses who described, principally from firsthand experiences, an almost unbelievable degree of exploitation, deprivation, poverty, and shameful mistreatment of field workers in some of the sugar plantations here in our own United States.

That such conditions exist in the United States today is inexcusable. Representative MATSUNAGA's home State sugar industry has proven that it is possible for the industry to provide decent wages and working conditions. In Hawaii, sugar workers are paid the highest agricultural wages in the world, plus fringe benefits that include paid vacations and holidays, pensions, health insurance, unemployment compensation and workmen's compensation. It is unfortunate that the mainland sugar industry requires us to spell out in specific legislation that it follow the example of the Hawaiian sugar industry. I think we have to.

Lastly, Mr. President, I intend to introduce an amendment that would provide for the full coverage of sugar workers under all Federal and State laws which govern nonagricultural workers, including the Fair Labor Standards Act, National Labor Relations Act, unemployment compensation and workmen's compensation laws, and that the Secretary of Labor be responsible for enforcing the labor provisions of the act and for promulgating regulations under it.

The amendments to the Sugar Act of 1971 that I will offer in the Finance Committee tomorrow would go a long way toward the reform of our sugar policy. They would not remedy immediately every inequity in that policy. What I am suggesting today is that we reform the Sugar Act where we can, and at the same time create the climate needed for a total revision of our sugar policy. My amendments are consistent with this strategy. If not adopted in the Finance Committee, then I intend to press that effort on the floor of the Senate itself and seek support of other Senators in my endeavors.

Mr. GRAVEL. Mr. President, will the Senator from Oklahoma yield?

Mr. HARRIS. I yield.

Mr. GRAVEL. I wish to compliment the distinguished Senator on his courageous statement. I was able to follow it, although not being very knowledgeable in this area. However, I will support the Senator along the lines he has stated, in what is a straightforward policy for this Nation to undertake in what is a sticky mess.

Mr. HARRIS. I thank the Senator from Alaska for his kind remarks. He has been a good leader on other matters and I am pleased to have his support on this one.

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## URGENT AGRICULTURE APPROPRIATIONS, 1972

Mr. McGEE. Mr. President, I ask unanimous consent that the Senate proceed to the immediate consideration of Calendar No. 233, House Joint Resolution 744.

The PRESIDING OFFICER (Mr. ROTH). The resolution will be stated by title.

The assistant legislative clerk read the title as follows:

> H.J. Res. 744, making an appropriation for the fiscal year 1972 for the Department of Agriculture, and for other purposes.

The PRESIDING OFFICER. Is there objection to the present consideration of the joint resolution?

There being no objection, the Senate proceeded to consider the joint resolution.

Mr. McGEE. Mr. President, House Joint Resolution 744, now under consideration, provides an immediate appropriation to the Department of Agriculture of $17 million for the summer program of the nonschool feeding program. The fiscal year 1972 budget request for the nonschool food programs under section 13 of the National School Lunch Act was $20,775,000, an increase of $8,775,000 over the $12 million appropriation for fiscal 1971. With funds carried over from fiscal year 1970, the 1971 program level was estimated to be $20,800,000. This amount provided funding for two principal nonschool food programs, the year-round program and the summer programs. The total amount is allocated to the States on a formula basis and the States have authority to divide their respective allocations between the full year program and the summer program.

The Department of Agriculture has advised that under the allocation and distribution discussed above, they are spending $5.8 million for the summer program for fiscal year 1971. When the House of Representatives considered H.R. 9270, the Department of Agricul-

ture appropriations bill for fiscal year 1972, this figure was considered and included in the $20,775,000 which was provided for the special food service programs. In addition, the House provided an additional $11,225,000 of section 32 funds to be made available for the summer programs of the nonschool feeding program, resulting in total funding of $32 million for section 13 programs, consisting of $17 million for the summer programs and $15 million for the year-round program.

The above data are reflected in the following table:

| | |
|---|---|
| 1972 estimate | $20,775,000 |
| House amendment | 11,225,000 |
| Total | 32,000,000 |

Legislation authorizing section 13 programs has been passed by both Houses of Congress and should be enacted into law soon. The new legislation authorizes a program level of $32 million.

As I indicated, these funds were included in the appropriations bill for the Department of Agriculture for fiscal year 1972, which was passed in the House of Representatives on June 23, 1971. Since this regular appropriations bill will not be enacted into law until sometime after July 1, 1971, however, it was necessary that some action be taken to insure that these funds would be made available for the summer feeding program immediately. House Joint Resolution 744 provides this action, and I urge its approval by the Senate so that these urgently needed funds will become available without delay.

The joint resolution was ordered to a third reading, read the third time, and passed.

## AUTHORIZATION FOR COMMITTEE ON LABOR AND PUBLIC WELFARE TO HAVE UNTIL MIDNIGHT TONIGHT TO FILE ITS REPORT DEALING WITH CANCER

Mr. BYRD of West Virginia. Mr. President, I ask unanimous consent that the Committee on Labor and Public Welfare have until midnight tonight to file its report on S. 1828, the proposal dealing with cancer research.

The PRESIDING OFFICER. Without objection, it is so ordered.

## SENATOR JOHN L. McCLELLAN SPEAKS ON "PRIVACY AND THE SOCIAL ORDER"

Mr. BYRD of West Virginia. Mr. President, the able and distinguished Senator from Arkansas (Mr. McCLELLAN) sponsored the Safe Streets and Crime Control Act of 1968. Title III of that act provides for court-authorized and stringently controlled use of wiretaps and electronic surveillance for certain major crimes. That title is now being effectively implemented on both State and Federal levels, and has been described as "the single most valuable weapon in law enforcement's fight against organized crime."

A related subject of much current concern—and also much apparent misinformation—is the use of wiretaps or listening devices on national and domestic security cases.

In a recent speech before the AFL–CIO Maritime Trades Department entitled, "Privacy and the Social Order," Senator McCLELLAN discusses this issue. Senator McCLELLAN's role in the fight against crime, and especially his work in the field of wiretapping is well known to the Members of this body. In view of the timeliness of the topic of his speech, therefore, I commend it to the attention of the Senate and ask unanimous consent that it be printed in the RECORD.

There being no objection, excerpts from the statement were ordered to be printed in the RECORD, as follows:

PRIVACY AND THE SOCIAL ORDER

To speak of privacy in our social order is to speak of the continuing struggle to balance the rights of the individual against those of his fellow man in a structured society.

It is not and cannot be a matter of supremacy. The right of one individual should not transcend the collective rights of all others. Rather, it should be and it must be an accommodation—a calculated attempt to give proper deference and due weight to each.

This concept—to temper liberty with restraint—goes to the very heart of our democracy. For, it has long been recognized that without an organized society with power to maintain public order liberty itself would be destroyed by the excesses of anarchy.

Liberty implies the absence of arbitrary restraint. But it does not mean immunity from reasonable regulations or prohibitions imposed by the necessity of community interests. In other words, the blessings and workings of liberty demand a measure of self-restraint from each of us and the requirement that we do not trespass upon either the rights of society or upon the rights of others.

There are instances however, when individual freedoms must be subordinate to the greater social good. We are all familiar with with Mr. Justice Holmes' statement in the Schenck case that "The most stringent protection of free speech would not protect a man in falsely shouting fire in a theater and causing a panic."

Mr. Justice Holmes was simply saying that the exercise of one freedom must be compatible with the preservation of all other freedoms essential to a democracy.

The clear and present danger of which he spoke is also apparent when unbridled lawlessness, when organized crime, flourishes openly and reaches the proportions of a "shadow government." Self-government cannot long survive in the face of such vicious assaults.

This situation existed in the decade of the sixties, and in that context the Safe Streets and Crime Control Act of 1968 was enacted.

Title III of that Act provides for court-authorized and stringently controlled use of wiretaps and electronic surveillance for certain major crimes. This Title of the bill was extensively debated in the Senate and was finally adopted by an overwhelming vote of 68–12. Unfortunately, the effective anti-crime weapon it provided was not used in 1968 since the then Attorney General, Mr. Ramsey Clark, felt that electronic surveillance was "neither effective nor highly productive," (New York Times, May 19, 1967, P. 23, Col. 1). (Indeed, he is the only Attorney General since 1931 who has not supported legislation for wiretapping.)

Beginning in January 1969, the present Administration changed this situation, and Title III is now being effectively implemented on both the State and Federal levels. Since that date the Federal Government has executed 387 court-approved surveillance orders. Three hundred and seventy-two produced incriminating evidence. The results to date: Over 1,200 arrests; over 100 convictions; and more than 1,000 defendants still awaiting trial. Obviously, the barometer of effectiveness will be even greater in months to come. No case has yet reached the Supreme Court, but I am encouraged that the lower Federal Courts have already sustained the Constitutionality of the basic scheme of the act three times.

The increase in Federal orders, from 33 in 1969 to 183 in 1970, and to 171 already in 1971, reflects the growth in the Department of Justice's drive against organized crime. The strike forces of the Department of Justice are now operating in major cities throughout the Nation.

These figures—the successful use of this technique—emphatically confirm New York District Attorney Frank S. Hogan's description of this tool as "the single most valuable weapon in law enforcement's fight against organized crime".

These figures also vindicate the Senate's judgment in adopting Title III by a majority of almost 6 to 1.

Several recent intercepts dramatically illustrate the value and effectiveness of this vital weapon.

As a result of court authorized surveillance, on April 21 of this year a Special Federal grand jury in Brooklyn, New York, returned indictments against Joseph Colombo, head of a La Cosa Nostra family in New York City, and 30 other defendants for gambling violations.

Last month, U.S. Customs was able to intercept 5 tons of marihuana being smuggled into California from Mexico. Fourteen indictments were handed down as a result of the capture of this contraband.

In May also, Federal grand juries in Michigan returned 16 indictments charging 153 persons on Federal gambling charges, including several high ranking police officials, in violation of the Syndicated Gambling provisions of the Organized Crime Control Act of 1970.

Nineteen states have also recognized the effectiveness of this measure and enacted statutes patterned after Title III.

In 1969 and 1970, a total of 683 State orders were executed and 1,261 persons arrested through the use of electronic surveillance.

To insure Title III's proper use, two safeguards have been instituted. First, a National Commission for the Review of Federal and State Laws Relating to Wiretapping and Electronic Surveillance will become operative in June 1973. It will review the operation of Title III and report to the President and the Congress, so that we may make an informed appraisal of this statute and consider any changes or amendments thereto that may be needed or desirable.

And second, since there is also a need for public review of the facts, the Senate Subcommittee on Criminal Laws and Procedures, which I am privileged to chair and which has legislative oversight in the area of wiretapping and electronic surveillance, will undertake this fall a comprehensive examination of Federal and State laws and practices with respect to this subject.

Also a subject of much current concern—and much apparent misinformation—is the use of wiretaps or listening devices on national and domestic security issues.

Title III was originally conceived as an anti-organized crime weapon and our primary focus was on that problem. The Justice Department, however, under Mr. Ramsey Clark, requested specific language to exclude security cases from the purview of the bill, since in his considered judgment the Presi-

dent's authority in this area was clear. The Justice Department thus drafted the language which appears in Title III as Section 2511(3).

"Nothing [in Title III] . . . shall limit the constitutional power of the President to take such measures as he deems necessary to protect the Nation against . . . hostile acts of a foreign power . . . or to protect national security information against foreign intelligence activities. Nor shall anything contained in . . . [Title III] be deemed to limit the constitutional power of the President to take such measures as he deems necessary to protect the United States against . . . any other clear and present danger to the structure or existence of the Government."

I was then, and I am still, perfectly willing to recognize the power of the President in this area—a power, incidentally, first exercised in 1940 by President Roosevelt. When authorizing Attorney General Jackson, the late Mr. Justice Jackson, to take such action involving "subversive activities against the Government of the United States," the President declared:

"It is too late to do anything about it after sabotage, assassination and 'fifth columns' activities are completed."

In 1947, President Truman concurred in the recommendation of Attorney General Tom C. Clark, later Mr. Justice Clark, to extend the use of these techniques to the domestic area. Attorney General Clark observed:

"While I am reluctant to suggest any use whatever of these special investigative measures in domestic cases, it seems to me imperative to use them in cases vitally affecting the domestic security or where human life is in jeopardy."

According to reports this practice was continued during the Eisenhower years.

Recent published accounts indicate that there were about 100 wiretaps operating during the Kennedy administration.

Likewise, President Johnson noted in 1965 that the use of these techniques "may sometimes be essential in protecting our national security."

In testimony before a House Appropriations Subcommittee, FBI Director J. Edgar Hoover reported that as of March 1, 1971, the Nixon administration had authorized 33 telephone taps and 4 bugging devices in national security cases.

Thus, surveillance to protect the security of government is as old as civilization itself. This is true whether we speak of Trojan horses or sophisticated electronic devices.

The 1968 Act did not in any way affect—add to or subtract from—the use of wiretapping in the area of national security. That is the plain fact of the matter—there is no mystery—there is nothing surreptitious about it. The cold, hard fact is that even democracies have to defend themselves.

The President's authority to use wiretaps in security cases has been reviewed by two Federal appellate courts, with conflicting results. The Fifth Circuit Court of Appeals in *United States* v. *Clay* (1970) recently upheld this power. In *United States* v. *Keith*, however, the United States Court of Appeals for the Sixth Circuit decided on April 8, 1971, not to uphold the President's power to wiretap without a warrant.

I see no Constitutional distinction between foreign and domestic threats to our national security. Indeed, the use of electronic surveillance may be necessary to secure the information upon which any distinction between them could be drawn. In my judgment if it is Constitutionally "reasonable" to act without a warrant where the threat is foreign, it certainly seems logical that it would be Constitutionally reasonable to the same degree to act without a warrant where the threat is domestic.

I recognize that the task of resolving this issue will not be easy in a free society. For the use of such power in the interest of all may infringe on the rights of some.

It is not unlike the classic dilemma put to the Nation by Lincoln in his special message to the Congress after the Civil War had begun:

"Is there," he said, "in all republics this inherent and fatal weakness? Must a government, of necessity, be too strong for the liberties of its own people, or too weak to maintain its own existence?"

Individual privacy can be had in many societies. But to be meaningful it can only be had in a free society—a society made impregnable and bulwarked from within against its avowed enemies, foreign or domestic.

I am confident that the Nation will likely survive with or without warrants for national security wiretaps, with of course, due regard for emergency situations. I would suggest that any legislative action in this area be withheld until the Supreme Court has made a final determination on the pertinent issues.

Let us, however, approach the problem realistically and not with so much doctrinaire logic that we ". . . convert the . . . Bill of Rights into a suicide pact." [Mr. Justice Jackson, *Terminielle* v. *Chicago*, 337, U.S. 1, 37(1948)]

## QUORUM CALL

Mr. BYRD of West Virginia. Mr. President, I suggest the absence of a quorum.

The PRESIDING OFFICER. The clerk will call the roll.

The second assistant legislative clerk proceeded to call the roll.

Mr. BYRD of West Virginia. Mr. President, I ask unanimous consent that the order for the quorum call be rescinded.

The PRESIDING OFFICER. Without objection, it is so ordered.

## UNANIMOUS-CONSENT AGREEMENTS

Mr. BYRD of West Virginia. Mr. President, I ask unanimous consent that tomorrow, at the close of the 1 hour which has been reserved by Mr. MONDALE on amendment No. 233 to H.R. 7109, the NASA authorization bill, a vote occur on the amendment by Mr. PROXMIRE and Mr. MATHIAS to the continuing joint resolution (H.J. Res. 742). The amendment would set a ceiling on defense spending.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. BYRD of West Virginia. Mr. President, I ask unanimous consent that at the close of the vote on the Proxmire-Mathias amendment to the continuing joint resolution a vote then occur on the adoption of the first committee amendment to the continuing resolution (H.J. Res. 742).

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. BYRD of West Virginia. Mr. President, I ask unanimous consent that at the close of the vote on the first committee amendment to the continuing resolution the vote then occur on the adoption of the continuing resolution (H.J. Res. 742).

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. BYRD of West Virginia. Mr. President, I ask unanimous consent that following the vote on House Joint Resolution 742, the resolution making continuing appropriations, the vote then occur on the Mondale amendment, amendment No. 233, to H.R. 7109, the NASA authorization bill.

The PRESIDING OFFICER. Without objection, it is so ordered.

The unanimous consent agreement reads as follows:

*Ordered,* That during the consideration of H.R. 7109, the NASA authorization bill, on Monday, June 28, 1971, time be equally divided and controlled by the Senator from Nevada (Mr. Cannon) and the Senator from Nebraska (Mr. Curtis), such time to run from the laying down of the bill until 6 p.m. on June 28, 1971. *Provided,* That debate on amendments to the bill be limited to 1 hour to be equally divided and controlled by the mover of the amendment and the manager of the bill (Mr. Cannon), with the exception of two amendments, Nos. 233 by the Senator from Minnesota (Mr. Mondale) and No. 223 by the Senator from New York (Mr. Javits). *Provided,* That debate on the Mondale amendment shall be limited to 2 hours to be equally divided and controlled by the Senator from Nevada (Mr. Cannon) and the Senator from Minnesota (Mr. Mondale), 1 hour to come from the time allotted on the bill and 1 hour to come on Tuesday, June 29, 1971. *Provided further,* That debate on the Javits amendment shall be limited to 30 minutes to be equally divided and controlled by the Senator from New York (Mr. Javits) and the Senator from Nevada (Mr. Cannon), such time to come on Tuesday, June 29, 1971. *Provided further,* That debate on all amendments to amendments be limited to 30 minutes to be equally divided and controlled between the mover of the amendment and the manager of the bill (Mr. Cannon), with the time on all amendments to come from the time allotted to the bill on Monday, June 28, 1971.

*Ordered further,* That during the consideration of the continuing resolution on appropriations for 1972 (H.J. Res. 742), on Tuesday, June 29, 1971, time for debate thereon shall be 4 hours to be equally divided and controlled by the Senator from Louisiana (Mr. Ellender) and the Senator from North Dakota (Mr. Young). *Provided, however,* That debate on any amendment to the resolution shall be limited to 1 hour to be equally divided and controlled by the mover of the amendment and the manager of the resolution (Mr. Ellender) and time for debate on amendments to amendments be limited to 30 minutes to be equally divided and controlled by the mover of the amendment in the second degree and the manager of the resolution. But, time for debate on all amendments shall come out of the 4 hours. *Provided further,* That the Senators in control of the time on the resolution may allot time therefrom to any Senator on any amendment, motion, or appeal with the exception of a motion to lay on the table.

*Ordered further,* That on Tuesday, June 29, 1971, after the leaders have been recognized the Chair will lay before the Senate H.J. Res. 742. Following the 4 hour debate no vote will occur and the Chair will lay before the Senate amendment No. 233 to H.R. 7109. At the close of 1 hour of debate on amendment No. 233, the Senate will proceed to vote on an amendment to H.J. Res. 742 to be offered by the Senators from Wisconsin and Maryland (Messrs. Proxmire and Mathias), relative to setting a ceiling on defense spending, after which a vote will then occur on the first committee amendment to H.J. Res. 742. After disposing of the committee amendments, the Senate will then proceed to vote on final passage of H.J. Res. 742. After this vote, the Senate will then proceed to vote on amendment No. 233 to H.R. 7109, after which the Senate will proceed to consider amendment No. 223 to H.R. 7109.

### QUORUM CALL

Mr. BYRD of West Virginia. Mr. President, I suggest the absence of a quorum.

The PRESIDING OFFICER. The clerk will call the roll.

The second assistant legislative clerk proceeded to call the roll.

Mr. BYRD of West Virginia. Mr. President, I ask unanimous consent that the order for the quorum call be rescinded.

The PRESIDING OFFICER. Without objection, it is so ordered.

### PROGRAM

Mr. BYRD of West Virginia. Mr. President, the program for tomorrow is as follows: The Senate will convene at 9 a.m. tomorrow following a recess. There will be no period for the transaction of routine morning business.

Following the recognition of the two leaders under the standing order, the Senate will proceed to consider the joint resolution making continuing appropriations beyond the fiscal year. The time thereon will be limited to 4 hours. The time on any amendments thereto will be limited to 1 hour, with the exception of amendments to amendments, in connection with which there will be a time limitation of 30 minutes. The time on any amendment will be charged against the time on the continuing resolution. Votes on amendments could occur during the 4-hour period.

At the conclusion of the 4 hours—which will be at approximately 1 p.m.—the Senate will proceed to the consideration of the Mondale amendment, amendment No. 233, to H.R. 7109, the NASA authorization bill, the continuing resolution being temporarily set aside.

At the close of the 1 hour on the Mondale amendment—amendment No. 233—it will be temporarily set aside, and a vote will immediately occur on the Proxmire-Mathias amendment—which will have been debated earlier—to the joint resolution making continuing appropriations beyond the fiscal year. This will undoubtedly be a rollcall vote.

Upon the disposition of the Proxmire-Mathias amendment, a vote will occur on the first committee amendment—which will have been debated earlier—to the joint resolution making continuing appropriations. The first committee amendment is with reference to Cuban refugees and efforts will be made to prevent its adoption. This will undoubtedly be a rollcall vote.

Following the vote on the first committee amendment, the Senate will proceed to vote on House Joint Resolution 742, the resolution making continuing appropriations.

Upon the disposition of the continuing resolution, a vote will then occur on the Mondale amendment No. 233—debated earlier—to the NASA authorization bill. This will probably be a rollcall vote.

Upon the disposition of Mondale amendment No. 233, the Senate will then proceed to the consideration of the amendment by Mr. JAVITS, amendment No. 223, on which there is a limitation of time, 30 minutes.

Upon the disposition of the Javits amendment No. 223 to the NASA authorization bill, a vote will occur on the bill itself. This may also be a rollcall vote.

After the NASA authorization bill is disposed of, the majority leader hopes to take up the Treasury, Post Office appropriation bill. Undoubtedly, a rollcall vote would occur thereon.

Conference reports may also be called up during the day.

Mr. President, as has been stated, several votes have been scheduled for tomorrow. Undoubtedly, all or most of the votes will be rollcall votes, and Senators are, therefore, on notice.

### RECESS UNTIL 9 A.M.

Mr. BYRD of West Virginia. Mr. President, if there be no further business to come before the Senate, I move, in accordance with the previous order, that the Senate stand in recess until 9 a.m. tomorrow.

The motion was agreed to; and (at 4 o'clock and 20 minutes p.m.) the Senate took a recess until tomorrow, Tuesday, June 29, 1971, at 9 a.m.

### NOMINATIONS

Executive nominations received by the Senate June 28, 1971:

BOARD OF PAROLE

Maurice H. Sigler, of Nebraska, to be a member of the Board of Parole for the term expiring September 30, 1972, vice Walter Dunbar, resigned.

William T. Woodard, Jr., of North Carolina, to be a member of the Board of Parole for the term expiring September 30, 1977. (Mr. Woodard is now serving in this position under an appointment which expires September 30, 1971.)

Gerald E. Murch, of Maine, to be a member of the Board of Parole for the term expiring September 30, 1977. (Mr. Murch is now serving in this position under an appointment which expires September 30, 1971.)

U.S. ARMY

The following-named officer for appointment as Chief, National Guard Bureau, under the provisions of title 10, United States Code, section 3015:

Maj. Gen. Francis Stevens Greenlief, xxx-... xxxx Army of the United States (major general, Army National Guard of the United States).

### CONFIRMATIONS

Executive nominations confirmed by the Senate June 28, 1971:

DEPARTMENT OF JUSTICE

James R. Laffoon, of California, to be U.S. marshal for the southern district of California for the term of 4 years.

U.S. PATENT OFFICE

John Stevens Lieb, of Wisconsin, to be an examiner in chief, U.S. Patent Office.

# HOUSE OF REPRESENTATIVES—*Monday, June 28, 1971*

The House met at 12 o'clock noon.

The Chaplain, Rev. Edward G. Latch, D.D., offered the following prayer:

*Let him who is great among you be the least and he who is a leader be like one who serves.*—Luke 22: 26.

Almighty God, creator of the world, sustainer of life, and the Father of all men, make Thy ways known to us as we turn to Thee in prayer seeking the leading of Thy spirit for this day. May we be so guided and governed by Thee that we may walk in the way of truth, live the life of love, and be loyal to the royal within us.

Bless all those who give themselves in service to their fellow men. May they have clear vision to see what is wrong in our social order, creative courage to change what can be changed, and confident faith to continue their work until the wrong disappears, the right appears, and the needs of people are met.

Make us sensitive of our union with one another as Thy children and keep us striving to do all things in accordance with Thy will.

In the spirit of Him who served all His life we pray. Amen.

### THE JOURNAL

The SPEAKER. The Chair has examined the Journal of the last day's proceedings and announces to the House his approval thereof.

Without objection, the Journal stands approved.

There was no objection.

### MESSAGE FROM THE SENATE

A message from the Senate, by Mr. Arrington, one of its clerks, announced that the Senate had passed with amendments in which the concurrence of the House is requested, a bill of the House of the following title:

H.R. 6531. An act to amend the Military Selective Service Act of 1967; to increase military pay; to authorize military active duty strengths for fiscal year 1972; and for other purposes.

The message also announced that the Senate insists upon its amendments to the bill (H.R. 6531) entitled "An act to amend the Military Selective Service Act of 1967; to increase military pay; to authorize military active duty strengths for fiscal year 1972; and for other purposes," requests a conference with the House on the disagreeing votes of the two Houses thereon, and appoints Mr. STENNIS, Mr. SYMINGTON, Mr. JACKSON, Mr. MCINTYRE, Mr. BYRD of Virginia, Mrs. SMITH, Mr. THURMOND, Mr. TOWER, and Mr. DOMINICK to be the conferees on the part of the Senate.

The message also announced that the Senate agrees to the report of the committee of conference on the disagreeing votes of the two Houses on the amendments of the Senate to the bill (H.R.