berg and John Glenn, individualists who will function as cogs in a vast human machine.

Lindberg, Glenn, now in all probability Armstrong, these three will stand as the supreme American heroes of the age. All three happen to have been boys in small, midwestern towns. Perhaps there is something in the mystique, the folk image, of the small American town and its formative influences. They have security, they have leisure to prowl and to dream. Innocence existed; sophisticated tensions did not press upon them. Intellectuals of literary bent seem disappointed that their speech does not match the eloquence of their feat. But it is the silent artists, like Armstrong, Aldrin and Collins, the men who see beauty in the machinery and its functions, who do the thing.

Artists they are, because they are perfectionists seeking the outer limits of their strength and their talents. Were they men of words, were their minds occupied with poetic imagery or philosophical abstractions as they fly, they would surely fail.

They are the men of Apollo 11 by the luck of the draw, but Armstrong will put the first foot down upon the moon by somebody's deliberate decision. And it is a logical suspicion that he is the chosen one not only by reason of his undoubted competence and civilian status, but also by reason of his personality and appearance.

If the mission succeeds, this man will become the symbolic American to the world. He fits the stereotype, the folk image of the all-American boy, the kid next door. He has all his hair, he has frank blue eyes, his smile is a slightly shy half-grin. And he has the inner strength to bear his country's pride to the rest of the world, strength he will need, not only for his country but for himself and for his family. His life and theirs will never be the same again.

NARCOTICS AND DANGEROUS DRUGS

HON. JOHN V. TUNNEY

OF CALIFORNIA

IN THE HOUSE OF REPRESENTATIVES

Thursday, July 31, 1969

Mr. TUNNEY. Mr. Speaker, for the last several months I have viewed with growing alarm the lack of effective action being taken to stem the flow of narcotics and dangerous drugs being smuggled into the United States from Mexico.

By June, when no signs of improvement were visible on the horizon, I undertook my own factfinding tour of the border at San Ysidro, Calif. What I saw there in a few short hours convinced me of the need for a congressional hearing to obtain additional evidence upon which to base effective legislation.

At my initiation, four California colleagues joined me in conducting such a hearing in San Diego just 3 weeks ago. Not altogether surprisingly, the testimony we obtained confirmed our worst fears.

Drug smuggling is rapidly becoming a major scandal of national proportions. Despite the best efforts of a sadly undermanned Customs staff, narcotics, and dangerous drugs are flowing across the border in increasing quantity like sand through a sieve.

Arrests at the border for attempted smuggling—which border officials readily admit only skims the surface—have increased 14 times since 1960. More than 35 tons of marihuana were seized last year—an increase of over 20 percent just in the past 6 years. Some five million five-grain units of amphetmaines and barbiturates were seized in 1968 alone.

Inspectors are forced to cope with a crushing volume of people crossing the border daily. Yet, the number of inspectors and border station operations have remained basically unchanged for the last 5 years. As a result, only 1 percent of the vehicles entering the United States are ever searched, and the decision to conduct a search often must be made on little more than an inspector's intuition.

In the past few weeks, Mr. Speaker, I have introduced two specific bills to strike directly at the core of this illegal drug traffic. One bill would increase by 50 percent the number of border inspectors in California, where most of the smuggling is concentrated. The other bill directs the responsible Federal agencies to investigate the means by which to cut off the flow of dangerous drugs manufactured in this country and smuggled back and forth into Mexico and the United States.

Today, I am introducing a third bill to ultimately arm the border inspector with more than his intuition as a weapon against the smugglers. This new bill directs the Secretary of the Treasury to embark on the research and development of modern devices and techniques to detect concealed narcotics and dangerous drugs.

I was astounded to learn at our San Diego hearing, Mr. Speaker, that the Bureau of Customs presently conducts not one bit of research and development to improve its surveillance techniques and equipment. The sum total of its efforts revolves around checking a few devices of amateur inventors—reviewing military research to find new gadgets that could be converted—or waiting to see what is produced on the commercial market that might be adaptable.

In view of the smuggling problem, this paucity of ongoing research and development is downright ludicrous. The executive branch spends billions on military research and development projects. Yet, the Customs agency—whose surveillance of goods crossing our borders was among the first authorizations of Congress clear back to 1789—conducts no research and development toward winning its war on drug smuggling.

Our Federal agents are being overwhelmed at the border by the increasing volume of vehicular and pedestrian traffic. Though more manpower is urgently needed now to catch up with the present crisis, the time will come in the not too distant future when increased workloads cannot be met simply by adding more and more people in the absence of concerted efforts to use personnel more wisely.

The agents, themselves, literally plead for new techniques and new devices to perform their jobs more effectively and efficiently. It is high time we gave them something more than horse-and-buggy tactics. Reliance upon intuition provides a thin line of defense. We have got to bring our modern technology into the battle.

I urge all my colleagues to join me in supporting this legislation. The time for action is now; prolonging the procrastination will perpetuate the smuggling.

HOUSE OF REPRESENTATIVES—*Friday, August 1, 1969*

The House met at 12 o'clock noon.

The Chaplain, Rev. Edward G. Latch, D.D., offered the following prayer:

Where two or three are gathered together in My name, there am I in the midst of them.—Matthew 18: 20.

O God and Father of us all, at this noontide hour we pray that Thou wilt touch our spirits and transform our souls by Thy grace that we may have strength for the day, courage with each hour, and peace in every moment.

Kindle within us the fire of Thy spirit and warm our hearts with the power of Thy presence that in the time of trouble we may be equal to every experience, ready for every responsibility, and adequate for every task.

Grant that we may see Thy way more clearly and be given wisdom to work with Thee in making the world a better place in which Thy children can live together in abundant happiness, in abounding harmony, and in abiding hope.

In the Master's name, we pray. Amen.

THE JOURNAL

The Journal of the proceedings of yesterday was read and approved.

MESSAGE FROM THE SENATE

A message from the Senate by Mr. Arrington, one of its clerks, announced that the Senate agrees to the amendment of the House to a joint resolution of the Senate of the following title:

S.J. Res. 85. Joint resolution to provide for the designation of the period from August 26, 1969, through September 1, 1969, as "National Archery Week."

PROVIDING FOR AGREEING TO THE SENATE AMENDMENTS TO H.R. 9951

Mr. COLMER, from the Committee on Rules, reported the following privileged resolution (H. Res. 509) (Rept. No. 91–412), which was referred to the House Calendar and ordered to be printed:

H. RES. 509

Resolved, That immediately upon the adoption of this resolution the bill (H.R.

9951) to provide for the collection of the Federal unemployment tax in quarterly installments during each taxable year; to make status of employer depend on employment during preceding as well as current taxable year; to exclude from the computation of the excess the balance in the employment security administration account as of the close of fiscal years 1970 through 1972; to raise the limitation on the amount authorized to be made available for expenditure out of the employment security administration account by the amounts so excluded; and for other purposes, with the Senate amendment thereto, be, and the same hereby is, taken from the Speaker's table, to the end that the Senate amendment be, and the same is hereby agreed to.

THE TAX REFORM ACT OF 1969

Mr. MILLS. Mr. Speaker, I ask unanimous consent that the text of H.R. 13270, the Tax Reform Act of 1969, be printed in the body of the RECORD.

The SPEAKER. Is there objection to the request of the gentleman from Arkansas?

Mr. GROSS. Mr. Speaker, reserving the right to object, I wish the gentleman would state for my benefit, as well as the benefit of other Members of the House, the procedure that is to be followed in the consideration of the tax matter; whether continuance of the surtax is to be treated as a separate matter, with a separate vote on the tax reform bill. I am at some loss to understand clearly the procedure.

Mr. MILLS. If the majority leader will bear with me, it is my understanding that this resolution from the Rules Committee just filed by the chairman will be considered by the House on Monday next—August 4.

That is, the Senate amendment involving the 10-percent surcharge which will be considered on Monday, August 4.

Then I have asked permission of the chairman of the Rules Committee to appear before the Rules Committee along with the gentleman from Wisconsin (Mr. BYRNES) in behalf of the rule on the tax reform bill on Tuesday of next week—August 5. And if that is done, and if our request for a rule is granted, it is my understanding also from the majority leader that the bill will be scheduled for consideration on Wednesday and Thursday—August 6 and 7. It will take 2 days, I am sure, of debate, but it will be my expectation and intention that we would vote on the bill before adjournment on Thursday, August 7.

Mr. ALBERT. Mr. Speaker, will the gentleman yield?

Mr. GROSS. I am glad to yield to the majority leader.

Mr. ALBERT. Mr. Speaker, I know the gentleman will agree with me that the distinguished chairman of the Ways and Means Committee is performing a service for the House in getting this matter ready for Members at an early stage, and I am sure the gentleman deserves commendation.

Mr. GROSS. Although I do not support the surtax, it is also a service to the Nation as well as Members of the House, I am sure the gentleman would agree, to reach a decision in this matter.

That does mean that we will have a separate vote on continuation of the surtax?

Mr. MILLS. Mr. Speaker, if the gentleman will yield further, I want to make it eminently clear to my friend, the gentleman from Iowa, that the 10-percent surtax that the Senate voted for 6 months is to be considered on Monday. That is for 6 months.

There is contained in the reform bill everything else that was in the bill that passed the House on June 30—the 5-percent surtax for the last 6 months, the repeal of the 7-percent investment tax credit, the extension of the excise taxes, and all the other matters that were in that bill. We want them in this bill in order that the Senate cannot prevent us from having a conference on those matters by not taking action on the remainder of the bill that we passed on June 30.

Mr. GROSS. Mr. Speaker, I thank the gentleman for his explanation.

Mr. Speaker, I withdraw my reservation of objection.

The SPEAKER. Is there objection to the request of the gentleman from Arkansas?

Mr. COLMER. Mr. Speaker, further reserving the right to object, if I may, I would like to commend the able and distinguished gentleman from Arkansas, the chairman of the Ways and Means Committee, for the objective sought here, and the parliamentary situation which he proposes to follow, so that we do not permit the other body to further erode the powers of this body by writing legislation on revenue matters, which is specifically reserved to this, the populous representative body of the Congress, as elected by the people.

At the same time, Mr. Speaker, I am going to want to talk with my friend, the gentleman from Arkansas, a little later on, privately about the procedure on this rule that involves so many things under this so-called reform bill. It is a very far-reaching matter, and it is something that the Members should have knowledge of before they are called upon to vote. I want to follow that up with my friend later.

Mr. Speaker, I withdraw my reservation of objection.

The SPEAKER. Is there objection to the request of the gentleman from Arkansas?

There was no objection.

H.R. 13270

A bill to reform the income tax laws

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE, ETC.

(a) SHORT TITLE.—This Act may be cited as the "Tax Reform Act of 1969".

(b) TABLE OF CONTENTS.—

(c) AMENDMENT OF 1954 CODE.—Except as otherwise expressly provided, whenever in this Act an amendment or repeal is expressed in terms of an amendment to, or repeal of, a section or other provision, the reference shall be considered to be made to a section or other provision of the Internal Revenue Code of 1954.

TITLE I—TAX EXEMPT ORGANIZATIONS

SUBTITLE A—PRIVATE FOUNDATIONS

SEC. 101. PRIVATE FOUNDATIONS

(a) IN GENERAL.—Subchapter F of chapter 1 (relating to exempt organizations) is amended by redesignating parts II, III, and IV as parts II, IV, and V, respectively, and by inserting after part I the following new part:

"PART II—PRIVATE FOUNDATIONS

"SEC. 506. TAX ON PRIVATE FOUNDATION INVESTMENT INCOME.

"(a) IMPOSITION OF TAX.—There is hereby imposed for each taxable year on the net investment income of every private foundation (as defined in section 509) a tax equal to 7½ percent of such income.

"(b) NET INVESTMENT INCOME DEFINED.—

"(1) IN GENERAL.—For purposes of subsection (a), the net investment income is the amount by which (A) the gross investment income and the net capital gain, exceed (B) the deductions allowed by paragraph (3) and the net capital loss.

"(2) GROSS INVESTMENT INCOME.—For purposes of paragraph (1), the term 'gross investment income' means the gross amount of income from interest, dividends, rents, and royalties, but not including any such income to the extent included in computing the tax imposed by section 511.

"(3) DEDUCTIONS.—For purposes of paragraph (1), there shall be allowed as a deduction all the ordinary and necessary expenses paid or incurred for the production or collection of gross investment income or for the management, conservation, or maintenance of property held for the production of such income.

"(4) CAPITAL GAINS AND LOSSES.—For purposes of paragraph (1), in determining net capital gain or loss—

"(A) The basis of property held by the private foundation on December 31, 1969, and continuously thereafter to the date of its disposition shall be deemed to be not less than the fair market value of such property on December 31, 1969.

"(B) There shall be taken into account only the sale or other disposition of property used for the production of interest, dividends, rents, and royalties, and property used for the production of income included in computing the tax imposed by section 511 (except to the extent gain or loss from the sale or other disposition of such property is taken into account for purposes of such tax).

"SEC. 507. TAX ON TERMINATION OF PRIVATE FOUNDATION STATUS.

"(a) GENERAL RULE.—There is hereby imposed on each organization which is referred to in subsection (d) or (e) of section 508 a tax equal to the lower of—

"(1) the amount which the private foundation substantiates by adequate records or other corroborating evidence as the aggregate tax benefit resulting from the section 501(c)(3) status of such foundation, or

"(2) the value of the net assets of such foundation.

"(b) AGGREGATE TAX BENEFIT.—

"(1) IN GENERAL.—For purposes of subsection (a), the aggregate tax benefit resulting from the section 501(c)(3) status of any private foundation is the sum of—

"(A) the aggregate increases in tax under chapters 1, 11, and 12 (or the corresponding provisions of prior law) which would have been imposed with respect to all substantial contributors to the foundation if deductions for all contributions made by such contributors to the foundation after February 28, 1913, had been disallowed, and

"(B) the aggregate increases in tax under chapter 1 (or the corresponding provisions of prior law) which would have been imposed with respect to the income of the private foundation for taxable years beginning after December 31, 1912, if (i) it had not been exempt from tax under section 501(a) (or the corresponding provisions of prior law), and (ii) in the case of a trust, deductions under section 642 (c) (or the corresponding provisions of prior law) had been limited to 20 percent of the taxable income of the trust (computed without the benefit of section 642 (c) but with the benefit of section 170(b)(1)(B)), and

"(C) interest on the increases in tax determined under subparagraphs (A) and (B) from the first date on which each such increase would have been due and payable to the date on which the private foundation ceases to be a section 501(c)(3) organization.

"(2) SUBSTANTIAL CONTRIBUTOR.—For purposes of paragraph (1), the term 'substantial contributor' means—

"(A) any person who (by himself or with his spouse) contributed more than $5,000 to the private foundation in any one calendar year (or bequeathed more than $5,000 to the private foundation), and

"(B) any person who (by himself or with his spouse) contributed or bequeathed the greatest amount to the foundation in any one calendar year.

In the case of a trust, such term also includes the creator of such trust.

"(3) REGULATIONS.—For purposes of this section, the determination as to whether and to what extent there would have been any increase in tax shall be made in accordance with regulations prescribed by the Secretary or his delegate.

"(c) VALUE OF ASSETS.—For purposes of subsection (a), the value of the net assets shall be determined at whichever time such value is higher: (1) the first day on which action is taken by the private foundation which culminates in its ceasing to be a section 501(c)(3) organization, or (2) the day on which it ceases to be a section 501(c)(3) organization.

"(d) LIABILITY IN CASE OF TRANSFERS OF ASSETS FROM PRIVATE FOUNDATION.—For purposes of determining liability for the tax imposed by subsection (a) in the case of assets transferred by the private foundation such tax shall be deemed to have been imposed on the first day on which action is taken by the private foundation which culminates in its ceasing to be a section 501(c)(3) organization.

"(e) ABATEMENT OF TAXES.—The Secretary or his delegate may abate the unpaid portion of the assessment of any tax imposed by subsection (a), or any liability in respect thereof, if the private foundation—

"(1) has operated as a section 501(c)(3) organization which meets the requirements of paragraph (1), (2), or (3) of section 509 (a) for a continuous period of at least 60 calendar months beginning after December 31, 1969, or

"(2) distributes all of its net assets to one or more organizations specified in section 170(b)(1)(B) each of which has been in existence and met the requirements of section 170(b)(1)(B) for a continuous period of at least 60 calendar months.

"(f) DISALLOWANCE OF CERTAIN CHARITABLE, ETC., DEDUCTIONS.—

"(1) GIFT OR BEQUEST TO PRIVATE FOUNDATION OR SECTION 4947 TRUST.—No gift or bequest made to an organization described in section 509(a) or a trust described in section 4947(a), which is liable for the tax imposed by subsection (a) or section 4947(b)(1), shall be allowed as a deduction under section 170, 545(b)(2), 642(c), 2055, 2106(a)(2), or 2522, if such gift or bequest is made—

"(A) by any person after notification is made under subsection (d) or (e) of section 508 or under section 4947(b)(1), or

"(B) by a substantial contributor (as defined in subsection (b)(2)) in his taxable year which includes the first day on which action is taken by such organization or trust which culminates in the imposition of tax under subsection (a) or section 4047(b)(1) and any subsequent taxable year.

"(2) EXCEPTION.—Paragraph (1) shall not apply if the tax imposed by subsection (a) or section 4947(b)(1) is abated by the Secretary or his delegate under subsection (e) or section 4947(b)(5).

"SEC. 508. SPECIAL RULES WITH RESPECT TO SECTION 501(c)(3) ORGANIZATIONS.

"(a) NEW ORGANIZATIONS MUST NOTIFY SECRETARY THAT THEY ARE APPLYING FOR RECOGNITION OF SECTION 501(c)(3) STATUS.—An organization organized after May 26, 1969, shall not be treated as an organization described in section 501(c)(3) which is exempt from taxation under section 501(a) unless it has notified the Secretary or his delegate, at such time and in such manner as the Secretary or his delegate may by regulations prescribe, that it is applying for recognition of such status.

"(b) PRESUMPTION THAT ORGANIZATIONS ARE PRIVATE FOUNDATIONS.—Any organization (including an organization in existence on May 26, 1969) which is described in section 501(c)(3) and which does not notify the Secretary or his delegate, at such time and in such manner as the Secretary or his delegate may by regulations prescribe, that it is not a private foundation shall be presumed to be a private foundation.

"(c) EXCEPTIONS.—The Secretary or his delegate may by regulations exempt (to the extent and subject to such conditions as may be prescribed in such regulations) from the provisions of subsection (a) or (b) or both—

"(1) churches (or conventions or associations of churches);

"(2) educational organizations which normally maintain a regular faculty and curriculum and normally have a regularly enrolled body of pupils or students in attendance at the place where their educational activities are regularly carried on; and

"(3) any other class of organizations where the Secretary or his delegate determines that full compliance with the provisions of subsections (a) and (b) is not necessary to the efficient administration of the provisions of this title relating to private foundations.

"(d) VOLUNTARY TERMINATION OF STATUS AS PRIVATE FOUNDATION.—Any private foundation may terminate its status as such by notifying the Secretary or his delegate (at such time and in such manner as the Secretary or his delegate may by regulations prescribe) of its plan to accomplish such termination and by complying with subsection (a) or (e) of section 507 (relating to tax on termination of private foundation status).

"(e) REQUIREMENT OF TERMINATION.—If—

"(1) the Secretary or his delegate notifies any organization that he is invoking this subsection with respect to such organization, and

"(2) with respect to such organization, there have been either willful repeated acts (or failures to act), or a willful and flagrant act (or failure to act), giving rise to liability for tax under chapter 42,

then such organization shall be liable for the tax imposed by section 507. In the case of any organization which has complied with subsection (a) or (e) of section 507, the status of such organization as a private foundation shall be terminated.

"(f) FUTURE STATUS OF ORGANIZATION.—In the case of any organization which has complied with subsection (a) or (e) of section 507 by reason of subsection (d) or (e) of this section, for purposes of the provisions of this title relating to private foundations for all periods beginning after it has completed compliance with section 507 such organization shall be treated as a newly created organization.

"(g) GOVERNING INSTRUMENTS.—

"(1) GENERAL RULE.—A private foundation shall not be treated as an organization described in section 501(c)(3) which is exempt from taxation under section 501(a) unless its governing instrument includes provisions the effects of which are—

"(A) to require its income for each taxable year to be distributed at such time and in such manner as not to subject the foundation to tax under section 4942, and

"(B) to prohibit the foundation from engaging in any act of self-dealing (as defined in section 4941(d)), from retaining any excess business holdings (as defined in section 4943(c)), from making any speculative investments in such manner as to subject the foundation to tax under section 4944, and from making any taxable expenditures (as defined in section 4945(b)).

"(2) SPECIAL RULES FOR EXISTING FOUNDATIONS.—In the case of any organization organized before January 1, 1970—

"(A) it shall not cease to be treated as an organization described in section 501(c)(3) because of a failure to comply with paragraph (1), and

"(B) paragraph (1) shall apply only to taxable years beginning after December 31, 1971; except that if it is impossible to reform the governing instrument (by amendment, judicial proceeding, or otherwise) by December 31, 1971, to meet the requirements of paragraph (1), paragraph (1) shall not apply until it is possible to meet such requirements.

"SEC. 509. PRIVATE FOUNDATION DEFINED.

"(a) GENERAL RULE.—For purposes of this title, the term 'private foundation' means an organization described in section 501(c)(3) other than—

"(1) an organization described in section 170(b)(1)(B);

"(2) an organization which—

"(A) normally receives more than one-third of its support in each taxable year from any combination of—

"(i) gifts, grants, contributions, or membership fees, or

"(ii) gross receipts from admissions, sales of merchandise, performance of services, or furnishing of facilities, in an activity which is not an unrelated trade or business (within the meaning of section 513), not including such receipts from any person in any taxable year which are in excess of 1 percent of the organization's support in such taxable year, from any person other than a disqualified person (as defined in section 4946) with respect to the organization, or from any organization described in section 170(b)(1)(B), and

"(B) normally receives not more than one-third of its support in each taxable year from gross investment income (as defined in section 506(b)(2));

"(3) an organization which—

"(A) is organized, and at all times thereafter is operated, exclusively for the benefit of, to perform the functions of, or to carry out the purposes of one or more organizations described in paragraph (1) or (2),

"(B) is operated, supervised, or controlled by one or more organizations, or in connection with one organization, described in paragraph (1) or (2), and

"(C) is not controlled directly or indirectly by one or more disqualified persons (as defined in section 4946) other than foundation managers and other than one or more organizations described in paragraph (1) or (2); and

"(4) an organization which is organized and operated exclusively for testing for public safety.

"(b) CONTINUATION OF PRIVATE FOUNDATION STATUS.—If an organization is a private foundation (within the meaning of subsection (a)) for its last taxable year ending before May 27, 1969, such organization shall, for purposes of this title, be treated as a private foundation for each succeeding taxable year unless its status as such is terminated under section 508."

(b) AMENDMENT OF SUBTITLE D.—Subtitle D (relating to miscellaneous excise taxes) is amended by adding at the end thereof the following new chapter:

"CHAPTER 42.—PRIVATE FOUNDATION

"SEC. 4941. TAXES ON SELF-DEALING.

"(a) INITIAL TAXES.—

"(1) ON SELF-DEALER.—There is hereby imposed a tax on each act of self-dealing between a disqualified person and a private foundation. The rate of tax shall be equal to 5 percent of the amount involved with respect to the act of self-dealing for each year (or part thereof) in the taxable period. The tax imposed by this paragraph shall be paid by any disqualified person who participates in the act of self-dealing. In the case of a government official (as defined in section 4946(c)), a tax shall be imposed by this paragraph only if such disqualified person participates in the act of self-dealing knowing that it is such an act.

"(2) ON FOUNDATION MANAGER.—In any case in which a tax is imposed by paragraph (1), there is hereby imposed on the participation of any foundation manager in an act of self-dealing between a disqualified person and a private foundation, knowing that it is such an act, a tax equal to 2½ percent of the amount involved with respect to the act of self-dealing for each year (or part thereof) in the taxable period. The tax imposed by this paragraph shall be paid by any foundation manager who participated in the act of self-dealing.

"(b) ADDITIONAL TAXES.—

"(1) ON SELF-DEALER.—In any case in which an initial tax is imposed by subsection (a)(1) on an act of self-dealing by a disqualified person with a private foundation and the act is not corrected within the correction period, there is hereby imposed a tax equal to 200 percent of the amount involved. The tax imposed by this paragraph shall be paid by any disqualified person who participated in the act of self-dealing.

"(2) ON FOUNDATION MANAGER.—In any case in which an additional tax is imposed by paragraph (1), if a foundation manager refused to agree to any part of the correction, there is hereby imposed a tax equal to 50 percent of the amount involved. The tax imposed by this paragraph shall be paid by any foundation manager who refused to agree to part or all of the correction.

"(c) SPECIAL RULES.—For purposes of subsections (a) and (b)—

"(1) JOINT AND SEVERAL LIABILITY.—If more than one person is liable under any paragraph of subsection (a) or (b) with respect to one act of self-dealing, all such persons shall be jointly and severally liable under such paragraph with respect to such act.

"(2) $10,000 LIMIT FOR MANAGEMENT.—With respect to any one act of self-dealing, the maximum amount of the tax imposed by subsection (a)(2) shall not exceed $10,000, and the maximum amount of the tax imposed by subsection (b)(2) shall not exceed $10,000.

"(d) SELF-DEALING.—

"(1) IN GENERAL.—For purposes of this section, the term 'self-dealing' means any direct or indirect—

"(A) sale or exchange, or leasing, of property between a private foundation and a disqualified person;

"(B) lending of money or other extension of credit between a private foundation and a disqualified person;

"(C) furnishing of goods, services, or facilities between a private foundation and a disqualified person;

"(D) payment of compensation (or payment or reimbursement of expenses) by the private foundation to a disqualified person;

"(E) transfer to, or use by, a disqualified person of the income or assets of the private foundation; and

"(F) agreement by the private foundation to make any payment of money or other property to a government official (as defined in section 4946(c)), other than an agreement to employ such individual for any period after the termination of his government service if such individual is terminating his government service within a 90-day period.

"(2) SPECIAL RULES.—For purposes of paragraph (1)—

"(A) the transfer of real or personal property by a disqualified person to the private foundation shall be treated as a sale or exchange if the property is subject to a mortgage or similar lien which the foundation assumes or if it is subject to a mortgage or similar lien which a disqualified person placed on the property within the 10-year period ending on the date of the transfer;

"(B) the lending of money by a disqualified person to a private foundation shall not be an act of self-dealing if the loan is without interest or other charge and if the proceeds of the loan are used exclusively for purposes specified in section 501(c)(3);

"(C) the furnishing of goods, services, or facilities by a disqualified person to a pri-

vate foundation shall not be an act of self-dealing if the furnishing is without charge and if the goods, services, or facilities so furnished are used exclusively for purposes specified in section 501(c)(3);

"(D) the furnishing of goods, services, or facilities by a private foundation to a disqualified person shall not be an act of self-dealing if such furnishing is made on a basis no more preferential than that on which such goods, services, or facilities are made available to the general public;

"(E) except in the case of a government official (as defined in section 4946(c)), the payment of compensation (and the payment or reimbursement of expenses) by a private foundation to a disqualified person for personal services which are reasonable and necessary to carrying out the exempt purpose of the private foundation shall not be an act of self-dealing if the compensation (or payment or reimbursement) is not excessive;

"(F) any transaction between a private foundation and a corporation which is a disqualified person (as defined in section 4946), pursuant to any liquidation, merger, redemption, recapitalization, or other corporate adjustment or reorganization, shall not be an act of self-dealing if all of the securities of the same class as that held by the foundation are subject to the same terms and such terms provide for receipt by the foundation of no less than fair market value; and

"(G) only in the case of a government official (as defined in section 4946(c)), paragraph (1) shall not apply to—

"(i) prizes and awards which are subject to the provisions of section 74(b), if the recipients of such prizes and awards are selected from the general public,

"(ii) scholarships and fellowship grants which are subject to the provisions of section 117(a) and are to be used for study at an educational institution described in section 170(b)(1)(B)(ii),

"(iii) any annuity or other payment (forming part of a stock-bonus pension, or profit-sharing plan) by a trust which is a qualified trust under section 401,

"(v) any annuity or other payment under a plan which meets the requirements of section 404(a)(2),

"(v) any contribution or gift (other than a contribution or gift of money) to, or services or facilities made available to, any such individual, if the aggregate value of such contributions, gifts, services, and facilities to, or made available to, such individual during any calendar year does not exceed $25.

"(vi) any payment made under chapter 32 of title 5, United States Code, or

"(vii) traveling expenses (including amounts expended for meals and lodging) for travel from any point in the United States to another point in the United States, not to exceed 125 percent of the maximum amounts authorized to be paid by the United States for like travel.

"(e) OTHER DEFINITIONS.—For purposes of this section—

"(1) TAXABLE PERIOD.—The term 'taxable period' means, with respect to any act of self-dealing, the period beginning with the date on which the act of self-dealing occurs and ending on whichever of the following is the earlier: (A) the date of mailing of a notice of deficiency with respect to the tax imposed by subsection (a)(1) under section 6212, or (B) the date on which correction of the act of self-dealing is completed.

"(2) AMOUNT INVOLVED.—The term 'amount involved' means, with respect to any act of self-dealing, the greater of the amount of money and the fair market value of the other property given or the amount of money and the fair market value of the other property received; except that, in the case of services described in subsection (d)(2)(E), the amount involved shall be only the excess compensation. For purposes of the preceding sentence, the fair market value—

"(A) in the case of the taxes imposed by subsection (a), shall be determined as of the date on which the act of self-dealing occurs; and

"(B) in the case of the taxes imposed by subsection (b), shall be the highest fair market value during the correction period.

"(3) CORRECTION.—The terms 'correction' and 'correct' mean, with respect to any act of self-dealing, undoing the transaction to the extent possible, but in any case placing the private foundation in a financial position not worse than that in which it would be if the disqualified person were dealing under the highest fiduciary standards.

"(4) CORRECTION PERIOD.—The term 'correction period' means, with respect to any act of self-dealing, the period beginning with the date on which the act of self-dealing occurs and ending 90 days after the date of mailing of a notice of deficiency with respect to the tax imposed by subsection (b)(1) under section 6212, extended by—

"(A) any period in which a deficiency cannot be assessed under section 6213(a), and

"(B) any other period which the Secretary or his delegate determines will be conducive to bringing about correction of the act of self-dealing.

"SEC. 4942. TAXES ON FAILURE TO DISTRIBUTE INCOME.

"(a) INITIAL TAX.—There is hereby imposed on the undistributed income of a private foundation for any taxable year, which has not been distributed before the first day of the second (or any succeeding) taxable year following such taxable year (if such first day falls within the taxable period), a tax equal to 15 percent of the amount of such income remaining undistributed at the beginning of such second (or succeeding) taxable year. This section shall not apply to a private foundation which is an operating foundation (as defined in subsection (j)(3)) for the taxable year.

"(b) ADDITIONAL TAX.—In any case in which an initial tax is imposed under subsection (a) on the undistributed income of a private foundation for any taxable year, if any portion of such income remains undistributed at the close of the correction period, there is hereby imposed a tax equal to 100 percent of the amount remaining undistributed at such time.

"(c) UNDISTRIBUTED INCOME.—For purpose of this section, the term 'undistributed income' means, with respect to any private foundation for any taxable year as of any time, the amount by which—

"(1) the distributable amount for such taxable year, exceeds

"(2) the qualifying distributions made before such time out of such distributable amount.

"(d) DISTRIBUTABLE AMOUNT.—For purpose of this section, the term 'distributable amount' means, with respect to any foundation for any taxable year, whichever of the following amounts is the higher: (1) the minimum investment return, or (2) the adjusted net income.

"(e) MINIMUM INVESTMENT RETURN.—

"(1) IN GENERAL.—For purposes of subsection (d), the minimum investment return for any private foundation for any taxable year is the amount determined by multiplying—

"(A) the aggregate fair market value of all assets of the foundation other than those being used (or held for use) directly in carrying out the foundation's exempt purpose reduced by acquisition indebtedness (as defined in section 514(c)(1)) with respect to such property, by

"(B) the applicable percentage for such year, as determined under paragraph (3).

"(2) VALUATION.—For purposes of paragraph (1)(A), the fair market value of securities for which market quotations are readily available shall be determined on a monthly basis. For all other assets, the fair market value shall be determined at such times and in such manner as the Secretary or his delegate shall by regulations prescribe.

"(3) APPLICABLE PERCENTAGE.—For purposes of paragraph (1)(B), the applicable percentage for taxable years beginning in 1970 is 5 percent. The applicable percentage for any taxable year beginning after 1970 shall be determined and proclaimed by the Secretary or his delegate and shall bear a relationship to 5 percent which the Secretary or his delegate determines to be comparable to the relationship which the money rates and investment yields for the calendar year immediately preceding the beginning of the taxable year bear to the money rates and investment yields for the calendar year 1969.

"(f) ADJUSTED NET INCOME.—

"(1) DEFINED.—For purposes of subsection (d), the term 'adjusted net income' means the excess (if any) of—

"(A) the gross income for the taxable year (determined with the modifications provided by paragraph (2)), over

"(B) the sum of—

"(i) the deductions (determined with the modifications provided by paragraph (3)) which would be allowed to a corporation subject to the tax imposed by section 11 for the taxable year, plus

"(ii) the amount of the tax imposed by section 511 for such year, plus

"(iii) the amount of the tax imposed by section 506 for such year.

"(2) INCOME MODIFICATIONS.—The modifications referred to in paragraph (1)(A) are as follows:

"(A) section 103 (relating to interest on certain governmental obligations) shall not apply, and

"(B) capital gains and losses from the sale or other disposition of property shall be taken into account only in an amount equal to any net short-term capital gain for the taxable year.

"(3) DEDUCTION MODIFICATIONS.—The modifications referred to in paragraph (1)(B)(i) are as follows:

"(A) no deduction shall be allowed other than all the ordinary and necessary expenses paid or incurred for the production or collection of gross income or for the management, conservation, or maintenance of property held for the production of such income, and

"(B) section 265 (relating to expenses and interest relating to tax-exempt interest) shall not apply.

"(4) TRANSITIONAL RULE.—For purposes of paragraph (2)(B), the basis of property held by the private foundation on December 31, 1969, and continuously thereafter to the date of its disposition shall be deemed to be not less than the fair market value of such property on December 31, 1969.

"(g) QUALIFYING DISTRIBUTIONS DEFINED.—

"(1) IN GENERAL.—For purposes of this section, the term 'qualifying distribution' means—

"(A) any amount paid out to accomplish one or more purposes described in section 170(c)(2)(B), other than any contribution to (i) an organization controlled (directly or indirectly) by one or more disqualified persons (as defined in section 4946) with respect to the foundation, (ii) a private foundation which is not an operating foundation (as defined in subsection (j)(3)), or (iii) an organization which would be a private foundation if it were a domestic organization, or

"(B) any amount paid out to acquire an asset used (or held for use) directly in carrying out one or more purposes described in section 170(c)(2)(B).

"(2) CERTAIN SET-ASIDES.—Subject to such terms and conditions as may be prescribed by the Secretary or his delegate, an amount set aside for a specific project which comes within one or more purposes described in section 170(c)(2)(B) may be treated as a quali-

fying distribution, but only if, at the time of the set-aside, the private foundation establishes to the satisfaction of the Secretary or his delegate that—

"(A) the amount will be paid out for the specific project within 5 years, and

"(B) the project is one which can be better accomplished by such set-aside than by immediate paying out of funds.

For good cause shown, the period for paying out the amount set aside may be extended by the Secretary or his delegate.

"(h) TREATMENT OF QUALIFYING DISTRIBUTIONS.—

"(1) IN GENERAL.—Except as provided in paragraph (2), any qualifying distribution made during a taxable year shall be treated as made—

"(A) first out of the undistributed income of the immediately preceding taxable year (if the private foundation was subject to the tax imposed by this section for such preceding taxable year) to the extent thereof.

"(B) second out of the undistributed income for the taxable year to the extent thereof, and

"(C) then out of corpus.

For purposes of this paragraph, distributions shall be taken into account in the order of time in which made.

"(2) CORRECTION OF DEFICIENT DISTRIBUTIONS FOR PRIOR TAXABLE YEARS, ETC.—In the case of any qualifying distribution which (under paragraph (1)) is not treated as made out of the undistributed income of the immediately preceding taxable year, the taxpayer may elect to treat any portion of such distribution as made out of the undistributed income of a designated prior taxable year or out of corpus. The election shall be made by the taxpayer at such time and in such manner as the Secretary or his delegate shall by regulations prescribe.

"(i) ADJUSTMENT OF DISTRIBUTABLE AMOUNT WHERE DISTRIBUTIONS DURING PRECEDING 5-YEAR PERIOD HAVE EXCEEDED INCOME.—If, for the 5 taxable years immediately preceding the taxable year—

"(1) the aggregate qualifying distributions treated (under subsection (h)) as made out of the undistributed income for such preceding taxable years or as made out of corpus (except to the extent section 170(e)(3)(B) applies) during such preceding taxable years, exceed

"(2) the distributable amounts for such preceding taxable years.

then, for purposes of this section (other than subsection (h)) the distributable amount for the taxable year shall be reduced by an amount equal to such excess.

"(j) OTHER DEFINITIONS.—For purposes of this section—

"(1) TAXABLE PERIOD.—The term 'taxable period' means, with respect to the undistributed income for any taxable year, the period beginning with the taxable year and ending on the date of mailing of a notice of deficiency with respect to the tax imposed by subsection (a) under section 6212.

"(2) CORRECTION PERIOD.—The term 'correction period' means, with respect to any foundation for any taxable year, the period beginning with the taxable year and ending 90 days after the date of mailing of a notice of deficiency (with respect to the tax imposed by subsection (b)) under section 6212, extended by—

"(A) any period in which a deficiency cannot be assessed under section 6213(a), and

"(B) any other period which the Secretary or his delegate determines is reasonable and necessary to permit a distribution of undistributed income under this section.

"(3) OPERATING FOUNDATION.—For purposes of this section, the term 'operating foundation' means any organization—

"(A) substantially all of the income of which is expended directly for the active conduct of the activities constituting the purpose or function for which it is organized and operated, and

"(B)(i) substantially more than half of the assets of which are devoted directly to such activities or devoted to functionally related activities described in section 4943(d)(4) or both, or

"(ii) substantially all of the support (other than gross investment income as defined in section 506(b)(2)) of which is normally received from 5 or more exempt organizations which are not described in section 4946(a)(1)(H) with respect to each other or the recipient foundation, or from the general public, and not more than 25 percent of the support of which is normally received from any one such exempt organization.

"SEC. 4943. TAXES ON EXCESS BUSINESS HOLDINGS

"(a) INITIAL TAX.—

"(1) IMPOSITION.—There is hereby imposed on the excess business holdings of any private foundation in a business enterprise during any calendar year which ends during the taxable period a tax equal to 5 percent of the value of such excess holdings.

"(2) SPECIAL RULES.—The tax imposed by paragraph (1)—

"(A) shall be imposed on the last day of the calendar year, but

"(B) with respect to the private foundation's holdings in any business enterprise, shall be determined as of that day during the year when the foundation's excess holdings in such enterprise were the greatest.

"(b) ADDITIONAL TAX.—In any case in which an initial tax is imposed under subsection (a) with respect to the holdings of a private foundation in any business enterprise, if, at the close of the correction period with respect to such holdings the foundation still has excess business holdings in such enterprise, there is hereby imposed a tax equal to 200 percent of such excess business holdings.

"(c) EXCESS BUSINESS HOLDINGS.—For purposes of this section—

"(1) IN GENERAL.—The term 'excess business holdings' means, with respect to the holdings of any private foundation in any business enterprise, the amount of stock or other interest in the enterprise which the foundation would have to dispose of to a person other than a disqualified person in order for the remaining holdings of the foundation in such enterprise to be permitted holdings.

"(2) PERMITTED HOLDINGS IN A CORPORATION.—

"(A) IN GENERAL. The permitted holdings of any private foundation in an incorporated business enterprise are—

"(i) 20 percent of the voting stock, reduced by

"(ii) the percentage of the voting stock owned by all disqualified persons.

In any case in which all disqualified persons together do not own more than 20 percent of the voting stock of an incorporated business enterprise, nonvoting stock held by the private foundation shall also be treated as permitted holdings.

"(B) 35 PERCENT RULE WHERE THIRD PERSON HAS EFFECTIVE CONTROL OF ENTERPRISE.—If—

"(i) the private foundation and all disqualified persons together do not own more than 35 percent of the voting stock of an incorporated business enterprise, and

"(ii) it is established to the satisfaction of the Secretary or his delegate that effective control of the corporation is in one or more persons who are not disqualified persons with respect to the foundation.

then subparagraph (A) shall be applied by substituting 35 percent for 20 percent.

"(C) 2 PERCENT DE MINIMIS RULE.—A private foundation shall not be treated as having excess business holdings in any corporation in which it (together with all other private foundations which are described in section 4946(a)(1)(H)) owns not more than 2 percent of the voting stock and not more than 2 percent in value of all outstanding shares of all classes of stock.

"(3) PERMITTED HOLDINGS IN PARTNERSHIPS, ETC.—The permitted holdings of a private foundation in any business enterprise which is not incorporated shall be determined under regulations prescribed by the Secretary or his delegate. Such regulations shall be consistent in principle with paragraph (2), except that—

"(A) in the case of a partnership or joint venture, 'profits interest' shall be substituted for 'voting stock', and 'capital interest' shall be substituted for 'nonvoting stock',

"(B) in the case of a proprietorship, there shall be no permitted holdings, and

"(C) in any other case, 'beneficial interest' shall be substituted for 'voting stock'.

"(4) 10-YEAR PERIOD TO DISPOSE OF PRESENT HOLDINGS.—

"(A) In applying this section, any interest in a business enterprise which a private foundation holds on May 26, 1969, if the private foundation on such date has excess business holdings, shall (while held by the foundation) be treated as held by a disqualified person (rather than by the private foundation) during the 10-year period beginning on such date.

"(B) Subparagraph (A) shall cease to apply with respect to such business holdings unless, at the close of the 2-year period beginning on May 26, 1969, the private foundation has disposed of at least one-tenth of such excess business holdings in such enterprise to a person other than a disqualified person. The preceding sentence shall not apply if—

"(i) such disposition would create severe hardship for the foundation or such business enterprise (including a severe depressive effect on the value of any interest in such enterprise), and

"(ii) it is established to the satisfaction of the Secretary or his delegate that, during the retention of such one-tenth interest, control of such interest will be exercised by persons other than the foundation, or disqualified persons (as defined in section 4946) with respect thereto, or a plan has been adpoted to assure that the value of any interest in such enterprise will not be jeopardized.

"(C) Subparagraph (A) shall cease to apply with respect to such business holdings unless, at the close of the 5-year period beginning on May 26, 1969—

"(i) the private foundation has disposed of at least one-third of such excess business holdings in such enterprise to a person other than a disqualified person, and

"(ii) the private foundation and all disqualified persons have less than a 50 percent voting stock interest (or less than a 50 percent profit interest in the case of any unincorporated enterprise) in such business enterprise.

"(D) Any period prescribed in subparagraph (A), (B), or (C) for the disposition of excess business holdings shall be suspended during the pendency of any judicial proceeding by the private foundation which is necessary to reform its governing instrument to allow disposition of such holdings.

"(5) 10-YEAR PERIOD TO DISPOSE OF HOLDINGS ACQUIRED BY WILL.—Paragraph (4) shall apply to any interest in a business enterprise which a private foundation acquires under the terms of a will executed on or before July 28, 1969, which are in effect on such date and at all times thereafter, except that 'the date of acquisition by will' shall be substituted for 'May 26, 1969' wherever it appears in paragraph (4).

"(6) 5-YEAR PERIOD TO DISPOSE OF GIFTS, BEQUESTS, ETC.—Except as provided in paragraph (5), if, after May 26, 1969, there is a change in the holdings in a business enterprise (other than by purchase by the private foundation or by a disqualified person) which causes the private foundation to have—

"(A) excess business holdings in such enterprise, the interest of the foundation in such enterprise (immediately after such change) shall (while held by the foundation be treated as held by a disqualified person (rather than by the foundation) during the 5-year period beginning on the date of such change in holdings; or

"(B) an increase in excess business holdings in such enterprise (determined without regard to subparagraph (A)), subparagraph (A) shall apply, except that the excess holdings immediately preceding the increase therein shall not be treated, solely because of such increase, as held by a disqualified person (rather than by the foundation).

"(d) DEFINITIONS; SPECIAL RULES.—For purposes of this section—

"(1) BUSINESS HOLDINGS.—In computing the holdings of a private foundation, or a disqualified person (as defined in section 4946) with respect thereto, in any business enterprise, any stock or other interest owned, directly or indirectly, by or for a corporation, partnership, estate, or trust shall be considered as being owned proportionately by or for its shareholders, partners, or beneficiaries.

"(2) TAXABLE PERIOD.—The term 'taxable period' means, with respect to any excess business holdings of a private foundation in a business enterprise, the period beginning on the first day on which there are such excess holdings and ending on the date of mailing of a notice of deficiency with respect to the tax imposed by subsection (a) under section 6212 in respect of such holdings.

"(3) CORRECTION PERIOD.—The term 'correction period' means, with respect to excess business holdings of a private foundation in a business enterprise, the period ending 90 days after the date of mailing of a notice of deficiency (with respect to the tax imposed by subsection (b)) under section 6212, extended by—

"(A) any period in which a deficiency cannot be assessed under section 6213(a), and

"(B) any other period which the Secretary or his delegate determines is reasonable and necessary to permit orderly disposition of such excess business holdings.

"(4) FUNCTIONALLY RELATED BUSINESS.—The term 'business enterprise' does not include a trade or business—

"(A) which is not an unrelated trade or business as defined in section 513, or

"(B) which is carried on within a larger aggregate of similar activities or within a larger complex of other endeavors which is related (aside from the need of such organization for income or funds or the use it makes of the profits derived) to the exempt purposes of the organization.

"SEC. 4944. INVESTMENTS WHICH JEOPARDIZE CHARITABLE PURPOSE.

"(a) TAX ON THE PRIVATE FOUNDATION.—If a private foundation invests any amount in such a manner as to jeopardize the carrying out of any of its exempt purposes, there is hereby imposed on the making of such investment a tax equal to 100 percent of the amount so invested. The tax imposed by this subsection shall be paid by the private foundation.

"(b) TAX ON THE MANAGEMENT.—In any case in which a tax is imposed under subsection (a), there is hereby imposed on any foundation manager who participates in the making of such investment knowing that it is jeopardizing the carrying out of any of the foundation's exempt purposes, a tax equal to 50 percent of the amount so invested. Where, under the preceding sentence, more than one foundation manager is liable for a tax with respect to the same investment, the liability of such managers for tax under this subsection shall be joint and several.

"SEC. 4945. TAXES ON TAXABLE EXPENDITURES.

"(a) GENERAL RULE.—

"(1) TAX ON THE PRIVATE FOUNDATION.—There is hereby imposed on each taxable expenditure a tax equal to 100 percent of the amount thereof. The tax imposed by this paragraph shall be paid by the private foundation.

"(2) TAX ON FOUNDATION MANAGER.—There is hereby imposed on any foundation manager who agrees to the making of an expenditure, knowing that it is a taxable expenditure, a tax equal to 50 percent of the amount thereof. Where, under the preceding sentence, more than one foundation manager is liable for a tax with respect to the same expenditure, the liability of such managers for tax under this paragraph shall be joint and several.

"(b) TAXABLE EXPENDITURE.—For purposes of this section, the term 'taxable expenditure' means any amount paid or incurred by a private foundation—

"(1) to carry out propaganda, or otherwise attempt to influence legislation,

"(2) to influence the outcome of any public election (including voter registration drives carried on by or for such foundation),

"(3) as a grant to an individual for travel, study, or other similar purposes by such individual, unless such grant satisfies the requirements of subsection (e),

"(4) as a grant to another organization (other than an organization described in paragraph (1), (2), or (3) of section 509(a)), unless the private foundation exercises expenditure responsibility with respect to such grants in accordance with subsection (f), or

"(5) for any purpose other than for a purpose specified in section 501(c)(3).

"(c) CERTAIN ACTIVITIES EXPRESSLY INCLUDED WITHIN SUBSECTION (b)(1).—For purposes of subsection (b)(1), the term 'taxable expenditures' includes (but is not limited to)—

"(1) any attempt to influence legislation through an attempt to affect the opinion of the general public or any segment thereof, and

"(2) any attempt to influence legislation through private communication with any member or employee of a legislative body, or with any other person who may participate in the formulation of the legislation, other than through making available the results of nonpartisan analysis or research. Paragraph (2) of this subsection shall not apply to any amount paid or incurred in connection with an appearance before, or communication to, any legislative body with respect to a possible decision of such body which might affect the existence of the private foundation, its powers and duties, its tax-exempt status, or the deduction of contributions to such foundation.

"(d) NONPARTISAN ACTIVITIES CARRIED ON BY CERTAIN ORGANIZATIONS.—Subsection (b)(2) shall not apply to any amount paid or incurred by an organization—

"(1) which is exempt from taxation under section 501(c)(3),

"(2) the principal activity of which is nonpartisan political activity in 5 or more States,

"(3) substantially all of the income of which is expended directly for the active conduct of the activities constituting the purpose or function for which it is organized and operated.

"(4) substantially all of the support (other than gross investment income as defined in section 506(b)(2)) of which is normally received from 5 or more exempt organizations which are not described in section 4946(a)(1)(H) with respect to each other or the recipient foundation, or from the general public, and not more than 25 percent of the support of which is normally received from any one such exempt organization, and

"(5) contributions to which for voter registration drives are not subject to conditions that they may be used only in specified States, possessions of the United States, or political subdivisions or other areas of any of the foregoing, or the District of Columbia. Subsection (b)(4) shall not apply to any grant to an organization which meets the requirements of the preceding sentence.

"(e) INDIVIDUAL GRANTS.—Subsection (b)(3) shall not apply to an individual grant awarded on an objective and nondiscriminatory basis pursuant to a procedure approved in advance by the Secretary or his delegate, if it is demonstrated to the satisfaction of the Secretary or his delegate that it constitutes a scholarship or fellowship grant at an educational institution described in section 170(b)(1)(B)(ii) or that the purpose of the grant is to achieve a specific objective, produce a report or other similar product, or improve or enhance a literary, artistic, musical, scientific, or other similar capacity, skill, or talent.

"(f) EXPENDITURE RESPONSIBILITY.—The expenditure responsibility referred to in subsection (b)(4) means that the private foundation is fully responsible—

"(1) to see that the grant is spent solely for the purpose for which made,

"(2) to obtain full and complete reports from the grantee on how the funds are spent, and to verify the accuracy of such reports, and

"(3) to make full and detailed reports with respect to such expenditures to the Secretary or his delegate.

"SEC. 4946. DEFINITIONS AND SPECIAL RULES.

"(a) DISQUALIFIED PERSONS.—

"(1) IN GENERAL.—For purposes of this chapter, the term 'disqualified person' means, with respect to a private foundation, a person who is—

"(A) a substantial contributor to the foundation,

"(B) a foundation manager (within the meaning of subsection (b)(1)),

"(C) an individual who—

"(i) owns more than 20 percent of the total combined voting power of a corporation, or

"(ii) is a general partner in a partnership, or

"(iii) holds more than 20 percent of the beneficial interest of a trust or unincorporated enterprise,

which is a substantial contributor to the foundation,

"(D) a member of the family (within the meaning of section 341(d)) of any person described in subparagraph (A), (B), or (C),

"(E) a corporation of which persons described in subparagraph (A), (B), (C), or (D) own more than 35 percent of the total combined voting power,

"(F) a partnership in which persons described in subparagraph (A), (B), (C), or (D) own more than 35 percent of the profits interest,

"(G) a trust or estate in which persons described in subparagraph (A), (B), (C), or (D) hold more than 35 percent of the beneficial interest,

(H) only for purposes of section 4943, a private foundation—

"(i) which is effectively controlled (directly or indirectly) by the same person or persons who control the private foundation in question, or

"(ii) substantially all of the contributions to which were made (directly or indirectly) by the same person or persons described in subparagraph (A), (B), or (C), or members of their families (within the meaning of subparagraph (D)), who made (directly or indirectly) substantially all of the contribu-

tions to the private foundation in question, and

"(I) only for purposes of section 4941, a government official (as defined in subsection (c)).

"(2) SUBSTANTIAL CONTRIBUTORS.—For purposes of paragraph (1), the terms 'substantial contributor' means a person who is described in section 507(b)(2).

"(3) STOCKHOLDERS.—For purposes of paragraphs (1)(C)(i) and (1)(E), there shall be taken into account indirect stockholdings which would be taken into account under section 267(c).

"(b) FOUNDATION MANAGER.—For purposes of this chapter, the term 'foundation manager' means, with respect to any private foundation—

"(1) an officer, director, or trustee of a foundation (or an individual having powers or responsibilities similar to those of officers, directors, or trustees of a foundation), and

"(2) with respect to any act (or failure to act), the employees of the foundation having authority or responsibility with respect to such act (or failure to act).

"(c) GOVERNMENT OFFICIAL.—For purposes of subsection (a)(1)(I) and section 4941, the term 'government official' means, with respect to an act of self-dealing described in section 4941, an individual who, at the time of such act, holds any of the following offices or positions (other than as a 'special Government employee', as defined in section 202 (a) of title 18, United States Code):

"(1) an elective public office in the executive or legislative branch of the Government of the United States,

"(2) an office in the executive or judicial branch of the Government of the United States, appointment to which was made by the President,

"(3) a position in the executive, legislative, or judicial branch of the Government of the United States—

"(A) which is listed in schedule C of rule VI of the Civil Service Rules, or

"(B) the compensation for which is equal to or greater than the lowest rate of compensation prescribed for GS–16 of the General Schedule under section 5332 of title 5, United States Code,

"(4) a position under the House of Representatives or the Senate of the United States held by an individual receiving gross compensation at an annual rate of $15,000 or more,

"(5) an elective or appointive public office in the executive, legislative, or judicial branch of the Government of a State, possession of the United States, or political subdivision or other area of any of the foregoing, or of the District of Columbia, held by an individual receiving gross compensation at an annual rate of $15,000 or more, or

"(6) a position as personal or executive assistant or secretary of any of the foregoing.

"SEC. 4947. APPLICATION OF TAXES TO CERTAIN NONEXEMPT TRUSTS.

"(a) APPLICATION OF TAX.—

"(1) IN GENERAL.—The taxes imposed by section 506 (relating to tax on private foundation investment income) and this chapter shall apply to any trust which is not exempt from tax under section 501(a), all of the unexpired interests of which are devoted to one or more of the purposes described in section 170(c)(2)(B), and for which a deduction was allowable under section 170, 545(b)(2), 642(c), 2055, 2106(a)(2), or 2522.

"(2) LIMITATION TO CHARITABLE PORTION.—In the case of a trust which is not exempt from tax under section 501(a), not all of the unexpired interests of which are devoted to one or more of the purposes described in section 170(c)(2)(B), and which has amounts in trust for which a deduction was allowable under section 170, 545(b)(2), 642(c), 2055, 2106(a)(2), or 2522, the taxes imposed by section 4941 (relating to taxes on self-dealing), section 4943 (relating to taxes on excess business holdings), section 4944 (relating to investments which jeopardize charitable purpose), and section 4945 (relating to taxes on taxable expenditures) shall apply as if such trust were a private foundation. This subsection shall not apply with respect to—

"(A) any amounts payable under the terms of such trust to income beneficiaries, unless section 170(b)(1)(H) applies, or

"(B) any amounts in trust for which a deduction was not allowable under section 170, 545(b)(2), 642(c), 2055, 2106(a)(2), or 2522, if such amounts are segregated from amounts for which such deduction was allowable.

"(3) For purposes of subsection (a)(2)(B), a trust with respect to which amounts are segregated shall separately account for the various income, deduction, and other items properly attributable to each of such segregated amounts.

"(b) ADDITIONAL TAX.—

"(1) AMOUNT OF TAX.—There is hereby imposed upon a trust described in subsection (a) which is notified by the Secretary or his delegate that he is invoking this subsection as to it, and with respect to which there have been either willful repeated acts (or failures to act), or a willful and flagrant act (or failure to act), giving rise to liability for tax under this chapter, a tax equal to the lower of—

"(A) the amount which such trust substantiates by adequate records or other corroborating evidence as the aggregate tax benefit described in paragraph (2), or

"(B) the value of the net assets of such trust (limited by the value of assets segregated for charity in accordance with subsection (a)(2)(B)).

"(2) AGGREGATE TAX BENEFIT.—For purposes of subsection (b)(1), the aggregate tax benefit is the sum of—

"(A) the aggregate increases in tax under chapters 1, 11, and 12 (or the corresponding provisions of prior law) which would have been imposed with respect to all substantial contributors (as defined in section 507(b)(2)) to the trust if deductions for all contributions made by such contributors to the trust after February 28, 1913, had been disallowed, and

"(B) the aggregate increases in tax under chapter 1 (or the corresponding provisions of prior law) which would have been imposed with respect to the income of the trust for taxable years beginning after December 31, 1912, if deductions under section 642(c) (or the corresponding provisions of prior law) had been limited to 20 percent of the taxable income of the trust (computed without the benefit of section 642(c) but with the benefit of section 170(b)(1)(B)), and

"(C) interest on the increases in tax determined under subparagraphs (A) and (B) from the first date on which each such increase would have been due and payable to the date on which the trust pays the tax imposed by this subsection.

"(3) SPECIAL RULE.—For purposes of paragraph (2), the value of the net assets shall be determined at whichever time such value is higher:

"(A) the first day on which action is taken by the trust which culminates in the imposition of tax under this subsection, or

"(B) the day on which the tax prescribed by this subsection is imposed.

"(4) LIABILITY IN CASE OF TRANSFERS OF ASSETS FROM TRUSTS.—For purposes of determining liability for the tax imposed by this subsection in the case of assets transferred by the trust, such tax shall be deemed to have been imposed on the first day on which action is taken by the trust which culminates in the imposition of tax under this subsection.

"(5) ABATEMENT OF TAX WHERE ASSETS ARE DISTRIBUTED TO PUBLIC CHARITIES.—The Secretary or his delegate may abate the unpaid portion of the assessment of any tax imposed by this subsection, or any liability with respect thereto, if the trust distributes all of its net assets (limited by the value of assets segregated for charity in accordance with subsection (a)(2)(B)) to one or more organizations specified in section 170(b)(1)(B) each of which has been in existence and met the requirements of section 170(b)(1)(B) for a continuous period of at least 60 calendar months.

"(c) SPECIAL RULE.—For purposes of this section, 'nonexempt trust' shall be substituted for 'private foundation' in sections 506, 507(b)(2), 4941, 4942, 4943, 4944, 4945, and 4946.

"(d) REGULATIONS.—The Secretary or his delegate shall prescribe such regulations as may be necessary to carry out the purposes of this section."

(c) ASSESSABLE PENALTIES FOR REPEATED, OR WILLFUL AND FLAGRANT, ACTS UNDER CHAPTER 42.—Subchapter B of chapter 68 (relating to assessable penalties) is amended by adding at the end thereof the following new section:

"SEC. 6684. REPEATED LIABILITY FOR TAX UNDER CHAPTER 42.

"If any person becomes liable for tax under any section of chapter 42 (relating to private foundations) by reason of any act or failure to act which is not due to reasonable cause and either—

"(1) such person has theretofore been liable for tax under such chapter, or

"(2) such act or failure to act is both willful and flagrant,

then such person shall be liable for a penalty equal to the amount of such tax."

(d) INFORMATION RETURNS OF EXEMPT ORGANIZATIONS.—

(1) IN GENERAL.—Section 6033(a) (relating to information returns by exempt organizations) is amended to read as follows:

"(a) ORGANIZATIONS REQUIRED TO FILE.—

"(1) IN GENERAL.—Every organization exempt from taxation under section 501(a) shall file an annual return, stating specifically the items of gross income, receipts, and disbursements, and such other information for the purpose of carrying out the internal revenue laws as the Secretary or his delegate may by forms or regulations prescribe, and shall keep such records, render under oath such statements, make such other returns, and comply with such rules and regulations as the Secretary or his delegate may from time to time prescribe; except that, in the discretion of the Secretary or his delegate, any organization described in section 401(a) may be relieved from stating in its return any information which is reported in returns filed by the employer which established such organization.

"(2) EXCEPTIONS FROM FILING.—The Secretary or his delegate may relieve any organization required under paragraph (1) to file an information return from filing such a return where he determines that such filing is not necessary to the efficient administration of the internal revenue laws."

(2) ADDITIONAL INFORMATION.—Section 6033(b) (relating to certain organizations described in section 501(c)(3)) is amended—

(A) by striking out in paragraph (3) "out of income",

(B) by striking out paragraphs (4), (5), (6), and (8), and by redesignating paragraph (7) as paragraph (4), and

(C) by adding after paragraph (4) (as redesignated) the following new paragraphs:

"(5) the total of the contributions and gifts received by it during the year, and the names and addresses of all substantial contributors,

"(6) the names and addresses of its foundation managers (within the meaning of section 4946(b)(1)) and highly compensated employees, and

"(7) the compensation and other payments made during the year to each individual described in paragraph (6)."

(3) PENALTY FOR LATE FILING OF CERTAIN INFORMATION RETURNS.—Section 6652 (relating to failure to file certain information returns) is amended by relettering subsection (d) as subsection (e) and inserting immediately after subsection (c) the following new subsection:

"(d) RETURNS BY EXEMPT ORGANIZATIONS AND BY CERTAIN TRUSTS.—

"(1) PENALTY ON ORGANIZATION OR TRUST.—In the case of a failure to file a return required under section 6033 (relating to returns by exempt organizations) and section 6034 (relating to returns by certain trusts) on the date and in the manner prescribed therefor (determined with regard to any extension of time for filing), unless it is shown that such failure is due to reasonable cause, there shall be paid (on notice and demand by the Secretary or his delegate and in the same manner as tax) by the exempt organization or trust failing so to file, $10 for each day during which such failure continues, but the total amount imposed hereunder on any organization for failure to file any return shall not exceed $5,000.

"(2) PENALTY ON MANAGERS.—The Secretary or his delegate may make written demand upon an organization failing to file under paragraph (1) specifying therein a reasonable future date by which such filing shall be made, and if such filing is not made on or before such date, and unless it is shown that failure so to file is due to reasonable cause, there shall be paid (on notice and demand by the Secretary or his delegate and in the same manner as tax) by the person failing so to file, in addition to the penalty prescribed in paragraph (1), a penalty of $10 for each day after the expiration of the time specified in the written demand during which such failure continues, but the total amount imposed hereunder on all persons for such failure to file shall not exceed $5,000. If more than one person is liable under this paragraph for a failure to file, all such persons shall be jointly and severally liable with respect to such failure. The term 'person' as used herein means any officer, director, trustee, employee, member, or other individual who is under a duty to perform the act in respect of which the violation occurs."

(e) PUBLICITY OF INFORMATION REQUIRED BY CERTAIN EXEMPT ORGANIZATIONS.—Section 6104 (relating to publicity of information required from certain exempt organizations and certain trusts) is amended by inserting immediately after subsection (b), the following new subsection:

"(c) PUBLICATION TO STATE OFFCIALS.—

"(1) GENERAL RULE.—In the case of any orangization which is exempt from taxation under section 501a), or has applied for recognition of exemption under such section on or after May 26, 1969, the Secretary or his delegate at such times and in such manner as he may by regulations prescribe shall—

"(A) notify the appropriate State officer of a refusal to recognize exemption or the operation of such organization in a manner which does not meet, or no longer meets, the requirements of its exemption.

"(B) notify the appropriate State officer of the mailing of a notice of deficiency of tax under section 507 or chapter 42, and

"(C) at the request of such appropriate State officer, make available for inspection and copying such returns, filed statements, records, reports, and other information, relating to a determination under subparagraph (A) or (B) as are relevant to any determination under State law.

"(2) APPROPRIATE STATE OFFICER.—For purposes of this section, the term 'appropriate State officer' means the State attorney general, Sate tax officer, or any other State official charged with overseeing charitable organizations."

(f) PETITION TO TAX COURT; DEFICIENCY PROCEDURES MADE APPLICABLE.—

(1) Section 6211(a) (definition of a deficiency) is amended—

(A) by striking out "and gift taxes" and inserting in lieu thereof "gift, and excise taxes,",

(B) by striking out "subtitles A and B," and inserting in lieu thereof "subtitles A and B, and chapter 42,", and

(C) by striking out "subtitles A or B" and inserting in lieu thereof "subtitle A or B or chapter 42".

(2) Section 6212(c)(1) (relating to further deficiency letters restricted) is amended by striking out "or" before "of estate tax" and by inserting after "the same decedent," the following: "or of chapter 42 tax with respect to any act (or failure to act) to which such petition relates,".

(3) Section 6213 (relating to restrictions applicable to deficiencies; petition to Tax Court) is amended by relettering subsection (e) as subsection (f) and inserting immediately after subsection (d) the following new subsection:

"(e) SUSPENSION OF FILING PERIOD FOR CERTAIN CHAPTER 42 TAXES.—The running of the time prescribed by subsection (a), for filing a petition in the Tax Court with respect to the taxes imposed by section 4941 (relating to taxes on self-dealing), 4942 (relating to taxes on failure to distribute income), or 4943 (relating to taxes on excess business holdings) shall be suspended for any period during which the Secretary or his delegate has extended the time allowed for making correction under section 4941(e)(4), 4942(j)(2), or 4943(d)(3)."

(g) LIMITATIONS ON ASSESSMENT AND COLLECTION.—

(1) Section 6501 is amended by adding at the end thereof the following new subsection:

"(n) SPECIAL RULE FOR CHAPTER 42 TAXES.—For purposes of any tax imposed by chapter 42 (other than section 4942), the return referred to in this section shall be the return filed by the private foundation for the year in which the act (or failure to act) giving rise to liability for such tax occurred. For purposes of section 4942 (relating to taxes on failure to distribute income), such return is the return filed by the private foundation for the taxable year in which a distribution of undistributed income under section 4942 is required to be made."

(2) Section 6501(c) is amended by adding the following new paragraph at the end thereof:

"(7) TERMINATION OF PRIVATE FOUNDATION STATUS.—In the case of a tax on termination of private foundation status under section 507, such tax may be assessed, or a proceeding in court for the collection of such tax may be begun without assessment, at any time."

(3) Section 6503 (relating to suspension of running of period of limitation) is amended by relettering subsection (h) as subsection (i) and inserting immediately after subsecton (g) the following new subsection:

"(h) SUSPENSION PENDING CORRECTION.—The running of the period of limitations provided in sections 6501 and 6502 on the making of assessments or the collection by levy or a proceeding in court in respect of any tax imposed by chapter 42 or section 507 shall be suspended for any period during which the Secretary or his delegate has extended the time for making correction under section 4941(e)(4), 4942(j)(2), or 4943(d)(3)."

(h) LIMITATIONS ON CREDITS OR REFUNDS.—Section 6511 (relating to limitations on credits or refunds) is amended by relettering subsection (f) as subsection (g) and inserting immediately after subsection (e) the following new subsection:

"(f) SPECIAL RULE FOR CHAPTER 42 TAXES.—For purposes of any tax imposed by chapter 42, the return referred to in subsection (a) shall be the return specified in section 6501(n)."

(i) CIVIL ACTION FOR REFUND.—Section 7422 (relating to civil actions for refund) is amended by relettering subsection (g) as subsection (h) and by inserting immediately after subsection (f) the following new subsection:

"(g) SPECIAL RULES FOR CERTAIN EXCISE TAXES IMPOSED BY CHAPTER 42.—

"(1) RIGHT TO BRING ACTIONS.—With respect to any act (or failure to act) giving rise to liability under section 4941, 4942, or 4943, payment of the full amount of tax imposed under section 4941(a) (relating to initial taxes on self-dealing), section 4942(a) (relating to initial tax on failure to distribute income), section 4943(a) (relating to initial tax on excess business holdings), section 4941(b) (relating to additional taxes on self-dealing), section 4942(b) (relating to additional tax on failure to distribute income), or section 4943(b) (relating to additional tax on excess business holdings) shall constitute sufficient payment in order to maintain an action under this section with respect to such act.

"(2) LIMITATION ON SUIT FOR REFUND.—No suit may be maintained under this section for the credit or refund of any tax imposed under section 4941, 4942, or 4943 with respect to any act (or failure to act) giving rise to liability for tax under such sections, unless no other suit has been maintained for credit or refund, and no petition has been filed in the Tax Court with respect to a deficiency of tax, for any other tax imposed under such sections with respect to such act (or failure to act).

"(3) FINAL DETERMINATION OF ISSUES.—For purposes of this section, any suit for the credit or refund of any tax imposed under section 4941, 4942, or 4943 with respect to any act (or failure to act) giving rise to liability for tax under such sections, shall constitute a suit to determine all questions with respect to any other tax imposed with respect to such act (or failure to act) under such sections, and failure by the parties to such suit to bring any such question before the Court shall constitute a bar to such question."

(j) TECHNICAL, CONFORMING, AND CLERICAL AMENDMENTS.—

(1) Section 101(b)(2)(B)(iii) (relating to nonforfeitable rights) is amended by striking out "section 503(b)(1), (2), or (3)" and inserting in lieu thereof "section 170(b)(1)(B)(ii) or (iii) or which is a religious organization (other than a trust)".

(2) Section 170(c)(2)(B) (relating to the definition of charitable contributions) is amended by inserting after "animals" the phrase ", or for the providing of hospital care".

(3) Section 170(c)(4) (relating to contributions to fraternal societies) is amended by inserting after "animals" the phrase ", or for the providing of hospital care".

(4) Section 170(i)(1) (relating to disallowance of deductions in certain cases) (as redesignated) is amended by striking out "section 503(e)" and inserting in lieu thereof "section 507(f)".

(5) Section 501(a) (relating to exemption from taxation) is amended by striking out "502, 503, or 504" and inserting in lieu thereof "502 or 503".

(6) Section 501 (b) (relating to tax on unrelated business income) is amended to read as follows:

"(b) TAX ON UNRELATED BUSINESS INCOME AND CERTAIN OTHER ACTIVITIES.—An organi-

zation exempt from taxation under subsection (a) shall be subject to tax to the extent provided in parts II and III of this subchapter, but (notwithstanding parts II and III of this subchapter) shall be considered an organization exempt from income taxes for the purpose of any law which refers to organizations exempt from income taxes."

(7) Section 501(c)(3) (relating to the definition of exempt organizations) is amended by inserting after "animals" the phrase ", or for the providing of hospital care,".

(8) Section 501(c)(16) (relating to list of exempt organizations) is amended by striking out "part III" and inserting in lieu thereof "part IV".

(9) Section 501(e) (relating to cooperative hospital service organizations) is amended by striking out in the last sentence thereof "section 503(b)(5)." and inserting in lieu thereof "section 170(b)(1)(B)(iii).".

(10) Section 503(a)(1) (relating to general rule) is amended to read as follows:

"(1) GENERAL RULE.—

"(A) An organization described in section 501(c)(17) shall not be exempt from taxation under section 501(a) if it has engaged in a prohibited transaction after December 31, 1959.

"(B) An organization described in section 401(a) shall not be exempt from taxation under section 501(a) if it has engaged in a prohibited transaction after March 1, 1954."

(11) Section 503(a)(2) (relating to taxable years affected by denial of exemption) is amended by striking out "section 501(c)(3) or (17)" and inserting in lieu thereof "section 501(c)(17)".

(12) Section 503(d) (relating to future status of organizations denied exemption) is amended by striking out "section 501(c)(3) or (17)" and inserting in lieu thereof "section 501(c)(17)".

(13) Section 503(g) (relating to special rule for loans) is amended by striking out "subsection (c)(1)," and inserting in lieu thereof "subsection (b)(1),".

(14) Section 503(h) (relating to special rules relating to lending by section 401(a) and section 501(c)(17) trusts to certain persons) is amended—

(A) by striking out in the title thereof "SPECIAL RULES RELATING TO LENDING BY SECTION 401(a) AND SECTION 501(C)(17) TRUSTS TO CERTAIN PERSONS.—", and inserting in lieu thereof "SPECIAL RULES.—",

(B) by striking out "subsection (c)(1)," and inserting in lieu thereof "subsection (b)(1),",

(C) by striking out "acquired by a trust described in section 401(a) or section 501(c)(17)", and

(D) by striking out in paragraph (3) "subsection (c)" and inserting in lieu thereof "subsection (b)".

(15) Section 503(i) (relating to loans with respect to which employers are prohibited from pledging certain assets) is amended—

(A) by striking out "Subsection (c)(1)" and inserting in lieu thereof "Subsection (b)(1)", and

(B) by striking out "subsection (h)" and inserting in lieu thereof "subsection (e)".

(16) Section 503(j)(1) (relating to prohibited transactions) is amended by striking out "subsection (c)" and inserting in lieu thereof "subsection (b)".

(17) Section 503 (relating to requirements of exemption) is amended by striking out subsections (b), (e), and (f) and by redesignating subsections (c), (d), (g), (h), (i), and (j) (as amended) as subsections (b), (c), (d), (e), (f), and (g), respectively.

(18) Section 504 (relating to denial of exemption) is repealed.

(19) Section 542(a)(2) (relating to stock ownership requirement) is amended—

(A) by striking out in the second sentence "503(b)" and inserting in lieu thereof "section 401(a), 501(c)(17), or 509(a)", and

(B) by amending the third sentence to read as follows: "The preceding sentence shall not apply in the case of an organization or trust organized or created before July 1, 1950, if at all times on or after July 1, 1950, and before the close of the taxable year such organization or trust has owned all of the common stock and at least 80 percent of the total number of shares of all other classes of stock of the corporation."

(20) Section 663(a)(2) (relating to charitable, etc., distributions) is amended by striking out "section 681" and inserting in lieu thereof "sections 681 and 507(f)".

(21) Section 681 (b) and (c) (relating to operations of trusts and accumulated income) is repealed.

(22) Section 681(d) (relating to cross reference) is redesignated as subsection (b), and as so redesignated is amended by striking out "section 503(e)" and inserting in lieu thereof "section 507(f)".

(23) Section 2039(c)(3) (relating to exemption of annuities under certain trusts and plans) is amended by striking out "section 503(b)(1), (2), or (3)," and inserting in lieu thereof "section 170(b)(1)(B)(ii) or (vi), or which is a religious organization (other than a trust),".

(24) Section 2055(a) (relating to general rule for transfers for public, charitable, and religious uses) is amended by—

(A) inserting in paragraph (2) after "animals" the phrase ", or for the providing of hospital care", and

(B) inserting in paragraph (3) after "animals" the phrase ", or for the providing of hospital care".

(25) Section 2106(a)(2)(A) (relating to general rule for transfer for public charitable, and religious uses) is amended by—

(A) inserting in clause (ii) after "animals" the phrase ", or for the providing of hospital care", and

(B) inserting in clause (iii) after "animals" the phrase ", or for the providing of hospital care".

(26) Section 2517(a)(3) (relating to general rule for certain annuities under qualified plans) is amended by striking out "section 503(b)(1), (2), or (3)," and inserting in lieu thereof "section 170(b)(1)(B)(ii) or (vi), or which is a religious organization (other than a trust),".

(27) Section 2522 (relating to charitable and similar gifts) is amended by:

(A) inserting in subsection (a)(2) after "animals" the phrase ", or for the providing of hospital care",

(B) inserting in subsection (a)(3) after "animals" the phrase ", or for the providing of hospital care",

(C) inserting in subsection (b)(2) after "animals" the phrase ", or for the providing of hospital care",

(D) inserting in subsection (b)(3) after "animals" the phrase ", or for the providing of hospital care", and

(E) inserting in subsection (b)(4) after "animals" the phrase ", or for the providing of hospital care".

(28) Section 4057(b) (relating to the definition of nonprofit educational organization) is amended by striking out "section 503(b)(2)" and inserting in lieu thereof "section 170(b)(1)(B)(ii)".

(29) Section 4221(d)(5) (relating to the definition of nonprofit educational organization) is amended by striking out "section 503(b)(2)" and inserting in lieu thereof "section 170(b)(1)(B)(ii)".

(30) Section 4253(h) (relating to nonprofit hospitals) is amended by striking out "section 503(b)(5)" and inserting in lieu thereof "section 170(b)(1)(B)(iii)".

(31) Section 4294(b) (relating to the definition of nonprofit educational organization) is amended by striking out "section 503(b)(2)" and inserting in lieu thereof "section 170(b)(1)(B)(ii)".

(32) Section 5214(a)(3)(A) (relating to purposes for withdrawal of distilled spirits from bonded premises free of tax or without payment of tax) is amended by striking out "section 503(b)(2)" and inserting in lieu thereof "section 170(b)(1)(B)(ii)".

(33) Section 6033(b)(7) (relating to certain balance sheet items on returns by exempt organizations) is amended by striking out "and".

(34) Section 6034 (relating to returns by certain trusts) is amended by striking out all of such section before paragraph (1) of subsection (a) and inserting in lieu thereof the following:

"SEC. 6034. RETURNS BY TRUSTS DESCRIBED IN SECTION 4947(a) OR CLAIMING CHARITABLE DEDUCTIONS UNDER SECTION 642(c).

"(a) GENERAL RULE.—Every trust described in section 4947(a) or claiming a charitable, etc., deduction under section 642(c) for the taxable year shall furnish such information with respect to such taxable year as the Secretary or his delegate may by forms or regulations prescribe as necessary to carry out the provisions of the internal revenue laws, including—".

(35) Section 6034(a)(1) (relating to returns by certain trusts) is amended by striking out "(showing seperately the amount of such deduction which was paid out and the amount which was permanently set aside for charitable, etc., purposes during such year)".

(36) Section 6104(b) (relating to inspection of annual information returns) is amended by striking out "sections 6033(b) and 6034," and inserting in lieu thereof "sections 6033 and 6034,".

(37) Section 6161(b) (relating to the amount determined as a deficiency when granting an extension of time) is amended—

(A) by striking out in paragraph (1) "chapter 1 or 12," and inserting in lieu thereof "chapter 1, 12, or 42,", and

(B) by striking out "chapter 1," the last time it appears and inserting in lieu thereof "chapter 1 or 42,".

(38) Section 6201(d) (relating to deficiency proceedings) is amended by striking out "and gift taxes", and inserting in lieu thereof "gift, and chapter 42 taxes".

(39) Section 6211(b)(2) (relating to the term "rebate") is amended by striking out "subtitles A or B" and inserting in lieu thereof "subtitle A or B or chapter 42".

(40) Section 6212(a) (relating to notice of deficiency) is amended by striking out "subtitles A or B" and inserting in lieu thereof "subtitle A or B or chapter 42".

(41) Section 6212(b)(1) (relating to address for notice of deficiency) is amended—

(A) by striking out in the title thereof "AND GIFT TAXES" and inserting in lieu thereof "AND GIFT TAXES AND TAXES IMPOSED BY CHAPTER 42",

(B) by striking out "subtitle A or chapter 12," and inserting in lieu thereof "subtitle A, chapter 12, or chapter 42,", and

(C) by inserting "chapter 42," after "chapter 12," the last place it appears.

(42) Section 6213(a) (relating to restrictions applicable to deficiencies; petition to Tax Court) is amended by inserting "or chapter 42" after "subtitle A or B".

(43) Section 6214 (relating to determinations by the Tax Court) is amended by relettering subsection (c) as subsection (d) and by inserting after subsection (b) the following new subsection:

"(c) TAXES IMPOSED BY SECTION 507 OR CHAPTER 42.—The Tax Court, in redetermining a deficiency of any tax imposed by section 507 or chapter 42 for any period, act, or failure to act, shall consider such facts with relation to the taxes under chapter 42

for other periods, acts, or failures to act as may be necessary correctly to redetermine the amount of such deficiency, but in so doing shall have no jurisdiction to determine whether or not any other tax has been overpaid or underpaid."

(44) Section 6214(d) (as relettered) is amended by inserting ", chapter 42," after "chapter".

(45) Section 6344(a)(1) (relating to certain cross references) is amended by inserting "and taxes imposed by chapter 42," after "gift taxes".

(46) Section 6503(a)(1) (relating to issuance of statutory notice of deficiency) is amended by striking out "and gift taxes" and inserting in lieu thereof "gift, and chapter 42 taxes".

(47) Section 6512(a) (relating to effect of petition of Tax Court) is amended—

(A) by striking out "and gift taxes" and inserting in lieu thereof "gift, and chapter 42 taxes", and

(B) by striking out "or of estate tax in respect of the taxable estate of the same decedent," and inserting in lieu thereof "of estate tax in respect of the taxable estate of the same decedent, or of tax imposed by chapter 42 with respect to any act (or failure to act) to which such petition relates,".

(48) Section 6512(b)(1) (relating to jurisdiction to determine overpayment determined by Tax Court) is amended by striking out "or of estate tax in respect of the taxable estate of the same decedent," and inserting in lieu thereof "of estate tax in respect of the taxable estate of the same decedent, or of tax imposed by chapter 42 with respect to any act (or failure to act) to which such petition relates,".

(49) Section 6601(d) (relating to suspension of interest in certain cases) is amended—

(A) by striking out in the title thereof "AND GIFT TAX CASES." and inserting in lieu thereof "GIFT, AND CHAPTER 42 TAX CASES.", and

(B) by striking out "and gift taxes" and inserting in lieu thereof "gift, and chapter 42 taxes".

(50) Section 6653(c)(1) (relating to definition of overpayment) is amended—

(A) by striking out in the title thereof "AND GIFT TAXES." and inserting in lieu thereof "GIFT, AND CHAPTER 42 TAXES.", and

(B) by striking out "and gift taxes" the last time it appears and inserting in lieu thereof "gift, and chapter 42 taxes".

(51) Section 6659(b) (relating to procedure for assessing certain additions to tax) is amended by striking out "and gift taxes" and inserting in lieu thereof "gift, and chapter 42 taxes".

(52) Section 6676(b) (relating to deficiency procedures not to apply) is amended by striking out "and gift taxes" and inserting in lieu thereof "gift, and chapter 42 taxes".

(53) Section 6677(b) (relating to deficiency procedures not to apply) is amended by striking out "and gift taxes" and inserting in lieu thereof "gift, and chapter 42 taxes".

(54) Section 6679(b) (relating to deficiency procedures not to apply) is amended by striking out "and gift taxes" and inserting in lieu thereof "gift, and chapter 42 taxes".

(55) Section 6682(b) (relating to deficiency procedures not to apply) is amended by striking out "and gift taxes" and inserting in lieu thereof "gift, and chapter 42 taxes".

(56) Section 7422(e) (relating to stay of proceeding in civil actions for refund) is amended by striking out "or gift tax" the first time it appears and inserting in lieu thereof "gift tax, or tax imposed by chapter 42".

(57) The table of parts for subchapter F of chapter 1 is amended to read as follows:

"SUBCHAPTER F—EXEMPT ORGANIZATIONS

"Part I. General rule.
"Part II. Private foundations.
"Part III. Taxation of business income of certain exempt organizations.
"Part IV. Farmers' cooperatives.
"Part V. Shipowners' protection and indemnity associations."

(58) The table of chapters for subtitle D is amended by adding at the end thereof the following new item:

"Chapter 42. Private foundations."

(59) The table of sections for subchapter B of chapter 68 is amended by adding at the end thereof the following new item:

"Sec. 6684. Repeated liability for tax under chapter 42."

(k) EFFECTIVE DATES.—

(1) IN GENERAL.—Except as otherwise provided in this subsection, the amendments made by this section shall apply for taxable years beginning after December 31, 1969.

(2) SECTION 4941.—Section 4941 shall not apply to—

(A) any transaction between a private foundation and a corporation which is a disqualified person (as defined in section 4946), pursuant to the terms of securities of such corporation in existence at the time acquired by the foundation, if such securities were acquired by the foundation before May 27, 1969;

(B) the sale of property which is owned by a private foundation on May 26, 1969, to a disqualified person, if such foundation is required to dispose of such property in order not to be liable for tax under section 4943 (relating to taxes on excess business holdings), and it receives in return an amount which equals or exceeds the fair market value of such property; and

(C) the use of property in which a private foundation and a disqualified person have a joint or common interest, if the interests of both in such property were acquired before May 27, 1969.

(3) SECTION 4942.—In the case of organizations organized before May 27, 1969, section 4942 shall—

(A) for taxable years beginning before January 1, 1972, apply without regard to the minimum investment return provision (as defined in section 4942(e) as added by this Act); and

(B) not apply to an organization to the extent its income is required to be accumulated pursuant to the mandatory terms (as in effect on May 27, 1969, and at all times thereafter) of an instrument executed before May 27, 1969, with respect to the transfer of income producing property to such organization, except that section 4942 shall apply to such organization if the organization would have been denied exemption if section 504(a) had not been repealed by this Act, or would have had its deductions under section 642(c) limited if section 681(c) had not been repealed by this Act. In applying the preceding sentence, in addition to the limitations contained in section 504(a) or 681(c) before its repeal, section 504(a)(1) or 681(c)(1) shall be treated as not applying to income attributable to property transferred to an organization before January 1, 1951, if the transfer was irrevocable on such date and if such income is required to be accumulated pursuant to the mandatory terms (as in effect on such date and at all times thereafter) of an instrument relating to such transfer executed before such date.

With respect to taxable years beginning after December 31, 1971, subparagraph (B) shall apply only with respect to taxable years for which it is impossible for such organization to reform its governing instrument (by amendment, judicial proceeding, or otherwise) to meet the requirements of section 508(g)(1)(A).

(4) SECTION 4943.—Subject to the provision of paragraph (5), section 4943 shall not apply— with respect to—

(A) an organization created by an inter vivos trust which was irrevocable on December 31, 1939, and which, together with all disqualified persons (as defined in section 4946) with respect thereto, owned on July 28, 1969, not more than 55 percent of the stock of a corporation, the common stock of which was traded on a public stock exchange at all times after 1960, or

(B) an organization incorporated before December 31, 1944, which owns stock in a business enterprise 95 percent of the gross income of which (for the 10-year period ending on December 31, 1969) was derived from dividends, interest, royalties, income in the nature of royalties, and capital gains, and which, for each taxable year beginning after December 31, 1969, makes qualifying distributions (within the meaning of section 4942(g)(1) and (2)) of substantially more than half of its income for educational purposes described in section 170(c)(2)(B).

For purposes of subparagraph (B), income in the nature of royalties means income of a corporation derived from the sale of any product under a contract between such corporation and a buyer of such product designating such buyer as the corporation's exclusive customer of such product within a specified geographical area, or from charges or costs passed on to such customer at cost, if such corporation does not manufacture, produce, physically receive, or deliver or maintain inventories in such product, and income of a corporation received in settlement of a dispute concerning, or in lieu of the exercise of, its right to sell a product within a specified geographical area.

(5) SPECIAL RULE.—An organization is within the meaning of paragraph (4) only if—

(A) at least 80 percent of its net income in each of the last 4 taxable years ending on or before December 31, 1969, is derived from the stock in a business enterprise described in subparagraph (A) or (B) of paragraph (4),

(B) no donor to such organization of the stock in a business enterprise described in subparagraph (B) or (B) of paragraph (4), or a member of his family (as defined in section 341(d)), is a foundation manager (as defined in section 4946(b)) with respect thereto or a member of the board of directors or other managing body of such business enterprise on July 28, 1969, and

(C) it does not purchase any stock or other interest in such business enterprise after July 28, 1969, and it does not acquire any stock or other interest in any other business enterprise which would constitute excess business holdings if the organization were subject to the provisions of section 4943.

(6) SECTION 4947.—Section 4947(a)(2) shall not apply with respect to amounts transferred in trust before May 27, 1969.

SUBTITLE B—OTHER TAX EXEMPT ORGANIZATIONS

SEC. 121. TAX ON UNRELATED BUSINESS INCOME.

(a) ORGANIZATIONS SUBJECT TO TAX.—

(1) CORPORATE RATES.—Section 511(a)(2)(A) (relating to certain organizations subject to tax on unrelated business income at corporate rates) is amended to read as follows:

"(A) ORGANIZATIONS DESCRIBED IN SECTIONS 401(a) AND 501(c).—The taxes imposed by paragraph (1) shall apply in the case of any organization (other than a trust described in subsection (b) or an organization described in section 501(c)(1)) which is exempt, except as provided in this part or part II (relating to private foundations), from taxation under this subtitle by reason of section 501 (a)."

(2) INDIVIDUAL RATES.—Section 511(b)(2) (relating to charitable, etc., trusts subject to tax on unrelated business income) is amended to read as follows:

"(2) CHARITABLE, ETC., TRUSTS SUBJECT TO TAX.—The tax imposed by paragraph (1) shall apply in the case of any trust which is exempt, except as provided in this part or part II (relating to private foundations), from taxation under this subtitle by reason

of section 501(a) and which, if it were not for such exemption, would be subject to subchapter J (sec. 641 and following, relating to estates, trusts, beneficiaries, and decedents)."

(b) DEFINITION OF UNRELATED BUSINESS TAXABLE INCOME.—

(1) IN GENERAL.—Section 512(a) (relating to definition of unrelated business taxable income) is amended to read as follows:

"(a) DEFINITION.—For purposes of this title—

(1) GENERAL RULE.—Except as otherwise provided in this subsection, the term 'unrelated business taxable income' means the gross income derived by any organization from any unrelated trade or business (as defined in section 513) regularly carried on by it, less the deductions allowed by this chapter which are directly connected with the carrying on of such trade or business, both computed with the modifications provided in subsection (b).

"(2) SPECIAL RULE FOR FOREIGN ORGANIZATIONS.—In the case of an organization described in section 511 which is a foreign organization, the unrelated business taxable income shall be—

"(A) its unrelated business taxable income which is derived from sources within the United States and which is not effectively connected with the conduct of a trade or business within the United States, plus

"(B) its unrelated business taxable income which is effectively connected with the conduct of a trade or business within the United States.

"(3) SPECIAL RULES APPLICABLE TO ORGANIZATIONS DESCRIBED IN SECTION 501(c) (7), (8), (9), OR (10).—

"(A) GENERAL RULE.—In the case of an organization described in section 501(c) (7), (8), (9), or (10), the term 'unrelated business taxable income' means the gross income (excluding any exempt function income), less the deductions allowed by this chapter which are directly connected with the production of the gross income (excluding exempt function income), both computed with the modifications provided in paragraphs (6), (10), (11) and (12) of subsection (b).

"(B) EXEMPT FUNCTION INCOME.—For purposes of subparagraph (A), the term 'exempt function income' means the gross income from dues, fees, charges, or similar amounts paid by members of the organization as consideration for providing such members or their guests goods, facilities, or services in furtherance of the purposes constituting the basis for the exemption of the organization to which such income is paid. In the case of an organization described in section 501(c) (8), (9), or (10), the term 'exempt function income' also includes all income (other than an amount equal to the gross income derived from any unrelated trade or business regularly carried on by such organization computed as if the organization were subject to paragraph (1)), which is permanently committed—

"(i) for a purpose specified in section 170(c)(4), or

"(ii) to providing for the payment of life, sick, accident, or other benefits under section 501(c)(8)(B), (9), or (10).

If during the taxable year, an amount which is attributable to income so permanently committed is used for a purpose other than that described in clause (i) or (ii), such amount shall be included, under subparagraph (A), in unrelated business taxable income for the taxable year.

"(C) APPLICABILITY TO CERTAIN CORPORATIONS DESCRIBED IN SECTION 501(c)(2).—In the case of a corporation described in section 501(c)(2), the income of which is payable to an organization described in section 501 (c) (7), (8), (9), or (10), the rules of subparagraphs (A) and (B) shall apply as if such corporation were the organization to which the income were payable, and in computing exempt function income amounts paid by the organization to which such corporation's income is payable as well as by members of such organization shall be taken into account."

(2) MODIFICATIONS.—

(A) DEBT-FINANCED PROPERTY.—Section 512(b)(4) (relating to modifications with respect to business leases) is amended to read as follows:

"(4) Notwithstanding paragraph (1), (2), (3), or (5), in the case of debt-financed property (as defined in section 514) there shall be included, as an item of gross income derived from an unrelated trade or business, the amount ascertained under section 514(a)(1), and there shall be allowed, as deduction, the amount ascertained under section 514(a)(2)."

(B) LIMIT ON SPECIFIC DEDUCTION.—Section 512(b)(12) (relating to allowance of specific deduction) is amended to read as follows:

"(12) Except for purposes of computing the net operating loss under section 172 and paragraph (6), there shall be allowed a specific deduction of $1,000."

(C) SPECIAL RULES FOR CERTAIN ORGANIZATIONS.—Section 512(b) (relating to modifications in determining unrelated business taxable income) is further amended by adding at the end thereof the following:

"(15) Notwithstanding paragraph (1), (2), or (3), amounts of interests, annuities, royalties, and rents derived from an organization of which the organization deriving such amounts has control (as defined in section 368(c)) shall be included as an item of gross income (whether or not the activity from which such amounts are derived represents a trade or business or is regularly carried on), and there shall be allowed all deductions directly connected with such amounts.

"(16) Except as provided in paragraph (4), in the case of a church, or convention or association of churches, for taxable years beginning before January 1, 1976, there shall be excluded all gross income derived from a trade or business and all deductions directly connected with the carrying on of such trade or business if such trade or business was carried on by such organization or its predecessor before May 27, 1969."

(D) TECHNICAL AMENDMENT.—Section 512(b) (relating to exceptions, additions, and limitations in determining unrelated business taxable income) is amended by striking out so much thereof as precedes paragraph (1) and inserting in lieu thereof the following:

"(b) MODIFICATIONS.—The modifications referred to in subsection (a) are the following:"

(3) RELATED AMENDMENT.—

(A) Part IX of subchapter B of chapter 1 (relating to items not deductible) is amended by adding at the end thereof the following:

"SEC. 278. DEDUCTIONS INCURRED BY CERTAIN MEMBERSHIP ORGANIZATIONS IN TRANSACTIONS WITH MEMBERS.

"(a) GENERAL RULE.—In the case of a social club or other membership organization which is operated primarily to furnish services or goods to members and which is not exempt from taxation, deductions for the taxable year in furnishing services, insurance, goods, or other items of value to members shall be allowed only to the extent of income derived during such year from members or transactions with members.

"(b) EXCEPTIONS.—Subsection (a) shall not apply to any organization which for the taxable year is subject to taxation under subchapter H or L."

(B) The table of sections for part IX of subchapter B of chapter 1 is amended by adding at the end thereof the following:

"Sec. 278. Deductions incurred by certain membership organizations in transactions with members."

(4) LOCAL EMPLOYEE ASSOCIATION.—Section 513(a)(2) (relating to exception to definition of unrelated trade or business) is amended by striking out employees; or" and inserting in lieu thereof the following: "employees, or, in the case of a local association of employees described in section 501(c)(4), organized before May 27, 1969, is the selling by the organization of items normally sold through vending machines, through food dispensing facilities, or by snack bars, for the convenience of its members at their usual places of employment; or".

(5) VOLUNTARY EMPLOYEES' BENEFICIARY ASSOCIATIONS.—Section 501(c)(9) (relating to certain voluntary employees' beneficiary associations) is amended to read as follows:

"(9) Voluntary employees' beneficiary association providing for the payment of life, sick, accident, or other benefits to the members of such association or their dependents, if no part of their net earnings insures (other than through such payments) to the benefit of any private shareholder or individual."

(c) ACTIVITIES INCLUDED AS UNRELATED TRADE OR BUSINESS.—Section 513 (relating to unrelated trade or business) is amended by striking out subsection (c) and inserting in lieu thereof the following new subsection:

"(c) ADVERTISING, ETC., ACTIVITIES.—For purposes of this section, the term 'trade or business' includes any activity which is carried on for the production of income from the sale of goods or the performance of services. For purposes of the preceding sentence, an activity does not lose identity as a trade or business merely because it is carried on within a larger aggregate of similar activities or within a larger complex of other endeavors which may, or may not, be related to the exempt purposes of the organization."

(d) UNRELATED DEBT-FINANCED INCOME.—

(1) IN GENERAL.—Section 514 (relating to business leases) is amended by striking out so much thereof as precedes subsection (b) and inserting in lieu thereof the following:

"SEC. 514. UNRELATED DEBT-FINANCED INCOME.

"(a) UNRELATED DEBT-FINANCED INCOME AND DEDUCTIONS.—In computing under section 512 the unrelated business taxable income for any taxable year—

"(1) PERCENTAGE OF INCOME TAKEN INTO ACCOUNT.—There shall be included with respect to each debt-financed property as an item of gross income derived from an unrelated trade or business an amount which is the same percentage (but not in excess of 100 percent) of the total gross income derived during the taxable year from or on account of such property as (A) the average acquisition indebtedness (as defined in subsection (c)(7)) for the taxable year with respect to the property is of (B) the average amount (determined under regulations prescribed by the Secretary or his delegate) of the adjusted basis of such property during the period it is held by the organization during such taxable year.

"(2) PERCENTAGE OF DEDUCTIONS TAKEN INTO ACCOUNT.—There shall be allowed with respect to each debt-financed property, as a deduction to be taken into account in computing unrelated debt-financed income, an amount determined by applying (except as provided in the last sentence of this subsection) the percentage derived under paragraph (1) to the sum determined under paragraph (3). The percentage derived under this paragraph shall not be applied with respect to the deduction of any capital loss resulting from the carryover under section 1212 of unused losses in prior taxable years.

"(3) DEDUCTIONS ALLOWABLE.—The sum referred to in paragraph (2) is the sum of the deductions under this chapter which are directly connected with the debt-financed property or the income therefrom, except that if the debt-financed property is of a character which is subject to the allowance for depreciation provided in section 167, the allowance shall be computed only by use of the straight-line method.

"(b) DEFINITION OF DEBT-FINANCED PROPERTY.—

"(1) IN GENERAL.—The term 'debt-financed

property' means any property which is held to produce income and with respect to which there is an acquisition indebtedness (as defined in subsection (c)) at any time during the taxable year (or, if the property was disposed of during the taxable year, with respect to which there was an acquisition indebtedness at any time during the 12-month period ending with the date of such disposition), except that such term does not include—

"(A) any property all the use of which is related (aside from the need of the organization for income or funds) to the exercise of performance by such organization of its charitable, educational, or other purpose or function constituting the basis for its exemption under section 501 (or, in the case of an organization described in section 511(a)(2)(B), to the exercise or performance of any purpose or function designated in section 501(c)(3));

"(B) except in the case of income excluded under section 512(b)(5), any property all the income from which is taken into account in computing the gross income of any unrelated trade or business;

"(C) any property all the income from which is excluded by reason of the provisions of paragraph (7), (8), or (9) of section 512(b) in computing the gross income of any unrelated trade or business; or

"(D) any property all the use of which is in any trade or business described in paragraph (1), (2), or (3) of section 513(a).

"(2) SPECIAL RULES WHEN LAND IS ACQUIRED FOR EXEMPT USE WITHIN 10 YEARS.—

"(A) NEIGHBORHOOD LAND.—If an organization acquires real property for the principal purpose of using the land (commencing within 10 years of the time of acquisition) in the manner described in paragraph (1)(A) and at the time of acquisition the property is in the neighborhood of other property owned by the organization which is used in such manner, the real property acquired for such future use shall not be treated as debt-financed property so long as the organization does not abandon its intent to so use the land within the 10-year period. The preceding sentence shall not apply for any period after the expiration of the 10-year period, and shall apply after the first 5 years of the 10-year period only if the organization establishes to the satisfaction of the Secretary or his delegate that it is reasonably certain that the land will be used in the described manner before the expiration of the 10-year period.

"(B) OTHER CASES.—If the first sentence of subparagraph (A) is inapplicable only because—

"(i) the acquired land is not in the neighborhood referred to in subparagraph (A), or

"(ii) the organization (for the period after the first 5 years of the 10-year period) is unable to establish to the satisfaction of the Secretary or his delegate that it is reasonably certain that the land will be used in the manner described in paragraph (1)(A) before the expiration of the 10-year period,

but the land is converted to such use by the organization within the 10-year period, the real property (subject to the provisions of subparagraph (D)) shall not be treated as debt-financed property for any period before such conversion. For purposes of this subparagraph, land shall not be treated as used in the manner described in paragraph (1)(A) by reason of the use made of any structure which was on the land when acquired by the organization.

"(C) LIMITATIONS.—Subparagraphs (A) and (B)—

"(i) shall apply with respect to any structure on the land when acquired by the organization, or to the land occupied by the structure, only if (and so long as) the intended future use of the land in the manner described in paragraph (1)(A) requires that the structure be demolished or removed in order to use the land in such manner;

"(ii) shall not apply to structures erected on the land after the acquisition of the land; and

"(iii) shall not apply to property subject to a lease which is a business lease as (defined in subsection (f)).

"(D) REFUND OF TAXES WHEN SUBPARAGRAPH (B) APPLIES.—If an organization for any taxable year has not used land in the manner to satisfy the actual use condition of subparagraph (B) before the time prescribed by law (including extensions thereof) for filing the return for such taxable year, the tax for such year shall be computed without regard to the application of subparagraph (B), but if and when such use condition is satisfied, the provisions of subparagraph (B) shall then be applied to such taxable year. If the actual use condition of subparagraph (B) is satisfied for any taxable year after such time for filing the return, and if credit or refund of any overpayment for the taxable year resulting from the satisfaction of such use condition is prevented at the close of the taxable year in which the use condition is satisfied, by the operation of any law or rule of law (other than chapter 74, relating to closing agreements and compromises), credit or refund of such overpayment may nevertheless be allowed or made if claim therefor is filed before the expiration of 1 year after the close of the taxable year in which the use condition is satisfied. Interest on any overpayment for a taxable year resulting from the application of subparagraph (B) after the actual use condition is satisfied shall be allowed and paid at the rate of 4 percent per annum in lieu of 6 percent per annum.

"(E) SPECIAL RULE FOR CHURCHES.—In applying this paragraph to a church or convention or association of churches, in lieu of the 10-year period referred to in subparagraphs (A) and (B) a 15-year period shall be applied, and subparagraphs (A) and (B)(ii) shall apply whether or not the acquired land meets the neighborhood test.

"(c) ACQUISITION INDEBTEDNESS.—

"(1) GENERAL RULE.—The term 'acquisition indebtedness' means, with respect to any debt-financed property, the unpaid amount of—

"(A) the indebtedness incurred by the organization in acquiring or improving such property;

"(B) the indebtedness incurred before the acquisition or improvement of such property if such indebtedness would not have been incurred but for such acquisition or improvement; and

"(C) the indebtedness incurred after the acquisition or improvement of such property if such indebtedness would not have been incurred but for such acquisition or improvement and the incurrence of such indebtedness was reasonably foreseeable at the time of such acquisition or improvement, except that in the case of any taxable year beginning before January 1, 1972, any indebtedness incurred before June 28, 1966, shall not be taken into account. In the case of an organization (other than a church or convention or association of churches) such indebtedness incurred before June 28, 1966, shall be taken into account if such indebtedness constitutes business lease indebtedness (as defined in subsection (g)).

"(2) PROPERTY ACQUIRED SUBJECT TO MORTGAGE, ETC.—

"(A) GENERAL RULE.—Where property (no matter how acquired) is acquired subject to a mortgage or other similar lien, the amount of the indebtedness secured by such mortgage or lien shall be considered as an indebtedness of the organization incurred in acquiring such property even though the organization did not assume or agree to pay such indebtedness.

"(B) EXCEPTIONS.—Where property subject to a mortgage is acquired by an organization by bequest or devise, the indebtedness secured by the mortgage shall not be treated as acquisition indebtedness during a period of 10 years following the date of the acquisition. If an organization acquires property by gift subject to a mortgage which was placed on the property more than 5 years before the gift, which property was held by the donor more than 5 years before the gift, the indebtedness secured by such mortgage shall not be treated as acquisition indebtedness during a period of 10 years following the date of such gift. This subparagraph shall not apply if the organization, in order to acquire the equity in the property by bequest, devise, or gift, assumes and agrees to pay the indebtedness secured by the mortgage, or if the organization makes any payment for the equity in the property owned by the decedent or the donor.

"(3) EXTENSION OF OBLIGATIONS.—An extension, renewal, or refinancing of an obligation evidencing a preexisting indebtedness shall not be treated, for the purpose of this section, as the creation of a new indebtedness.

"(4) INDEBTEDNESS INCURRED IN PERFORMING EXEMPT PURPOSE.—The term 'acquisition indebtedness' does not include indebtedness the incurrence of which is inherent in the performance or exercise of the purpose or function constituting the basis of the organization's exemption, such as the indebtedness incurred by a credit union (exempt from tax under section 501(c)(14)) in accepting deposits from its members.

"(5) ANNUITIES.—The term 'acquistion indebtedness' does not include an obligation to pay an annuity which—

"(A) is the sole consideration (other than a mortgage to which paragraph (2)(B) applies) issued in exchange for property if, at the time of the exchange, the value of the annuity is less than 90 percent of the value of the property received in the exchange,

"(B) is payable over the life of one individual in being at the time the annuity is issued, or over the lives of two individuals in being at such time, and

"(C) is payable under a contract which—

"(i) does not guarantee a minimum amount of payments or specify a maximum amount of payments, and

"(ii) does not provide for any adjustment of the amount of the annuity payments by reference to the income received from the transferred property or any other property.

"(6) CERTAIN FEDERAL FINANCING.—The term 'acquisition indebtedness' does not include an obligation, to the extent that it is insured by the Federal Housing Administration, to finance the purchase, rehabilitation, or construction of housing for low and moderate income persons.

"(7) AVERAGE ACQUISITION INDEBTEDNESS.—The term 'average acquisition indebtedness' for any taxable year with respect to a debt-financed property means the average amount determined under regulations prescribed by the Secretary or his delegate, of the acquisition indebtedness during the period the property is held by the organization during the taxable year, except that for the purpose of computing the percentage of any gain or loss to be taken into account on a sale or other disposition of debt-financed property, such term means the highest amount of the acquisition indebtedness with respect to such property during the 12-month period ending with the date of the sale or other disposition.

"(d) BASIS OF DEBT-FINANCED PROPERTY ACQUIRED IN CORPORATE LIQUIDATION.—If the property was acquired in a complete or partial liquidation of a corporation in exchange for its stock, the basis of the property, for the purposes of this subtitle, shall be the same as it would be in the hands of the transferor corporation, increased by the amount of gain recognized to the transferor corporation upon such distribution and by the amount of any gain to the organization which was included, an account of such distribution, in its unrelated debt-financed income.

"(e) ALLOCATION RULES.—Where debt-fi-

nanced property is held for purposes described in subsection (b)(1)(A), (B), (C), or (D) as well as for other purposes, proper allocation shall be made with respect to basis, indebtedness, and income and deductions. The allocations and exclusions required by this section shall be made in accordance with regulations prescribed by the Secretary or his delegate to the extent proper to carry out the purposes of this section."

(2) RELATED AMENDMENTS.—

(A) Section 48(a)(4) (relating to definition of section 38 property) is amended by adding at the end thereof the following new sentence: "If the property is debt-financed property (as defined in section 514(c)) the basis or cost of such property for purposes of computing qualified investment under section 46(c) shall include only that percentage of the basis or cost which is the same percentage as is used under section 514(b), for the year the property is placed in service, in computing the amount of gross income to be taken into account during such taxable year with respect to such property."

(B) The second sentence of section 681(a) (relating to limitation on charitable deduction of taxable trusts) is amended by striking out the words "certain leases" and inserting in lieu thereof "certain property acquired with borrowed funds".

(C) Section 1443 (relating to withholding of tax on payments to foreign tax-exempt organizations) is amended by striking out "rents" and inserting in lieu thereof "income".

(3) TECHNICAL AND CONFORMING AMENDMENTS.—

(A) Subsections (b), (c), and (d) of section 514 (relating to business leases) are relettered as subsections (f), (g), and (h), respectively.

(B) New subsection (f)(1) (old subsection (b)(1), relating to general rule for definition of business lease) is amended by striking out "subsection (c)" and inserting in lieu thereof "subsection (g)".

(C) The table of sections for part III of subchapter F of chapter 1 (as redesignated by section 101(a) of this Act) is amended by striking out

"Sec. 514. Business leases."

and inserting in lieu thereof the following:

"Sec. 514. Unrelated debt-financed income."

(e) RETURNS.—

(1) IN GENERAL.—Subpart B of part III of subchapter A of chapter 61 is amended by adding at the end thereof the following new section:

"SEC. 6050. RETURNS RELATING TO CERTAIN TRANSFERS TO EXEMPT ORGANIZATIONS.

"(a) GENERAL RULE.—On or before the 90th day after the transfer of income producing property, the transferor shall make a return in compliance with the provisions of subsection (b) if the transferee is known by the transferor to be an organization referred to in section 511 (a) or (b) and the property (without regard to any lien) has a fair market value in excess of $50,000.

"(b) FORM AND CONTENTS OF RETURNS.—The return required by subsection (a) shall be in such form and shall set forth, in respect of the transfer, such information as the Secretary or his delegate prescribes by regulations as necessary for carrying out the provisions of the income tax laws."

(2) TECHNICAL AMENDMENT.—The table of sections for subpart B of part III of subchapter A of chapter 61 is amended by adding at the end thereof the following:

"Sec. 6050. Returns relating to certain transfers to exempt organizations."

(f) RESTRICTION ON EXAMINATION OF CHURCHES.—Section 7605 (relating to time and place of examination) is amended by adding at the end thereof the following new subsection:

"(c) RESTRICTION ON EXAMINATION OF CHURCHES.—No examination of the books of account of a church or convention or association of churches shall be made to determine whether such organization may be engaged in the carrying on of an unrelated trade or business or may be otherwise engaged in activities which may be subject to tax under part III of subchapter F of chapter 1 of this title (sec. 511 and following, relating to taxation of business income of exempt organizations) unless the Secretary or his delegate (such officer being no lower than a principal internal revenue officer for an internal revenue region) believes that such organization may be so engaged and so notifies the organization in advance of the examination."

(g) EFFECTIVE DATE.—The amendments made by this section shall apply to taxable years beginning after December 31, 1969.

TITLE II—INDIVIDUAL DEDUCTIONS

SUBTITLE A—CHARITABLE CONTRIBUTIONS

SEC. 201. CHARITABLE CONTRIBUTIONS.

(a) LIMITATIONS.—

(1) INDIVIDUALS.—Section 170(b)(1) (relating to limitations on individuals) is amended to read as follows:

"(1) INDIVIDUALS.—

"(A) GENERAL RULE.—In the case of an individual, the deduction provided in subsection (a) shall be limited as provided in the succeeding subparagraphs of this paragraph.

"(B) SPECIAL RULE.—Any charitable contribution to—

"(i) a church or a convention or association of churches.

"(ii) an educational organization which normally maintains a regular faculty and curriculum and normally has a regularly enrolled body of pupils or students in attendance at the place where its educational activities are regularly carried on.

"(iii) an organization the principal purposes or functions of which are the providing of medical or hospital care or medical education or medical research, if the organization is a hospital, or if the organization is a medical research organization directly engaged in the continuous active conduct of medical research in conjunction with a hospital, and during the calendar year in which the contribution is made such organization is committed to spend such contributions for such research before January 1 of the fifth calendar year which begins after the date such contribution is made.

"(iv) an organization which normally receives a substantial part of its support (exclusive of income received in the exercise or performance by such organization of its charitable, educational, or other purpose or function constituting the basis for its exemption under section 501(a)) from the United States or any State or political subdivision thereof or from direct or indirect contributions from the general public, and which is organized and operated exclusively to receive, hold, invest, and administer property and to make expenditures to or for the benefit of a college or university which is an organization referred to in clause (ii) of this subparagraph and which is an agency or instrumentality of a State or political subdivision thereof, of which is owned or operated by a State or political subdivision thereof or by an agency or instrumentality of one or more States or political subdivisions,

"(v) a governmental unit referred to in subsection (c)(1), or

"(vi) an organization referred to in subsection (c)(2) which normally receives a substantial part of its support (exclusive of income received in the exercise or performance by such organization of its charitable, educational, or other purpose or function constituting the basis for its exemption under section 501(a)) from a governmental unit referred to in subsection (c)(1) or from direct or indirect contributions from the general public,

shall be allowed to the extent that the aggregate of such contributions does not exceed 30 percent of the taxpayer's contribution base.

"(C) GENERAL LIMITATION.—The total deductions under subsection (a) for any taxable year shall not exceed 20 percent of the taxpayer's contribution base. For purposes of this subparagraph, the deduction under subsection (a) shall be computed without regard to any deduction allowed under subparagraph (B) but shall take into account any charitable contributions described in subparagraph (B) which are in excess of the amount allowable as a deduction under subparagraph (B).

"(D) UNLIMITED DEDUCTION FOR CERTAIN INDIVIDUALS.—The limitation in subparagraph (C) shall not apply in the case of an individual for a taxable year beginning before January 1, 1975, if in such taxable year and in 8 of the 10 preceding taxable years, the amount of the charitable contributions, plus the amount of income tax (determined without regard to chapter 2, relating to tax on self-employment income) paid during such year in respect of such year or preceding taxable years, exceeds the transitional deduction percentage (determined under subparagraph (F)) of the taxpayer's taxable income for such year, computed without regard to—

"(i) this section.

"(ii) section 151 (allowance of deductions for personal exemption), and

"(iii) any net operating loss carryback to the taxable year under section 172.

In lieu of the amount of income tax paid during any such year, there may be substituted for that year the amount of income tax paid in respect of such year, provided that any amount so included in the year in respect of which payment was made shall not be included in any other year.

"(E) PARTIAL REDUCTION OF UNLIMITED DEDUCTION.—In the case of an individual, if the limitations in subparagraph (C) do not apply because of the application of subparagraph (D), the amount otherwise allowable as a deduction under subsection (a) shall be reduced by the amount by which the taxpayer's taxable income computed without regard to this subparagraph is less than the transitional income percentage (determined under subparagraph (G)) of the taxpayer's adjusted gross income. However, in no case shall a taxpayer's deduction under this section be reduced below the amount allowable as a deduction under this section without the applicability of subparagraph (D).

"(F) TRANSITIONAL DEDUCTION PERCENTAGE.—For purposes of applying subparagraph (D), the term 'transitional deduction percentage' means—

"(i) in the case of a taxable year beginning before 1970, 90 percent, and

"(ii) in the case of a taxable year beginning in—

1970	80 percent
1971	74 percent
1972	68 percent
1973	62 percent
1974	56 percent.

"(G) TRANSITIONAL INCOME PERCENTAGE.—For purposes of applying subparagraph (E), the term 'transitional income percentage' means, in the case of a taxable year beginning in—

1970	20 percent
1971	26 percent
1972	32 percent
1973	38 percent
1974	44 percent.

"(H) DENIAL OF DEDUCTION IN CASE OF CERTAIN TRANSFERS IN TRUST.—No deduction shall be allowed under this section for the value of any interest in income from property transferred after April 22, 1969, to a trust unless—

"(i) the interest is in the form of a guaranteed annuity or the trust instrument specifies that the interest shall receive a fixed percentage yearly of the fair market value of the trust property (determined yearly) and the grantor is treated as the owner of such interest for purposes of applying section 671, or

"(ii) a deduction would be allowed under this section for the donor's entire interest in such property.

If the donor ceases to be treated as the owner of such an interest for purposes of applying section 671, at the time the donor ceases to be so treated, the donor shall for purposes of this chapter be considered as having received an amount of income equal to the amount of any deduction he received under this section for the contribution reduced by the discounted value of all amounts of income earned by the trust and taxable to him before the time at which he ceases to be treated as the owner of the interest. Such amounts of income shall be discounted to the date of the contribution. The Secretary or his delegate shall prescribe such regulations as may be necessary to carry out the purposes of this subparagraph.

"(I) DENIAL OF DEDUCTION IN CASE OF PAYMENTS BY CERTAIN TRUSTS.—In any case where a deduction is allowed under this section for the value of an interest in income from property transferred after April 22, 1969, to a trust, no deduction shall be allowed under this section to the grantor or any other person for the amount of any contribution made by the trust with respect to such income interest.

"(J) SPECIAL LIMITATIONS ON CONTRIBUTIONS OF APPRECIATED PROPERTY.—

"(i) In the case of appreciated property to which subsection (e) does not apply, the total deduction for contributions of such property under subsection (a) for any taxable year shall not exceed 30 percent of the taxpayer's contribution base. For purposes of the percentage limitations in subparagraphs (B) and (C), such contributions shall be allowable as a deduction only to the extent that the amount of such contributions plus any other contributions under such subparagraphs does not exceed such limitations.

"(ii) For purposes of paragraph (5), if the amount of charitable contributions described in subparagraph (B) which consists of appreciated property (to which clause (i) applies) exceeds 30 percent of the taxpayer's contribution base for a contribution year, the excess shall be carried over the same as any other amount carried over under paragraph (5) whether or not the taxpayer's charitable contributions described in subparagraph (B) exceed 50 percent of his contribution base. The amount of any carryover under paragraph (5) of property to which clause (i) applies shall be added to contributions of appreciated property in future contribution years for purposes of determining the 30-percent limitation in clause (i) for a future year and computing any further carryover under paragraph (5).

"(iii) For purposes of this subparagraph, the term 'appreciated property' means property which has a fair market value (at the time of the contribution) which exceeds the taxpayer's adjusted basis in such property.

"(iv) The Secretary or his delegate shall prescribe such regulations as may be necessary to carry out the purposes of this subparagraph."

(2) CARRYOVERS.—Section 170(b)(5) (relating to carryover of certain excess contributions by individuals) is amended by striking out that portion of subparagraph (A) which precedes clause (ii) and inserting in lieu thereof the following:

"(A) In the case of an individual, if the amount of charitable contributions described in paragraph (1)(B) payment of which is made within a taxable year (hereinafter in this paragraph referred to as the 'contribution year') beginning before January 1, 1970, exceeds 30 percent of the taxpayer's adjusted gross income for such year (computed without regard to any net operating loss carryback to such year under section 172), or within a contribution year beginning after December 31, 1969, exceeds 50 percent of the taxpayer's contribution base for such year, such excess shall be treated as a charitable contribution described in paragraph (1)(B) paid in each of the 5 succeeding taxable years in order of time, but, with respect to any such succeeding taxable year, only to the extent of the lesser of the two following amounts:

"(i) for taxable years beginning before January 1, 1970, the amount by which 30 percent of the taxpayer's adjusted gross income for such succeeding taxable year (computed without regard to any net operating loss carryback to such succeeding taxable year under section 172), or for taxable years beginning after December 31, 1969, the amount by which 50 percent of the taxpayer's contribution base for such succeeding taxable year, exceeds the sum of the charitable contributions described in paragraph (1)(B) payment of which is made by the taxpayer within such succeeding taxable year (determined without regard to this subparagraph) and the charitable contributions described in paragraph (1)(B) payment of which was made in taxable years (beginning after December 31, 1963) before the contribution year which are treated under this subparagraph as having been paid in such succeeding taxable year; or"

(3) FURTHER LIMITATIONS.—Section 170(b) (relating to limitation on amount of deduction for charitable contributions) is amended by adding at the end thereof the following new paragraphs:

"(6) CONTRIBUTION BASE DEFINED.—For purposes of this section, the term 'contribution base' means adjusted gross income (computed without regard to any net operating loss carryback to the taxable year under section 172) increased by the allowable tax preferences as determined under section 277(c)(2).

"(7) DISALLOWANCE OF DEDUCTION IN CERTAIN CASES.—No deduction shall be allowed under this section—

"(A) for a contribution to or for the use of an organization described in section 501(c)(3) (relating to exempt organizations) unless the organization—

"(i) is exempted from the requirements of section 508 (a) and (b) (relating to special rules with respect to section 501(c)(3) organizations) pursuant to subsection (c) thereof, or

"(ii) complies with section 508 (a), (b), and (g), or

"(B) for a transfer in trust (other than one to which the provisions of subparagraph (A) of this paragraph apply) unless the governing instrument of the trust includes provisions, the effects of which are to prohibit the trust from—

"(i) engaging in any act of self-dealing (as defined in section 4941(d)),

"(ii) retaining any excess business holdings (as defined in section 4943(c)),

"(iii) making any speculative investments in such manner as to subject the trust to tax under section 4944, and

"(iv) making any taxable expenditures (as defined in section 4945(b)).

"(8) DENIAL OF DEDUCTION IN CASE OF CONTRIBUTION OF PARTIAL INTEREST IN PROPERTY.—In a case where a taxpayer makes a charitable contribution of less than his entire interest in property to, and not in trust for, an organization described in subsection (c), a deduction shall be allowed under this section only to the extent that the value of the interest contributed would be allowed as a deduction under this section if such interest had been transferred in trust. For purposes of this paragraph, the charitable contribution by a taxpayer of the right to use property shall be treated as a charitable contribution of less than the taxpayer's entire interest in such property."

(4) CONFORMING AMENDMENTS.—

(A) Subsections (b)(5)(A) (ii) and (g) of section 170 are each amended by striking out "170(b)(1)(A)" each place it appears and inserting in lieu thereof "170(b)(1)(B)".

(B) Section 170(g)(1) is amended by striking out "subsection (b)(1)(C)" each place it appears and inserting in lieu thereof "subsection (b)(1)(D)".

(C) Sections 512(b)(11), 545(b)(2), and 556(b)(2) are each amended by striking out "170(b)(1)(A) and (B)" each place it appears and inserting in lieu thereof "170(b)(1)(B) and (C)".

(b) POLITICAL ACTIVITIES.—Section 170(c)(2)(D) (relating to definition of charitable contributions) is amended to read as follows:

"(D) no substantial part of the activities of which is carrying on propaganda, or otherwise attempting, to influence legislation, and which does not participate in, or intervene in (including the publishing or distributing of statements), any political campaign on behalf of any candidate for public office."

(c) CHARITABLE CONTRIBUTIONS OF APPRECIATED PROPERTY.—

(1) IN GENERAL.—Section 170(e) (relating to special rule for charitable contributions of certain property) is amended to read as follows:

"(e) CONTRIBUTIONS OF APPRECIATED PROPERTY.—

"(1) GENERAL RULE.—In the case of a charitable contribution of property to which paragraph (2) applies or a charitable contribution of any property directly or indirectly to or for the use of an organization to which paragraph (3) applies, if (at the time of the contribution) the fair market value of the property exceeds the taxpayer's adjusted basis (for purposes of determining gain) in the property, the taxpayer shall elect (at such time and in such manner as the Secretary or his delegate by regulations prescribes) to treat either:

"(A) the fair market value of the property, or

"(B) such adjusted basis of the property, as the amount of the charitable contribution to be taken into account under subsection (a).

"(2) CERTAIN APPRECIATED PROPERTY.—Paragraph (1) shall apply to charitable contributions of—

"(A) property any portion of the gain on which, if the property were sold for its fair market value at the time of the contribution, would have constituted or been treated as a gain other than a gain from the sale or exchange of a capital asset held for more than 12 months,

"(B) tangible personal property, and

"(C) a future interest in property.

For purposes of the preceding sentence, a fixture which is intended to be severed from real property shall be treated as tangible personal property.

"(3) CERTAIN ORGANIZATIONS.—Paragraph (1) shall apply to charitable contributions to a private foundation (as defined in section 509(a)) unless—

"(A) it is an operating foundation (as defined in section 4942(j)(3)), or

"(B) not later than the close of the organization's first year after its taxable year

in which such contributions are received, such organization makes a qualifying distribution (as defined in section 4942(g)) which is treated (in accordance with section 4942(h)) as a distribution out of corpus in an amount equal to 100 percent of all such contributions.

Subparagraph (B) shall not apply to a contribution to an organization described in subparagraph (B) unless the taxpayer obtains adequate records or sufficient evidence from the organization showing that the organization made the distributions as required therein.

"(4) ALLOCATION OF BASIS.—In the case of a charitable contribution of less than the taxpayer's entire interest in the property contributed, the taxpayer's adjusted basis in such property shall be allocated between the interest contributed and any interest not contributed in accordance with regulations prescribed by the Secretary or his delegate.

"(5) CROSS REFERENCE.—

"For treatment of gain in a case where the taxpayer elects to treat the fair market value of property as the amount to be taken into account, see section 83."

(2) GIFTS TREATED AS SALE.—Part II of subchapter B of chapter 1 of such Code (relating to items specifically included in gross income) is amended by adding at the end thereof the following new section:

"SEC. 83. CERTAIN GIFTS TO CHARITY TREATED AS SALES OF PROPERTY.

"(a) COMPUTATION AND RECOGNITION OF GAIN.—If a taxpayer—

"(1) has made a charitable contribution of property, and

"(2) has elected to treat the fair market value of the property as the amount of the charitable contribution pursuant to section 170(e),

the contribution shall be treated for purposes of this subtitle as a sale (at the time of the contribution) of the property to the donee for an amount equal to the fair market value of such property, and the gain on such sale shall be recognized.

"(b) LIMITATION.—In the case of a charitable contribution to an organization to which section 170(e)(1) does not apply of property—

"(1) which is described in section 170(e)(2)(A), and

"(2) to which subparagraphs (B) and (C) of section 170(e)(2) do not apply,

only that portion of the gain which would not be treated as gain from the sale of a capital asset held for more than 12 months shall be recognized.

"(c) ADJUSTMENTS TO BASIS.—The basis of the property acquired by gift to which this section applies shall be the donor's adjusted basis (for purposes of determining gain) increased by the amount of any gain recognized by the donor on the contribution under this section."

(3) CLERICAL AMENDMENT.—The table of sections for part II of subchapter B of chapter 1 is amended by adding at the end thereof the following item:

"Sec. 83. Certain gifts to charity treated as sales of property."

(d) BARGAIN SALES TO CHARITABLE ORGANIZATIONS.—Section 1011 (relating to adjusted basis for determining gain or loss) is amended—

(1) by striking out "The" at the beginning and inserting in lieu thereof:

"(a) GENERAL RULE.—The", and

(2) by adding at the end thereof the following new subsection:

"(b) BARGAIN SALE TO A CHARITABLE ORGANIZATION.—If a deduction is allowable under section 170 (relating to charitable contributions) by reason of a sale, then the adjusted basis for determining the gain from such sale shall be that portion of the adjusted basis which bears the same ratio to the adjusted basis as the amount realized bears to the fair market value of the property."

(e) SPLIT-INTEREST TRUSTS.—Section 170 is amended by redesignating subsections (h) and (i) as subsections (i) and (j), respectively, and by inserting after subsection (g) the following new subsection:

"(h) LIMITATION ON CONTRIBUTIONS OF REMAINDER INTEREST IN PROPERTY PLACED IN TRUST.—

"(1) GENERAL RULE.—In the case of property transferred in trust, no deduction shall be allowed under this section for the value of a contribution of a remainder interest unless the trust is a charitable remainder annuity trust or charitable remainder unitrust described in section 664(d).

"(2) EXCEPTION.—This subsection shall not apply in a case where the value of all interests in property transferred in trust are deductible under subsection (a)."

(f) CHARITABLE CONTRIBUTIONS BY ESTATES AND TRUSTS.—

(1) IN GENERAL.—Subsection (c) of section 642 (relating to deduction for amounts paid or permanently set aside for a charitable purpose) is amended to read as follows:

"(c) DEDUCTION FOR AMOUNTS PAID FOR A CHARITABLE PURPOSE.—In the case of an estate or trust (other than a trust meeting the specifications of subpart B) there shall be allowed as a deduction in computing its taxable income (in lieu of the deductions allowed by section 170(a), relating to deduction for charitable, etc., contributions and gifts) any amount of the gross income, without limitation, which pursuant to the terms of the governing instrument is, during the taxable year, paid for a purpose specified in section 170(c). If a charitable contribution is paid after the close of such taxable year and on or before the last day of the year following the close of such taxable year, then the trustee or administrator may elect to treat such contribution as paid during such taxable year. The election shall be made at such time and in such manner as the Secretary or his delegate by regulations prescribe. To the extent that the amount otherwise allowable as a deduction under this paragraph consists of gain from the sale or exchange of capital assets held for more than 12 months, proper adjustment shall be made for any deduction allowable to the estate or trust under section 1202 (relating to deduction for excess of capital gains over capital losses). In the case of a trust, the deduction allowed by this subsection shall be subject to section 681 (relating to unrelated business income) and section 507(f) (relating to prohibited transactions)."

(2) CONFORMING AMENDMENTS.—

(A) Section 643(a) (relating to definition of distributable net income) is amended:

(i) by striking out ", permanently set aside, or to be used" in the first sentence of paragraph (3); and

(ii) by striking out ", permanently set aside, or to be used" in that portion which follows paragraph (7) thereof.

(B) Section 651(a)(2) (relating to deduction for trusts distributing current income only) is amended by striking out ", permanently set aside, or used".

(C) Section 663(a)(2) (relating to special rules applicable to sections 661 and 662) is amended by striking out "or permanently set aside or otherwise qualifying for the deduction" and inserting "as" in leu thereof.

(g) TWO-YEAR CHARITABLE TRUSTS.—Section 673(b) (relating to trusts where the income is payable to a charitable beneficiary for at least a two-year period) is repealed.

(h) DISALLOWANCE OF ESTATE AND GIFT TAX DEDUCTIONS IN CERTAIN CASES.—

(1) ESTATES OF CITIZENS OR RESIDENTS.—Subsection (e) of section 2055 (relating to disallowance of charitable deductions in certain cases) is amended to read as follows:

"(e) DISALLOWANCE OF DEDUCTIONS IN CERTAIN CASES.—

"(1) No deduction shall be allowed under this section—

"(A) for a transfer to or for the use of an organization described in section 501(c)(3) (relating to exempt organizations) unless the organization—

"(i) is exempted from the requirements of section 508(a) and (b) pursuant to subsection (c) thereof, or

"(ii) complies with section 508 (a), (b), and (g); or

"(B) for a transfer in trust (other than one to which the provisions of subparagraph (A) of this paragraph apply) unless the governing instrument of the trust includes provisions, the effects of which are to prohibit the trust from—

"(i) engaging in any act of self-dealing (as defined in section 4941(d)),

"(ii) retaining any excess business holdings (as defined in section 4943(c)),

"(iii) making any speculative investments in such manner as to subject the trust to tax under section 4944, and

"(iv) making any taxable expenditures (as defined in section 4945(b)).

"(2) Where an interest in property passes or has passed from the decedent to a person, or for a use, described in subsection (a), and an interest in the same property passes or has passed (for less than an adequate and full consideration in money or money's worth) from the decedent to a person, or for a use, not described in subsection (a), no deduction shall be allowed under this section for the interest which passes or has passed to the person, or for the use, described in subsection (a) unless the interest is in the form of a remainder interest in a trust which is a charitable remainder annuity trust or a charitable remainder unitrust described in section 664(d)."

(2) ESTATES OF NONRESIDENTS NOT CITIZENS.—Subparagraph (E) of section 2106(a)(2) (relating to disallowance of deductions in certain cases) is amended to read as follows:

"(E) DISALLOWANCE OF DEDUCTIONS IN CERTAIN CASES.—The provisions of section 2055(e) also shall be applied in the determination of the amount allowable as a deduction under this paragraph."

(3) GIFT TAX.—Subsection (c) of section 2522 (relating to disallowance of charitable deductions in certain cases) is amended to read as follows:

"(c) DISALLOWANCE OF DEDUCTIONS IN CERTAIN CASES.—

"(1) No deduction shall be allowed under this section—

"(A) for a transfer to or for the use of an organization described in section 501(c)(3) (relating to exempt organizations) unless the organization—

"(i) is exempted from the requirements of section 508 (a) and (b) pursuant to subsection (c) thereof, or

"(ii) complies with section 508 (a), (b), and (g); or

"(B) for a transfer in trust (other than one to which the provisions of subparagraph (A) of this paragraph apply), unless the governing instrument of the trust includes provisions the effects of which are to prohibit the trust from—

"(i) engaging in any act of self-dealing (as defined in section 4941(d)),

"(ii) retaining any excess business holdings (as defined in section 4943(c)),

"(iii) making any speculative investments in such manner as to subject the trust to tax under section 4944, and

"(iv) making any taxable expenditures (as defined in section 4945(b)).

"(2)(A) Where a donor transfers an interest in property to a person, or for a use, described in subsection (a) or (b) and an interest in the same property is transferred or has been transferred (for less than an adequate and full consideration in money or money's worth) from the donor to a person,

or for a use, not described in subsection (a) or (b), the deduction allowed under this section for the interest which is, or has been transferred to the person, or for the use, described in subsection (a) or (b) shall not be greater than the amount allowed to the donor as a deduction under section 170 in respect of such interest, determined without regard to the percentage limitation in subsection (b) thereof. For purposes of this subparagraph, where the donor has elected the alternative set forth in subparagraph (B) of section 170(e)(1) (relating to electing valuation of gifts of appreciated property), the deduction allowed under section 170 shall be deemed to be the deduction that would have been allowed had the alternative set forth in subparagraph (A) been elected.

"(B) Where any readjustment under section 170(b)(1)(H) is made in the donor's income, at the time the readjustment is made the donor shall, for purposes of this chapter, be considered as making a gift (which is not a gift of a present interest in property and for which no deduction shall be allowed under this section) of property in an amount equal to the amount required to be included in income as a result of the readjustment, except that if the alternative set forth in subparagraph (B) of section 170(e)(1) had been elected, the amount of such gift shall be considered to be in an amount equal to the amount which would have been required to be included in income as a result of the readjustment if the alternative set forth in subparagraph (A) of such section had been elected.

(i) CHARITABLE REMAINDER TRUSTS.—

(1) Subpart C of part I of subchapter J of chapter 1 (relating to estates and trusts which may accumulate income or which distribute corpus) is amended by adding at the end thereof the following new section:

"SEC. 664. CHARITABLE REMAINDER TRUSTS.

"(a) GENERAL RULE.—Notwithstanding any other provision of this subchapter, the provisions of this section shall, in accordance with regulations prescribed by the Secretary or his delegate, apply in the case of a charitable remainder annuity trust and a charitable remainder unitrust.

"(b) CHARACTER OF DISTRIBUTIONS.—Amounts distributed by a charitable remainder annuity trust or by a charitable remainder unitrust shall be considered as having the following characteristics in the hands of the beneficiary to whom is paid the annuity described in subsection (d)(1)(A) or the payment described in subsection (d)(2)(A):

"(1) First, as amounts of income includible in gross income to the extent of such income of the trust for the year and such undistributed income of the trust for prior years;

"(2) Second, as a capital gain to the extent of the capital gain of the trust for the year and the undistributed capital gain of the trust for prior years;

"(3) Third, as other income to the extent of such income of the trust for the year and such undistributed income of the trust for prior years; and

"(4) Fourth, as a distribution of trust corpus. For purposes of this section the trust shall determine the amount of its undistributed capital gain on a cumulative net basis.

"(c) EXEMPTION OF TRUST FROM TAXATION.—A charitable remainder annuity trust and a charitable remainder unitrust shall not be subject to any tax imposed by this subtitle.

"(d) DEFINITIONS.—

"(1) CHARITABLE REMAINDER ANNUITY TRUST.—A charitable remainder annuity trust is a trust—

"(A) From which a sum certain is to be paid, not less often than annually, to a person who is not a person or organization described in section 170 (c), for a term of years or for the life of the person, and

"(B) Following the termination of the annuity described in subparagraph (A) the remainder interest in the trust is to be transferred to, or for the use of, an organization described in section 170(c) or is to be retained by the trust for such a use.

"(2) CHARITABLE REMAINDER UNITRUST.—A charitable remainder unitrust is a trust—

"(A) From which a fixed percentage of the net fair market value of its assets, valued annually, is to be paid, not less often than annually, to a person who is not a person or organization described in section 170(c), for a term of years or for the life of the person, and

"(B) Following the termination of the interest described in subparagraph (A) the remainder interest in the trust is to be transferred to, or for the use of, an organization described in section 170(c) or is to be retained by the trust for such a use."

(2) The table of sections for subpart C of part I of subchapter J of chapter 1 (relating to estates and trusts which may accumulate income or which distribute corpus) is amended by adding at the end thereof

"Sec. 664.Charitable remainder trusts."

(j) EFFECTIVE DATES.—

(1) The amendments made by subsection (a) shall apply to contributions paid in taxable years beginning after December 31, 1969, with the following exceptions:

(A) the amendments made in sections 170(b)(1)(H) and (I) shall apply with respect to transfers in trust and contributions made after April 22, 1969, and

(B) the amendment made in section 170(b)(8) shall apply to contributions made after April 22, 1969.

(2) The amendment made by subsection (b) shall apply to contributions which are paid (or treated as paid under section 170(a)(2)) after December 31, 1969.

(3) The amendments made by subsection (c) shall apply with respect to contributions which are paid (or treated as paid under section 170(a)(2)) after December 31, 1969.

(4) The amendments made by subsection (d) shall apply to sales made after May 26, 1969.

(5) The amendments made by subsections (e) and (g) shall apply to transfers in trust made after April 22, 1969.

(6) The amendment made by subsection (f) shall apply to amounts paid, permanently set aside, or to be used for a charitable purpose after the date of enactment of this Act.

(7)(A) The amendments made by paragraphs (1) and (2) of subsection (h) shall apply in the case of decedents dying after the date of enactment of this Act.

(B) The amendment made by paragraph (3) of subsection (h) shall apply to gifts made after April 22, 1969.

(8) The amendment made by subsection (i) shall apply to transfers in trust made after the date of enactment of this Act.

SUBTITLE B—FARM LOSSES, ETC.

SEC. 211. GAIN FROM DISPOSITIONS OF PROPERTY USED IN FARMING WHERE FARM LOSSES OFFSET NONFARM INCOME.

(a) IN GENERAL.—Part IV of subchapter P of chapter 1 (relating to special rules for determining capital gains and losses) is amended by adding at the end thereof the following new section:

"SEC. 1251. GAIN FROM DISPOSITION OF PROPERTY USED IN FARMING WHERE FARM LOSSES OFFSET NONFARM INCOME.

"(a) CIRCUMSTANCES UNDER WHICH SECTION APPLIES.—This section shall apply with respect to any taxable year only if—

"(1) there is a farm net loss for the taxable year, or

"(2) there is a balance in the excess deductions account as of the close of the taxable year after applying subsection (b)(3)(A).

"(b) EXCESS DEDUCTIONS ACCOUNT.—

"(1) REQUIREMENT.—Each taxpayer subject to this section shall, for purposes of this section, establish and maintain an excess deductions account.

"(2) ADDITIONS TO ACCOUNT.—

"(A) GENERAL RULE.—There shall be added to the excess deductions account for each taxable year an amount equal to the farm net loss.

"(B) EXCEPTION FOR INDIVIDUALS.—In the case of an individual, subparagraph (A) shall not apply for a taxable year—

"(i) unless his nonfarm adjusted gross income for such year exceeds $50,000, and

"(ii) only to the extent his farm net loss exceeds $25,000.

"(C) MARRIED INDIVIDUALS.—In the case of a husband or wife who files a separate return, the amount specified in subparagraph (B)(i) shall be $25,000 in lieu of $50,000, and in subparagraph (B)(ii) shall be $12,500 in lieu of $25,000. This subparagraph shall not apply if the spouse of the taxpayer does not have any nonfarm adjusted gross income for the taxable year.

"(D) NONFARM ADJUSTED GROSS INCOME.—For purposes of this section, the term 'nonfarm adjusted gross income' means the adjusted gross income computed without regard to income or deductions attributable to farming.

"(3) SUBTRACTIONS FROM ACCOUNT.—If there is any amount in the excess deductions account at the close of any taxable year (determined before any amount is subtracted under this paragraph for such year) there shall be subtracted from the account—

"(A) an amount equal to the farm net income for such year, plus the amount (determined as provided in regulations prescribed by the Secretary or his delegate) necessary to adjust the account for deductions which did not result in a reduction of the taxpayer's tax under this subtitle for the taxable year or any preceding taxable year (including such amounts which did not result in a reduction of tax because of the application of section 84 (relating to limit on tax preferences)), and

"(B) after applying paragraph (2) or subparagraph (A) of this paragraph (as the case may be), an amount equal to the sum of the amounts treated under subsection (c) as gain from the sale or exchange of property which is neither a capital asset nor property described in section 1231.

"(4) EXCEPTION FOR TAXPAYERS USING CERTAIN ACCOUNTING METHODS.—

"(A) GENERAL RULE.—Except to the extent that the taxpayer has succeeded to an excess deductions account as provided in paragraph (5), additions to the excess deductions account shall not be required by a taxpayer who elects to compute taxable income from farming (i) by using inventories, and (ii) by charging to capital account all expenditures paid or incurred which are properly chargeable to capital account (including such expenditures which the taxpayer may, under this chapter or regulations prescribed thereunder, otherwise treat or elect to treat as expenditures which are not chargeable to capital account).

"(B) TIME, MANNER, AND EFFECT OF ELECTION.—An election under subparagraph (A) for any taxable year shall be filed within the time prescribed by law (including extensions thereof) for filing the return for such taxable year, and shall be made and filed in such manner as the Secretary or his delegate shall prescribe by regulations. Such election shall be binding on the taxpayer for such taxable year and for all subsequent taxable years and may not be revoked except with the consent of the Secretary or his delegate.

"(C) CHANGE OF METHOD OF ACCOUNTING, ETC.—If, in order to comply with the election made under subparagraph (A), a tax-

payer changes his method of accounting in computing taxable income from the business of farming, such change shall be treated as having been made with the consent of the Secretary or his delegate and for purposes of section 481(a)(2) shall be treated as a change not initated by the taxpayer.

"(5) TRANSFER OF ACCOUNT.—

"(A) CERTAIN CORPORATE TRANSACTIONS.—In the case of a transfer described in subsection (d)(3) to which section 371(a), 374(a), or 381 applies, the acquiring corporation shall succeed to and take into account as of the close of the day of distribution or transfer, the excess deductions account of the transferor.

"(B) CERTAIN GIFTS.—If—

"(i) farm recapture property is disposed of by gift, and

"(ii) the potential gain (as defined in subsection (e)(5)) on farm recapture property disposed of by gift during any one-year period in which any such gift occurs is more than 80 percent of the potential gain on farm recapture property held by the donor immediately prior to the first of such gifts, the donees of the property shall succeed (as of the close of the donor's taxable year in which the first of such gifts is made) to the donor's excess deductions account (or in the case of more than one donee, to his ratable share of such account) determined, after the application of paragraphs (2) and (3) with respect to the donor, as of the close of such taxable year.

"(6) JOINT RETURN.—In the case of an addition to an excess deductions account for a taxable year for which a joint return was filed under section 6013, for any subsequent taxable year for which a separate return was filed the Secretary or his delegate shall provide rules for allocating any remaining amount of such addition in a manner consistent with the purposes of this section.

"(c) ORDINARY INCOME.—

"(1) GENERAL RULE.—Except as otherwise provided in this section, if farm recapture property (as defined in subsection (e)(1)) is disposed of during a taxable year beginning after December 31, 1969, the amount by which—

"(A) in the case of a sale, exchange, or involuntary conversion, the amount realized, or

"(B) in the case of any other disposition, the fair market value of such property,

exceeds the adjusted basis of such property shall be treated as gain from the sale or exchange of property which is neither a capital asset nor property described in section 1231. Such gain shall be recognized notwithstanding any other provision of this subtitle.

"(2) LIMITATION.—

"(A) AMOUNT IN EXCESS DEDUCTIONS ACCOUNT.—The aggregate of the amounts treated under paragraph (1) as gain from the sale or exchange of property which is neither a capital asset nor property described in section 1231 for any taxable year shall not exceed the amount in the excess deductions account at the close of the taxable year after applying subsection (b)(3)(A).

"(B) DISPOSITIONS TAKEN INTO ACCOUNT.—If the aggregate of the amounts to which paragraph (1) applies is limited by the application of subparagraph (A), paragraph (1) shall apply in respect of such dispositions (and in such amounts) as provided under regulations prescribed by the Secretary or his delegate.

"(C) SPECIAL RULE FOR DISPOSITION OF LAND.—In applying subparagraph (A), any gain on the sale or exchange of land shall be taken into account only to the extent of its potential gain (as defined in subsection (e)(5)).

"(d) EXCEPTIONS AND SPECIAL RULES.—

"(1) GIFTS.—Subsection (c) shall not apply to a disposition by gift.

"(2) TRANSFER AT DEATH.—Except as provided in section 691 (relating to income in respect of a decedent), subsection (c) shall not apply to a transfer at death.

"(3) CERTAIN CORPORATE TRANSACTIONS.—If the basis of property in the hands of a transferee is determined by reference to its basis in the hands of the transferor by reason of the application of section 332, 351, 361, 371(a), or 374(a), then the amount of gain taken into account by the transferor under subsection (c)(1) shall not exceed the amount of gain recognized to the transferor on the transfer of such property (determined without regard to this section). This paragraph shall not apply to a disposition to an organization (other than a cooperative described in section 521) which is exempt from the tax imposed by this chapter.

"(4) LIKE KIND EXCHANGES; INVOLUNTARY CONVERSION, ETC.—If property is disposed of and gain (determined without regard to this section) is not recognized in whole or in part under section 1031 or 1033, then the amount of gain taken into account by the transferor under subsection (c)(1) shall not exceed the sum of—

"(A) the amount of gain recognized on such disposition (determined without regard to this section), plus

"(B) the fair market value of property acquired with respect to which no gain is recognized under subparagraph (A), but which is not farm recapture property.

"(5) PARTNERSHIPS.—

"(A) IN GENERAL.—In the case of a partnership, each partner shall take into account separately his distributive share of the partnership's farm net losses, gains from dispositions of farm recapture property, and other items in applying this section to the partner.

"(B) TRANSFERS TO PARTNERSHIPS.—If farm recapture property is contributed to a partnership and gain (determined without regard to this section) is not recognized under section 721, then the amount of gain taken into account by the transferor under subsection (c)(1) shall not exceed the excess of the fair market value of farm recapture property transferred over the fair market value of the partnership interest attributable to such property. If the partnership agreement provides for an allocation of gain to the contributing partner with respect to farm recapture property contributed to the partnership (as provided in section 704(c)(2)), the partnership interest of the contributing partner shall be deemed to be attributable to such property.

"(6) PROPERTY TRANSFERRED TO CONTROLLED CORPORATIONS.—Except for transactions described in subsection (b)(5)(A), in the case of a transfer, described in paragraph (3), of farm recapture property to a corporation, stock received by a transferor in the exchange shall be farm recapture property to the extent attributable to the fair market value of farm recapture property (or if less, the adjusted basis plus the potential gain (as defined in subsection (e)(5)) on farm recapture property) contributed to the corporation by such transferor.

"(e) DEFINITIONS.—For purposes of this section—

"(1) FARM RECAPTURE PROPERTY.—The term 'farm recapture property' means any property (other than section 1250 property) described in paragraph (1) (relating to business property held for more than 12 months), (3) (relating to livestock), or (4) (relating to an unharvested crop) of section 1231(b) which is or has been used in the trade or business of farming by the taxpayer or by a transferor in a transaction described in subsection (b)(5).

"(2) FARM NET LOSS.—The term 'farm net loss' means the amount by which—

"(A) the deductions allowed or allowable by this chapter which are directly connected with the carrying on of the trade or business of farming, exceed

"(B) the gross income derived from such trade or business.

Gains and losses on the disposition of farm recapture property referred to in section 1231(a) (determined without regard to this section or section 1245(a)) shall not be taken into account.

"(3) FARM NET INCOME.—The term 'farm net income' means the amount by which the amount referred to in paragraph (2)(B) exceeds the amount referred to in paragraph (2)(A).

"(4) TRADE OR BUSINESS OF FARMING.—

"(A) HORSE RACING.—In the case of a taxpayer engaged in the raising of horses, the term 'trade or business of farming' includes the racing of horses.

"(B) SEVERAL BUSINESSES OF FARMING.—If a taxpayer is engaged in more than one trade or business of farming, all such trades and businesses shall be treated as one trade or business."

"(5) POTENTIAL GAIN.—The term 'potential gain' means an amount equal to the excess of the fair market value of property over its adjusted basis, but limited in the case of land to the extent of the deductions allowable in respect to such land under sections 175 (relating to soil and water conservation expenditures) and 182 (relating to expenditures by farmers for clearing land) for the taxable year and the 4 preceding taxable years."

(b) CONFORMING AMENDMENTS.—

(1) Section 301(b)(1)(B)(ii) (relating to corporate distributions of property) is amended by striking out "or 1250(a)" and inserting in lieu thereof "1250(a), or 1251(c)".

(2) Section 301(d)(2)(B) (relating to the basis of property distributed by a corporation) is amended by striking out "or 1250(a)" and inserting in lieu thereof "1250(a), or 1251(c)".

(3) Section 312(c)(3) (relating to adjustment to corporate earnings and profits) is amended by striking out "or 1250(a)" and inserting in lieu thereof "1250(a), or 1251(c)".

(4) Section 341(e)(12) (relating to nonapplication of section 1245(a) with respect to collapsible corporations) is amended by striking out "and 1250(a)" and inserting in lieu thereof "1250(a), and 1251(c)".

(5) Section 453(d)(4)(B) (relating to distribution of installment obligations under certain liquidations) is amended by striking out "or 1250(a)" and inserting in lieu thereof "1250(a), or 1251(c)".

(6) Section 751(c) (relating to unrealized receivables in partnership transactions) is amended by striking out "section 1250(c)" and inserting in lieu thereof "section 1250(c), and farm recapture property (as defined in section 1251(e)(1))"; and by striking out "1250(a)" and inserting in lieu thereof "1250(a), or 1251(c)".

(7) The table of sections for part IV of subchapter P of chapter 1 is amended by adding at the end thereof the following:

"Sec. 1251. Gain from disposition of property used in farming where farm losses offset nonfarm income."

(c) EFFECTIVE DATES.—The amendments made by this section shall apply to taxable years beginning after December 31, 1969.

SEC. 212. LIVESTOCK.

(a) DEPRECIATION RECAPTURE.—

(1) GENERAL RULE.—Section 1245(a)(2) (relating to recomputed basis with respect to gain from disposition of certain depreciable property) is amended by striking out "or" at the end of subparagraph (A), by adding "or" at the end of subparagraph (B), and by inserting immediately after subparagraph (B) the following:

"(C) with respect to livestock, its adjusted basis recomputed by adding thereto

all adjustments attributable to a period after December 31, 1969,"

(2) CONFORMING AMENDMENT.—Section 1245(a)(3) (relating to section 1245 property) is amended by striking out "(other than livestock)".

(3) EFFECTIVE DATE.—The amendments made by paragraphs (1) and (2) shall apply with respect to taxable years beginning after December 31, 1969.

(b) LIVESTOCK USED IN TRADE OR BUSINESS.—

(1) AMENDMENT OF SECTION 1231.—Section 1231(b)(3) (relating to property used in a trade or business) is amended to read as follows:

"(3) LIVESTOCK.—Such term includes livestock regardless of age, held by a taxpayer for draft, breeding, sporting, or dairy purposes, but only if held by him for at least 365 days after such animal normally would have first been used for any of such purposes. Such term does not include poultry."

(2) EFFECTIVE DATE.—The amendments made by paragraph (1) shall apply to livestock acquired after December 31, 1969.

SEC. 213. HOBBY LOSSES.

(a) Section 270 (relating to limitation on deductions allowable to individuals in certain cases) is amended to read as follows:

"SEC. 270. LIMITATION ON DEDUCTIONS IN CERTAIN CASES.

"(a) GENERAL RULE.—Items attributable to an activity shall be allowed only to the extent of the gross income from such activity unless such activity is carried on with a reasonable expectation of realizing a profit.

"(b) REBUTTABLE PRESUMPTION.—If the deductions attributable to an activity exceed the gross income from such activity by $25,000 or more for any 3 of 5 consecutive years ending with the taxable year, then unless the taxpayer establishes to the contrary, the activity shall be deemed to have been carried on without a reasonable expectation of realizing a profit."

(b)(1) Section 6504 (relating to cross references with respect to limitations on assessment and collection) is amended by striking out paragraph (8).

(2) The table of sections for part IX of subchapter B of chapter 1 is amended by striking out—

"Sec. 270. Limitation on deductions allowable to individuals in certain cases."

and inserting in lieu thereof the following:

"Sec. 270. Limitation on deductions in certain cases."

(c) The amendment made by this section shall apply to taxable years beginning after December 31, 1969.

SUBTITLE C—INTEREST

SEC. 221. INTEREST.

(a) LIMITATION ON INTEREST DEDUCTION ATTRIBUTABLE TO INVESTMENT INDEBTEDNESS.—Section 163 (relating to interest) is amended by redesignating subsection (d) and (e), and by inserting after subsection (c) the following new subsection:

"(d) LIMITATION ON INTEREST ON INVESTMENT INDEBTEDNESS.—

"(1) IN GENERAL.—In the case of a taxpayer other than a corporation (except an electing small business corporation as defined in section 1371(b)), the amount of investment interest allowable as a deduction under subsection (a) shall not exceed the sum of—

"(A) $25,000 ($12,500, in the case of a separate return by a married individual),

"(B) the amount of the net investment income (as defined in paragraph (3)(C)), and

"(C) an amount equal to the amount by which the net long-term capital gain exceeds the net short-term capital loss for the taxable year.

"(2) CARRYFORWARD OF DISALLOWED INVESTMENT INTEREST.—The amount of disallowed investment interest for any taxable year shall be treated (except for purposes of paragraph (1)(A)) as investment interest paid or accrued in the succeding taxable year.

"(3) DEFINITIONS.—For purposes of this subsection—

"(A) INVESTMENT INCOME.—The term 'investment income' means the gross amount of income from interest, dividends, rents, and royalties and net short-term capital gains derived from the disposiition of property held for investment, but only to the extent that such gross income or such gains are not derived from the conduct of a trade or business.

"(B) INVESTMENT EXPENSES.—The term 'investment expenses' means all deductions allowable under section 164(a) (1) or (2), 166, 167, 171, 212, or 611 directly connected with the production of investment income.

"(C) NET INVESTMENT INCOME.—The term 'net investment income' means the excess, if any, of investment income over investment expenses.

"(D) INVESTMENT INTEREST.—The term 'investment interest' means interest paid or accrued on indebtedness incurred or continued to purchase or carry property held for investment.

"(E) DISALLOWED INVESTMENT INTEREST.—The term 'disallowed investment interest' means, with respect to any taxable year, the amount disallowed as a deduction solely by reason of the limitation in paragraph (1).

"(4) SPECIAL RULES.—

"(A) PARTNERSHIPS.—In the case of a partnership, the provisions of this subsection shall apply with respect to the partnership and with respect to each partner.

"(B) NET OPERATING LOSSES OF ELECTING SMALL BUSINESS CORPORATIONS.—The net operating loss deduction allowed to shareholders of an electing small business corporation under section 1374 shall be deemed an investment interest deduction to the extent such investment interest is allowed as a deduction to the corporation. Section 1374(d) shall be disregarded to the extent such net operating loss deduction is deemed to be an investment interest deduction.

"(C) RENTS.—Gross income derived from rents shall not be considered as gross income derived from the conduct of a trade or business unless (i) the sum of the deductions with respect to the rent producing property which are allowable under section 162 (relating to trade or business expenses) equals or exceeds 15 percent of the rental income produced by such property, and (ii) the taxpayer is neither guaranteed a specified return nor is guaranteed in whole or in part against loss of income."

(b) CAPITAL GAINS DEDUCTION.—The first sentence of section 1202 (relating to deduction for capital gains) is amended by striking out "exceeds the net short-term capital loss" and inserting in lieu thereof "exceeds the sum of the net short-term capital loss and the amount of investment interest allowable as a deduction under section 163(d)(1)(C)".

(c) EFFECTIVE DATE.—The amendments made by this section shall apply to taxable years beginning after December 31, 1969.

SUBTITLE D—MOVING EXPENSES

SEC. 231. MOVING EXPENSES.

(a) DEDUCTION FOR MOVING EXPENSES.—Section 217 (relating to moving expenses) is amended to read as follows:

SEC. 217. MOVING EXPENSES.

"(a) DEDUCTION ALLOWED.—There shall be allowed as a deduction moving expenses paid or incurred during the taxable year in connection with the commencement of work by the taxpayer as an employee at a new principal place of work.

"(b) DEFINITION OF MOVING EXPENSES.—

"(1) IN GENERAL.—For purposes of this section, the term 'moving expenses' means only the reasonable expenses—

"(A) of moving household goods and personal effects from the former residence to the new residence,

"(B) of traveling (including meals and lodging) from the former residence to the new place of residence,

"(C) of traveling (including meals and lodging), after obtaining employment, from the former residence to the general location of the new principal place of work and return, for the principal purpose of searching for a new residence.

"(D) of meals and lodging while occupying temporary quarters in the general location of the new principal place of work during any period of 30 consecutive days after obtaining employment, or

"(E) constituting qualified residence sale, purchase, or lease expenses.

"(2) QUALIFIED RESIDENCE SALE, ETC., EXPENSES.—For purposes of paragraph (1)(E), the term 'qualified residence sale, purchase, or lease expenses' means only reasonable expenses incident to—

"(A) the sale or exchange by the taxpayer or his spouse of the taxpayer's former residence (not including expenses for work performed on such residence in order to assist in its sale) which (but for this subsection and subsection (e)) would be taken into account in determining the amount realized on the sale or exchange,

"(B) the purchase by the taxpayer or his spouse of a new residence in the general location of the new principal place of work which (but for this subsection and subsection (e)) would be taken into account in determining—

"(i) the adjusted basis of the new residence, or

"(ii) the cost of a loan (but not including any amounts which represent payments or prepayments of interest),

"(C) the settlement of an unexpired lease on property used by the taxpayer as his former residence, or

"(D) the acquisition of a lease by the taxpayer or his spouse on property used by the taxpayer as his new residence in the general location of the new principal place of work (not including amounts which are payments or prepayments of rent).

"(3) LIMITATIONS.—

"(A) DOLLAR LIMITS.—The aggregate amount allowable as a deduction under subsection (a) in connection with a commencement of work which is attributable to expenses described in subparagraph (C) or (D) of paragraph (1) shall not exceed $1,000. The aggregate amount allowable as a deduction under subsection (a) which is attributable to qualified residence sale, purchase, or lease expenses shall not exceed $2,500, reduced by the aggregate amount so allowable which is attributable to expenses described in subparagraph (C) or (D) of paragraph (1).

"(B) HUSBAND AND WIFE.—In the case of a husband and wife filing separate returns, subparagraph (A) shall be applied by substituting '$500' for '$1,000', and by substituting '$1,250' for '$2,500'.

"(C) INDIVIDUALS OTHER THAN TAXPAYER.—In the case of any individual other than the taxpayer, expenses referred to in subparagraphs (A) through (D) of paragraph (1) shall be taken into account only if such individual has both the former residence and the new residence as his principal place of abode and is a member of the taxpayer's household.

"(c) CONDITIONS FOR ALLOWANCE.—No deduction shall be allowed under this section unless—

"(1) the taxpayer's new principal place of work—

"(A) is at least 50 miles farther from his former residence than was his former principal place of work, or

"(B) if he had no former principal place of work, is at least 50 miles from his former residence, and

"(2) during the 12-month period immediately following his arrival in the general location of his new principal place of work, the taxpayer is a full-time employee, in such general location, during at least 39 weeks.

"(d) RULES FOR APPLICATION OF SUBSECTION (c)(2).—

"(1) The condition of subsection (c)(2) shall not apply if the taxpayer is unable to satisfy such condition by reason of—

"(A) death or disability, or

"(B) involuntary separation (other than for willful misconduct) from the service of, or transfer for the benefit of, an employer after obtaining full-time employment in which the taxpayer could reasonably have been expected to satisfy such condition.

"(2) If a taxpayer has not satisfied the condition of subsection (c)(2) before the time prescribed by law (including extensions thereof) for filing the return for the taxable year during which he paid or incurred moving expenses which would otherwise be deductible under this section, but may still satisfy such condition, then such expenses may (at the election of the taxpayer) be deducted for such taxable year notwithstanding subsection (c)(2).

"(3) If—

"(A) for any taxable year moving expenses have been deducted in accordance with the rule provided in paragraph (2), and

"(B) the condition of subsection (c)(2) (as modified by paragraph (1) of this subsection) cannot be satisfied at the close of a subsequent taxable year,

then an amount equal to the expenses which were so deducted shall be included in gross income for the first such subsequent taxable year.

"(e) DENIAL OF DOUBLE BENEFIT.—The amount realized on the sale of the residence described in subparagraph (A) of subsection (b)(2) shall not be decreased by the amount of any expenses described in such subparagraph which are allowed as a deduction under subsection (a), and the basis of a residence described in subparagraph (B) of subsection (b)(2) shall not be increased by the amount of any expenses described in such subparagraph which are allowed as a deduction under subsection (a). This subsection shall not apply to any expenses with respect to which an amount is included in gross income under subsection (d)(3).

"(f) REGULATIONS.—The Secretary or his delegate shall prescribe such regulations as may be necessary to carry out the purposes of this section."

(b) INCLUSION IN GROSS INCOME OF MOVING EXPENSE REIMBURSEMENTS.—Part II of subchapter B of chapter 1 (relating to items specifically included in gross income) is amended by adding after section 81 the following new section:

"SEC. 82. REIMBURSEMENT FOR EXPENSES OF MOVING.

"There shall be included in gross income (as compensation for services) any amount received or accrued, directly or indirectly, by an individual from his employer as a payment for or reimbursement of expenses of moving from one residence to another residence."

(c) CLERICAL AMENDMENTS.—The table of sections for part II of subchapter B of chapter 1 is amended by adding at the end thereof the following:

"Sec. 82. Reimbursement for expenses of moving."

(d) EFFECTIVE DATES.—The amendments made by this section shall apply to taxable years beginning after December 31, 1969, except that section 217 of the Internal Revenue Code of 1954 (as amended by subsection (a)) shall not apply to any item to the extent that the taxpayer received reimbursement or other expense allowance for such item on or before December 31, 1969, which was not included in his gross income.

TITLE III—OTHER ADJUSTMENTS PRIMARY AFFECTING INDIVIDUALS

SUBTITLE A—LIMIT ON TAX PREFERENCES AND ALLOCATION OF DEDUCTIONS

SEC. 301. LIMIT ON TAX PREFERENCES FOR INDIVIDUALS, ESTATES, AND TRUSTS.

(a) IN GENERAL.—

(1) Part II of subchapter B of chapter 1 (relating to items specifically included in gross income) is amended by adding at the end thereof the following new section:

"SEC. 84. DISALLOWED TAX PREFERENCES.

"(a) GENERAL RULE.—In the case of a taxpayer (other than a corporation), there shall be included in gross income for the taxable year the amount of disallowed tax preferences.

"(b) DISALLOWED TAX PREFERENCES.—For purposes of this section, the amount of disallowed tax preferences for a taxable year is the amount by which the sum of the items of tax preference exceeds the limit on tax preferences.

"(c) ITEMS OF TAX PREFERENCE.—

"(1) GENERAL RULE.—For purposes of this section, the items of tax preference are:

"(A) CHARITABLE CONTRIBUTION OF APPRECIATED PROPERTY.—The amount of the deduction (determined without regard to section 277) for charitable contributions under section 170 or 642 (c) allowable for the taxable year which is attributable to appreciation in the value of property not included in gross income (determined without regard to this section).

"(B) ACCELERATED DEPRECIATION.—With respect to each section 1250 property (as defined in section 1250(c)), the amount by which the deduction allowable for the taxable year for exhaustion, wear and tear, obsolescence, or amortization exceeds the depreciation deduction which would have been allowable for the taxable year had the taxpayer depreciated the property under the method described in section 167(b)(1) (relating to the straight line method of depreciation) for each taxable year of its useful life for which the taxpayer has held the property.

"(C) INTEREST ON CERTAIN GOVERNMENTAL OBLIGATIONS.—The excess (if any) of interest on obligations which is excludable from gross income for the taxable year under section 103 over the sum of—

"(i) the amount of the proper adjustment to basis required to be made for the taxable year under section 1016(a) (5) or (6), and

"(ii) the amount of deductions allocable to such interest which is disallowed by application of section 265(a)(1) (relating to expenses relating to tax-exempt income), multiplied by the transitional percentage as determined under paragraph (5).

"(D) FARM LOSSES.—The amount by which the farm net loss (as defined under section 1251(e)(2) but not including any item of tax preference specified in subparagraph (B)) exceeds the amount of the farm loss (if any) which would have been determined under the accounting methods described in section 1251 (b)(4).

"(E) CAPITAL GAINS DEDUCTION.—The amount allowable as a deduction for long-term capital gains under section 1202.

"(2) NONRESIDENT ALIENS.—In the case of a nonresident alien, the items of tax preference shall include only those items of income which are effectively connected with the conduct of a trade or business within the United States and those items of deductions which are allowable as deductions in determining taxable income which is effectively connected with the conduct of a trade or business within the United States.

"(3) SPECIAL RULE FOR COMPUTING NET OPERATING LOSS.—For purposes of computing the amount of a net operating loss or the amount of a net operating loss carryover, the items of tax preference shall be determined without regard to paragraph (1)(E).

"(4) SPECIAL RULE FOR SHAREHOLDERS OF AN ELECTING SMALL BUSINESS CORPORATION.—Under regulations prescribed by the Secretary or his delegate, the items of tax preference of an electing small business corporation (as defined in section 1371(b)) for each taxable year of the corporation shall be treated as items of tax preference of the shareholders of such corporation and shall be apportioned pro rata among such shareholders in a manner consistent with section 1374(c)(1). For purposes of the preceding sentence, this section shall be treated as applying to such corporation.

"(5) TRANSITIONAL PERCENTAGE APPLICABLE TO INTEREST ON CERTAIN GOVERNMENTAL OBLIGATIONS.—The transitional percentage referred to in paragraph (1)(C) is 10 percent multiplied by the number of taxable years beginning on or after January 1, 1970 (but not in excess of 100 percent).

"(d) LIMIT ON TAX PREFERENCES.—For purposes of this section, the limit on tax preferences is an amount equal to the greater of—

"(1) one-half of the sum of (A) the items of tax preference, and (B) the adjusted gross income computed without regard to this section and section 218(a), or

"(2) $10,000 ($5,000 in the case of a married individual filing a separate return).

(e) AMOUNTS INCLUDED IN INCOME.—For purposes of this chapter, the amount included in gross income under this section shall be considered derived proportionately from each item of tax preference.

"(f) CROSS REFERENCE.—

"For rules relating to adjustments for amounts disallowed as tax preferences by this section, see section 218."

(2) Part VII of subchapter B of chapter 1 (relating to additional itemized deductions for individuals) is amended by renumbering section 218 as 219, and by inserting after section 217 the following new section:

"SEC. 218. ADJUSTMENTS FOR DISALLOWED TAX PREFERENCES.

"(a) GENERAL RULE.—If in any taxable year a taxpayer has included disallowed tax preference (as determined under section 84(b)) in gross income, the amount thereof shall be allowed, subject to subsection (b), as a deduction in each of the 5 succeeding taxable years to the extent not used as a deduction in earlier taxable years which are subsequent to the taxable year in which the disallowed tax preferences arose. For purposes of the preceding sentence, the amount of disallowed tax preferences to which this section applies shall be reduced by the amount of any basis adjustments resulting from application of subsection (c) during the taxable year to which this section is being applied and any prior taxable years which are subsequent to the taxable year in which the disallowed tax preferences arose.

"(b) LIMITATIONS.—The deduction under subsection (a) for any taxable year shall not exceed the amount of the limit on tax preferences (as defined in section 84(d)) for such taxable year reduced by—

"(1) the items of tax preference for such taxable year, and

"(2) the deduction under subsection (a) for such taxable year resulting from application of this section to disallowed tax preferences arising in taxable years preceding the taxable year in which the disallowed tax preferences being applied arose.

"(c) ADJUSTMENT TO BASIS.—

"(1) IN GENERAL.—Except as provided in paragraph (2)—

"(A) disallowed tax preferences which relate to items of tax preference described in section 84(c)(1)(B) shall increase the basis of the asset to which they relate, and

"(B) disallowed tax preferences which relate to items of tax preference described in section 84 (c)(1)(D) shall increase the basis of any farm asset other than section 1250 property (as defined in section 1250(c)), to the extent not allowed as a deduction or as an addition to basis under this section for an earlier taxable year. Such increase shall not be taken into account for purposes of the deduction allowed by section 167.

"(2) FARM ASSETS.—The increase in basis of farm assets provided in paragraph (1) shall apply to such assets in the order of disposition and shall not increase the basis of an asset to an amount greater than—

"(A) the amount which the basis would have been had the taxpayer used the accounting methods described in section 1251(b)(4), or

"(B) if the taxpayer so chooses, an amount determined by use of reasonable estimates of the unit costs of the different classes of assets."

(b) TECHNICAL AMENDMENTS.—

(1) Section 62 (relating to definitions of adjusted gross income) is amended by inserting after paragraph (9) the following new paragraph:

"(10) ADJUSTMENTS FOR DISALLOWED TAX PREFERENCES.—The deduction allowed by section 218."

(2) Section 1016 (relating to adjustments to basis) is amended by redesignating subsection (c) as subsection (d) and by inserting after subsection (b) the following new subsection:

"(c) LIMIT ON TAX PREFERENCES.—Adjustments to basis shall be computed under this section without regard to section 84 and section 218 except as otherwise provided in section 218(c)."

(c) CLERICAL AMENDMENTS.—

(1) The table of sections for part II of subchapter B of chapter 1 is amended by adding at the end thereof the following:

"Sec. 84. Disallowed tax preferences."

(2) The table of sections for part VII of subchapter B of chapter 1 is amended by striking out the last item and inserting in lieu thereof the following:

"Sec. 218. Adjustments for disallowed tax preferences.

"Sec. 219. Cross references."

(d) EFFECTIVE DATE.—The amendments made by this section shall apply to taxable years beginning after December 31, 1969.

SEC. 302. ALLOCATION OF DEDUCTIONS.

(a) IN GENERAL.—Part IX of subchapter B of chapter 1 (relating to items not deductible) is amended by adding at the end thereof the following new section:

"SEC. 277. LIMITATION ON DEDUCTIONS FOR INDIVIDUALS.

"(a) GENERAL RULE.—If a taxpayer (other than a corporation) has allocable expenses for a taxable year, the deduction otherwise allowable under this chapter for such expenses shall be disallowed to the extent of an amount equal to the lesser of—

"(1) the aggregate of such expenses multiplied by the section 277 fraction, or

"(2) the allowable tax preferences.

"(b) SECTION 277 FRACTION.—For purposes of this section, the section 277 fraction is the fraction the numerator of which is the allowable tax preferences and the denominator of which is the sum of the allowable tax preferences plus modified adjusted gross income.

"(c) DEFINITIONS.—For purposes of this section—

"(1) ALLOCABLE EXPENSES.—

"(A) IN GENERAL.—The term 'allocable expenses' means the sum of the amounts allowable as deductions (without regard to this section and section 172(d)) by application of the following provisions (to the extent not otherwise disallowed as a deduction under section 265):

"(i) section 163 (relating to interest), determined without regard to section 163(d)(1),

"(ii) section 164 (relating to taxes),

"(iii) section 165 (relating to losses), but only with respect to a loss described in section 165(c)(3) (relating to casualty losses),

"(iv) section 170 (relating to charitable contributions),

"(v) section 172 (relating to net operating loss deduction), but only to the extent that the amount allowable (without regard to this section) as a deduction is attributable to a loss described in section 165(c)(3),

"(vi) section 213 (relating to medical, dental, etc., expenses), and

"(vii) section 216 (relating to deduction of certain amounts by cooperative housing corporation tenant-stockholders).

"(B) EXCEPTION.—Subparagraph (A) shall not apply to interest and taxes paid or incurred in the conduct of a trade or business (other than for investment interest, as defined in section 163(d)(3)(D)).

"(C) TAXABLE YEARS BEGINNING IN 1970.—For taxable years beginning in 1970, the allocable expenses shall be one-half of the amount determined under subparagraph (A).

"(2) ALLOWABLE TAX PREFERENCES.—

"(A) GENERAL RULE.—The term 'allowable tax preferences' means the excess (if any) of the total of the items of tax preference determined under section 84(c) (but only to the extent that such items are not included in gross income under section 84), as modified in subparagraphs (B), (C), and (D), over $10,000 ($5,000 in the case of a married individual filing a separate return).

"(B) INTEREST ON CERTAIN GOVERNMENTAL OBLIGATIONS.—For purposes of subparagraph (A), interest excludable from gross income under section 103 on obligations issued before July 12, 1969, shall not be taken into account.

"(C) DEPLETION AND INTANGIBLE DRILLING AND DEVELOPMENT COSTS.—With respect to each property (as defined in section 614), there shall be added to the items of tax preference (as determined under subparagraph (A)) the amount by which the sum of the deduction for depletion allowable under section 611 for the taxable year, plus the deduction for intangible drilling and development costs allowable by application of the provisions of section 263(c) for the taxable year, exceeds the sum of the amounts which would have been allowable for the taxable year for depletion and depreciation under section 611 if no deductions were allowable in any taxable year by reason of the application of section 613 or 263(c). Intangible drilling and development costs incurred in drilling a nonproductive well shall not be taken into account.

"(D) ADJUSTMENTS FOR DISALLOWED TAX PREFERENCES.—There shall be added to the items of tax preference (as determined in subparagraph (A)) the amount of the deduction allowable for the taxable year under section 218 (relating to adjustments for disallowed tax preferences).

"(3) MODIFIED ADJUSTED GROSS INCOME.—

"(A) GENERAL RULE.—For purposes of this section, the term 'modified adjusted gross income' means taxable income (determined without regard to this section) plus allocable expenses, but in no case shall modified adjusted gross income be less than zero.

"(B) NET OPERATING LOSS COMPUTATION.—Taxable income and allocable expenses shall be modified in computing modified adjusted gross income, for purposes of determining the amount of a net operating loss or a net operating loss carryover by making the modifications specified in subsections (b)(2)(A) and (d) of section 172.

"(d) AMOUNT DISALLOWED FROM EACH ALLOCABLE EXPENSE.—For purposes of this chapter, the amount of deductions disallowed by this section shall be disallowed proportionately from each allocable expense.

"(e) LIMIT ON DISALLOWED INTEREST EXPENSE.—For purposes of this section, the amount of investment interest (as defined in section 163(d)(3)(D)) disallowed by application of subsection (a) shall be reduced, but not below zero, by the amount of such interest expense disallowed as a deduction during the taxable year by application of section 163(d)(1)."

(1)(b) TECHNICAL AMENDMENTS.—

Section 265 (relating to expenses and interest relating to tax-exempt interest) is amended—

(A) by inserting "(a) GENERAL RULE.—" before "No deduction",

(B) by amending paragraph (1) of subsection (a) of section 265, as amended by subparagraph (A) of this paragraph, to read as follows:

"(1) EXPENSES.—Any amount otherwise allowable as a deduction (without regard to section 277) which is allocable to one or more classes of income other than interest (whether or not any amount of income of that class or classes is received or accrued) wholly exempt from the taxes imposed by this subtitle, or any amount otherwise allowable under section 212 (relating to expenses for production of income) which is allocable to interest (whether or not any amount of such interest is received or accrued) wholly exempt from the taxes imposed by this subtitle (without regard to section 84).",

(C) by amending paragraph (2) of subsection (a) of section 265, as amended by subparagraph (A) of this paragraph, by inserting "(without regard to section 84)" immediately after "taxes imposed by this subtitle" each time it appears, and

(D) by adding at the end thereof the following new subsection:

"(b) SPECIAL RULE FOR OBLIGATIONS DESCRIBED IN SECTION 103.—In the case of a taxpayer (other than a corporation), subsection (a)(2) shall not apply to that portion of any interest on indebtedness (other than interest paid or incurred in the conduct of a trade or business) incurred or continued to purchase or carry an obligation, the interest on which is wholly exempt from the taxes imposed by this subtitle by application of section 103 (without regard to section 84), which bears the same ratio to the total amount of such interest on indebtedness as the excess (if any) of the amount of interest income determined under section 84(c)(1)(C) as modified by section 277(c)(2)(B) over $10,000 ($5,000 in the case of a married individual filing a separate return) bears to the amount of interest income wholly exempt from the taxes imposed by this subtitle by application of section 103 (without regard to section 84)."

(2) Section 643(a)(6)(A) (relating to the definition of distributable net income in the case of the income of a foreign trust) is amended by inserting "(a)" immediately after "section 265".

(c) CLERICAL AMENDMENT.—The table of sections for part IX of subchapter B of chapter 1 is amended by adding at the end thereof the following new item:

"Sec. 277. Limitation on deductions for individuals."

(d) EFFECTIVE DATE.—The amendments made by this section shall apply to taxable years beginning after December 31, 1969.

SUBTITLE B—INCOME AVERAGING

SEC. 311. INCOME AVERAGING.

(a) LIMITATION OF TAX.—Section 1301 (relating to limitation on tax) is amended by striking out "20 percent of such income" and all that follows and inserting in lieu thereof "20 percent of such income to 120 percent of average base period income."

(b) AVERAGABLE INCOME.—Section 1302 (relating to the definition of averagable income and related definitions) is amended to read as follows:

"SEC. 1302. DEFINITION OF AVERAGABLE INCOME; RELATED DEFINITIONS

"(a) AVERAGABLE INCOME.—For purposes of this part, the term 'averagable income' means the amount (if any) by which taxable income for the computation year (decreased by the amount (if any) to which section 72(m)(5) applies) exceed 120 percent of average base period income.

"(b) AVERAGE BASE PERIOD INCOME.—For purposes of this part—

"(1) IN GENERAL.—The term 'average base period income' means one-fourth of the sum of the base period incomes for the base period.

"(2) BASE PERIOD INCOME.—The base period income for any taxable year is the taxable income for such year increased by the amount (if any) equal to the excess of—

"(A) the amount excluded from gross income under section 911 (relating to earned income from sources without the United States) and subpart D of part III of subchapter N (sec. 931 and following, relating to income from sources within possessions of the United States), over

"(B) the deductions which would have been properly allocable to or chargeable against such amount but for the exclusion of such amount from gross income.

"(c) OTHER RELATED DEFINITIONS.—For purposes of this part—

"(1) COMPUTATION YEAR.—The term 'computation year' means the taxable year for which the taxpayer chooses the benefits of this part.

"(2) BASE PERIOD.—The term 'base period' means the 4 taxable years immediately preceding the computation year.

"(3) BASE PERIOD YEAR.—The term 'base period year' means any of the 4 taxable years immediately preceding the computation year.

"(4) JOINT RETURN.—The term 'joint return' means the return of a husband and wife made under section 6013."

(c) SPECIAL RULES.—Section 1304(b) (relating to special rules applicable to income averaging) is amended—

(1) by striking out "$5,000" in paragraph (1) and inserting in lieu thereof "$6,100";

(2) by striking out "and" at the end of paragraph (3);

(3) by striking out the period at the end of paragraph (4) and inserting in lieu thereof a comma; and

(4) by adding at the end thereof the following new paragraphs:

"(5) section 668(b) (relating to limitation on tax with respect to amounts deemed distributed by a trust in preceding years), and

"(6) section 1348 (relating to 50-percent maximum rate on earned income)."

(d) CONFORMING AMENDMENTS.—

(1) Section 1303(c)(2)(B) is amended by striking out "adjusted".

(2) Section 1304 is amended—

(A) by striking out paragraph (3) of subsection (c) and by redesignating paragraphs (4) and (5) of such subsection as paragraphs (3) and (4), respectively;

(B) by striking out "Paragraphs (2), (3), and (4)" in subsection (c)(1) and inserting in lieu thereof "Paragraphs (2) and (3)";

(C) by striking out "paragraph (4)" in subsection (c)(1)(B) and inserting in lieu thereof "paragraph (3)";

(D) by striking out "adjusted" in subparagraph (B) of subsection (c)(3) (as redesignated);

(E) by striking out "section 143" in subsection (c)(4) (as redesignated) and inserting in lieu thereof "section 153";

(F) by striking out in subsection (d) ", and the $3,000 figure contained in section 1302(b)(2)(C) shall be applied to the aggregate net incomes";

(G) by striking out subsections (e) and (f) and inserting in lieu thereof the following:

"(e) TREATMENT OF CERTAIN OTHER ITEMS.—

"(1) SECTION 72(m)(5).—Section 72(m)(5) (relating to penalties applicable to certain amounts received by owner-employees) shall be applied as if this part had not been enacted.

"(2) OTHER ITEMS.—Except as otherwise provided in this part, the order and manner in which items of income or limitations on tax shall be taken into account in computing the tax imposed by this chapter on the income of any eligible individual to whom section 1301 applies for any computation year shall be determined under regulations prescribed by the Secretary or his delegate."; and

(H) by redesignating subsection (g) as (f).

(3) Section 6511(d)(2)(B)(ii) is amended—

(A) by striking out "1302(e)(1)" and inserting in lieu thereof "1302(c)(1)"; and

(B) by striking out "1302(e)(3)" and inserting in lieu thereof "1302(c)(3)".

(e) EFFECTIVE DATE.—The amendments made by this section shall apply with respect to computation years (within the meaning of section 1302(c)(1) of the Internal Revenue Code of 1954) beginning after December 31, 1969, and to base period years (within the meaning of section 1302(c)(3) of such Code) applicable to such computation years.

SUBTITLE C—RESTRICTED PROPERTY

SEC. 321. RESTRICTED PROPERTY.

(a) IN GENERAL.—Part II of subchapter B of chapter 1 (relating to items specifically included in gross income) is amended by adding at the end thereof the following new section:

"SEC. 85. RESTRICTED PROPERTY.

"(a) GENERAL RULE.—If, in connection with the performance of services, property is transferred to any person other than the person for whom such services are performed, the excess of—

"(1) the fair market value of such property (determined without regard to any restriction other than a restriction which by its terms will never lapse) at the first time the rights of the person having the beneficial interest in such property are transferable or are not subject to a substantial risk of forfeiture, whichever occurs earlier, over

"(2) the amount (if any) paid for such property, shall be included in gross income in the first taxable year in which the rights of the person having the beneficial interest in such property are transferable or are not subject to a substantial risk of forfeiture, whichever is applicable.

"(b) SUBSTANTIAL RISK OF FORFEITURE.—For purposes of this section, the rights of a person in property are subject to a substantial risk of forefeiture if the transferee's rights to full enjoyment of such property are conditioned upon the future performance of substantial services.

"(c) CERTAIN RESTRICTIONS WHICH WILL NEVER LAPSE.—

"(1) VALUATION.—In the case of property subject to a restriction which by its terms will never lapse, and which allows the transferee to sell such property only at a price determined under a formula, such formula price shall be deemed to be the fair market value of the property unless established to the contrary by the Secretary or his delegate, and the burden of proof shall be on the Secretary or his delegate with respect to such value.

"(2) CANCELLATION.—If, in the case of property subject to a restriction which by its terms will never lapse, the restriction is canceled, then, unless the taxpayer establishes—

"(A) that such cancellation was not compensatory, and

"(B) that the person, if any, who would be allowed a deduction if the cancellation were treated as compensatory, will treat the transaction as not compensatory, as evidenced in such manner as the Secretary or his delegate shall prescribe by regulations, the excess of the fair market value of the property (computed without regard to the restrictions) at the time of cancellation over the sum of—

"(C) the fair market value of such property (computed by taking the restriction into account) immediately before the cancellation, and

"(D) the amount, if any, paid for the cancellation,

shall be treated as compensation for the taxable year in which such cancellation occurs.

"(d) APPLICABILITY OF SECTION.—This section shall not apply to—

"(1) a transaction to which section 421 applies,

"(2) a transfer to a trust described in section 401(a),

"(3) the transfer of an option without a readily ascertainable fair market value, or

"(4) the transfer of property pursuant to the exercise of an option with a readily ascertainable fair market value at the date of grant.

"(e) HOLDING PERIOD.—In determining the period for which the taxpayer has held property to which this section applies, there shall be included only the period beginning at the first time his rights in such property are transferable or are not subject to a substantial risk of forfeiture, whichever occurs earlier.

"(f) TRANSITION RULES.—This action shall apply to property transferred after June 30, 1969, except that this section shall not apply to property transferred—

"(1) pursuant to a binding written contract entered into before April 22, 1969,

"(2) upon the exercise of an option granted before April 22, 1969, or

"(3) before February 1, 1970, pursuant to a written plan adopted and approved before July 1, 1969."

(b) NONEXEMPT TRUSTS AND NONQUALIFIED ANNUITIES.—

(1) BENEFICIARY OF NON-EXEMPT TRUST.—Section 402(b) (relating to taxability of beneficiary of non-exempt trust) is amended to read as follows:

"(b) TAXABILITY OF BENEFICIARY OF NONEXEMPT TRUST.—Contributions to an employees' trust made by an employer during a taxable year of the employer which ends within or with a taxable year of the trust for which the trust is not exempt from tax under section 501(a) shall be included in the gross income of the employee in accordance with section 85 (relating to restricted property). The amount actually distributed or made available to any distributee by any such trust shall be taxable to him in the year in which so distributed or made available, under section 72 (relating to annuities), except that distributions of income of such trust before the annuity starting date (as defined in section 72(c)(4)) shall be included in the gross income of the employee without regard to section 72(e)(1) (relating to amount not received as annuities). A beneficiary of any such trust shall not be considered the owner of any portion of such trust under subpart E of part I of subchapter J (relating to grantors and others treated as substantial owners)."

(2) BENEFICIARY UNDER NONQUALIFIED ANNUITY.—Section 403 (relating to taxation of employee annuities) is amended by striking out subsections (c) and (d) and inserting in lieu thereof the following new subsection:

"(c) TAXABILITY OF BENEFICIARY UNDER NON-QUALIFIED ANNUITIES OR UNDER ANNUITIES PURCHASED BY EXEMPT ORGANIZATIONS.—Premiums paid by an employer for

an annuity contract which is not subject to subsection (a) shall be included in the gross income of the employee in accordance with section 85 (relating to restricted property). If the employer is exempt from tax under section 501(a) or 521(a), the preceding sentence shall apply only to that portion of the premiums paid which is not excluded from gross income under section (b). The amount actually paid or made available to any beneficiary under such contract shall be taxable to him in the year in which so paid or made available under section 72 (relating to annuities)."

(c) CLERICAL AMENDMENT.—The table of sections for part II of subchapter B of chapter 1 is amended by adding at the end thereof the following new item:

"Sec. 85. Restricted property."

(d) EFFECTIVE DATES.—The amendments made by subsections (a) and (c) shall take effect upon the date of enactment of this Act. The amendments made by subsection (b) shall apply to transfers made and to premiums paid after August 4, 1969.

SUBTITLE D—OTHER DEFERRED COMPENSATION

SEC. 331. DEFERRED COMPENSATION.

(a) IN GENERAL.—Subchapter Q of chapter 1 (relating to readjustment of tax between years and special limitations) is amended by adding at the end thereof the following new part:

"PART VIII—DEFERRED COMPENSATION

"Sec. 1354. Deferred compensation.

"SEC. 1354. DEFERRED COMPENSATION.

"(a) MINIMUM TAX.—If an individual receives a deferred compensation payment during the taxable year, the tax imposed by section 1 for the taxable year which is attributable to the excess (if any) of such payment over $10,000 shall not be less than the lower of—

"(1) the aggregate increase in tax resulting from adding to the employee's taxable income (as modified under subsection (c)) for each taxable year in which such excess is deemed to have been earned the portion of such excess deemed to have been earned in each such year, or

"(2) the tax determined by multiplying by the number of taxable years in the period during which such excess is deemed to have been earned, the average of the increase in tax resulting from adding to the employee's taxable income (as modified under subsection (c)), for the 3 taxable years during the last 10 years of such period for which his taxable income is highest, the portion of such excess deemed to have been earned in each such year.

"(b) YEAR IN WHICH EARNED.—A deferred compensation payment shall be deemed to have been earned ratably over (1) the employee's entire period of service with the employer (or any predecessor or successor of the employer or a parent or subsidiary corporation of the employer), or (2) a portion of such period, if under regulations prescribed by the Secretary or his delegate, such payment is properly attributable to such portion.

"(c) EFFECT OF PRIOR DEFERRED COMPENSATION PAYMENTS.—For purposes of applying subsection (a) with respect to a deferred compensation payment, the employee's taxable income for any taxable year referred to in subsection (a) shall be first increased by any amount added to the taxable income for such taxable year with respect to any deferred compensation payment previously received.

"(d) EMPLOYEE.—For purposes of this section, the term 'employee' includes any individual who performs services for any person, notwithstanding the fact that such individual is not regarded as the employee of such person for any other purpose of this title.

"(e) INFORMATION REQUIREMENT.—Subsection (a)(1) shall not apply unless the taxpayer supplies such information as the Secretary or his delegate may by regulations prescribe with respect to his income for each taxable year in which the deferred compensation payment is deemed to have been earned.

"(f) APPLICABILITY OF SECTION.—This section shall not apply to any deferred compensation payment made under a written plan—

"(1) which meets the requirements of section 401(a) (3), (4), (5), (6), (7), and (8),

"(2) which would meet such requirements but for the fact that such plan is unfunded, or

"(3) in the case of a plan in existence on August 4, 1969, which is amended before January 1, 1972, so as to meet the requirements of paragraph (1) or (2).

"(g) TRANSITION RULES.—The minimum tax imposed by subsection (a) shall not apply to the ratable portion of any deferred compensation payment attributable to a taxable year—

"(1) beginning before January 1, 1970, or

"(2) beginning before January 1, 1974, if paid or made available pursuant to an obligation which was, on July 11, 1969, and at all times thereafter, binding (without regard to the effect of any possibility of forfeiture of the employee)."

(b) CLERICAL AMENDMENT.—The table of parts for subchapter Q of chapter 1 is amended by adding at the end thereof the following new item:

"Part VIII. Deferred compensation."

(c) EFFECTIVE DATE.—The amendments made by subsections (a) and (b) shall apply with respect to taxable years ending after June 30, 1969.

SUBTITLE E—ACCUMULATION TRUSTS, MULTIPLE TRUSTS, ETC.

SEC. 341. TREATMENT OF EXCESS DISTRIBUTIONS BY TRUSTS.

(a) DEFINITIONS—

(1) Subsections (b) and (c) of section 665 (relating to definitions applicable to subpart D) are amended to read as follows:

"(b) ACCUMULATION DISTRIBUTIONS.—For purposes of this subpart, the term 'accumulation distribution' means, for any taxable year of the trust, the amount by which—

"(1) the amounts specified in paragraph (2) of section 661(a) for such taxable year, exceed

"(2) distributable net income reduced (but not below zero) by the amounts specified in paragraph (1) of section 661(a).

"(c) SPECIAL RULE APPLICABLE TO DISTRIBUTIONS BY CERTAIN FOREIGN TRUSTS.—Any amount paid to a United States person which is from a payor who is not a United States person and which is derived directly or indirectly from a foreign trust created by a United States person shall be deemed in the year of payment to have been directly paid by the foreign trust."

(2) Subsection (d) of such section is amended by striking out "sections 667 and" and inserting in lieu thereof "section".

(3) Subsection (e) of such section is amended to read as follows:

"(e) PRECEDING TAXABLE YEAR.—In the case of a trust (other than a foreign trust created by a United States person), the term 'preceding taxable year' does not include any taxable year of the trust ending before April 23, 1964. In the case of a foreign trust created by a United States person, the term does not include any taxable year of the trust to which this part does not apply. In the case of a preceding taxable year with respect to which a trust qualifies (without regard to this subpart) under the provisions of subpart B, for purposes of the application of this subpart to such trust for such taxable year, such trust shall, in accordance with regulations prescribed by the Secretary or his delegate, be treated as a trust to which subpart C applies."

(b) ACCUMULATION DISTRIBUTION ALLOCATED TO PRECEDING YEARS.—

(1) So much of section 666 as precedes subsection (b) is amended to read as follows:

"SEC. 666. ACCUMULATION DISTRIBUTION ALLOCATED TO PRECEDING YEARS.

"(a) AMOUNT ALLOCATED.—In the case of a trust which is subject to subpart C, the amount of the accumulation distribution of such trust for such taxable year shall be deemed to be an amount within the meaning of paragraph (2) of section 661(a) distributed on the last day of each of the preceding taxable years to the extent that such amount exceeds the total of any undistributed net incomes for any taxable years intervening between the taxable year with respect to which the accumulation distribution is determined and such preceding taxable year. The amount deemed to be distributed in any such preceding taxable year under the preceding sentence shall not exceed the undistributed net income of such preceding taxable year. For purposes of this subsection, undistributed net income for each of such preceding taxable years shall be computed without regard to such accumulation distribution and without regard to any accumulation distribution determined for any succeeding taxable year."

(2) Section 666 is amended by adding at the end thereof the following new subsection:

"(d) SPECIAL RULE FOR DISTRIBUTIONS COVERED BY SECTION 665(b) BEFORE APRIL 23, 1969.—For the purpose of determining the undistributed net income for any preceding taxable year of a trust, amounts distributed before April 23, 1969, which were excluded from the definition of an accumulation distribution under section 665(b) as in effect before such date shall reduce the undistributed net income of the preceding taxable year or years of the trust on the last day of which they are deemed to have been distributed under this subpart."

(c) DENIAL OF REFUND TO TRUSTS.—Section 667 is amended to read as follows:

"SEC. 667. DENIAL OF REFUND TO TRUSTS.

"No refund or credit shall be allowed to a trust for any preceding taxable year by reason of a distribution deemed to have been made by such trust in such year under section 666."

(d) AMOUNTS TREATED AS DISTRIBUTED IN PRIOR YEARS.—Section 668 is amended to read as follows:

"SEC. 668. TREATMENT OF AMOUNTS DEEMED DISTRIBUTED IN PRECEDING YEARS.

"(a) GENERAL RULE.—The total of the amounts which are treated under section 666 as having been distributed by the trust in a preceding taxable year shall be included in the income of a beneficiary or beneficiaries of the trust when paid, credited, or required to be distributed to the extent that such total would have been included in the income of such beneficiary or beneficiaries under section 662 (a) (2) and (b) if such total had been paid to such beneficiary or beneficiaries on the last day of such preceding taxable year.

"(b) LIMITATION ON TAX.—

"(1) ALTERNATIVE METHODS.—The tax attributable to the amounts treated under subsection (a) as having been received by the beneficiary from a trust on the last day of a preceding taxable year of the trust shall not be greater than—

"(A) the aggregate of the taxes attributable to those amounts had they been included in the gross income of the beneficiary on such day in accordance with section 662(a)(2) and (b), or

"(B) the tax determined by multiplying by the number of preceding taxable years of the trust, on the last day of each of which an amount is deemed under section 666(a) to have been distributed, the average of the increase in tax attributable to recomputing the beneficiary's gross income for the taxable year and each of his 2 taxable years immediately preceding the year of the accumulation distribution by adding to the income of each of such years an amount determined by dividing the amount required to be included in income under subsection (a) by such number of preceding taxable years of the trust. The recomputation for the taxable year shall be made without regard to the inclusion in income required by subsection (a) of the accumulation distribution to which the limitation is being applied.

"(2) EXCEPTIONS.—

"(A) When an accumulation distribution is deemed under section 666(a) to have been distributed on the last day of less than 3 taxable years of the trust, the taxable years of the beneficiary for which a recomputation is made under paragraph (1)(B) shall equal the number of years to which section 666(a) applies, commencing with the most recent taxable year of the beneficiary.

"(B) If a beneficiary was not alive on the last day of each preceding taxable year of the trust with respect to which a distribution is deemed made under section 666(a), paragraph (1)(A) shall not apply. In applying paragraph (1)(B), no recomputation shall be made for a beneficiary for a taxable year for which he was not alive.

"(3) EFFECT OF PRIOR ACCUMULATION DISTRIBUTIONS.—In computing the limitations on tax under paragraph (1) for any beneficiary to whom a prior accumulation distribution or distributions have been paid, credited, or required to be distributed (whether from the same trust or another trust), the income of the beneficiary for each of his preceding taxable years shall include amounts previously deemed distributed to such beneficiary for such year under section 666 as a result of prior accumulation distributions.

"(4) MULTIPLE DISTRIBUTIONS IN THE SAME TAXABLE YEAR.—In the case of accumulation distributions made from more than one trust which are includable in the income of a beneficiary in the same taxable year, the distributions shall be deemed to have been made consecutively in whichever order the beneficiary shall determine.

"(5) INFORMATION REQUIREMENT.—

"(A) The limitation on tax provided in paragraph (1)(A) shall not be effective unless the beneficiary supplies such information with respect to his income, for each taxable year on the last day of which an amount is deemed distributed under section 666(a), as the Secretary or his delegate may by regulations prescribe.

"(B) In addition, in the case of a foreign trust created by a United States person, the limitation on tax provided in paragraph (1) shall not be effective unless the beneficiary supplies such information with respect to the operation and accounts of the trust, for each taxable year on the last day of which an amount is deemed distributed under section 666(a), as the Secretary or his delegate may by regulations prescribe.

"(c) CREDIT FOR TAXES PAID BY TRUST.—The tax imposed on a beneficiary under this chapter shall be credited with the amount of taxes deemed distributed to him under section 666 (b) and (c)."

(e) DELETION OF SPECIAL RULES APPLICABLE TO CERTAIN FOREIGN TRUSTS.—Section 669 (relating to special treatment of beneficiaries of certain foreign trusts) is repealed.

(f) TECHNICAL AMENDMENTS.—The table of sections for subpart D of part I of subchapter J of chapter 1 (relating to treatment of excess distributions by trusts) is amended—

(1) by striking out

"Sec. 666. Accumulation distribution allocated to 5 preceding years."

and inserting in lieu thereof

"Sec. 666. Accumulation distribution allocated to preceding years."

(2) by striking out

"Sec. 669. Special rules applicable to certain foreign trusts."

(g) EFFECTIVE DATE AND TRANSITIONAL RULES.—

(1) Except for amounts credited or required to be distributed before April 23, 1969, and except as provided in paragraph (2), the amendments made by this section shall apply with respect to all distributions by trusts paid, credited, or required to be distributed after April 22, 1969.

(2) For the taxable year of the trust in which April 23, 1969, occurs—

(A) DISTRIBUTIONS NOT EXCEEDING $2,000.—If the total of the amounts specified in paragraph (2) of section 661(a) of the Internal Revenue Code of 1954 do not exceed distributable net income of the trust reduced by the amounts specified in paragraph (1) of section 661(a) of such Code by more than $2,000, there shall be deemed to be no accumulation distribution for such taxable year.

(B) If amounts were paid, credited, or were required to be distributed by a trust during the portion of the year occurring before April 23, 1969, the accumulation distribution for the year shall be the total of—

(i) The accumulation distribution for the portion of the year before April 23, 1969, determined in accordance with the law in effect before the enactment of this Act, and

(ii) The accumulation distribution for the portion of the year after April 22, 1969, determined in accordance with the law as amended by this Act.

In making these determinations, there shall be allocated to the portion of the year after April 22, 1969, the distributable net income of the trust except to the extent it exceeds the amounts specified in section 661(a) of such Code for such portion of the year. The remainder, if any, of the distributable net income shall be allocated to the portion of the year before April 23, 1969.

SEC. 342. TRUST INCOME FOR BENEFIT OF A SPOUSE.

(a) INCOME FOR BENEFIT OF GRANTOR'S SPOUSE.—

(1) Paragraphs (1), (2), and (3) of section 677(a) (relating to income for benefit of grantor) are amended by striking out "the grantor" each place it appears and inserting in lieu thereof "the grantor or the grantor's spouse".

(2) Section 677(b) is amended by striking out "beneficiary" and inserting in lieu thereof "beneficiary (other than the grantor's spouse)".

(b) EFFECTIVE DATE.—The amendments made by subsection (a) shall apply in respect of property transferred in trust after April 22, 1969.

TITLE IV—ADJUSTMENTS PRIMARILY AFFECTING CORPORATIONS

SUBTITLE A—MULTIPLE CORPORATIONS

SEC. 401. MULTIPLE CORPORATIONS.

(a) IN GENERAL.—

(1) Section 1561 (relating to surtax exemptions in case of certain controlled corporations) is amended to read as follows:

"SEC. 1561. LIMITATIONS ON CERTAIN MULTIPLE TAX BENEFITS IN THE CASE OF CERTAIN CONTROLLED CORPORATIONS.

"(a) GENERAL RULE.—The component members of a controlled group of corporations on a December 31 shall, for their taxable years which include such December 31, be limited for purposes of this subtitle to—

"(1) one $25,000 surtax exemption under section 11(d),

"(2) one $100,000 amount for purposes of computing the accumulated earnings credit under section 535(c) (2) and (3), and

"(3) one $25,000 amount for purposes of computing the limitation on the small business deduction of the insurance companies under sections 804(a)(4) and 809(d)(10).

The amount specified in paragraph (1) shall be divided equally among the component members of such group on such December 31 unless all of such component members consent (at such time and in such manner as the Secretary or his delegate shall by regulations prescribe) to an apportionment plan providing for an unequal allocation of such amount. The amounts specified in paragraphs (2) and (3) shall be divided equally among the component members of such group on such December 31 unless the Secretary or his delegate prescribes regulations permitting an unequal allocation of such amounts.

"(b) CERTAIN SHORT TAXABLE YEARS.—If a corporation has a short taxable year which does not include a December 31 and is a component member of a controlled group of corporations with respect to such taxable year, then for purposes of this subtitle—

"(1) the surtax exemption under section 11(d),

"(2) the amount to be used in computing the accumulated earnings credit under sections 535(c) (2) and (3); and

"(3) the amount to be used in computing the limitation on the small business deduction of life insurance companies under sections 804(a)(4) and 809(d)(10).

of such corporation for such taxable year shall be the amount specified in subsection (a) (1), (2), or (3), as the case may be, divided by the number of corporations which are component members of such group on the last day of such taxable year. For purposes of the preceding sentence, section 1563(b) shall be applied as if such last day were substituted for December 31."

(2) Section 1562 (relating to privilege of groups to elect multiple surtax exemptions) is repealed.

(b) TRANSITIONAL RULES FOR CONTROLLED GROUPS OF CORPORATIONS.—

(1) Part II of subchapter B of chapter 6 (relating to certain controlled corporations) is amended by adding at the end thereof the following new section:

"SEC. 1564. TRANSITIONAL RULES IN THE CASE OF CERTAIN CONTROLLED CORPORATIONS.

"(a) LIMITATION ON ADDITIONAL BENEFITS.—

"(1) IN GENERAL.—With respect to any December 31 after 1968 and before 1976, the amount of—

"(A) each additional $25,000 surtax exemption under section 1562 in excess of the first such exemption,

"(B) each additional $100,000 amount under section 535(c) (2) and (3) in excess of the first such amount, and

"(C) each additional $25,000 limitation on the small business deduction of life insurance companies under sections 804(a)(4) and 809(d)(10) in excess of the first such limitation,

otherwise allowed to the component members of a controlled group of corporations for their taxable years which include such December 31 shall be reduced to the amount set forth in the following schedule:

"Taxable years including—	Surtax exemption	Amount under sec. 535(c) (2) and (3)	Small business deduction limitation
Dec. 31, 1969	$21,875	$87,500	$21,875
Dec. 31, 1970	18,750	75,000	18,750
Dec. 31, 1971	15,625	62,500	15,625
Dec. 31, 1972	12,500	50,000	12,500
Dec. 31, 1973	9,375	37,500	9,375
Dec. 31, 1974	6,250	25,000	6,250
Dec. 31, 1975	3,125	12,500	3,125

"(2) ELECTION.—With respect to any December 31 after 1968 and before 1976, the component members of a controlled group of corporations shall elect (at such time and in such manner as the Secretary or his delegate shall by regulations prescribe) which component member of such group shall be allowed for its taxable year which includes such December 31 the surtax exemption, the amount under section 535(c) (2) and (3), or the small business deduction limitation which is not reduced under paragraph (1).

"(b) DIVIDENDS RECEIVED BY CORPORATIONS.—

"(1) GENERAL RULE.—If—

"(A) an election of a controlled group of corporations (as defined in section 1563(a) (1) or (4)) under section 1562(a) (relating to privilege of a controlled group of corporations to elect to have each of its component members make its returns without regard to section 1561) was made on or before April 22, 1969, and

"(B) such election is effective with respect to the taxable year of each component member of such group which includes December 31, 1969,

then, with respect to a dividend distributed on or before December 31, 1978, out of earnings and profits of a taxable year including a December 31 after 1968 and before 1976, subsections (a)(3) and (b) of section 243 (relating to dividends received by corporations) shall be applied to the members that comprise an affiliated group (as defined in section 243(b)(5)) in the manner set forth in paragraph (2).

"(2) SPECIAL RULES.—

"(A) An election under section 243(b)(2) may be made for a taxable year including a December 31 after 1968 and before 1976, notwithstanding that an election under section 1562(a) is in effect for the taxable year.

"(B) Section 243(b)(1)(B)(ii) shall not apply with respect to a dividend distributed on or before December 31, 1978, out of earnings and profits of a taxable year including a December 31 after 1968 and before 1976 for which an election under section 1562(a) is in effect, and in lieu of the percentage specified in section 243(a)(3) with respect to such dividend, the percentage shall be the percentage set forth in the following schedule:

"If the dividend is distributed out of earnings and profits of the distributing corporation's taxable year which includes—	The percentage shall be—
December 31, 1969	87 percent
December 31, 1970	89 percent
December 31, 1971	91 percent
December 31, 1972	93 percent
December 31, 1973	95 percent
December 31, 1974	97 percent
December 31, 1975	99 percent.

"(C) For taxable years which include a December 31 after 1968 for which an election under section 1562(a) is in effect, section 243(b)(3)(C)(v) shall not be applied to limit the number of surtax exemptions.

"(c) CERTAIN SHORT TAXABLE YEARS.—If—

"(1) a corporation has a short taxable years beginning after December 31, 1968 and ending before December 31, 1975, which does not include a December 31, and

"(2) such corporation is a component member of a controlled group of corporations with respect to such taxable (determined by applying section 1563(b) as if the last day of such taxable year were substituted for December 31),

then subsections (a) and (b) shall be applied as if the last day of such taxable year were the nearest December 31 to such day."

(2) If—

(A) an election of a controlled group of corporations (as defined in section 1563(a)(1) of the Internal Revenue Code of 1954) under section 1562(a) of such Code (relating to privilege of a controlled group of corporations to elect to have each of its component members make its returns without regard to section 1561) was made on or before April 22, 1969,

(B) such election is effective with respect to the taxable year of each component member of such group which includes December 31, 1969,

(C) one or more component members of such group sustains a net operating loss (within the meaning of section 172 of such Code) in a taxable year ending on or after December 31, 1969, for which the election under section 1562(a) is in effect, and

(D) such net operating loss is a carryover to a subsequent taxable year for which the members of such group join in the filing of a consolidated return,

then under regulations prescribed by the Secretary or his delegate, such net operating loss shall be allowed (if it would have been allowable had the election under section 1562(a) not been in effect) as a deduction against the income of other members of such group in the same proportion as the additional surtax exemptions of such group were reduced under section 1564(a) of such Code for the taxable year in which such net operating loss was sustained.

(3)(A) The first of sentence of section 1562(b)(1) is amended by striking out "$25,000" and inserting in lieu thereof "the amount of such corporation's surtax exemption for such taxable year".

(B) Section 11(d) is amended by striking out "section 1561" and inserting in lieu thereof "section 1561 or 1564".

(C) Section 535(c)(5) is amended by striking out "section 1551" and inserting in lieu thereof "section 1551, and for limitation on such credit in the case of certain controlled corporations, see section 1564".

(D) Section 804 is amended by adding after subsection (c) the following new subsection:

"(d) CROSS REFERENCE.—

"For reduction of the $25,000 amount provided in subsection (a)(4) in the case of certain controlled corporations, see section 1564."

(E) The table of sections for part II of subchapter B of chapter 6 is amended by adding at the end thereof the following:

"Sec. 1564. Transitional rules in the case of certain controlled corporations."

(c) BROTHER-SISTER CONTROLLED GROUPS.—Section 1563(a)(2) is amended to read as follows:

"(2) BROTHER-SISTER CONTROLLED GROUP.—Two or more corporations if 5 or fewer persons who are individuals, estates, or trusts own (within the meaning of subsection (d)(2)) stock possessing—

"(A) at least 80 percent of the total combined voting power of all classes of stock entitled to vote or at least 80 percent of the total value of shares of all classes of the stock of each corporation, and

"(B) more than 50 percent of the total combined voting power of all classes of stock entitled to vote or more than 50 percent of the total value of shares of all classes of stock of each corporation, taking into account the stock ownership of each such person only to the extent such stock ownership is identical with respect to each such corporation."

(d) EXCLUDED STOCK RULES.—

(1) Section 1563(c)(2)(A) is amended by striking out "or" at the end of clause (ii); striking out "stock," at the end of clause (iii) and inserting in lieu thereof "stock, or"; and adding after clause (iii) the following new clause:

"(iv) stock in the subsidiary corporation owned (within the meaning of subsection (d)(2)) by an organization (other than the parent corporation) to which section 501 (relating to certain educational and charitable organizations which are exempt from tax) applies and which is controlled directly or indirectly by the parent corporation or subsidiary corporation, by an individual, estate, or trust that is a principal stockholder (within the meaning of clause (ii)) of the parent corporation, by an officer of the parent corporation, or by any combination thereof."

(2) Section 1563(c)(2)(B) is amended—

(A) by striking out "a person who is an individual, estate, or trust (referred to in this paragraph as 'common owner') owns" and inserting in lieu thereof "5 or fewer persons who are individuals, estates, or trusts (referred to in this paragraph as 'common owners') own";

(B) by striking out "or" at the end of clause (i);

(C) by striking out in clause (ii) "such common owner", "the common owner", and "stock." and inserting in lieu thereof "any of such common owners", "any of the common owners", and "stock, or", respectively; and

(D) by adding after clause (ii) the following new clause:

"(iii) stock in such corporation owned (within the meaning of subsection (d)(2)) by an organization to which section 501 (relating to certain educational and charitable organizations which are exempt from tax) applies and which is controlled directly or indirectly by such corporation, by an individual, estate, or trust that is a principal stockholder (within the meaning of subparagraph (A)(ii)) of such corporation, by an officer of such corporation, or by any combination thereof."

(e) INVESTMENT CREDIT.—

(1) Section 46(a)(5) is amended to read as follows:

"(5) CONTROLLED GROUPS.—In the case of a controlled group, the $25,000 amount specified under paragraph (2) shall be reduced for each component member of such group by apportioning $25,000 among the component members of such group in such manner as the Secretary or his delegate shall by regulations prescribe. For purposes of the preceding sentence, the term 'controlled group' has the meaning assigned to such term by section 1563(a)."

(2) Section 48(c)(2)(C) is amended to read as follows:

"(C) CONTROLLED GROUPS.—In the case of a controlled group, the $50,000 amount specified under subparagraph (A) shall be reduced for each component member of the group by apportioning $50,000 among the component members of such group in accordance with their respective amounts of used section 38 property which may be taken into account."

(3) Section 48(c)(3)(C) is amended to read as follows:

"(C) CONTROLLED GROUP.—The term 'controlled group' has the meaning assigned to such term by section 1563(a), except that the phrase 'more than 50 percent' shall be substituted for the phrase 'at least 80 percent' each place it appears in section 1563(a)(1)."

(4) Section 48(d)(2) is amended by striking out "member" and "affiliated group" wherever they appear and inserting in lieu thereof "component member" and "controlled group", respectively.

(f) ADDITIONAL FIRST-YEAR DEPRECIATION.—Section 179(d) is amended—

(1) by striking out in paragraph (2)(B) "member" and "affiliated group" wherever they appear and inserting in lieu thereof "component member" and "controlled group", respectively, and

(2) by amending paragraphs (6) and (7) to read as follows:

"(6) DOLLAR LIMITATION OF CONTROLLED GROUP.—For purposes of subsection (b) of this section—

"(A) all component members of a controlled group shall be treated as one taxpayer, and

"(B) the Secretary or his delegate shall apportion the dollar limitation contained in such subsection (b) among the component members of such controlled group in such manner as he shall by regulations prescribe.

(7) CONTROLLED GROUP DEFINED.—For purposes of paragraphs (2) and (6), the term 'controlled group' has the meaning assigned to it by section 1563(a), except that, for such purposes, the phrase 'more than 50 percent' shall be substituted for the phrase 'at least 80 percent' each place it appears in section 1563(a)(1)."

(g) MUTUAL INSURANCE COMPANIES.—

(1) Section 821 (relating to tax on mutual insurance companies to which part II applies) is amended by redesignating subsection (f) as subsection (g) and by inserting after subsection (e) the following new subsection:

"(f) CERTAIN CONTROLLED CORPORATIONS.—In the case of a controlled group of corporations (as defined in section 1563(a)), each of the stated dollar amounts in subsections (a)(1) and (c) shall be apportioned, under regulations prescribed by the Secretary or his delegate, among the corporations subject to taxation under this section which are component members (determined without the application of section 1563(b)(2)(D)) of such group."

(2) Section 823(c) (relating to special deduction for small company having gross amount of less than $1,100,000) is amended by adding at the end thereof the following new paragraph:

"(3) CERTAIN CONTROLLED CORPORATIONS.—In the case of a controlled group of corporations (as defined in section 1563(a)), each of the stated dollar amounts in paragraph (1) shall be apportioned, under regulations prescribed by the Secretary or his delegate, among the corporations subject to taxation under section 821 which are component members (determined without the application of section 1563(b)(2)(D)) of such group."

(3) Section 501(c)(15) (relating to exemption from tax of certain mutual insurance companies) is amended by striking out "$150,000" and inserting in lieu thereof "the smaller of (A) $150,000, or (B) if any amount is apportioned to such corporation in accordance with section 821(f), such amount".

(h) EFFECTIVE DATES.—

(1) The amendments made by subsection (a) shall apply with respect to taxable years beginning after December 31, 1975.

(2) The amendments made by paragraphs (1) and (3) of subsection (b) shall apply with respect to taxable years beginning after December 31, 1968.

(3) Paragraph (2) of subsection (b) shall apply with respect to net operating losses sustained in taxable years ending on or after December 31, 1969.

(4) The amendments made by subsections (c) through (f) shall apply with respect to taxable years ending on or after December 31, 1969.

(5) The amendments made by subsection (g) shall apply with respect to taxable years beginning after December 31, 1971.

SUBTITLE B—DEBT-FINANCED CORPORATE ACQUISITIONS AND RELATED PROBLEMS

SEC. 411. INTEREST ON INDEBTNESS INCURRED BY CORPORATIONS TO ACQUIRE STOCK OR ASSETS OF ANOTHER CORPORATION.

(a) DISALLOWANCE OF INTEREST DEDUCTION.—Part IX of subchapter B of chapter 1 (relating to items not deductible) is amended by adding at the end thereof the following new section:

"SEC. 279. INTEREST OF INDEBTEDNESS INCURRED BY CORPORATIONS TO ACQUIRE STOCK OR ASSETS OF ANOTHER CORPORATION.

"(a) GENERAL RULE.—No deduction shall be allowed for any interest paid or incurred by a corporation during the taxable year with respect to its corporate acquisition indebtedness to the extent that such interest exceeds—

"(1) $5,000,000, reduced by

"(2) the amount of interest paid or incurred by such corporation during such year on obligations which are described in subsection (b)(1) but which are not corporate acquisition indebtedness.

"(b) CORPORATION ACQUISITION INDEBTEDNESS.—For purposes of this section, the term 'corporate acquisition indebtedness' means any obligation evidenced by a bond, debenture, note, or certificate or other evidence of indebtedness issued by a corporation (hereinafter in this section referred to as the 'issuing corporation') if—

"(1) such obligation is issued to provide consideration for the acquisition of the stock in, or assets, of, another corporation (hereinafter referred to in this section as the 'acquired corporation'), except that, where the obligation is issued to provide consideration for the acquisition of assets, at least two-thirds of the total value of all the assets of the acquired corporation are acquired pursuant to a plan of acquisition.

"'(2) such obligation is subordinated to the claims of trade creditors of the issuing corporation generally,

"(3) the bond or other evidence of indebtedness is either—

"(A) convertible directly or indirectly into stock of the issuing corporation, or

"(B) part of an investment unit or other arrangement which includes, in addition to such bond or other evidence of indebtedness, an option to acquire, directly or indirectly, stock in the issuing corporation, and

"(4) as of a day determined under subsection (c)(1), either—

"(A) the ratio of debt to equity (as defined in subsection (c)(2)), of the issuing corporation exceeds 2 to 1, or

"(B) the projected earnings (as defined in subsection (c)(3)), do not exceed 3 times the annual interest to be paid or incurred (determined under subsection (c)(4)).

"(c) RULES FOR APPLICATION OF SUBSECTION (b)(4).—For purposes of subsection (b)(4)—

"(1) TIME OF DETERMINATION.—Determinations are to be made as of the last day of any taxable year of the issuing corporation in which it issues any obligation to provide consideration for an acquisition described in subsection (b)(1) of stock in, or assets of, the acquired corporation.

"(2) RATIO OF DEBT TO EQUITY.—The term 'ratio of debt to equity' means the ratio which the total indebtedness of the issuing corporation bears to the sum of its money and all its assets (in an amount equal to their adjusted basis for determining gain) less such total indebtedness.

"(3) PROJECTED EARNINGS.—

"(A) The term 'projected earnings' means the 'average annual earnings' (as defined in subparagraph (B)) of—

"(i) the issuing corporation only, if clause (ii) does not apply, or

"(ii) both the issuing corporation and the acquired corporation, in any case where the issuing corporation has acquired control (as defined in section 368(c)), or has acquired substantially all of the properties, of the acquired corporation.

"(B) The average annual earnings referred to in subparagraph (A) is, for any corporation, the amount of its earnings and profits for any 3-year period ending with the last day of a taxable year of the issuing corporation described in subsection (c)(1), computed without reduction for—

"(i) interest paid or incurred,

"(ii) liability for tax under this chapter, and

"(iii) distributions to which section 301(c)(1) applies (other than such distributions from the acquired to the issuing corporation),

and reduced to an annual average for such 3-year period pursuant to regulations prescribed by the Secretary or his delegate. Such regulations shall include rules for cases where any corporation was not in existence for all of such 3-year period or such period includes only a portion of a taxable year of any corporation.

"(4) ANNUAL INTEREST TO BE PAID OR INCURRED.—The term 'annual interest to be paid or incurred' shall be—

"(A) if subparagraph (B) does not apply, the annual interest to be paid or incurred by the issuing corporation only, determined by reference to its total indebtedness outstanding, or

"(B) if projected earnings are determined under clause (ii) of paragraph (3)(A) because the issuing corporation has acquired control of the acquired corporation, the annual interest to be paid or incurred by both the issuing corporation and the acquired corporation, determined by reference to their combined total indebtedness outstanding.

"(d) TAXABLE YEARS TO WHICH APPLICABLE.—In applying this section—

"(1) The deduction of interest on any obligation shall not be disallowed under subsection (a) before the first taxable year of the issuing corporation as of the last day of which the application of either subparagraph (A) or subparagraph (B) of subsection (b)(4) results in such obligation being corporate acquisition indebtedness.

"(2) Except as provided in paragraph (3), if an obligation is determined to be corporate acquisition indebtedness as of the last day of any taxable year of the issuing corporation, it shall be deemed to be corporate acquisition indebtedness for such taxable year and all subsequent taxable years.

"(3) If an obligation is determined to be corporate acquisition indebtedness as of the close of a taxable year of the issuing corporation in which clause (i) of subsection (c)(3)(A) applied, but would not be corporate acquisition indebtedness if the determination were made as of the close of the first taxable year of such corporation thereafter in which clause (ii) of subsection (c)(3)(A) could apply, such obligation shall be considered not to be corporate acquisition indebtedness for such later taxable year and all taxable years thereafter.

"(e) NONTAXABLE TRANSACTIONS.—An acquisition of stock of a corporation of which the issuing corporation is in control (as defined in section 368(c)) in a transaction in which gain or loss is not recognized shall not be deemed an acquisition described in subsection (b)(1) unless immediately before such transaction (1) the acquired corporation was in existence, and (2) the issuing corporation was not in control (as defined in section 368(c)) of such corporation.

"(f) EXEMPTION FOR CERTAIN ACQUISITIONS OF FOREIGN CORPORATIONS.—Subsection (a) shall not apply to interest paid or incurred on any indebtedness issued to any person to provide consideration for the acquisition of stock in, or assets of, any foreign corporation substantially all of the income of which, for the 3-year period ending with the date of such acquisition or for such part of such period as the foreign corporation was in existence, is from sources without the United States.

"(g) AFFILIATED GROUPS.—In any case in which the issuing corporation is a member of an affiliated group, the application of this section shall be determined, pursuant to regulations prescribed by the Secretary or his delegate, by treating all of the members of the affiliated group in the aggregate as the issuing corporation, except that the ratio of debt to equity, projected earnings, and annual interest to be paid or incurred of any corporation (other than the issuing corporation determined without regard to this subsection) shall be included in the determinations required under subparagraphs

(A) and (B) of subsection (b)(4) as of any day only if such corporation is a member of the affiliated group on such day and, in determining projected earnings of such corporation under subsection (c)(3), there shall be taken into account only the earnings and profits of such corporation for the period during which it was a member of the affiliated group. For purposes of the preceding sentence, the term 'affiliated group' has the meaning assigned to such term by section 1504(a), except that all corporations other than the acquired corporation shall be treated as includible corporations (without any exclusion under section 1504(b)) and the acquired corporation shall not be treated as an includible corporation.

"(h) CHANGES IN OBLIGATION.—For purposes of this section—

"(1) Any extension, renewal, or refinancing of an obligation evidencing a preexisting indebtedness shall not be deemed to be a new obligation.

"(2) Any obligation which is corporate acquisition indebtedness of the issuing corporation is also corporate acquisition indebtedness of any corporation which becomes liable for such obligation as guarantor, endorser, or indemnitor or which assumes liability for such obligation in any transaction.

"(i) EFFECT ON OTHER PROVISIONS.—No inference shall be drawn from any provision in this section that any instrument designated as a bond, debenture, note, or certificate or other evidence of indebtedness by its issuer represents an obligation or indebtedness of such issuer in applying any other provision of this title."

(b) CLERICAL AMENDMENT.—The table of sections for part IX of subchapter B of chapter 1 is amended by adding at the end thereof the following new item:

"Sec. 279. Interest on indebtedness incurred by corporations to acquire stock or assets of another corporation."

(c) EFFECTIVE DATE.—The amendments made by this section shall apply to the determination of the allowability of the deduction of interest paid or incurred with respect to indebtedness incurred after May 27, 1969.

SEC. 412. INSTALLMENT METHOD.

(a) INSTALLMENT METHOD.—Section 453(b)(1) (relating to sales of realty and casual sales of personalty) is amended by inserting before the period at the end thereof the following: ", but only if such sale or other disposition qualifies as an installment transaction (as defined in paragraph (3))."

(b) SPECIAL RULE.—Section 453(b) (relating to sales of realty and casual sales of personalty) is amended by adding at the end thereof the following new paragraphs:

"(3) INSTALLMENT TRANSACTION DEFINED.—For purposes of subsection (b), the term 'installment transaction' means a transaction in which the payments of principal or principal and interest are required to be paid periodically and in such amounts over the installment period as prescribed under regulations by the Secretary or his delegate. The requirement stated in the preceding sentence shall be deemed to be satisfied if—

"(A) such payments are required to be made at least once every 2 years in relatively even or declining amounts over the installment period; or

"(B) at least 5 percent of the principal is required to have been paid by the end of the first quarter of the installment period, at least 15 percent of the principal is required to have been paid by the end of the second quarter of the installment period, and at least 40 percent of the principal is required to have been paid by the end of the third quarter of the installment period.

"(4) RULE FOR APPLYING PARAGRAPH (2)(A)(ii).—In applying clause (ii) of paragraph (2)(A), a bond or other evidence of indebtedness issued by a corporation or a government or political subdivision thereof with interest coupons attached, in registered form, or in any other form designed to render such bond or other evidence of indebtedness readily tradable on an established securities market shall not be treated as an evidence of indebtedness of a purchaser."

(c) EFFECTIVE DATE.—The amendments made by this section shall apply to sales or other dispositions occurring after May 27, 1969.

SEC. 413. BONDS AND OTHER EVIDENCES OF INDEBTEDNESS.

(a) BONDS AND OTHER EVIDENCES OF INDEBTEDNESS.—Section 1232(a) (relating to general rule) is amended to read as follows:

"(a) GENERAL RULE.—For purposes of this subtitle, in the case of bonds, debentures, notes, or certificates or other evidences of indebtedness, which are capital assets in the hands of the taxpayer, and which are issued by any corporation, or by any government or political subdivision thereof—

"(1) RETIREMENT.—Amounts received by the holder on retirement of such bonds or other evidences of indebtedness shall be considered as amounts received in exchange therefor (except that in the case of bonds or other evidences of indebtedness issued before January 1, 1955, this paragraph shall apply only to those issued with interest coupons or in registered form, or to those in such form on March 1, 1954).

"(2) SALE OR EXCHANGE.—

"(A) CORPORATE BONDS ISSUED AFTER MAY 27, 1969.—Except as provided in subparagraph (C), on the sale or exchange of bonds or other evidences of indebtedness issued by a corporation after May 27, 1969, held by the taxpayer more than 6 months, any gain shall (except as provided in the following sentence) be considered gain from the sale or exchange of a capital asset held for more than 6 months. If at the time of original issue there was an intention to call the bond or other evidence of indebtedness before maturity, any gain realized on sale or exchange thereof which does not exceed an amount equal to the original issue discount (as defined in subsection (b)) shall be considered as gain from the sale or exchange of property which is not a capital asset.

"(B) CORPORATE BONDS ISSUED ON OR BEFORE MAY 27, 1969, AND GOVERNMENT BONDS.—Except as provided in subparagraph (C), on sale or exchange of bonds or other evidences of indebtedness issued by a government or political subdivision thereof after December 31, 1954, or by a corporation after December 31, 1954, and on or before May 27, 1969, held by the taxpayer more than 6 months, any gain realized which does not exceed—

"(i) an amount equal to the original issue discount (as defined in subsection (b)), or

"(ii) if at the time of original issue there was no intention to call the bond or other evidence of indebtedness before maturity, an amount which bears the same ratio to the original issue discount (as defined in subsection (b)) as the number of complete months that the bond or other evidence of indebtedness was held by the taxpayer bears to the number of complete months from the date of original issue to the date of maturity,

shall be considered as gain from the sale or exchange of property which is not a capital asset. Gain in excess of such amount shall be considered gain from the sale or exchange of a capital asset held more than 6 months.

"(C) EXCEPTIONS.—This paragraph shall not apply to—

"(i) obligations the interest on which is not includible in gross income under section 103 (relating to certain governmental obligations), or

"(ii) any holder who has purchased the bond or other evidence of indebtedness at a premium.

"(D) DOUBLE INCLUSION IN INCOME NOT REQUIRED.—This section shall not require the inclusion of any amount previously includible in gross income.

"(3) INCLUSION IN INCOME OF ORIGINAL ISSUE DISCOUNT ON CORPORATE BONDS ISSUED AFTER MAY 27, 1969.—

"(A) GENERAL RULE.—There shall be included in the gross income of the holder of any bond or other evidence of indebtedness issued by a corporation after May 27, 1969, the ratable monthly portion of original issue discount multiplied by the number of complete months (plus any fractional part of a month determined in accordance with the last sentence of this subparagraph) such holder held such bond or other evidence of indebtedness during the taxable year. Except as provided in subparagraph (B), the ratable monthly portion of original issue discount shall equal the original issue discount (as defined in subsection (b)) divided by the number of complete months from the date of original issue to the stated maturity date of such bond or other evidence of indebtedness. For purposes of this section, a complete month commences with the date of original issue and the corresponding day of each succeeding calendar month (or the last day of a calendar month in which there is no corresponding day); and, in any case where a bond or other evidence of indebtedness is acquired on any other day, the ratable monthly portion of original issue discount for the complete month in which such acquisition occurs shall be allocated between the transferor and the transferee in accordance with the number of days in such complete month each held the bond or other evidence of indebtedness.

"(B) REDUCTION IN CASE OF ANY SUBSEQUENT HOLDER.—For purposes of this paragraph, the ratable monthly portion of original issue discount shall not include an amount, determined at the time of any purchase after the original issue of such bond or other evidence of indebtedness, equal to the excess of—

"(i) the cost of such bonds or other evidence of indebtedness incurred by such holder, over

"(ii) the issue price of such bond or other evidence of indebtedness increased by the portion of original discount previously includible in the gross income of any holder (computed without regard to this subparagraph),

divided by the number of complete months (plus any fractional part of a month commencing with the date of purchase) from the date of such purchase to the stated maturity date of such bond or other evidence of indebtedness.

"(C) PURCHASE DEFINED.—For purposes of subparagraph (B), the term 'purchase' means any acquisition of a bond or other evidence of indebtedness, but only if the basis of the bond or other evidence of indebtedness is not determined in whole or in part by reference to the adjusted basis of such bond or other evidence of indebtedness in the hands of the person from whom acquired, or under section 1014(a) (relating to property acquired from a decedent).

"(D) EXCEPTION.—This paragraph shall not apply to any holder who has purchased the bond or other evidence of indebtedness at a premium.

"(E) BASIS ADJUSTMENTS.—The basis of any bond or other evidence of indebtedness in the hands of the holder thereof shall be increased by the amount included in his gross income pursuant to subparagraph (A)."

(b) ISSUE PRICE.—Section 1232(b)(2) (relating to issue price) is amended by adding at the end thereof the following:

"In the case of a bond or other evidence of indebtedness and an option or other security issued together as an investment unit, the issue price for such investment unit shall be

determined in accordance with the rules stated in this paragraph. Such issue price attributable to each element of the investment unit shall be that portion thereof which the fair market value of such element bears to the total fair market value of all the elements in the investment unit. The issue price of the bond or other evidence of indebtedness included in such investment unit shall be the portion so allocated to it. In the case of a bond or other evidence of indebtedness, or an investment unit as described in this paragraph, issued for property, the issue price of such bond or other evidence of indebtedness or investment unit, as the case may be, shall be the fair market value of such property."

(c) REQUIREMENT OF REPORTING.—Section 6049(a)(1) (relating to requirements of reporting interest) is amended to read as follows:

"(a) REQUIREMENT OF REPORTING.—

"(1) IN GENERAL.—Every person—

"(A) who makes payments of interest (as defined in subsection (b)) aggregating $10 or more to any other person during any calendar year,

"(B) who receives payments of interest as a nominee and who makes payments aggregating $10 or more during any calendar year to any other person with respect to the interest so received, or

"(C) which is a corporation that has outstanding any bond, debenture, note, or certificate or other evidence of indebtedness in registered form as to which there is during any calendar year an amount of original issue discount aggregating $10 or more includible in the gross income of any holder under section 1232(a)(3) without regard to subparagraph (B) thereof,

shall make a return according to the forms or regulations prescribed by the Secretary or his delegate, setting forth the aggregate amount of such payments and such aggregate amount includible in the gross income of any holder and the name and address of the person to whom paid or such holder."

(d) STATEMENTS TO BE FURNISHED TO PERSONS WITH RESPECT TO WHOM INFORMATION IS FURNISHED.—Section 6049(c) (relating to statements to be furnished to persons with respect to whom information is furnished) is amended to read as follows:

"(c) STATEMENTS TO BE FURNISHED TO PERSONS WITH RESPECT TO WHOM INFORMATION IS FURNISHED.—Every person making a return under subsection (a)(1) shall furnish to each person whose name is set forth in such return a written statement showing—

"(1) the name and address of the person making such return, and

"(2) the aggregate amount of payments to, or the aggregate amount includible in the gross income of, the person as shown on such return.

The written statement required under the preceding sentence shall be furnished to the person on or before January 31 of the year following the calendar year for which the return under subsection (a)(1) was made. No statement shall be required to be furnished to any person under this subsection if the aggregate amount of payments to, or the aggregate amount includible in the gross income of, such person shown on the return made under subsection (a)(1) is less than $10."

(e) EFFECTIVE DATE.—The amendments made by this section shall apply with respect to bonds and other evidences of indebtedness issued after May 27, 1969.

SEC. 414. LIMITATION ON DEDUCTION OF BOND PREMIUM ON REPURCHASE.

(a) LIMITATION ON DEDUCTION OF BOND PREMIUM ON REPURCHASE.—Part VIII of subchapter B of chapter 1 of the Internal Revenue Code (relating to special deductions for corporations) is amended by adding at the end thereof the following new section:

"SEC. 249. LIMITATION ON DEDUCTION OF BOND PREMIUM ON REPURCHASE.

"(a) GENERAL RULE.—No deduction shall be allowed to a corporation for any premium paid or incurred upon the repurchase of a bond, debtenture, note, or certificate or other evidence of indebtedness which is convertible into the stock of the issuing corporation, or a corporation in control of, or controlled by, the issuing corporation, to the extent the repurchase price exceeds an amount equal to the adjusted issue price plus a normal call premium on bonds or other evidences of indebtedness which are not convertible. The preceding sentence shall not apply to the extent that the corporation can demonstrate to the satisfaction of the Secretary or his delegate that such excess is attributable to the cost of borrowing and is not attributable to the conversion feature.

"(b) SPECIAL RULES.—For purposes of subsection (a)—

"(1) ADJUSTED ISSUE PRICE.—The adjusted issue price is the issue price (as defined in section 1232(b)) increased by any amount of discount deducted prior to repurchase, or, in the case of bonds or other evidences of indebtedness issued subsequent to February 28, 1913, decreased by any amount of premium included in gross income prior to repurchase by the issuing corporation.

"(2) CONTROL.—The term 'control' has the meaning assigned to such term by section 368(c)."

(b) CLERICAL AMENDMENT.—The table of sections for part VIII of subchapter B of chapter 1 is amended by adding at the end thereof the following new item:

"Sec. 249. Limitation on deduction of bond premium on repurchase."

(c) EFFECTIVE DATE.—The amendments made by this section shall apply to a convertible bond or other convertible evidence of indebtedness repurchased after April 22, 1969, other than such a bond or other evidence of indebtedness repurchased pursuant to a binding obligation incurred on or before April 22, 1969, to repurchase such bond or other evidence of indebtedness at a specified call premium, and no inference shall be drawn from the fact that subsection (a) does not apply to the repurchase of such convertible bond or other convertible evidence of indebtedness.

SUBTITLE C—STOCK DIVIDENDS

SEC. 421. STOCK DIVIDENDS.

(a) IN GENERAL.—Section 305 (relating to distributions of stock and stock rights) is amended to read as follows:

"SEC. 305. DISTRIBUTIONS OF STOCK AND STOCK RIGHTS.

"(a) GENERAL RULE.—Except as otherwise provided in this section, gross income does not include the amount of any distribution made by a corporation to its shareholders, with respect to the common stock of such corporation, in its stock or in rights to acquire its stock.

"(b) EXCEPTIONS.—Subsection (a) shall not apply to a distribution by a corporation of its stock (or rights to acquire its stock), and the distribution shall be treated as a distribution of property to which section 301 applies—

"(1) DISTRIBUTIONS IN LIEU OF MONEY.—If the distribution is, at the election of any of the shareholders (whether exercised before or after the declaration thereof), payable either—

"(A) in its stock (or in rights to acquire its stock), or

"(B) in property.

"(2) DISPROPORTIONATE DISTRIBUTIONS.—If the distribution (or a series of distributions of which such distribution is one) has the result of—

"(A) the receipt of property by some shareholders, and

"(B) an increase in the proportionate interests of other shareholders in the assets or earnings and profits of the corporation.

"(3) CONVERTIBLE PREFERRED STOCK.—If the distribution is of convertible preferred stock, unless it is established to the satisfaction of the Secretary or his delegate that such distribution will not have the result described in paragraph (2).

For purposes of paragraphs (1) and (2), section 306 stock shall be treated as property which is not stock.

"(c) CERTAIN REDEMPTIONS, ETC., TREATED AS DISTRIBUTIONS.—For purposes of this section and section 301, the Secretary or his delegate shall prescribe regulations under which a change in conversion ratio, a change in redemption price, a redemption which is treated as a section 301 distribution, or any transaction having a similar effect on the interest of any shareholder (or a holder of rights or convertible securities) shall be treated as a distribution with respect to any shareholder (or a holder of rights or convertible securities) whose proportionate interest in the earnings and profits or assets of the corporation is increased by such change, redemption, or similar transaction.

"(d) CROSS REFERENCES.—

"For special rules—

"(1) Relating to the receipt of stock and stock rights in corporate organizations and reorganizations, see part III (sec. 351 and following).

"(2) In the case of a distribution which results in a gift, see section 2501 and following.

"(3) In the case of a distribution which has the effect of the payment of compensation, see section 61(a)(1)."

(b) CONFORMING AMENDMENT.—Section 317(a) (relating to certain definitions) is amended to read as follows:

"(a) PROPERTY.—For purposes of this part, the term 'property' means money, securities, and any other property; except that such term does not include stock (or rights to acquire stock) in the corporation making the distribution distributed with respect to the common stock of such corporation."

(c) EFFECTIVE DATES.—

(1) Except as otherwise provided in this subsection, the amendments made by subsections (a) and (b) shall apply with respect to distributions made or considered as made after January 10, 1969, in taxable years ending after such date.

(2) The amendments made by subsections (a) and (b) shall not apply to a distribution of stock (or rights to acquire stock) made or considered as made before January 1, 1991, with respect to stock outstanding on January 10, 1969 (or with respect to stock issued pursuant to a contract binding on January 10, 1969, on the distributing corporation).

(3) In cases to which Treasury Decision 6990 (promulgated January 10, 1969) would not have applied, in applying paragraphs (1) and (2) of this subsection April 22, 1969, shall be substituted for January 10, 1969.

SUBTITLE D—FOREIGN TAX CREDIT

SEC. 431. FOREIGN TAX CREDIT REDUCTION IN CASE OF FOREIGN LOSSES.

(a) REDUCTION IN FOREIGN TAX CREDIT LIMITATION.—Section 904(a) (relating to limitation on credit) is amended by adding at the end thereof the following new paragraphs:

"(3) REDUCTION IN LIMITATION.—In the case of a taxpayer who in a prior taxable year sustains a loss in a foreign country or possession of the United States and chooses the limitation provided in paragraph (1) for such prior year, the amount of the taxpayer's taxable income from sources within such country or possession for the taxable

year (but not the taxpayer's entire taxable income for the same taxable year) shall, solely for purposes of determining the applicable limitation under paragraph (1) or (2), be determined without regard to section 172 (relating to net operating loss deduction) and be reduced by the lesser of—

"(A) (i) the amount of such loss, decreased by

"(ii) the amount of any reduction previously made under this paragraph with respect to such loss, or

"(B) an amount which is equal to 50 percent of the taxpayer's taxable income for the taxable year (determined without regard to this paragraph and section 172) from sources within such country or possession.

"(4) ALLOCATION OF LOSSES.—In applying paragraph (3) for any taxable year to which subsection (f) or (g) applies, a loss sustained in a foreign country or possession of the United States shall be allocated to the separate limitation (if any) under such subsection pursuant to regulations prescribed by the Secretary or his delegate.

"(5) SPECIAL LIMITATION ON CARRYBACKS AND CARRYOVERS.—For purposes of subsection (d), the amount by which tax paid or accrued to any foreign country or possession of the United States for any taxable year exceeds the applicable limitation under this subsection shall be determined without regard to paragraph (3).

"(6) CERTAIN DISPOSITIONS OF PROPERTY.—

"(A) Under regulations prescribed by the Secretary or his delegate, if during any taxable year property which is used in the trade or business which gives rise to the loss referred to in paragraph (3) is disposed of and such loss exceeds the amount by which the taxpayer's taxable income was reduced under paragraph (3) for such taxable year and preceding taxable years by reason of such loss, an amount equal to such excess shall be included in gross income for such taxable year.

"(B) No amount shall be included in gross income under subparagraph (A) in any case in which—

"(i) the property which is disposed of is not a material factor in the realization of the income (or loss) from the trade or business in which such property is used or is not a substantial portion of the assets used in, or held for use in, the conduct of such trade or business,

"(ii) the property is disposed of on account of its destruction or damage by fire, storm, shipwreck, or other casualty, or by reason of its theft,

"(iii) the property is transferred by reason of death, or

"(iv) the property is transferred in a transaction to which section 381(a) applies."

(b) EFFECTIVE DATE.—The amendments made by this section shall apply with respect to losses sustained in taxable years beginning after December 31, 1969.

SEC. 432. SEPARATE LIMITATION ON FOREIGN TAX CREDIT WITH RESPECT TO FOREIGN MINERAL INCOME.

(a) LIMITATION ON AMOUNT OF FOREIGN TAXES TO BE TAKEN INTO ACCOUNT.—Section 904 (relating to limitation on credit) is amended by redesignating subsection (g) as subsection (h), and by inserting after subsection (f) the following new subsection:

"(g) APPLICATION OF SECTION IN CASE OF FOREIGN MINERAL INCOME.—

"(1) IN GENERAL.—If any foreign country or possession of the United States, or any agency or instrumentality of such country or possession—

"(A) requires the payment of any bonus or royalty with respect to property which gives rise to foreign mineral income,

"(B) holds substantial mineral rights with respect to such property, or

"(C) imposes any income, war profits, or excess profits taxes on such income at an effective rate higher than on other income.

subsections (a), (c), (d), and (e) of this section shall be applied separately with respect to foreign mineral income from sources within such country or possession.

"(2) FOREIGN MINERAL INCOME DEFINED.—

"(A) GENERAL RULE.—For purposes of paragraph (1), the term 'foreign mineral income' means taxable income from mines, wells, and other natural deposits within any foreign country or possession of the United States, to the extent such taxable income constitutes 'taxable income from the property' within the meaning of section 613. Such term includes, but is not limited to—

"(i) dividends received from a foreign corporation in respect of which taxes are deemed paid under section 902, to the extent such dividends are attributable to foreign mineral income, and

"(ii) that portion of the taxpayer's distributive share of the income of a partnership attributable to foreign mineral income.

"(B) SPECIAL RULES.—

"(i) For purposes of subparagraph (A), if for the taxable year a taxpayer's (or, where a consolidated income tax return is filed, the affiliated groups) foreign mineral income is less than $10,000, no part of the taxable income for such year shall be treated as foreign mineral income.

"(ii) For purposes of clause (i) of subparagraph (A), if less than 30 percent and less than $100,000, of the accumulated profits of the year or years from which dividends are paid, as determined under section 902(c), are attributable to foreign mineral income, no part of the dividends shall be treated as foreign mineral income.

"(3) OVERALL LIMITATION NOT TO APPLY.—The limitation provided by subsection (a)(2) shall not apply with respect to foreign mineral income. The Secretary or his delegate shall by regulations prescribe the manner of application of subsection (e) with respect to cases in which the limitation provided by subsection (a)(2) applies with respect to income other than foreign mineral income.

"(4) TRANSITIONAL RULES FOR CARRYBACKS AND CARRYOVERS.—

"(A) CARRYBACKS TO YEARS BEFORE TAX REFORM ACT OF 1969.—If, after applying subsection (d), taxes paid or accrued to any foreign country or possession of the United States in any taxable year beginning after the date of the enactment of the Tax Reform Act of 1969 are deemed paid or accrued in one or more taxable years beginning on or before such date, then the amount of such taxes deemed paid or accrued in such taxable year or years shall be determined without regard to the provisions of this subsection. To the extent the taxes paid or accrued to a foreign country or possession of the United States in any taxable year beginning after the date of the enactment of such Act are not, after applying the preceding sentence, deemed paid or accrued in any taxable year beginning on or before the date of the enactment of such Act, such taxes shall, for purposes of applying subsection (d), be deemed paid or accrued in a taxable year beginning after the date of the enactment of such Act with respect to foreign mineral income, and with respect to income other than foreign mineral income, in the same ratios as the amount of such taxes paid or accrued with respect to foreign mineral income, and the amount of such taxes paid or accrued with respect to income other than foreign mineral income, respectively, bear to the total amount of such taxes paid or accrued to such foreign country or possession of the United States.

"(B) CARRYOVERS TO YEARS AFTER TAX REFORM ACT OF 1969.—Where under the provisions of subsection (d) taxes paid or accrued to any foreign country or possession of the United States in any taxable year beginning on or before the date of the enactment of the Tax Reform Act of 1969 are deemed paid or accrued in one or more taxable years beginning after such date, the amount of such taxes deemed paid or accrued in any year beginning after such date shall, with respect to foreign mineral income, be an amount which bears the same ratio to the amount of such taxes deemed paid or accrued as the amount of the taxes paid or accrued to such foreign country or possession for such year with respect to foreign mineral income bears to the total amount of taxes paid or accrued to such foreign country or possession for such year; and the amount of such taxes deemed paid or accrued in any year beginning after such date with respect to income other than foreign mineral income shall be an amount which bears the same ratio to the amount of such taxes deemed paid or accrued for such year as the amount of taxes paid or accrued to such foreign country or possession for such year with respect to income other than foreign mineral income bears to the total amount of the taxes paid or accrued to such foreign country or possession for such year."

(b) CONFORMING AMENDMENTS.—Section 904(b) (relating to election of overall limitation) is amended—

(1) by striking out "with the consent of the Secretary or his delegate with respect to any taxable year" in paragraph (1) and inserting in lieu thereof "(A) with the consent of the Secretary or his delegate with respect to any taxable year, or (B) for the taxpayer's first taxable year beginning after the date of the enactment of the Tax Reform Act of 1969", and

(2) by striking out "If a taxpayer" in paragraph (2) and inserting in lieu thereof "Except in a case to which paragraph (1)(B) applies, if the taxpayer".

(c) EFFECTIVE DATE.—The amendments made by this section shall apply with respect to taxable years beginning after the date of enactment of this Act.

SUBTITLE E—FINANCIAL INSTITUTIONS

SEC. 441. RESERVE FOR LOSSES ON LOANS; NET OPERATING LOSS CARRYBACKS.

(a) BAD DEBT DEDUCTIONS OF FINANCIAL INSTITUTIONS.—Part I of subchapter H of chapter 1 (relating to rules of general application to banking institutions) is amended by adding at the end thereof the following new section:

"SEC. 585. RESERVES FOR LOSSES ON LOANS OF FINANCIAL INSTITUTIONS.

"(a) INSTITUTIONS TO WHICH SECTION APPLIES.—This section shall apply to the following financial institutions—

"(1) to any—

"(A) bank (as defined in section 581) other than an organization to which section 593 applies, or

"(B) corporation to which subparagraph (A) would apply except for the fact that it is a foreign corporation and in the case of such foreign corporation this section shall apply only with respect to loans outstanding, the interest on which is effectively connected with the conduct of a banking business within the United States.

"(2) to a small business investment company operating under the Small Business Investment Act of 1958, and

"(3) to a business development corporation, which shall mean a corporation which was created by or pursuant to an act of a State legislature for purposes of promoting, maintaining, and assisting the economy and industry within such State on a regional or statewide basis by making loans which would generally not be made by banks (as defined in section 581) within such region or State

in the ordinary course of their business (except on the basis of a partial participation), and which is operated primarily for such purpose.

"(b) ADDITION TO RESERVES FOR BAD DEBTS.—

"(1) GENERAL RULE.—For purposes of section 166(c), except as provided in paragraph (2) the reasonable addition to the reserve for bad debts of any financial institution to which this section applies shall not exceed the amount necessary to increase the balance of the reserve for bad debts (as of the close of the taxable year) to the greater of—

"(A) the amount which bears the same ratio to loans outstanding at the close of the taxable year as (i) the total bad debts sustained during the taxable year and the 5 preceding taxable years (or, with the approval of the Secretary or his delegate, a shorter period), adjusted for recoveries of bad debts during such period, bears to (ii) the sum of the loans outstanding at the close of such 6 or fewer taxable years, or

"(B) the lower of—

"(i) the balance in the reserve as of the close of the base year, or

"(ii) if the amount of loans outstanding at the close of the taxable year is less than the amount of loans outstanding at the close of the base year, the amount which bears the same ratio to loans outstanding at the close of the taxable year as the balance of the reserve as of the close of the base year bears to the amount of loans outstanding at the close of the base year.

For purposes of this subparagraph, the term 'base year' means the last taxable year beginning on or before July 11, 1969.

"(2) NEW FINANCIAL INSTITUTIONS.—In the case of any taxable year beginning not more than 10 years after the day before the first day on which a financial institution (or any predecessor) was authorized to do business as a financial institution described in subsection (a), the reasonable addition to the reserve for bad debts of such financial institution shall not exceed the larger of the amount determined under paragraph (1) or the amount necessary to increase the balance of the reserve for bad debts as of the close of the taxable year to the amount which bears the same ratio (as determined by the Secretary or his delegate) to loans outstanding at the close of the taxable year as (i) the total bad debts sustained by all institutions described in the applicable paragraph of subsection (a) during the 6 preceding taxable years (adjusted for recoveries of bad debts during such period), bears to (ii) the sum of the loans by all such institutions outstanding at the close of such taxable years."

(b) 10-YEAR NET OPERATING LOSS CARRYBACK.—Section 172(b)(1) (relating to net operating loss deduction) is amended by striking out in subparagraph (A)(i) thereof "and (E)" and inserting in lieu thereof ", (E) and (F)", and by adding at the end thereof the following new subparagraph:

"(F) In the case of a financial institution to which section 585 or 593 applies, a net operating loss for any taxable year beginning after July 11, 1969, shall be a net operating loss carryback to each of the 10 taxable years preceding the taxable year of such loss and shall be a net operating loss carryover to each of the 5 taxable years following the taxable year of such loss."

(c) TECHNICAL AND CLERICAL AMENDMENTS.—

(1) Subsection (h) of section 166 (relating to bad debts) is amended by adding at the end thereof the following new paragraph:

"(4) For special rule for bad debt reserves of certain financial institutions other than certain mutual savings banks, domestic building and loan associations and cooperative banks, see section 585."

(2) The table of sections for part I of subchapter H of chapter 1 is amended—

(A) by striking out:

"Sec. 582. Bad debt and loss deduction with respect to securities held by banks."

and inserting in lieu thereof:

"Sec. 582. Bad debts, losses, and gains with respect to securities held by financial institutions."

(B) by adding at the end thereof the following:

"Sec. 585. Reserves for losses on loans of financial institutions."

(d) EFFECTIVE DATE.—The amendments made by this section shall apply with respect to taxable years beginning after July 11, 1969.

SEC. 442. MUTUAL SAVINGS BANKS, ETC.

(a) RESERVE FOR LOSSES ON LOANS.—Section 593(b) (relating to addition to reserves for bad debts) is amended—

(1) by striking out subparagraph (A) of paragraph (1) and inserting in lieu thereof the following:

"(A) the amount determined to be a reasonable addition to the reserve for losses on nonqualifying loans, computed in the same manner as provided with respect to additions to reserves for bad debts of financial institutions under section 585(b)(1)(A), plus"

(2) by striking out paragraphs (2), (3), (4), and (5) and inserting in lieu thereof the following:

"(2) PERCENTAGE OF TAXABLE INCOME METHOD.—The amount determined under this paragraph for the taxable year shall be the excess of—

"(A) an amount equal to the applicable percentage of the taxable income for such year (determined under the following table), over:

"For a taxable year beginning in—	The applicable percentage under this paragraph shall be—
1969	60 percent.
1970	57 percent.
1971	54 percent.
1972	51 percent.
1973	48 percent.
1974	45 percent.
1975	32 percent.
1976	39 percent.
1977	36 percent.
1978	33 percent.
1979 or thereafter	30 percent.

"(B) that portion of the amount referred to in paragraph (1)(A) for such year (not in excess of 100 percent) which bears the same ratio to such amount as (i) 18 percent (28 percent in the case of mutual savings banks) bears to (ii) the percentage of the assets of the taxpayer which are not assets described in section 7701(a)(19)(C), but the amount determined under this paragraph shall not exceed the amount necessary to increase the balance (as of the close of the taxable year) of the reserve for losses on qualifying real property loans to 6 percent of such loans outstanding at such time. For purposes of this paragraph, taxable income shall be computed—

"(i) by excluding from gross income any amount included therein by reason of subsection (f),

"(ii) without regard to any deduction allowable for any addition to the reserve for bad debts,

"(iii) by excluding from gross income an amount equal to the net capital gain for the taxable year arising from the sale or exchange of stock of a corporation, or obligations described in section 103(a)(1),

"(iv) by excluding from gross income an amount equal to the lesser of ⅜ of the net or ⅜ of the net long-term capital gain for the taxable year from the sale or exchange of property other than property described in clause (iii), and

"(v) by excluding from gross income dividends with respect to which a deduction is allowed by part VIII of subchapter B.

"(3) LIMITATIONS.—If the percentage of the assets of a taxpayer described in subsection (a), which are assets described in section 7701(a)(19)(C), is less than—

"(A) 82 percent of the total assets in the case of a taxpayer other than a mutual savings bank, the percentage provided by paragraph (2)(A) shall be reduced (i) for taxable years beginning before January 1, 1972, by 1 percentage point for each 1 percentage point of such difference, (ii) for taxable years beginning after December 31, 1971, but before January 1, 1977, by 1 percentage point for each 1⅓ percentage points of such difference, and (iii) for taxable years beginning after December 31, 1976, by 1 percentage point for each 2 percentage points of such difference, or

"(B) 72 percent of the total assets in the case of a mutual savings bank, the percentage provided by paragraph (2)(A) shall be reduced (i) for taxable years beginning before January 1, 1972, by 2 percentage points for each 1 percentage point of such difference, (ii) for taxable years beginning after December 31, 1971, but before January 1, 1977, by 1½ percentage points for each 1 percentage point of such difference, and (iii) for taxable years beginning after December 31, 1976, by 1 percentage point for each 1 percentage point of such difference.

If the percentage of such assets is less than 60 percent of the total assets of such taxpayer, no amount shall be allowed under paragraph (2).

"(4) EXPERIENCE METHOD.—

"(A) Except as provided in subparagraph (B), the amount determined under this paragraph to be a reasonable addition to the reserve for losses on qualifying real property loans shall be computed in the same manner as is provided with respect to additions to reserves for bad debts of financial institutions under section 585(b)(1).

"(B) For any taxable year of an organization to which this section applies, beginning not more than 10 years after the day before the first day on which it (or any predecessor) was authorized to do business as an organization described in subsection (a), the amount determined under this paragraph for such organization shall be computed in the same manner as is provided with respect to additions to reserves for bad debts of financial institutions under section 585(b)(2)."

(b) INVESTMENT STANDARDS.—Section 7701(a)(19) is amended to read as follows:

"(19) DOMESTIC BUILDING AND LOAN ASSOCIATION.—The term 'domestic building and loan association' means a domestic building and loan association, a domestic savings and loan association, and a Federal savings and loan association—

"(A) which either (i) is an insured institution within the meaning of section 401(a) of the National Housing Act (12 U.S.C., sec. 1724(a)), or (ii) is subject by law to supervision and examination by State or Federal authority having supervision over such associations;

(B) substantially all of the business of which consists of acquiring the savings of the public and investing in loans; and

"(C) at least 60 percent of the amount of the total assets of which (as of the close of the taxable year) consists of—

"(i) cash,

"(ii) obligations of the United States or of a State or political subdivision thereof, and stock or obligations of a corporation which is an instrumentality of the United States or of a State or political subdivision thereof, but not including obligations the

interest on which is excludable from gross income under section 103,

"(iii) certificates of deposit in, or obligations of, a corporation organized under a State law which specifically authorizes such corporation to insure the deposits or share accounts of member associations,

"(iv) loans secured by a deposit or share of a member,

"(v) loans secured by an interest in real property which is (or, from the proceeds of the loan, will become) residential real property or real property used primarily for church purposes, loans made for the improvement of residential real property or real property used primarily for church purposes, provided that for purposes of this clause, residential real property shall include single or multifamily dwellings, facilities in residential developments dedicated to public use or property used on a nonprofit basis for residents, and moble homes not used on a transient basis,

"(vi) loans made for the improvement of real property located within any urban renewal area (as defined in section 110(a) of the Housing Act of 1949, as amended) or in any area covered by a program eligible for assistance under section 103 of the Demonstration Cities and Metropolitan Development Act of 1966, as amended,

"(vii) loans secured by an interest in educational, health, or welfare institutions or facilities, inculding structures designed or used primarily for residential purposes for students, residents, and persons under care, employees, or members of the staff of such institutions or facilities,

"(viii) property acquired through the liquidation of defaulted loans described in clause (v), (vi), or (vii), and

"(ix) loans made for the payment of expenses of college or university education or vocational training, in accordance with such regulations as may be prescribed by the Secretary or his delegate,

"(x) property used by the association in the conduct of the business described in subparagraph (B).

At the election of the taxpayer, the percentage specified in this subparagraph shall be applied on the basis of the average assets outstanding during the taxable year, in lieu of the close of the taxable year, computed under regulations prescribed by the Secretary or his delegate."

(c) CONFORMING AMENDMENTS.—Section 7701(a)(32) is amended—

(1) by striking out in subparagraph (B) ", (C), (D), (E), and (F)" and inserting in lieu thereof "and (C)", and

(2) by striking out the third sentence thereof.

(d) EFECTIVE DATE.—The amendments made by this section shall be effective for taxable years beginning after July 11, 1969.

SEC. 443. TREATMENT OF BONDS, ETC., HELD BY FINANCIAL INSTITUTIONS.

(a) GAIN ON SECURITIES HELD BY FINANCIAL INSTITUTIONS.—Subsection (c) of section 582 (relating to bad debt and loss deduction with respect to securities held by financial institutions) is amended by striking out such subsection and inserting the following in lieu thereof:

"(c) BOND, ETC., LOSSES AND GAINS OF FINANCIAL INSTITUTIONS.—For purposes of this subtitle, in the case of a financial institution to which section 585 or 593 applies, the sale or exchange of a bond, debenture, note, or certificate, or other evidence of indebtedness, shall not be considered a sale or exchange of a capital asset."

(b) CONFORMING AMENDMENT.—Paragraph (1) of section 1243 (relating to loss of a small business investment company) is amended to read as follows:

"(1) a loss is on stock received pursuant to the conversion privilege of convertible debentures acquired pursuant to section 304 of the Small Business Investment Act of 1958, and".

(c) CLERICAL AMENDMENT.—The heading for section 582 is amended to read as follows:

"SEC. 582. BAD DEBTS, LOSSES, AND GAINS WITH RESPECT TO SECURITIES HELD BY FINANCIAL INSTITUTIONS."

(d) EFFECTIVE DATE.—The amendments made by this section shall apply with respect to taxable years beginning after July 11, 1969.

SEC. 444. FOREIGN DEPOSITS IN UNITED STATES BANKS.

Sections 861 and 2104 are amended by striking out "1972" wherever it appears in such sections and inserting in lieu thereof "1975".

SUBTITLE F—DEPRECIATION ALLOWED REGULATED INDUSTRIES; EARNINGS AND PROFITS ADJUSTMENT FOR DEPRECIATION

SEC. 451. PUBLIC UTILITY PROPERTY.

(a) IN GENERAL.—Section 167 (relating to depreciation) is amended by inserting after subsection (k) (added by section 521) the following new subsection:

"(1) SPECIAL RULES IN CASE OF PUBLIC UTILITY PROPERTY.—

"(1) EXISTING PUBLIC UTILITY PROPERTY.—In the case of existing public utility property (as defined in paragraph (5) (A)), the term 'reasonable allowance' as used in subsection (a) means an allowance computed under the straight-line method unless—

"(A) with respect to such property (or with respect to property of the same kind as such property) the taxpayer for his latest taxable year for which a return was filed on or before July 22, 1969, used a method other than the straight-line method, and

"(B) the requirement of paragraph (2) (if applicable) is met with respect to such property.

"(2) CONTINUATION OF NORMALIZATION.—In the case of public utility property described in paragraph (1) with respect to which (or with respect to property of the same kind) the taxpayer as of July 22, 1969, used the normalization method of accounting, the taxpayer may use, with respect to such property, for purposes of computing taxable income, a method of depreciation other than the straight-line method only if he continues to use the normalization method of accounting with respect to such property.

"(3) OTHER PUBLIC UTILITY PROPERTY.—In the case of public utility property other than existing public utility property, the term 'reasonable allowance' as used in subsection (a) means an allowance computed under the straight-line method unless—

"(A) the taxpayer uses the normalization method of accounting with respect to such property, or

"(B) with respect to property of the same kind as such property, the taxpayer for his latest taxable year for which a return was filed on or before July 22, 1969, used a method other than the straight-line method, and computed his tax expense for the purposes of establishing his cost of service (or of reflecting operating results in his regulated books of account) by using the method of depreciation he used for purposes of computing his allowance for depreciation under this section.

"(4) PUBLIC UTILITY PROPERTY.—For purposes of this subsection, the term 'public utility property' means property used predominantly in the trade or business of the furnishing or sale of—

"(A) electrical energy, water, or sewage disposal services, or

"(B) gas through a local distribution system, or

"(C) telephone services (other than those provided by the Communications Satellite Corporation for purposes authorized by the Communications Satellite Act of 1962 (76 Stat. 419; 47 U.S.C. 701)), or

"(D) transportation of gas, oil (including shale oil), or petroleum products by pipeline,

if the rates for such furnishing or sale, as the case may be, have been established or approved by a State or political subdivision thereof, by any agency or instrumentality of the United States, or by a public service or public utility commission or other similar body of any State or political subdivision thereof.

"(5) OTHER DEFINITIONS.—For purposes of this subsection—

"(A) EXISTING PUBLIC UTILITY PROPERTY.—The term 'existing public utility property' means public utility property—

"(i) the construction, reconstruction, or erection of which is completed by the taxpayer on or before December 31, 1969 (or if construction, reconstruction, or erection is completed after December 31, 1969, that portion of the basis of such property which is properly attributable to construction, reconstruction, or erection by the taxpayer on or before December 31, 1969), or

"(ii) which was acquired by the taxpayer and the use of which commences with the taxpayer on or before December 31, 1969.

"(B) NORMALIZATION METHOD OF ACCOUNTING.—A taxpayer uses the normalization method of accounting if, and only if, he—

"(i) computes his tax expense for purposes of establishing his cost of service (or of reflecting operating results in his regulated books of account) by using a method of depreciation other than the method he used for purposes of computing his allowance for depreciation under this section, and

"(ii) makes adjustments to a reserve for deferred taxes to reflect the deferral of taxes resulting from the use of such different methods of depreciation.

"(C) STRAIGHT LINE METHOD.—The term 'straight line method' includes any method determined by the Secretary or his delegate to result in a reasonable allowance under subsection (a), other than (i) a declining balance method, (ii) the sum of the years-digits method or, (iii) any other method allowable solely by reason of the application of subsection (b)(4) or paragraph (1)(C) of subsection (j)."

(b) EFFECTIVE DATE.—The amendment made by subsection (a) shall apply with respect to taxable years ending after July 22, 1969.

SEC. 452. EFFECT ON EARNINGS AND PROFITS.

Section 312 (relating to effect on earnings and profits) is amended by adding at the end thereof the following new subsection:

"(m) EFFECT ON EARNINGS AND PROFITS OF DEPRECIATION.—

"(1) For the purpose of computing its earnings and profits with respect to any taxable year beginning after June 30, 1972, a corporation shall use the aggregate amount of depreciation which would be allowable with respect to such year if depreciation had been computed under—

"(A) the straight line method, or

"(B) a method determined by the Secretary or his delegate to result in a reasonable allowance under section 167(a), not including—

"(i) any declining balance method,

"(ii) the sum of the years-digits method, or

"(iii) any other method allowable solely by reason of the application of subsection (b)(4), (j)(1)(C), or (m) of section 167.

"(2) The provisions of paragraph (1) shall apply notwithstanding the use, by a corporation, of methods of depreciation otherwise allowable under section 167 or 179, and notwithstanding an election, by a corporation, of the amortization deduction under section 168."

SUBTITLE G—ALTERNATIVE CAPITAL GAIN RATE FOR CORPORATIONS

SEC. 461. INCREASE OF RATE.

(a) IN GENERAL.—Section 1201(a) (relating to alternative tax in the case of corporations) is amended by striking out the last sentence of subsection (a), and by amending paragraph (2) to read as follows:

"(2) an amount equal to 30 percent of such excess"

(b) CONFORMING AMENDMENTS.—

(1) Section 802(a)(2)(B) (relating to alternative tax in case of capital gains of life insurance companies) is amended by striking out "25 percent" and inserting in lieu thereof "30 percent".

(2) Section 852(b)(3) (relating to method of taxation of regulated investment companies and their shareholders in the case of capital gains) is amended:

(A) by striking out "25 percent", wherever it appears in subparagraphs (A) and (D)(ii) of such section, and inserting in lieu thereof "30 percent", and

(B) by striking out "75 percent", in subparagraph (D)(iii) of such section, and inserting in lieu thereof "70 percent".

(3) Section 857(b)(3)(A) (relating to imposition of tax in the case of capital gains of real estate investment trusts) is amended by striking "25 percent" and inserting in lieu thereof "30 percent".

(c) EFFECTIVE DATE.—The amendments made by this section shall apply to sales and other dispositions after July 31, 1969. In the case of a taxable year beginning before and ending after July 31, 1969, the amendments made by this section shall be applied in a manner to be prescribed by the Secretary of the Treasury or his delegate.

TITLE V—ADJUSTMENTS AFFECTING INDIVIDUALS AND CORPORATIONS

SUBTITLE A—NATURAL RESOURCES

SEC. 501. NATURAL RESOURCES.

(a) PERCENTAGE DEPLETION.—

(1) RATES.—Subsection (b) of section 613 (relating to percentage depletion) is amended to read as follows:

"(b) PERCENTAGE DEPLETION RATES.—The mines, wells, and other natural deposits, and the percentage, referred to in subsection (a) are as follows:

"(1) 20 percent—oil and gas wells located in the United States, in its possessions, in the Commonwealth of Puerto Rico, or on the Outer Continental Shelf (within the meaning of section 2 of the Outer Continental Shelf Lands Act, as amended and supplemented; 43 U.S.C. 1331).

"(2) 17 percent—

"(A) sulfur and uranium; and

"(B) if from deposits in the United States—anorthosite, clay, laterite, and nepheline syenite (to the extent that alumina and aluminum compounds are extracted therefrom), asbestos, bauxite, celestite, chromite, corundum, fluorspar, graphite, ilmenite, kyanite, mica, olivine, quartz crystals (radio grade), rutile, block steatite talc, and zircon, and ores of the following metals: antimony, beryllium, bismuth, cadmium, cobalt, columbium, lead, lithium, manganese, mercury, nickel, platinum and platinum group metals, tantalum, thorium tin, titanium, tungsten, vanadium, and zinc.

"(3) 15 percent—if the mines or deposits are located in the United States—

"(A) gold, silver, copper, and iron ore mines, and

"(B) oil shale.

"(4) 11 percent—

"(A) metal mines (if paragraphs (2)(B) or (3)(A) do not apply), rock asphalt, and vermiculite; and

"(B) if neither paragraph (2)(B), (6), or (7)(B) applies, ball clay, bentonite, china clay, sagger clay, and clay used or sold for use for purposes dependent on its refractory properties.

"(5) 7 percent—asbestos (if paragraph (2)(B) does not apply), brucite, coal, lignite, perlite, sodium chloride, and wollastonite.

"(6) 5 percent—clay and shale used or sold for use in the manufacture of sewer pipe or brick, and clay, shale, and slate used or sold for use as sintered or burned lightweight aggregates.

"(7) 4 percent—

"(A) gravel, peat, pumice, sand, scoria, shale (except shale described in paragraphs (3)(B) and (6)), and stone (except stone described in paragraph (8));

"(B) clay used, or sold for use, in the manufacture of drainage and roofing tile, flower pots, and kindred products; and

"(C) if from brine wells—bromine, calcium chloride, and magnesium chloride.

"(8) 11 percent—all other minerals including, but not limited to, aplite, barite, borax, calcium carbonates, diatomaceous earth, dolomite, feldspar, fullers earth, garnet, gilsonite, granite, limestone, magnesite, magnesium carbonates, marble, mollusk shells (including clam shells and oyster shells), phosphate rock, potash, quartzite, slate, soapstone stone (used or sold for use by the mine owner or operator as dimension stone or ornamental stone), thenardite, tripoli, trona, and (if paragraph (2)(B) does not apply) bauxite, flake graphite, fluorspar, lepidolite, mica, spodumene, and talc (including pyrophyllite), except that, unless sold on bid in direct competition with a bona fide bid to sell a mineral listed in paragraph (4), the percentage shall be 4 percent for any such other mineral (other than slate to which paragraph (6) applies) when used, or sold for use, by the mine owner or operator as rip rap, ballast, road material, rubble, concrete aggregates, or for similar purposes. For purposes of this paragraph, the term 'all other minerals' does not include—

"(A) soil, sod, dirt, turf, water, or mosses;

"(B) minerals from sea water, the air, or similar inexhaustible sources; or

"(C) oil and gas wells."

(2) EFFECTIVE DATE.—The amendments made by this subsection shall apply to taxable years beginning after July 22, 1969.

(b) MINERAL PRODUCTION PAYMENTS.—

(1) IN GENERAL.—Subchapter I of chapter 1 (relating to natural resources) is amended by adding at the end thereof the following new part:

"PART IV—MINERAL PRODUCTION PAYMENTS

"Sec. 636. Income tax treatment of mineral production payments.

"SEC. 636. INCOME TAX TREATMENT OF MINERAL PRODUCTION PAYMENTS.

"(a) CARVED-OUT MINERAL PAYMENT.—A production payment carved out of mineral property shall be treated, for purposes of this subtitle, as if it were a mortgage loan on the property, and shall not qualify as an economic interest in the mineral property. In the case of a production payment carved out for exploration or development of a mineral property, the preceding sentence shall apply only if and to the extent gross income from the property (for purposes of section 613) would be realized, in the absence of the application of such sentence, by the person creating the production payment.

"(b) RETAINED PRODUCTION PAYMENT ON SALE OF MINERAL PROPERTY.—A production payment retained on the sale of a mineral property shall be treated, for purposes of this subtitle, as if it were a purchase money mortgage loan and shall not qualify as an economic interest in the mineral property.

"(c) RETAINED PRODUCTION PAYMENT ON LEASE OF MINERAL PROPERTY.—A production payment retained in a mineral property by the lessor in a leasing transaction shall be treated, for purposes of this subtitle, insofar as the lessee (or his successors in interest) is concerned, as if it were a bonus granted by the lessee to the lessor payable in installments. The treatment of the production payment in the hands of the lessor shall be determined without regard to the provisions of this subsection.

"(d) DEFINITION.—As used in this section, the term 'mineral property' has the meaning assigned to the term 'property' in section 614(a).

"(e) REGULATIONS.—The existence and amount of any production payment for purposes of this section and its treatment under this subtitle shall be determined under regulations prescribed by the Secretary or his delegate."

(2) CLERICAL AMENDMENT.—The table of parts for subchapter I of chapter 1 is amended by adding at the end thereof the following:

"Part IV. Mineral production payments."

(3) EFFECTIVE DATES.—

(A) GENERAL RULE.—The amendments made by this subsection shall be applicable to mineral production payments created on or after April 22, 1969.

(B) SPECIAL RULE.—If a taxpayer during the taxable year which includes April 22, 1969, made expenditures prior to such date which are deductible under section 263(c), 615, 616, or 617 of the Internal Revenue Code of 1954, the amendment made by paragraph (1) of this subsection shall apply to proceeds of carved-out mineral production payments sold during such taxable year on or after April 22, 1969, to the extent the proceeds do not exceed the aggregate of such expenditures, only for the purposes of section 613 of such Code (relating to percentage depletion) and section 904 of such Code (relating to limitations on foreign tax credit).

(C) EXCEPTION.—The amendments made by this subsection shall not apply to a mineral production payment created prior to January 1, 1971, pursuant to a binding contract entered into before April 22, 1969.

(c) EXPLORATION EXPENDITURES.—

(1) AMENDMENT TO SECTION 615.—Section 615 (relating to exploration expenditures) is amended by adding new subsection (h) at the end thereof:

"(h) RECAPTURE FOR CERTAIN EXPENDITURES.—The rules set forth in subsections (b) through (g), inclusive, of section 617 (relating to additional exploration expenditures in the case of domestic mining) shall apply to expenditures to which this section applies and which are made after July 22, 1969."

(2) AMENDMENTS TO SECTION 617.—Section 617 (relating to additional exploration expenditures in the case of domestic mining) is amended—

(A) by striking out the heading and inserting in lieu thereof:

"SEC. 617. DEDUCTION AND RECAPTURE OF CERTAIN MINING EXPLORATION EXPENDITURES."

(B) by redesignating subsection (h) as subsection (i), and

(C) by inserting a new subsection (h) as follows:

"(h) EXCEPTION.—If the taxpayer's deductions under this section and section 615 total less than $400,000, then to the extent of the difference between $400,000 and such total, a deduction shall be allowed under this section for expenditures paid or incurred during the taxable year if paid or incurred after July 22, 1969, for the purpose of ascertaining the existence, location, extent, or quality of any deposit of ore or mineral not located in the United States or on the Outer Continental Shelf (within the meaning of section 2 of the Outer Continental Shelf Lands Act, as amended and supplemented; 43 U.S.C. 1331)."

(d) CLERICAL AMENDMENT.—The table of

sections for part I of subchapter I of chapter 1 is amended by striking out:

"Sec. 617. Additional exploration expenditures in the case of domestic mining."

and inserting in lieu thereof:

"Sec. 617. Deduction and recapture of certain mining exploration expenditures."

SUBTITLE B—CAPITAL GAINS AND LOSSES

SEC. 511. REPEAL OF ALTERNATIVE CAPITAL GAINS TAX FOR INDIVIDUALS.

(a) IN GENERAL.—Section 1201 (relating to alternative tax) is amended by striking out subsection (b), and by redesignating subsection (c) as (b).

(b) CONFORMING AMENDMENTS.—

(1) Section 5(a) (relating to cross references relating to tax on individuals) is amended by striking out paragraph (3), and by renumbering paragraph (4) as (3).

(2) Section 871(b)(1) (relating to tax on nonresident alien individuals) is amended by striking out "or 1201(b)".

(3) Section 877(b) (relating to expatriation to avoid tax) is amended by striking out "or section 1201(b)".

(c) EFFECTIVE DATE.—The amendments made by this section shall apply to sales and other dispositions after July 25, 1969. In the case of a taxable year beginning before and ending after July 25, 1969, the alternative tax imposed by section 1201(b) of the Internal Revenue Code of 1954 shall be computed in a manner to be prescribed by the Secretary of the Treasury or his delegate.

SEC. 512. CAPITAL LOSSES OF INDIVIDUALS.

(a) LIMITATION ON ALLOWANCE OF CAPITAL LOSSES.—Section 1211(b) (relating to limitation on capital losses of taxpayers other than corporations) is amended to read as follows:

"(b) OTHER TAXPAYERS.—

"(1) IN GENERAL.—In the case of a taxpayer other than a corporation, losses from sales or exchanges of capital assets shall be allowed only to the extent of the gains from such sales or exchanges, plus (if such losses exceed such gains) whichever of the following is smallest:

"(A) the taxable income for the taxable year,

"(B) $1,000, or

"(C) the sum of—

"(i) the excess of the net short-term capital loss over the net long-term capital gain, and

"(ii) one-half of the excess of the net long-term capital loss over the net short-term capital gain.

"(2) MARRIED INDIVIDUALS.—In the case of a husband or wife who files a separate return, the amount specified in paragraph (1)(B) shall be $500 in lieu of $1,000.

"(3) COMPUTATION OF TAXABLE INCOME.—For purposes of paragraph (1), taxable income shall be computed without regard to gains or losses from sales or exchanges of capital assets and without regard to the deductions provided in section 151 (relating to personal exemptions) or any deduction in lieu thereof. If the taxpayer elects to pay the optional tax imposed by section 3, 'taxable income' as used in this subsection shall read as 'adjusted gross income'."

(b) CAPITAL LOSS CARRYOVER.—Section 1212(b) (relating to capital loss carryover of taxpayers other than corporations) is amended by striking out "beginning after December 31, 1963" at the beginning of paragraph (1), by striking out the last sentence of paragraph (1), and by striking out paragraph (2) and inserting in lieu thereof the following new paragraphs:

"(2) SPECIAL RULES.—

"(A) For purposes of determining the excess referred to in paragraph (1)(A), an amount equal to the amount allowed for the taxable year under section 1211(b)(1) (A), (B), or (C) shall be treated as a short-term capital gain in such year.

"(B) For purposes of determining the excess referred to in paragraph (1)(B), an amount equal to the sum of—

"(i) the amount allowed for the taxable year under section 1211(b)(1) (A), (B), or (C), and

"(ii) the excess of the amount described in clause (i) over the net short-term capital loss (determined without regard to this subsection) for such year,

shall be treated as a short-term capital gain in such year.

"(3) TRANSITIONAL RULE.—In the case of any amount which, under paragraph (1) and section 1211 (b) (as in effect for taxable years beginning before July 26, 1969), is treated as a capital loss in the first taxable year beginning after July 25, 1969, paragraph (1) and section 1211(b) (as in effect for taxable years beginning before July 26, 1969) shall apply (and paragraph (1) and section 1211 (b) as in effect for taxable years beginning after July 25, 1969, shall not apply) to the extent such amount exceeds the total of any net capital gains (determined without regard to this subsection) of taxable years beginning after July 25, 1969."

(c) CONFORMING AMENDMENT.—Section 1222(9) (defining net capital gain) is amended by striking out "In the case of a corporation, the" and inserting in lieu thereof "The".

(d) EFFECTIVE DATE.—The amendments made by this section shall apply to taxable years beginning after July 25, 1969.

SEC. 513. LETTERS, MEMORANDUMS, ETC.

(a) TREATMENT AS PROPERTY WHICH IS NOT A CAPITAL ASSET.—Section 1221(3) (relating to definition of capital asset) is amended to read as follows:

"(3) a copyright, a literary, musical, or artistic composition, a letter or memorandum, or similar property, held by—

"(A) a taxpayer whose personal efforts created such property,

"(B) in the case of a letter, memorandum, or similar property, a taxpayer for whom such property was prepared or produced, or

"(C) a taxpayer in whose hands the basis of such property is determined, for purposes of determining gain from a sale or exchange, in whole or part by reference to the basis of such property in the hands of a taxpayer described in subparagraph (A) or (B);".

(b) CONFORMING AMENDMENTS.—

(1) Section 341(e)(5)(A)(iv) (relating to definition of subsection (e) asset in the case of collapsible corporations) is amended to read as follows:

"(iv) property (unless included under clause (i), (ii), or (iii)) which consists of a copyright, a literary, musical, or artistic composition, a letter or memorandum, or similar property, or any interest in any such property, if the property was created in whole or in part by the personal efforts of, or (in the case of a letter, memorandum, or similar property) was prepared or produced in whole or in part for, any individual who owns more than 5 percent in value of the stock of the corporation."

(2) Section 1231(b)(1)(C) (relating to definition of property used in the trade or business) is amended by inserting ", a letter or memorandum" before ", or similar property".

(c) EFFECTIVE DATE.—The amendments made by this section shall apply to sales and other dispositions occurring after July 25, 1969.

SEC. 514. HOLDING PERIOD OF CAPITAL ASSETS.

(a) CAPITAL GAINS AND LOSSES.—Section 1222 (relating to other terms relating to capital gains and losses) is amended by striking out "6 months" wherever it appears therein and inserting in lieu thereof "12 months".

(b) CONFORMING AMENDMENTS.—The following sections are amended by striking out "6 months" wherever it appears therein and inserting in lieu thereof "12 months":

(1) Section 166(d)(1) (relating to nonbusiness debts);

(2) Section 333(g) (1) and (2) (relating to special rule as to liquidations in the case of the election as to recognition of gain);

(3) Section 341(a) (relating to treatment of gain to shareholders in the case of collapsible corporations);

(4) Section 342(a) (relating to liquidation of certain foreign personal holding companies);

(5) Section 402(a)(2) (relating to capital gains treatment for certain distributions in the case of a beneficiary of an exempt employees' trust);

(6) Section 403(a)(2) (relating to capital gains treatment for certain distributions in the case of a beneficiary under a qualified annuity plan);

(7) Section 423(a)(1) (relating to employee stock purchase plans);

(8) Section 424(a)(1) and (c)(1) and (2) (relating to restricted stock options);

(9) Section 584(c)(1) (A) and (B) (relating to inclusions in taxable income of participants in common trust funds);

(10) Section 631 (relating to gain or loss in the case of timber, coal, or domestic iron ore);

(11) Section 702(a) (1) and (2) (relating to income and credits of partner);

(12) Section 817(a)(1)(A) relating to treatment of capital gains and losses, etc., in the case of life insurance companies);

(13) Section 852(b) (3) and (4) (relating to treatment of capital gain dividends by shareholders of regulated investment companies);

(14) Section 856(c)(4) (relating to definition of real estate investment trust);

(15) Section 857(b)(3)(B) (relating to treatment of capital gain dividends by shareholders of real estate investment trusts);

(16) Section 1231 (relating to property used in the trade or business and involuntary conversions);

(17) Section 1232(a)(2) (relating to sale or exchange in the case of bonds and other evidences of indebtedness);

(18) Section 1233 (b), (d), and (e) (relating to gains and losses from short sales);

(19) Section 1234(c)(1) (relating to special rule for gain on lapse of an option granted as part of a straddle);

(20) Section 1235(a) (relating to sale or exchange of patents);

(21) Section 1240 (relating to taxability to employee of termination payments);

(22) Section 1246(a)(4) (relating to holding period in the case of gain on foreign investment company stock);

(23) Section 1247(i) (relating to loss on sale or exchange of certain stock in the case of foreign investment companies electing to distribute income currently); and

(24) Section 1248 (b) and (f) (relating to gain from certain sales or exchanges of stock in certain foreign corporations).

(c) TIMBER.—Section 631(a) (relating to election to treat cutting of timber as a sale or exchange) is amended by striking out "before the beginning of such year" in the first sentence.

(d) EFFECTIVE DATE.—The amendments made by this section shall apply to taxable years beginning after July 25, 1969.

SEC. 515. TOTAL DISTRIBUTIONS FROM QUALIFIED PENSION, ETC., PLANS.

(a) LIMITATION ON CAPITAL GAINS TREATMENT.—

(1) EMPLOYEES' TRUST.—SECTION 402(a) (relating to taxability of beneficiary of exempt trust) is amended by adding at the end thereof the following new paragraph:

"(5) LIMITATION ON CAPITAL GAINS TREATMENT.—The first sentence of paragraph (2)

shall apply to a distribution paid after December 31, 1969, only to the extent that it does not exceed the sum of—

"(A) the benefits accrued by the employee on behalf of whom it is paid during plan years beginning before January 1, 1970, and

"(B) the portion of the benefits accrued by such employee during plan years beginning after December 31, 1969, which the distributee establishes does not consist of the employee's allocable share of employer contributions to the trust by which such distribution is paid.

The Secretary or his delegate shall prescribe such regulations as may be necessary to carry out the purposes of this paragraph."

(2) EMPLOYEE ANNUITIES.—Section 403(a)(2) (relating to capital gains treatment for certain distributions under a qualified annuity plan) is amended by adding at the end thereof the following new subparagraph:

"(C) LIMITATION ON CAPITAL GAINS TREATMENT.—Subparagraph (A) shall apply to a payment paid after December 31, 1969, only to the extent that it does not exceed the sum of—

"(i) the benefits accrued by the employee on behalf of whom it is paid during plan years beginning before January 1, 1970, and

"(ii) the portion of the benefits accrued by such employee during plan years beginning after December 31, 1969, which the payee establishes does not consist of the employee's allocable share of employer contributions under the plan under which the annuity contract is purchased.

The Secretary or his delegate shall prescribe such regulations as may be necessary to carry out the purposes of this subparagraph."

(b) LIMITATION ON TAX.—Section 72(n) (relating to treatment of certain distributions with respect to contributions by self-employed individuals) is amended—

(1) by striking out so much thereof as precedes paragraph (2) and inserting in licu thereof the following:

(n) TREATMENT OF TOTAL DISTRIBUTIONS.—

"(1) APPLICATION OF SUBSECTION.—

"(A) GENERAL RULE.—This subsection shall apply to amounts—

"(i) distributed to a distrbutee, in the case of an employees' trust described in section 401(a) which is exempt from tax under section 501(a), or

"(ii) paid to a payee, in the case of an annuity plan described in section 403(a) if the total distributions or amounts payable to the distributee or payee with respect to an employee (including an individual who is an employee within the meaning of section 401(c)(1)) are paid to the distributee or payee within one taxable year of the distributee or payee, but only to the extent that section 402(a)(2) or 403(a)(2) does not apply to such amounts.

"(B) DISTRIBUTIONS TO WHICH APPLICABLE.—This subsection shall apply only to distributions or amounts paid—

"(i) on account of the employee's death,

"(ii) with respect to an individual who is an employee without regard to section 401(c)(1), on account of his separation from the service,

"(iii) with respect to an employee within the meaning of section 401(c)(1), after he has attained the age of 59½ years, or

"(iv) with respect to an employee within the meaning of section 401(c)(1), after he has become disabled (within the meaning of subsection (m)(7)).

"(C) MINIMUM PERIOD OF SERVICE.—This subsection shall apply to a distribution from or under a plan to an employee only if he has been a participant in such plan for 5 or more years before such distribution.

"(D) AMOUNTS SUBJECT TO PENALTY.—This subsection shall not apply to amounts described in clauses (ii) and (iii) of subparagraph (A) of subsection (m)(5) (but, in the case of amounts described in clause (ii) of such subparagraph, only to the extent that subsection (m)(5) applies to such amounts)."; and

(2) by adding at the end thereof the following new paragraph:

"(4) REFUND OF TAX WITH RESPECT TO CERTAIN DISTRIBUTIONS.—Notwithstanding any other provision of this title, if the limitation of tax provided in paragraph (2) on the total distributions or amounts payable with respect to an individual who is an employee without regard to section 401(c)(1) exceeds—

"(A) the aggregate increase in tax that would result from the inclusion in gross income of the recipient of 20 percent of the amount to which this subsection applies for the taxable year in which such amount is received and each of his 4 succeeding taxable years, or

"(B) if the recipient dies within the 4-year period beginning on the last day of the taxable year in which such amount is received, 5 times the average of the increase in tax that would result from the inclusion in gross income of the recipient of 20 percent of the amount to which this subsection applies for such taxable year and each succeeding taxable year other than the taxable year ending with his death, such excess shall be deemed to be an overpayment of the tax imposed by this chapter for the last taxable year referred to in subparagraph (A) or (B), whichever is applicable."

(c) TECHNICAL AND CONFORMING AMENDMENTS.—

(1) Section 405(e) (relating to capital gains treatment not to apply to bonds distributed by trusts) is amended—

(A) by striking out "CAPITAL GAINS TREATMENT" in the heading and inserting in lieu thereof "CAPITAL GAINS TREATMENT AND LIMITATION OF TAX";

(B) by striking out "Section 402(a)(2)" and inserting in lieu thereof "Section 72(n) and section 402(a)(2)"; and

(C) by striking out "section" and inserting in lieu thereof "sections".

(2) Section 406(c) (relating to termination of status as deemed employee not to be treated as separation from service for purpose of capital gain provisions) is amended—

(A) by striking out "PROVISIONS." in the heading and inserting in lieu thereof "PROVISIONS AND LIMITATION OF TAX."; and

(B) by striking out "section 402(a)(2)" and inserting in lieu thereof "section 72(n), section 402(a)(2),".

(3) Section 407(c) (relating to termination of status as deemed employee not to be treated as separation from service for purposes of capital gain provisions) is amended—

(A) by striking out "PROVISIONS." in the heading and inserting in lieu thereof "PROVISIONS AND LIMITATION OF TAX."; and

(B) by striking out "section 402(a)(2)" and inserting in lieu thereof "section 72(n), section 402(a)(2),".

(4) Section 1304(b)(2) (relating to certain provisions inapplicable) is amended to read as follows:

"(2) section 72(n)(2) (relating to limitation of tax in case of total distribution)".

SEC. 516. OTHER CHANGES IN CAPITAL GAINS TREATMENT.

(a) SALES OF TERM INTERESTS.—Section 1001 (relating to determination of amount of and recognition of gain or loss) is amended by adding at the end thereof the following new subsection:

"(e) CERTAIN TERM INTERESTS.—

"(1) IN GENERAL.—In determining gain or loss from the sale or other disposition of a term interest in property, that portion of the adjusted basis of such interest which is determined pursuant to section 1014 or 1015 (to the extent that such adjusted basis is a portion of the entire adjusted basis of the property) shall be disregarded.

"(2) TERM INTEREST IN PROPERTY DEFINED.—For purposes of paragraph (1), the term 'term interest in property' means—

"(A) a life interest in property,

"(B) an interest in property for a term of years, or

"(C) an income interest in a trust.

"(3) EXCEPTION.—Paragraph (1) shall not apply to a sale or other disposition which is a part of a transaction in which a fee interest is transferred to any person or persons."

(b) CERTAIN CASUALTY LOSSES UNDER SECTION 1231.—Section 1231(a) (relating to property used in the trade or business and involuntary conversions) is amended by striking out all that follows paragraph (1) and inserting in lieu thereof the following:

"(2) losses (including losses not compensated for by insurance or otherwise) upon the destruction, in whole or in part, theft or seizure, or requisition or condemnation of (A) property used in the trade or business or (B) capital assets held for more than 12 months shall be considered losses from a compulsory or involuntary conversion.

In the case of any involuntary conversion (subject to the provisions of this subsection but for this sentence) arising from fire, storm, shipwreck, or other casualty, or from theft, of any property used in the trade or business or of any capital asset held for more than 12 month and held for the production of income, this subsection shall not apply to such conversion (whether resulting in gain or loss) if, during the taxable year, the recognized losses from such conversions exceed the recognized gains from such conversions."

(c) TRANSFER OF FRANCHISES.—

(1) IN GENERAL.—Part IV of subchapter P of chapter 1 (relating to special rules for determining capital gains and losses) is amended by adding at the end thereof the following new section:

"SEC. 1252. TRANSFER OF FRANCHISES.

"(a) GENERAL RULE.—A transfer of a franchise shall not be treated as a sale or exchange of a capital asset or of property to which section 1231 applies, if the transferor retains any significant power, right, or continuing interest with respect to the subject matter of the franchise.

"(b) DEFINITIONS.—For purposes of this section—

"(1) FRANCHISE.—The term 'franchise' means a franchise, distributorship, or other like interest.

"(2) SIGNIFICANT POWER, RIGHT, OR CONTINUING INTEREST.—The term 'significant power, right, or continuing interest' includes, but is not limited to—

"(A) a right to disapprove any assignment of the franchise,

"(B) a right to disapprove any subcontract made by the holder of the franchise, and

"(C) a right to terminate the franchise at will.

"(c) EXCEPTION.—Subsection (a) shall not apply with respect to amounts received or accrued, in connection with a transfer of a franchise, which are attributable to the transfer of all substantial rights to a patent, trademark, or trade name (or an undivided interest therein which includes a part of all such rights), to the extent such amounts are separately identified and are reasonable in amount."

(2) CLERICAL AMENDMENT.—The table of sections for part IV of subchapter P of chapter 1 is amended by adding at the end thereof the following:

"Sec. 1252. Transfer of franchises."

(d) EFFECTIVE DATES.—The amendments made by subsections (a) and (c) shall apply with respect to sales and other dispositions, and transfers, after July 25, 1969. The amendment made by subsection (b) shall ap-

ply to taxable years beginning after July 25, 1969.

SUBTITLE C—REAL ESTATE DEPRECIATION

SEC. 521. DEPRECIATION OF REAL ESTATE.

(a) SECTION 1250 PROPERTY AND REHABILITATION PROPERTY.—Section 167 (relating to depreciation) is amended by redesignating subsection (j) as subsection (n), and by inserting after subsection (i) the following new subsections:

"(j) SPECIAL RULES FOR SECTION 1250 PROPERTY.—

"(1) GENERAL RULE.—Except as provided in paragraphs (2) and (3), in the case of section 1250 property, subsection (b) shall not apply and the term 'reasonable allowance' as used in subsection (a) shall include an allowance computed in accordance with regulations prescribed by the Secretary or his delegate, under any of the following methods:

"(A) the straight line method,

"(B) the declining balance method, using a rate not exceeding 150 percent of the rate which would have been used had the annual allowance been computed under the method described in subparagraph (A), and

"(C) any other consistent method productive of an annual allowance which, when added to all allowances for the period commencing with the taxpayer's use of the property and including the taxable year, does not, during the first two-thirds of the useful life of the property, exceed the total of such allowances which would have been used had such allowances been computed under the method described in subparagraph (B).

Nothing in this paragraph shall be construed to limit or reduce an allowance otherwise allowable under subsection (a) except where allowable solely by reason of paragraph (2), (3), or (4) of subsection (b).

"(2) HOUSING.—Paragraph (1) of this subsection shall not apply, and subsection (b) shall apply in any taxable year, to a building or structure which is residential rental housing the original use of which commences with the taxpayer. For purposes of the preceding sentence, a building or structure shall be considered to be residential rental housing with respect to any taxable year if and only if 80 percent or more of the gross income from such building or structure for such year is derived from the use of dwelling units (within the meaning of subsection (k)(3)(C)) in such building or structure to provide living accommodations on a rental basis. Any change in the computation of the allowance for depreciation for any taxable year, permitted or required by reason of the application of this paragraph, shall not be considered a change in a method of accounting.

"(3) PROPERTY CONSTRUCTED, ETC., BEFORE JULY 25, 1969.—Paragraph (1) of this subsection shall not apply, and subsection (b) shall apply, in the case of property—

"(A) the construction, reconstruction or erection of which was begun before July 25, 1969, or

"(B) for which a written contract entered into before July 25, 1969, with respect to any part of the construction, reconstruction, or erection or for the permanent financing thereof, was at all times thereafter binding on the taxpayer.

Under regulations prescribed by the Secretary or his delegate, rules similar to the rules provided in paragraphs (5), (9), (10), and (13) of section 48(h) shall be applied for purposes of subparagraphs (A) and (B).

"(4) USED SECTION 1250 PROPERTY.—In the case of section 1250 property acquired after July 24, 1969, the original use of which does not commence with the taxpayer, the allowance for depreciation under this section shall be limited to an amount computed under—

"(A) the straight line method, or

"(B) any other method determined by the Secretary or his delegate to result in a reasonable allowance under subsection (a), not including—

"(i) any declining balance method,

"(ii) the sum-of-the-years digits method, or

"(iii) any other method allowable solely by reason of the application of subsection (i)(4) or paragraph (1)(C) of this subsection.

"(k) DEPRECIATION OF REHABILITATION PROPERTY CONSISTING OF LOW-COST RENTAL HOUSING.—

"(1) 60-MONTH RULE.—The taxpayer may at any time elect in accordance with regulations prescribed by the Secretary or his delegate to compute a depreciation deduction in subsection (a) attributable to rehabilitation expenditures made after July 24, 1969, under the straight-line method using a useful life of 60 months. Such method shall be in lieu of any other method of computing the depreciation deduction under subsection (a) and in lieu of any deduction for amortization.

"(2) LIMITATIONS.—

"(A) The aggregate amount of expenditures with respect to any low-cost rental housing which are eligible for the method provided by paragraph (1) shall not exceed $15,000 per dwelling unit in such housing.

"(B) EXCEPTION.—Expenditures in any taxable year shall be taken into account for purposes of paragraph (1) only if the sum of the rehabilitation expenditures over a period of two consecutive taxable years, including the taxable year, exceeds $3,000 per dwelling unit of low-cost housing.

"(3) DEFINITIONS.—For purposes of this subsection—

"(A) REHABILITATION EXPENDITURES.—The term 'rehabilitation expenditures' means amounts chargeable to capital account and incurred for property or additions or improvements to property (or related facilities) with a useful life of 5 years or more, in connection with the rehabilitation of an existing building for low-cost rental housing; but such term does not include the cost of acquisition of such building or any interest therein.

"(B) LOW-COST RENTAL HOUSING.—The term 'low-cost rental housing' means any building the dwelling units in which are held for occupancy on a rental basis by families and individuals of low or moderate income, as determined by the Secretary or his delegate in a manner consistent with the policies of the Housing and Urban Development Act of 1968 pursuant to regulations prescribed under this subsection.

"(C) DWELLING UNIT.—The term 'dwelling unit' means a house or an apartment in a building or structure, but does not include a unit in a hotel, motel, inn, or other establishment more than one-half of the units in which are used on a transient basis."

(b) RECAPTURE OF ADDITIONAL DEPRECIATION.—Section 1250(a) (relating to gain from dispositions of certain depreciable realty) is amended to read as follows:

"(a) GENERAL RULE.—Except as otherwise provided in this section—

"(1) ADDITIONAL DEPRECIATION AFTER JULY 24, 1969.—If section 1250 property is disposed of after July 24, 1969, the lower of—

"(A) that portion of the additional depreciation (as defined in subsection (b)(1) or (4)) attributable to periods after July 24, 1969, in respect of the property, or

"(B) the excess of—

"(i) the amount realized (in the case of a sale, exchange, or involuntary conversion), or the fair market value of such property (in the case of any other disposition), over

"(ii) the adjusted basis of such property,

shall be treated as gain from the sale or exchange of property which is neither a capital asset nor property described in section 1231. Such gain shall be recognized notwithstanding any other provision of this subtitle.

"(2) ADDITIONAL DEPRECIATION AFTER DECEMBER 31, 1963, AND BEFORE JULY 25, 1969.—

"(A) If section 1250 property is disposed of after December 31, 1963, and the amount determined under subsection (a)(1)(B) exceeds the amount determined under subsection (a)(1)(A), then the applicable percentage of the lower of—

"(i) that portion of the additional depreciation attributable to periods before July 25, 1969, in respect of the property, or

"(ii) the excess of the amount determined under subsection (a)(1)(B) over the amount determined under subsection (a)(1)(A),

shall also be treated as gain from the sale or exchange of property which is neither a capital asset nor property described in section 1231. Such gain shall be recognized notwithstanding any other provision of this subtitle.

"(E) APPLICABLE PERCENTAGE.—For purposes of paragraph (A) the term 'applicable percentage' means 100 percent minus 1 percentage point for each full month the property was held after the date on which the property was held for 20 full months."

(c) Section 1250(b) (relating to gain from certain depreciable realty) is amended by adding at the end thereof the following new paragraph:

"(4) ADDITIONAL DEPRECIATION ATTRIBUTABLE TO REHABILITATION EXPENDITURES.—For purposes of this section, the term 'additional depreciation' means, in respect of the depreciation deduction allowed under section 167(k), the adjustments computed under such section, except that, in the case of property held more than one year, it means such adjustments only to the extent that they exceed the amount of the depreciation adjustments which would have resulted if such adjustments had been determined under the straight line method of adjustment without regard to the useful life permitted under section 167(k)."

(d) CHANGE IN METHOD OF COMPUTING DEPRECIATION.—Section 167(e) (relating to depreciation) is amended by adding at the end thereof the following new paragraph:

"(3) CHANGE WITH RESPECT TO SECTION 1250 PROPERTY.—A taxpayer may, on or before the last day prescribed by law (including extensions thereof) for filing his return for his first taxable year beginning after July 24, 1969, and in such manner as the Secretary or his delegate shall by regulation prescribe, elect to change his method of depreciation in respect of section 1250 property (as defined in section 1250(c)) from any declining balance or sum of the years-digits method to the straight line method. An election may be made under this paragraph notwithstanding any provision to the contrary in an agreement under subsection (d)."

(e) TECHNICAL AND CONFORMING CHANGES.—

(1) Subsection (d) of section 1250 is amended by striking out "subsection (a)(1)" wherever it appears and inserting in lieu thereof "subsection (a)."

(2) Subsection (f) of section 1250 is amended—

(A) by striking out "subsection (a)(1)" in paragraph (1) and inserting lieu thereof "subsection (a)," and

(B) by striking out paragraph (2) thereof and inserting in lieu thereof the following:

"(2) ORDINARY INCOME ATTRIBUTABLE TO AN ELEMENT.—For purposes of paragraph (1), the amount taken into account for any element shall be the sum of—

"(A) the amount which bears the same ratio to the lower of the amounts specified in subparagraph (A) or (B) of subsection (a)(1) for the section 1250 property as the additional depreciation for such element attributable to periods after July 24, 1969, bears to the sum of the additional depreciation for

all elements attributable to periods after July 24, 1969, and

"(B) the amount (if any) determined by multiplying—

"(i) the amount which bears the same ratio to the lower of the amounts specified in subsection (a)(2)(A) (i) or (ii) for the section 1250 property as the additional depreciation for such element attributable to periods before July 25, 1969, bears to the sum of the additional depreciation for all elements attributable to periods before July 25, 1969, by

"(ii) the applicable percentage for such element.

For purposes of this paragraph, determinations with respect to any element shall be made as if it were a separate property."

(f) Section 381(c)(6) (relating to carryovers in certain corporate acquisitions) is amended to read as follows:

"(6) METHOD OF COMPUTING DEPRECIATION ALLOWANCE.—The acquiring corporation shall be treated as the distributor or transferor corporation for purposes of computing the depreciation allowance under paragraphs (2), (3), and (4) of section 167(b), or subsection (j)(1), (k), or (m) of section 167, on property acquired in a distribution or transfer with respect to so much of the basis in the hands of the acquiring corporation as does not exceed the adjusted basis in the hands of the distributor or transferor corporation."

(g) EFFECTIVE DATE.—The amendments made by this section shall apply with respect to taxable years ending after July 24, 1969.

SUBTITLE D—COOPERATIVES

SEC. 531. COOPERATIVES.

(a) QUALIFIED WRITTEN NOTICE OF ALLOCATION.—The last sentence of section 1388(c)(1) (relating to qualified written notice of allocation defined) is amended to read as follows:

"Such term does not include any written notice of allocation which is paid as part of a patronage dividend or as part of a payment described in section 1382(c)(2)(A) unless—

"(C) at least 20 percent of the amount of such patronage dividend, or such payment, is paid in money or by qualified check, and in addition, during the payment period for the taxable year to which such patronage dividend, or such payment, relates at least the 'applicable percentage' (as determined under paragraph (5)) of such patronage dividend, or such payment, is paid in money or in qualified check, either—

"(i) as a part of such patronage dividend, or such payment,

"(ii) or in redemption (to the extent allocated by the payor to such patronage dividend for the purpose of meeting the requirements of this clause, if not previously allocated to any other patronage dividend) of any qualified written notice of allocation previously paid as a part of a patronage dividend, or such payment, for any taxable year, and

"(D) either (i) at all times on and after the date of issuance of such written notice of allocation, the bylaws of the organization require the remainder of such patronage dividend, or such payment, to be paid in money within the 15-year period beginning with the close of the taxable year with respect to which such written notice of allocation is made, and the bylaws provide that such requirement shall in no event be changed without the consent of those adversely affected, or (ii) an unconditional written evidence of indebtedness is issued for the remainder of such patronage dividend, or such payment, which matures within such 15-year period."

(b) APPLICABLE PERCENTAGE.—Section 1388(c) (relating to qualified written notice of allocation) is amended by adding at the end thereof the following new paragraph:

"(5) APPLICABLE PERCENTAGE.—For purposes of subsection (a)—

"For taxable years beginning in—	The applicable percentage is—
1970	3 percent
1971	6 percent
1972	9 percent
1973	12 percent
1974	15 percent
1975	18 percent
1976	21 percent
1977	24 percent
1978	27 percent
1979 or any subsequent year	30 percent."

(c) QUALIFIED PER-UNIT RETAIN CERTIFICATE.—Section 1388(h)(1) (relating to definition of qualified per-unit retain certificate) is amended to read as follows:

"(1) DEFINED.—For purposes of this subchapter, the term 'qualified per-unit retain certificate' means any per-unit retain certificate—

"(A) which the distributee has agreed, in the manner provided in paragraph (2) to take into account at its stated dollar amount as provided in section 1385(a), and

"(B) which (i) at all times on and after the date of issuance of such certificate, the bylaws of the organization require the stated dollar amount to be paid in money within the 15-year period beginning with the close of the taxable year with respect to which such certificate is issued, and the by-laws provide that such requirement shall in no event be changed without the consent of those adversely affected, or (ii) is in the form of an unconditional written evidence of indebtedness which matures within such 15-year period."

(d) EFFECTIVE DATE.—The amendments made by this section apply to taxable years beginning after December 31, 1969.

SUBTITLE E—SUBCHAPTER S CORPORATIONS

SEC. 541. QUALIFIED PENSION, ETC., PLANS OF SMALL BUSINESS CORPORATIONS.

(a) IN GENERAL.—Subchapter S of chapter 1 (relating to election of certain small business corporations as to taxable status) is amended by adding at the end thereof the following new section:

SEC. 1379. CERTAIN QUALIFIED PENSION, ETC., PLANS.

"(a) ADDITIONAL REQUIREMENT FOR QUALIFICATION.—A trust forming part of a stock bonus or profit-sharing plan which provides contributions or benefits for employees some or all of whom are shareholder-employees shall not constitute a qualified trust under section 401 (relating to qualified pension, profit-sharing, and stock bonus plans) unless the plan of which such trust is a part provides that forfeitures attributable to contributions deductible under section 404(a)(3) for any taxable year (beginning after December 31, 1969) of the employer with respect to which it is an electing small business corporation may not inure to the benefit of any individual who is a shareholder-employee for such taxable year. A plan shall be considered as satisfying the requirement of this subsection for the period beginning with the first day of a taxable year and ending with the 15th day of the third month following the close of such taxable year, if all the provisions of the plan which are necessary to satisfy this requirement are in effect by the end of such period and have been made effective for all purposes with respect to the whole of such period.

"(b) TAXABILITY OF SHAREHOLDER-EMPLOYEE BENEFICIARIES.—

"(1) INCLUSION OF EXCESS CONTRIBUTIONS IN GROSS INCOME.—Notwithstanding the provisions of section 402 (relating to taxability of beneficiary of employees' trust), section 403 (relating to taxation of employee annuities), or section 405(d) (relating to taxability of beneficiaries under qualified bond purchase plans), an individual who is a shareholder-employee of an electing small business corporation shall include in gross income, for his taxable year in which or with which the taxable year of the corporation ends, the excess of the amount of contributions paid on his behalf which is deductible under section 404(a)(1), (2), or (3) by the corporation for its taxable year over the lesser of—

"(A) 10 percent of the compensation received or accrued by him from such corporation during its taxable year, or

"(B) $2,500.

"(2) TREATMENT OF AMOUNTS INCLUDED IN GROSS INCOME.—Any amount included in the gross income of a shareholder-employee under paragraph (1) shall be treated as consideration for the contract contributed by the shareholder-employee for purposes of section 72 (relating to annuities),

"(3) DEDUCTION FOR AMOUNTS NOT RECEIVED AS BENEFITS.—If—

"(A) amounts are included in the gross income of an individual under paragraph (1), and

"(B) the rights of such individual (or his beneficiaries) under the plan terminate before payments under the plan which are excluded from gross income equal the amounts included in gross income under paragraph (1),

then there shall be allowed as a deduction, for the taxable year in which such rights terminate, an amount equal to the excess of the amounts included in gross income under paragraph (1) over such payments.

"(c) CARRYOVER OF AMOUNTS DEDUCTIBLE.—No amount deductible shall be carried forward under the second sentence of section 404(a)(3)(A) (relating to limits on deductible contributions under stock bonus and profit-sharing trusts) to a taxable year of a corporation with respect to which it is not an electing small business corporation from a taxable year with respect to which it is an electing small business corporation.

"(d) SHAREHOLDER-EMPLOYEE.—For purposes of this section, the term 'shareholder-employee' means an employee or officer of an electing small business corporation who owns (or is considered as owning within the meaning of section 318(a)(1)), on any day during the taxable year of such corporation, more than 5 percent of the outstanding stock of the corporation."

(b) CONFORMING AMENDMENT.—Section 62 (relating to adjusted gross income defined) is amended by adding at the end thereof the following new paragraph:

"(9) PENSION, ETC., PLANS OF ELECTING SMALL BUSINESS CORPORATIONS.—The deduction allowed by section 1379(b)(3)."

(c) CLERICAL AMENDMENT.—The table of sections for subchapter S of chapter 1 is amended by adding at the end thereof the following new item:

"Sec. 1379. Certain qualified pension, etc., plans."

(d) EFFECTIVE DATE.—The amendments made by this section shall apply with respect to taxable years of a corporation beginning after December 31, 1969.

TITLE VI—STATE AND LOCAL OBLIGATIONS

SEC. 601. INTEREST ON CERTAIN GOVERNMENTAL OBLIGATIONS

(a) ELECTION TO ISSUE TAXABLE BONDS.—Section 103 (relating to interest on certain governmental obligations) is amended by redesignating subsection (b) as subsection (e), by redesignating subsection (d) as subection (f), and by inserting after subsection (a) the following new subsection:

"(b) ELECTION TO ISSUE TAXABLE BONDS.—

"(1) SUBSECTION (a)(1) NOT TO APPLY.—The issuer of obligations described in subsec-

tion (a) (1) may elect to issue obligations to which subsection (a) (1) does not apply.

"(2) ELECTION.—The election described in paragraph (1) shall be made (at such time, in such manner, and subject to such conditions as the Secretary or his delegate by regulation prescribes) with respect to each issue of obligations to which it is to apply. An election with respect to any issue once made shall be irrevocable.

"(3) CROSS REFERENCE.—

"For provisions relating to the payment by the United States of a portion of the interest cost of an obligation which is part of an issue for which the election described in this subsection has been made, see section 602 of the Tax Reform Act of 1969."

(b) ARBITRAGE OBLIGATIONS.—Section 103 is amended by inserting after subsection (c) the following new subsection:

"(d) ARBITRAGE OBLIGATIONS.—Under regulations prescribed by the Secretary or his delegate, any arbitrage obligation shall be treated as an obligation not described in subsection (a) (1)."

(c) CLERICAL AMENDMENT.—The heading of subsection (e) of section 103 (as redesignated by subsection (a) of this section) is amended to read as follows:

"(e) CERTAIN OBLIGATIONS OF THE UNITED STATES.—".

"(d) EFFECTIVE DATES.—The amendments made by subsection (a) shall apply to obligations issued in calendar quarters beginning after the date of the enactment of this section. The amendment made by subsection (b) shall apply to obligations issued after July 11, 1969.

SEC. 602. UNITED STATES TO PAY FIXED PERCENTAGE OF INTEREST YIELD ON TAXABLE ISSUES.

(a) PERMANENT APPROPRIATION.—There are appropriated, out of any moneys in the Treasury not otherwise appropriated, such sums as may be necessary to carry out the provisions of this section; and such appropriations shall be deemed permanent annual appropriations.

(b) PAYMENT OF FIXED PERCENTAGE OF INTEREST YIELD.—

(1) IN GENERAL.—The Secretary of the Treasury or his delegate shall pay a fixed percentage of the interest yield on each issue of obligations to which an election under section 103(b) of the Internal Revenue Code of 1954 applies. Before the first day of each calendar quarter, the Secretary or his delegate shall determine (and publish in the Federal Register) the fixed percentage—

(A) for calendar quarters beginning before January 1, 1975, not less than 30 percent and not more than 40 percent, and

(B) for calendar quarters beginning after December 31, 1974, not less than 25 percent and not more than 40 percent,

of interest yield which he determines it is necessary for the United States to pay in order to encourage the States and political subdivisions thereof to make elections under section 103(b). The fixed percentage so determined and published shall apply with respect to all issues of obligations made during such calendar quarter to which elections under such section 103(b) apply.

(2) INTEREST YIELD.—For purposes of this section, the interest yield on any issue of obligations shall be determined immediately after such obligations are issued.

(3) TIME OF PAYMENT.—Payment of any interest required pursuant to paragraph (1) shall be made by the Secretary of the Treasury or his delegate not later than the time at which the interest payment on the obligation is required to be made by the issuer.

(c) DUAL COUPON OBLIGATIONS.—At the request of the issuer, the liability of the United States under this section to pay interest to the holders of an issue of obligations shall be made through assumption by the United States of the obligation to pay a separate set of interest coupons issued with the obligations.

(d) SECTION TO APPLY ONLY TO SECTION 103(b) OBLIGATIONS.—This section shall apply only to obligations which, but for an election under section 103(b) of the Internal Revenue Code of 1954, would be obligations to which section 103(a)(1) of such Code applies.

(e) EFFECTIVE DATE.—This section shall apply only to obligations issued in calendar quarters beginning after the date of the enactment of this section.

TITLE VII—EXTENSION OF TAX SURCHARGE AND EXCISE TAXES; TERMINATION OF INVESTMENT CREDIT

SEC. 701. EXTENSION OF TAX SURCHARGE.

(a) SURCHARGE EXTENSION.—Section 51(a) (relating to imposition of tax surcharge) is amended—

(1) by adding at the end of paragraph (1) (A) the following:

"CALENDAR YEAR 1970

"TABLE 1.—SINGLE PERSON (OTHER THAN HEAD OF HOUSEHOLD) AND MARRIED PERSONS FILING SEPARATE RETURN

"If the adjusted tax is: At least	But less than	The tax is—
0	$155	0
$155	175	$1
175	195	2
195	215	3
215	235	4
235	255	5
255	275	6
275	300	7
300	340	8
340	380	9
380	420	10
420	460	11
460	500	12
500	540	13
540	580	14
580	620	15
620	660	16
660	700	17
700	740	18
740	780	19
780	820	20
820	860	21
860	900	22
900	940	23
940	980	24
980 and over		2.5% of the adjusted tax"

"TABLE 2.—HEAD OF HOUSEHOLD

"If the adjusted tax is: At least	But less than	The tax is—
0	$230	0
$230	250	$1
250	270	2
270	290	3
290	310	4
310	330	5
330	350	6
350	370	7
370	390	8
390	410	9
410	430	10
430	460	11
460	500	12
500	540	13
540	580	14
580	620	15
620	660	16
660	700	17
700	740	18
740	780	19
780	820	20
820	860	21
860	900	22
900	940	23
940	980	24
980 and over,		2.5% of the adjusted tax"

TABLE 3.—MARRIED PERSONS OR SURVIVING SPOUSE FILING JOINT RETURN

If the adjusted tax is: At least	But less than	The tax is—
0	$300	0
$300	320	$1
320	340	2
340	360	3
360	380	4
380	400	5
400	420	6
420	440	7
440	460	8
460	480	9
480	500	10
500	520	11
520	540	12
540	560	13
560	580	14
580	620	15
620	660	16
660	700	17
700	740	18
740	780	19
780	820	20
820	860	21
860	900	22
900	940	23
940	980	24
980 and over,		2.5% of the adjusted tax.

(2) by striking out the table in paragraph (1)(B) and inserting in lieu thereof the following table:

"Calendar year	Percent: Estates and trusts	Corporations
1968	7.5	10.0
1969	10.0	10.0
1970	2.5	2.5".

(3) by striking out "January 1, 1970" the first time it appears in paragraph (2)(A) and inserting in lieu thereof "July 1, 1970", and

(4) by striking out paragraph (2)(A)(ii) and inserting in lieu thereof the following:

"(ii) a fraction, the numerator of which is the sum of the number of days in the taxable year occurring on and after the effective date of the surcharge and before January 1, 1970, plus one-half times the number of days in the taxable year occurring after December 31, 1969, and before July 1, 1970, and the denominator of which is the number of days in the entire taxable year."

(b) RECEIPT OF MINIMUM DISTRIBUTIONS.—The last sentence of section 963(b) (relating to receipt of minimum distributions by domestic corporations) is amended by striking out "December 31, 1969" and inserting in lieu thereof "June 30, 1970".

(c) EFFECTIVE DATES.—The amendments made by subsections (a) and (b) shall apply to taxable years ending after December 31, 1969, and beginning before July 1, 1970.

SEC. 702. CONTINUATION OF EXCISE TAXES ON COMMUNICATION SERVICES AND ON AUTOMOBILES.

(a) PASSENGER AUTOMOBILES.—

(1) IN GENERAL.—Section 4061(a)(2)(A) (relating to tax on passenger automobiles, etc.) is amended to read as follows:

"(A) Articles enumerated in subparagraph (B) are taxable at whichever of the following rates is applicable:

"If the article is sold—	The tax rate is—
Before January 1, 1971	7 percent.
During 1971	5 percent.
During 1972	3 percent.
During 1973	1 percent.

The tax imposed by this subsection shall not apply with respect to articles enumerated in subparagraph (B) which are sold by the

manufacturer, producer, or importer after December 31, 1973."

(2) CONFORMING AMENDMENT.—Section 6412(a)(1) (relating to floor stocks refunds on passenger automobiles, etc.) is amended by striking out "January 1, 1970, January 1, 1971, January 1, 1972, or January 1, 1973", and inserting in lieu thereof "January 1, 1971, January 1, 1972, January 1, 1973, or January 1, 1974".

(b) COMMUNICATIONS SERVICES.—

(1) CONTINUATION OF TAX.—Section 4251(a)(2) (relating to tax on certain communications services) is amended by striking out the table and inserting in lieu thereof the following table:

"Amounts paid pursuant to bills first rendered—	Percent—
Before January 1, 1971	10
During 1971	5
During 1972	3
During 1973	1".

(2) CONFORMING AMENDMENT.—Section 4251(b) (relating to termination of tax) is amended by striking out "January 1, 1973", and inserting in lieu thereof "January 1, 1974".

(3) REPEAL OF SUBCHAPTER B OF CHAPTER 33.—Section 105(b)(3) of the Revenue and Expenditure Control Act of 1968 (82 Stat. 266) is amended to read as follows:

"(3) REPEAL OF SUBCHAPTER B OF CHAPTER 33.—Effective with respect to amounts paid pursuant to bills first rendered on or after January 1, 1974, subchapter B of chapter 33 (relating to the tax on communications) is repealed. For purposes of the preceding sentence, in the case of communications services rendered before November 1, 1973, for which a bill has not been rendered before January 1, 1974, a bill shall be treated as having been first rendered on December 31, 1973. Effective January 1, 1974, the table of subchapters for chapter 33 is amended by striking out the item relating to such subchapter B."

SEC. 703. TERMINATION OF INVESTMENT CREDIT.

(a) IN GENERAL.—Subpart B of part IV of subchapter A of chapter 1 (relating to rules for computing credit for investment in certain depreciable property) is amended by adding at the end thereof the following new section:

"SEC. 49. TERMINATION OF CREDIT.

"(a) GENERAL RULE.—For purposes of this subpart, the term 'section 38 property' does not include property—

"(1) the physical construction, reconstruction, or erection of which is begun after April 18, 1969, or

"(2) which is acquired by the taxpayer after April 18, 1969,

other than pre-termination property.

"(b) PRE-TERMINATION PROPERTY.—For purposes of this section—

"(1) BINDING CONTRACTS.—Any property shall be treated as pre-termination property to the extent that such property is constructed, reconstructed, erected, or acquired pursuant to a contract which was, on April 18, 1969, and at all times thereafter, binding on the taxpayer.

"(2) EQUIPPED BUILDING RULE.—If—

"(A) pursuant to a plan of the taxpayer in existence on April 18, 1969 (which plan was not substantially modified at any time after such date and before the taxpayer placed the equipped building in service), the taxpayer has constructed, reconstructed, erected, or acquired a building and the machinery and equipment necessary to the planned use of the building by the taxpayer, and

"(B) more than 50 percent of the aggregate adjusted basis of all the property of a character subject to the allowance for depreciation making up such building as so equipped is attributable to either property the construction, reconstruction, or erection of which was begun by the taxpayer before April 19, 1969, or property the acquisition of which by the taxpayer occurred before such date,

then all property comprising such building as so equipped (and any incidental property adjacent to such building which is necessary to the planned use of the building) shall be pre-termination property. For purposes of subparagraph (B) of the preceding sentence, the rules of paragraphs (1) and (4) shall be applied. For purposes of this paragraph, a special purpose structure shall be treated as a building.

"(3) PLANT FACILITY RULE.—

"(A) GENERAL RULE.—If—

"(i) pursuant to a plan of the taxpayer in existence on April 18, 1969 (which plan was not substantially modified at any time after such date and before the taxpayer placed the plant facility in service), the taxpayer has constructed, reconstructed, or erected a plant facility, and either

"(ii) the construction, reconstruction, or erection of such plant facility was commenced by the taxpayer before April 19, 1969, or

"(iii) more than 50 percent of the aggregate adjusted basis of all the property of a character subject to the allowance for depreciation making up such plant facility is attributable to either property the construction, reconstruction, or erection of which was begun by the taxpayer before April 19, 1969, or property the acquisition of which by the taxpayer occurred before such date,

then all property comprising such plant facility shall be pre-termination property. For purposes of clause (iii) of the preceding sentence, the rules of paragraphs (1) and (4) shall be applied.

"(B) PLANT FACILITY DEFINED.—For purposes of this paragraph, the term 'plant facility' means a facility which does not include any building (or of which buildings constitute an insignificant portion) and which is—

"(i) a self-contained, single operating unit or processing operation,

"(ii) located on a single site, and

"(iii) identified, on April 18, 1969, in the purchasing and internal financial plans of the taxpayer as a single unitary project.

"(C) SPECIAL RULE.—For purposes of this subsection, if—

"(i) a certificate of convenience and necessity has been issued before April 19, 1969, by a Federal regulatory agency with respect to two or more plant facilities which are included under a single plan of the taxpayer to construct, reconstruct, or erect such plant facilities, and

"(ii) more than 50 percent of the aggregate adjusted basis of all the property of a character subject to the allowance for depreciation making up such plant facilities is attributable to either property the construction, reconstruction, or erection of which was begun by the taxpayer before April 19, 1969, or property the acquisition of which by the taxpayer occurred before such date,

such plant facilities shall be treated as a single plant facility.

"(D) COMMENCEMENT OF CONSTRUCTION.—For purposes of subparagraph (A)(ii), the construction, reconstruction, or erection of a plant facility shall not be considered to have commenced until construction, reconstruction, or erection has commenced at the site of such plant facility. The preceding sentence shall not apply if the site of such plant facility is not located on land.

"(4) MACHINERY OR EQUIPMENT RULE.—Any piece of machinery or equipment—

"(A) more than 50 percent of the parts and components of which (determined on the basis of cost) were held by the taxpayer on April 18, 1969, or are acquired by the taxpayer pursuant to a binding contract which was in effect on such date, for inclusion or use in such piece of machinery or equipment, and

"(B) the cost of the parts and components of which is not an insignificant portion of the total cost,

shall be treated as property which is pre-termination property.

"(5) CERTAIN LEASE-BACK TRANSACTIONS, ETC.—Where a person who is a party to a binding contract described in paragraph (1) transfers rights in such contract (or in the property to which such contract relates) to another person but a party to such contract retains a right to use the property under a lease with such other person, then to the extent of the transferred rights such other person shall, for purposes of paragraph (1), succeed to the position of the transferor with respect to such binding contract and such property. In any case in which the lessor does not make an election under section 48(d)—

"(A) the preceding sentence shall apply only if a party to the contract retains the right to use the property under a lease for a term of at least 1 year; and

"(B) if such use is retained, the lessor shall be deemed for the purposes of section 47 as having made a disposition of the property at such time as the lessee loses the right to use the property.

For purposes of subparagraph (B), if the lessee transfers the lease in a transfer described in paragraph (7), the lessee shall be considered as having the right to use of the property so long as the transferee has such use.

"(6) CERTAIN LEASE AND CONTRACT OBLIGATIONS.—

"(A) Where, pursuant to a binding lease or contract to lease in effect on April 18, 1969, a lessor or lessee is obligated to construct, reconstruct, erect, or acquire property specified in such lease or contract, any property so constructed, reconstructed, erected, or acquired by the lessor or lessee shall be pre-termination property. In the case of any project which includes property other than the property to be leased to such lessee, the preceding sentence shall be applied, in the case of the lessor, to such other property only if the binding leases and contracts with all lessees in effect on April 18, 1969, cover real property constituting 25 percent or more of the project (determined on the basis of rental value). For purposes of the preceding sentences of this paragraph, in the case of any project where one or more vendor-vendee relationships exist, such vendors and vendees shall be treated as lessors and lessees.

"(B) Where, in order to perform a binding contract or contracts in effect on April 18, 1969, (i) the taxpayer is required to construct reconstruct, erect, or acquire property specified in any order of a Federal regulatory agency for which application was filed before April 19, 1969, (ii) the property is to be used to transport one or more products under such contract or contracts, and (iii) one or more parties to the contract or contracts are required to take or to provide more than 50 percent of the products to be transported over a substantial portion of the expected useful life of the property, then such property shall be pre-termination property.

"(7) CERTAIN TRANSFERS TO BE DISREGARDED.

"(A) If property or rights under a contract are transferred in—

"(i) a transfer by reason of death, or

"(ii) a transaction as a result of which the basis of the property in the hands of the transferee is determined by reference to its basis in the hands of the transferor by reason of the application of sections 332, 351, 361, 371(a), 374(a), 721, or 731,

and such property (or the property acquired under such contract) would be treated as pre-termination property in the hands of the decedent or the transferor, such property shall be treated as pre-termination property in the hands of the transferee.

"(B) If—

"(i) property or rights under a contract

are acquired in a transaction to which section 334 (b) (2) applies,

"(ii) the stock of the distributing corporation was acquired before April 19, 1969, or pursuant to a binding contract in effect April 18, 1969, and

"(iii) such property (or the property acquired under such contract) would be treated as pre-termination property in the hands of the distributing corporation,

such property shall be treated as pre-termination property in the hands of the distributee.

"(8) PROPERTY ACQUIRED FROM AFFILIATED CORPORATION.—For purposes of this subsection, in the case of property acquired by a corporation which is a member of an affiliated group from another member of the same group—

"(A) such corporation shall be treated as having acquired such property on the date on which it was acquired by such other member,

"(B) such corporation shall be treated as having entered into a binding contract for the construction, reconstruction, erection, or acquisition of such property on the date on which such other member entered ito a contract for the construction, reconstruction, erection, or acquisition of such property, and

"(C) such corporation shall be treated as having commenced the construction, reconstruction, or erection of such property on the date on which such other member commenced such construction, reconstruction, or erection.

For purposes of this subsection and subsection (c), a contract between two members of an affiliated group shall not be treated as a binding contract as between such members. For purposes of the preceding sentences, the term 'affiliated group' has the meaning assigned to it by section 1504(a), except that all corporations shall be treated as includible corporations (without any exclusion under section 1504(b)).

"(9) BARGES FOR OCEAN-GOING VESSELS.—In the case of any ocean-going vessel which is—

"(A) pre-termination property,

"(B) constructed under a binding contract which was in effect on April 18, 1969, to which the Maritime Administration, Department of Commerce, is a party, and

"(C) designed to carry barges,

then the barges specified in such contract (not in excess of the number specified in such contract) constructed, reconstructed, erected, or acquired for use with such vessel, together with the machinery and equipment to be installed on such barges and necessary for their planned use, shall be treated as pre-termination property.

"(10) CERTAIN NEW-DESIGN PRODUCTS.—Where—

"(A) on April 18, 1969, the taxpayer had undertaken a project to produce a product of a new design pursuant to binding contracts in effect on such date which—

"(i) were fixed-price contracts (except for provisions for escalation in case of changes in rates of pay), and

"(ii) covered more than 60 percent of the entire production of such design to be delivered by the taxpayer before January 1, 1973, and

"(B) on or before April 18, 1969, more than 50 percent of the aggregate adjusted basis of all property of a character subject to the allowance for depreciation required to carry out such binding contracts was property the construction, reconstruction, or erection of which had been begun by the taxpayer, or had been acquired by the taxpayer (or was under a binding contract for such construction, reconstruction, erection, or acquisition),

then all tangible personal property placed in service by the taxpayer before January 1, 1972, which is required to carry out such binding contracts shall be deemed to be pre-termination property. For purposes of subparagraph (B) of the preceding sentence, jigs, dies, templates, and similar items which can be used only for the manufacture or assembly of the production under the project and which were described in written engineering and internal financial plans of the taxpayer in existence on April 18, 1969, shall be treated as property which on such date was under a binding contract for construction.

"(c) LEASED PROPERTY.—In the case of property which is leased after April 18, 1969 (other than pursuant to a binding contract to lease entered into before April 19, 1969), which is section 38 property with respect to the lessor but is property which would not be section 38 property because of the application of subsection (a) if acquired by the lessee, and which is property of the same kind which the lessor ordinarily sold to customers before April 19, 1969, or ordinarily leased before such date and made an election under section 48(d), such property shall not be section 38 property with respect to either the lessor or the lessee.

"(d) RATE OF CREDIT WHERE PROPERTY IS PLACED IN SERVICE AFTER 1970.—In the case of property placed in service after December 31, 1970, section 38 and this subpart shall be applied by reducing the 7 percent figure of section 46 (a) (1) by one-tenth of 1 percent for each full calendar month between November 30, 1970, and the date on which the property is placed in service, except that in the case of property placed in service after December 31, 1974, 0 percent shall be substituted for 7 percent."

(b) LIMITATIONS ON USE OF CARRYOVERS AND CARRYBACKS.—Section 46(b) (relating to carryback and carryover of unused credits) is amended by adding at the end thereof the following new paragraph:

"(5) TAXABLE YEARS BEGINNING AFTER DECEMBER 31, 1968, AND ENDING AFTER APRIL 18, 1969.—The amount which may be added under this subsection for any taxable year beginning after December 31, 1968, and ending after April 18, 1969, shall not exceed 20 percent of the higher of—

"(A) the aggregate of the investment credit carrybacks and investment credit carryovers to the taxable year, or

"(B) the highest amount computed under subparagraph (A) for any preceding taxable year which began after December 31, 1968, and ended after April 18, 1969."

(c) RULES RELATING TO CERTAIN CASUALTIES AND THEFTS.—Section 47(a) (4) (relating to rules with respect to section 38 property destroyed by casualty, etc.) is amended by adding at the end thereof the following:

"Subparagraphs (B) and (C) shall not apply with respect to any casualty or theft occurring after April 18, 1969. In the case of any casualty or theft occurring on or before April 18, 1969, to the extent of any replacement after such date (with property which would be section 38 property but for section 49) this part shall be applied without regard to section 49."

(d) CONFORMING AMENDMENT.—The table of sections for subpart B of part IV of subchapter A of chapter 1 (relating to rules for computing credit for investment in certain depreciable property) is amended by adding at the end thereof the following new item:

"Sec. 49. Termination of credit."

SEC. 704. AMORTIZATION OF POLLUTION CONTROL FACILITIES.

(a) ALLOWANCE.—Part VI of subchapter B of chapter 1 (relating to itemized deductions for individuals and corporations) is amended by striking out sections 168 and 169 and by inserting after section 167 the following new section:

"SEC. 168. AMORTIZATION OF POLLUTION CONTROL FACILITIES.

"(a) ALLOWANCE OF DEDUCTION.—Every person, at his election, shall be entitled to a deduction with respect to the amortization of the adjusted basis (for determining gain) of any certified pollution control facility (as defined in subsection (d)), based on a period of 60 months. Such amortization deduction shall be an amount, with respect to each month of such period within the taxable year, equal to the adjusted basis of the pollution control facility at the end of such month divided by the number of months (including the month for which the deduction is computed) remaining in the period. Such adjusted basis at the end of the month shall be computed without regard to the amortization deduction for such month. The amortization deduction provided by this section with respect to any month shall be in lieu of the depreciation deduction with respect to such pollution control facility for such month provided by section 167. The 60-month period shall begin, as to any pollution control facility, at the election of the taxpayer, with the month following the month in which such facility was completed or acquired, or with the succeeding taxable year.

"(b) ELECTION OF AMORTIZATION.—The election of the taxpayer to take the amortization deduction and to begin the 60-month period with the month following the month in which the facility is completed or acquired, or with the taxable year succeeding the taxable year in which such facility is completed or acquired, shall be made by filing with the Secretary or his delegate, in such manner, in such form, and within such time, as the Secretary or his delegate may by regulations prescribe, a statement of such election.

"(c) TERMINATION OF AMORTIZATION DEDUCTION.—A taxpayer which has elected under subsection (b) to take the amortization deduction provided in subsection (a) may, at any time after making such election, discontinue the amortization deduction with respect to the remainder of the amortization period, such discontinuance to begin as of the beginning of any month specified by the taxpayer in a notice in writing filed with the Secretary or his delegate before the beginning of such month. The depreciation deduction provided under section 167 shall be allowed, beginning with the first month as to which the amortization deduction does not apply, and the taxpayer shall not be entitled to any further amortization deduction under this section with respect to such pollution control facility.

"(d) DEFINITIONS.—For purposes of this section—

"(1) CERTIFIED POLLUTION CONTROL FACILITY.—The term 'certified pollution control facility' means a new identifiable treatment facility which is used to abate or control water or atmospheric pollution or contamination, respectively, by removing, altering, disposing, or storing of pollutants, contaminants, wastes, or heat and which—

"(A) the State certifying authority having jurisdiction with respect to such facility has certified to the Federal certifying authority as having been constructed, reconstructed, erected, or acquired in conformity with the State program or requirements for abatement or control of water or atmospheric pollution or contamination; and

"(B) the Federal certifying authority has certified to the Secretary or his delegate (i) as meeting the minimum performance standards described in subsection (e), (ii) as being in compliance with the applicable regulations of Federal agencies, and (iii) as being in furtherance of the general policy of the United States for cooperation with the States in the prevention and abatement of water pollution under the Federal Water Pollution Control Act, as amended (33 U.S.C. 466 et seq.), or in the prevention and abatement of atmospheric pollution and contamination under the Clean Air Act, as amended (42 U.S.C. 1857 et seq.).

"(2) STATE CERTIFYING AUTHORITY.—The term 'State certifying authority' means, in the case of water pollution, the State water pollution control agency as defined in section 13(a) of the Federal Water Pollution Control Act and, in the case of air pollution, the air pollution control agency as defined

in section 302(b) of the Clean Air Act. The term 'State certifying authority' includes any interstate agency authorized to act in place of a certifying authority of the State.

"(3) FEDERAL CERTIFYING AUTHORITY.—The term 'Federal certifying authority' means, in the case of water pollution, the Secretary of the Interior and, in the case of air pollution, the Secretary of Health, Education, and Welfare.

"(4) NEW IDENTIFIABLE TREATMENT FACILITY.—For purposes of paragraph (1), the term 'new identifiable treatment facility' includes only tangible property (not including a building and its structural components, other than a building which is exclusively a treatment facility) which is of a character subject to the allowance for depreciation provided in section 167, which is identifiable as a treatment facility, and which is property—

"(A) the construction, reconstruction, or erection of which is completed by the taxpayer after December 31, 1968, or

"(B) acquired after December 31, 1968, if the original use of the property commences with the taxpayer and commences after such date.

In applying this section in the case of property described in subparagraph (A), there shall be taken into account only that portion of the basis which is properly attributable to construction, reconstruction, or erection after December 31, 1968.

"(e) AUTHORIZATION OF SECRETARY OF INTERIOR AND OF HEALTH, EDUCATION, AND WELFARE TO SET STANDARDS, ETC.—

"(1) PERFORMANCE STANDARDS.—The Federal certifying authority shall from time to time promulgate minimum performance standards for purposes of subsection (d)(1)(B), taking into account advances in technology and specifying the tolerance of such pollutants and contaminants as shall be appropriate.

"(2) PROFITMAKING ABATEMENT WORKS, ETC.—The Federal certifying authority shall not certify any property under subsection (d)(1)(B) to the extent it appears that (A) by reason of profits derived through the recovery of wastes or otherwise in the operation of such property, its costs will be recovered over its actual useful life, or (B) such property would be constructed, reconstructed, erected, or acquired without regard to the need to abate or control water or atmospheric pollution or contamination.

"(f) ALLOCATION OF BASIS.—In the case of property with respect to which an election has been made under subsection (a) but only a portion of the adjusted basis of which is amortizable under this section, such portion of the adjusted basis (hereinafter in this section referred to as 'amortization basis') shall be determined under regulations prescribed by the Secretary of his delegate. The depreciation deduction provided by section 167 shall, despite the provisions of subsection (a) of this section, be allowed with respect to the portion of the adjusted basis which is not amortizable under this section.

"(g) INVESTMENT CREDIT NOT TO BE ALLOWED.—In the case of any property with respect to which an election has been made under subsection (a), so much of the adjusted basis of the property as (after the application of subsection (f)) constitutes the amortization basis for purposes of this section shall not be treated as section 38 property within the meaning of section 48(a).

"(h) LIFE TENANT AND REMAINDERMAN.—In the case of property held by one person for life with remainder to another person, the deduction under this section shall be computed as if the life tenant were the absolute owner of the property and shall be allowable to the life tenant.

(i) CROSS REFERENCE.—

"For special rule with respect to certain gain derived from the disposition of property the adjusted basis of which is determined with regard to this section, see section 1245."

(b) CONFORMING, ETC., AMENDMENTS.—

(1) The table of sections for part VI of subchapter B of chapter 1 is amended by striking out the items relating to sections 168 and 169 and inserting in lieu thereof the following new item:

"Sec. 168. Amortization of pollution control facilities."

(2) The heading and the first sentence of section 642(f) (relating to special rules for credits and deductions of estates and trusts) are amended to read as follows:

"(f) AMORTIZATION OF POLLUTION CONTROL FACILITIES.—The benefit of the deductions for amortization of pollution control facilities provided by section 168 shall be allowed to estates and trust in the same manner as in the case of an individual."

(3) Section 1082(a)(2)(B) (relating to basis for determining gain or loss) is amended by striking out "or 169".

(4) Section 1245(a) of such Code (relating to gain from disposition of certain depreciable property) is amended—

(A) by striking out "or" at the end of paragraph (2)(A);

(B) by inserting "or" at the end of paragraph (2)(B) and by inserting after such paragraph the following new subparagraph:

"(C) with respect to any property referred to in paragraph (3)(D), its adjusted basis recomputed by adding thereto all adjustments attributable to periods beginning with the first month for which a deduction for amortization is allowed under section 168,";

(C) by striking out "or" at the end of paragraphs (3)(A) and (B);

(D) by striking out the period at the end of paragraph (3)(C) and inserting in lieu thereof ", or"; and

(E) by adding at the end of paragraph (3) the following new subparagraph:

"(D) so much of any real property (other than any property described in subparagraph (B)) as is a certified pollution control facility which has an adjusted basis in which there are reflected adjustments for amortization under section 168."

(c) EFFECTIVE DATE.—The amendments made by this section shall apply with respect to taxable years ending after December 31, 1968.

SEC. 705. DEPRECIATION OF CERTAIN RAILROAD ROLLING STOCK.

(a) IN GENERAL.—Section 167 (relating to depreciation) is amended by inserting after subsection (l) (added by section 451) the following new subsection:

"(m) DEPRECIATION OF CERTAIN RAILROAD ROLLING STOCK.—A domestic common carrier by railroad subject to part I of the Interstate Commerce Act may elect, in accordance with regulations prescribed by the Secretary or his delegate, to compute the depreciation deduction provided by subsection (a) attributable to railroad rolling stock (other than locomotives)—

"(1) the construction or reconstruction of which is completed by the taxpayer after July 31, 1969, and then only to that portion of the basis which is properly attributable to such construction or reconstruction after such date, or

"(2) which was acquired by the taxpayer after July 31, 1969, if the original use of such property commences with the taxpayer and commences after such date,

under the straight line method using a useful life of 84 months. Such method shall be in lieu of any other method of computing the depreciation deduction under subsection (a) and in lieu of any deduction for amortization."

(b) EFFECTIVE DATE.—The amendments made by subsection (a) shall apply with respect to taxable years ending after July 31, 1969.

TITLE VIII—ADJUSTMENT OF TAX BURDEN FOR INDIVIDUALS

SEC. 801. LOW INCOME ALLOWANCE; INCREASE IN STANDARD DEDUCTION.

(a) IN GENERAL.—Section 141 (relating to the standard deduction) is amended by striking out subsections (a), (b), and (c) and inserting in lieu thereof the following:

"(a) STANDARD DEDUCTION.—Except as otherwise provided in this section, the standard deduction referred to in this title is the larger of the percentage standard deduction or the low income allowance.

"(b) PERCENTAGE STANDARD DEDUCTION.—The percentage standard deduction is an amount equal to the applicable percentage of adjusted gross income shown in the following table, but not to exceed the maximum amount shown in such table (or one-half of such amount in the case of a separate return by a married individual):

"Taxable years beginning in—	Applicable percentage	Maximum amount
1970	13	$1,400
1971	14	1,700
1972 and thereafter	15	2,000".

"(c) LOW INCOME ALLOWANCE.—

"(1) IN GENERAL.—The low income allowance is an amount equal to the sum of—

"(A) the basic allowance, and

"(B) the additional allowance.

"(2) BASIC ALLOWANCE.—For purposes of this subsection, the basic allowance is an amount equal to the sum of—

"(A) $200, plus

"(B) $100, multiplied by the number of exemptions.

The basic allowance shall not exceed $1,000.

"(3) ADDITIONAL ALLOWANCE.—

"(A) IN GENERAL.—For purposes of this subsection, the additional allowance is an amount equal to the excess (if any) of $900 over the sum of—

"(i) $100, multiplied by the number of exemptions, plus

"(ii) the income phase-out.

"(B) INCOME PHASE-OUT.—For purposes of subparagraph (A)(ii), the income phase-out is an amount equal to one-half of the amount by which the adjusted gross income for the taxable year exceeds the sum of—

"(i) $1,100, plus

"(ii) $600, multiplied by the number of exemptions.

"(4) MARRIED INDIVIDUALS FILING SEPARATE RETURNS.—In the case of a married taxpayer filing a separate return—

"(A) the low income allowance is an amount equal to the basic allowance, and

"(B) the basic allowance is an amount (not in excess of $550) equal to the sum of—

"(i) $100, plus

"(ii) $100, multiplied by the number of exemptions.

"(5) NUMBER OF EXEMPTIONS.—For purposes of this subsection, the number of exemptions is the number of exemptions allowed as a deduction for the taxable year under section 151."

(b) DETERMINATION OF MARITAL STATUS.—Section 143 (relating to determination of marital status) is amended—

(1) by striking out "For purposes of this part—" and inserting in lieu thereof "(a) GENERAL RULE.—For purposes of this part—"; and

(2) by adding at the end thereof the following new subsection:

"(b) CERTAIN MARRIED INDIVIDUALS LIVING APART.—For purposes of this part, if—

"(1) an individual who is married (within the meaning of subsection (a)) and who files a separate return maintains as his home a household which constitutes for more than one-half of the taxable year the principal place of abode of a dependent (A) who (within the meaning of section 152) is a son, stepson, daughter, or stepdaughter of

the individual, and (B) with respect to whom such individual is entitled to a deduction for the taxable year under section 151,

"(2) such individual furnishes over half of the cost of maintaining such household during the taxable year, and

"(3) during the entire taxable year such individual's spouse is not a member of such household,

such individual shall not be considered as married."

(c) TECHNICAL AND CONFORMING AMENDMENTS.—

(1) Section 4(c) (relating to married individuals filing separate returns) is amended to read as follows:

"(c) HUSBAND OR WIFE FILING SEPARATE RETURNS.—

"(1) A husband or wife may not elect to pay the optional tax imposed by section 3 if the tax of the other spouse is determined under section 1 on the basis of taxable income computed without regard to the standard deduction.

"(2) Except as otherwise provided in this subsection, in the case of a husband or wife filing a separate return the tax imposed by section 3 shall be the lesser of the tax shown in Table IV or Table V of section 3.

"(3) Table V of section 3 shall not apply in the case of a husband or wife filing a separate return if the tax of the other spouse is determined with regard to the percentage standard deduction; except that an individual described in section 141(d)(2) may elect (under regulations prescribed by the Secretary or his delegate) to pay the tax shown in Table V of section 3 in lieu of the tax shown in Table IV of section 3. For purposes of this title, an election under the preceding sentence shall be treated as an election made under section 141(d)(2).

"(4) For purposes of this subsection, determination of marital status shall be made under section 143."

(2) Section 141(d) (relating to married individuals filing separate returns) is amended—

(A) by striking out "minimum standard deduction" each place it appears and inserting in lieu thereof "low income allowance"; and

(B) by striking out "10-percent" each place it appears therein and inserting in lieu thereof "percentage".

(3) Section 1304(c)(5) (relating to special rules for income averaging) is amended by striking out "section 143" and inserting in lieu thereof "section 143(a)".

(4) Section 6014(a) (relating to tax not computed by taxpayer) is amended by striking out the last sentence.

(d) EFFECTIVE DATE.—The amendments made by subsections (a), (b), and (c) shall apply to taxable years beginning after December 31, 1969.

(e) YEARS AFTER 1970.—Effective with respect to taxable years beginning after December 31, 1970, section 141(c) (relating to low income allowance), as amended by subsection (a), is amended to read as follows:

"(c) LOW INCOME ALLOWANCE.—The low income allowance is $1,100 ($550, in the case of a married individual filing a separate return)."

"SEC. 802. FIFTY-PERCENT MAXIMUM RATE ON EARNED INCOME.

(a) IN GENERAL.—Part VI of subchapter Q of chapter 1 (relating to other limitations) is amended by adding at the end thereof the following new section:

"SEC. 1348. FIFTY-PERCENT MAXIMUM RATE ON EARNED INCOME.

"(a) GENERAL RULE.—If an individual has earned taxable income for any taxable year beginning after December 31, 1969, which exceeds the amount of taxable income specified in paragraph (1), the tax imposed by section 1 for such year shall, unless the taxpayer chooses the benefits of part I (relating to income averaging), be the sum of—

"(1) the tax imposed by section 1 on the lowest amount of taxable income on which the rate of tax under section 1 exceeds 50 percent,

"(2) 50 percent of the amount by which his earned taxable income exceeds the lowest amount of taxable income on which the rate of tax under section 1 exceeds 50 percent, and

"(3) the tax attributable to the remainder of his taxable income, as determined under subsection (b)(3).

"(b) DEFINITIONS.—For purposes of this section—

"(1) EARNED INCOME.—The term 'earned income' has the meaning assigned to such term by section 911(b), except that such term does not include any distribution to which section 72(n), 402(a)(2), or 403(a)(2) applies or any deferred compensation payment.

"(2) EARNED TAXABLE INCOME.—The earned taxable income of an individual is the amount which bears the same ratio (but not in excess of 100 percent) to his taxable income as his earned income bears to his adjusted gross income.

"(3) TAX ON OTHER INCOME.—For purposes of subsection (a)(3), the tax attributable to the remainder of any individual's taxable income is the amount by which the tax computed under section 1 without regard to this section exceeds the tax so computed with reference solely to his earned taxable income.

"(c) MARRIED INDIVIDUALS.—This section shall apply to a married individual only if such individual and his spouse make a joint return for the taxable year."

(b) CLERICAL AMENDMENT.—The table of sections for part VI of subchapter Q of chapter 1 is amended by adding at the end thereof the following new item:

"Sec. 1348. Fifty-percent maximum rate on earned income."

SEC. 803. INTERMEDIATE TAX RATES; SURVIVING SPOUSE TREATMENT.

(a) INTERMEDIATE TAX RATE INDIVIDUALS.—

(1) IN GENERAL.—Section 1(b)(2) (relating to head of household) is amended—

(A) by striking out so much of such paragraph as proceeds subparagraph (A) and inserting in lieu thereof the following:

"(2) DEFINITION OF INTERMEDIATE TAX RATE INDIVIDUALS.—For purposes of this subtitle, an individual is an intermediate tax rate individual if, and only if, such individual is not married at the close of his taxable year, is not a surviving spouse (as defined in section 2(b)), and—";

(B) by striking out "or" at the end of subparagraph (A) and by striking out the period at the end of subparagraph (B) and inserting in lieu thereof ", or"; and

(C) by inserting after subparagraph (B) the following new subparagraph:

"(C) has attained age 35 before the close of his taxable year or is an individual whose spouse died before the beginning of his taxable year."

(2) TECHNICAL AND CONFORMING AMENDMENTS.—

(A) Section 1(b)(3) is amended by striking out "and" at the end of subparagraph (C), by striking out the period at the end of subparagraph (D) and inserting in lieu thereof "; and", and by adding at the end thereof the following new subparagraph:

"(E) if an individual has been married two or more times, the status of such individual shall be determined only with reference to his last marriage."

(B) Section 1(b)(4) is amended by striking out "a head of a household" and inserting in lieu thereof "an intermediate tax rate individual".

(C) Sections 6014 and 6015 are amended by striking out "a head of a household" each place it appears in such sections and inserting in lieu thereof "an intermediate tax rate individual".

(b) SURVIVING SPOUSE.—Section 2(b)(1)(A) (relating to surviving spouse) is amended to read as follows:

"(A) whose spouse died before the beginning of the taxable year, and".

(c) EFFECTIVE DATE.—The amendments made by this section shall apply to taxable years beginning after December 31, 1969.

SEC. 804. TAX RATES.

(a) RATES OF TAX ON INDIVIDUALS.—Section 1(a) is amended by inserting "and before January 1, 1971," after "December 31, 1964," each place it appears and by adding at the end thereof the following new paragraphs:

"(3) TAXABLE YEARS BEGINNING AFTER DECEMBER 31, 1970.—In the case of a taxable year beginning after December 31, 1970, there is hereby imposed on the taxable income of every individual (other than an intermediate tax rate individual to whom subsection (b) applies) a tax determined in accordance with the following table:

"If the taxable income is:	The tax is:
Not over $500	14% of the taxable income.
Over $500 but not over $1,000.	$70, plus 15% of excess over $500.
Over $1,000 but not over $1,500.	$145, plus 16% of excess over $1,000.
Over $1,500 but not over $2,000.	$225, plus 17% of excess over $1,500.
Over $2,000 but not over $4,000.	$310, plus 19% of excess over $2,000.
Over $4,000 but not over $6,000.	$690, plus 21.5% of excess over $4,000.
Over $6,000 but not over $8,000.	$1,120, plus 24% of excess over $6,000.
Over $8,000 but not over $10,000.	$1,600, plus 27.5% of excess over $8,000.
Over $10,000 but not over $12,000.	$2,150, plus 31.5% of excess over $10,000.
Over $12,000 but not over $14,000.	$2,780, plus 35.5% of excess over $12,000.
Over $14,000 but not over $16,000.	$3,490, plus 38% of excess over $14,000.
Over $16,000 but not over $18,000.	$4,250, plus 41% of excess over $16,000.
Over $18,000 but not over $20,000.	$5,070, plus 43.5% of excess over $18,000.
Over $20,000 but not over $22,000.	$5,940, plus 46% of excess over $20,000.
Over $22,000 but not over $26,000.	$6,860, plus 48.5% of excess over $22,000.
Over $26,000 but not over $32,000.	$8,800, plus 51% of excess over $26,000.
Over $32,000 but not over $38,000.	$11,860, plus 52.5% of excess over $32,000.
Over $38,000 but not over $44,000.	$15,010, plus 55% of excess over $38,000.
Over $44,000 but not over $50,000.	$18,310, plus 57% of excess over $44,000.
Over $50,000 but not over $60,000.	$21,730, plus 60% of excess over $50,000.
Over $60,000 but not over $70,000.	$27,730, plus 62% of excess over $60,000.
Over $70,000 but not over $80,000.	$33,930, plus 63% of excess over $70,000.
Over $80,000 but not over $90,000.	$40,230, plus 64.5% of excess over $80,000.
Over $90,000 but not over $100,000.	$46,680, plus 65% of excess over $90,000.
Over $100,000 but not over $120,000.	$53,180, plus 66% of excess over $100,000.
Over $120,000 but not over $150,000.	$66,380, plus 66.5% of excess over $120,000.
Over $150,000 but not over $200,000.	$86,330, plus 67% of excess over $150,000.
Over $200,000	$119,830, plus 67.5% of excess over $200,000.

"(4) TAXABLE YEARS BEGINNING AFTER DECEMBER 31, 1971.—In the case of a taxable year beginning after December 31, 1971, there is hereby imposed on the taxable income of every individual (other than an intermediate tax rate individual to whom

subsection (b) applies) a tax determined in accordance with the following table:

"If the taxable income is:	The tax is:
Not over $500	14% of taxable income.
Over $500 but not over $1,000.	$70, plus 15% of excess over $500.
Over $1,000 but not over $1,500.	$145, plus 16% of excess over $1,000.
Over $1,500 but not over $2,000.	$225, plus 17% of excess over $1,500.
Over $2,000 but not over $4,000.	$310, plus 19% of excess over $2,000.
Over $4,000 but not over $6,000.	$690, plus 21% of excess over $4,000.
Over $6,000 but not over $8,000.	$1,110, plus 23% of excess over $6,000.
Over $8,000 but not over $10,000.	$1,570, plus 27% of excess over $8,000.
Over $10,000 but not over $12,000.	$2,110, plus 31% of excess over $10,000.
Over $12,000 but not over $14,000.	$2,730, plus 35% of excess over $12,000.
Over $14,000 but not over $16,000.	$3,430, plus 37% of excess over $14,000.
Over $16,000 but not over $18,000.	$4,170, plus 40% of excess over $16,000.
Over $18,000 but not over $20,000.	$4,970, plus 42% of excess over $18,000.
Over $20,000 but not over $22,000.	$5,810, plus 44% of excess over $20,000.
Over $22,000 but not over $26,000.	$6,690, plus 47% of excess over $22,000.
Over $26,000 but not over $32,000.	$8,570, plus 49% of excess over $26,000.
Over $32,000 but not over $38,000.	$11,510, plus 50% of excess over $32,000.
Over $38,000 but not over $44,000.	$14,510, plus 52% of excess over $38,000.
Over $44,000 but not over $50,000.	$17,630, plus 54% of excess over $44,000.
Over $50,000 but not over $60,000.	$20,870, plus 58% of excess over $50,000.
Over $60,000 but not over $80,000.	$26,670, plus 60% of excess over $60,000.
Over $80,000 but not over $100,000.	$38,670, plus 61% of excess over $80,000.
Over $100,000 but not over $120,000.	$50,870, plus 62% of excess over $100,000.
Over $120,000 but not over $150,000.	$63,270, plus 63% of excess over $120,000.
Over $150,000 but not over $200,000.	$82,170, plus 64% of excess over $150,000.
Over $200,000	$114,170, plus 65% of excess over $200,000."

(b) INTERMEDIATE TAX RATES.—Section 1 (b) (1) is amended by inserting "and before January 1, 1971," after "December 31, 1964," each place it appears and by adding at the end thereof the following new subparagraphs:

(C) TAXABLE YEARS BEGINNING AFTER DECEMBER 31, 1970.—In the case of a taxable year beginning after December 31, 1970, there is hereby imposed on the taxable income of every individual who is an intermediate tax rate individual a tax determined in accordance with the following table:

"If the taxable income is:	The tax is:
Not over $1,000	14% of taxable income.
Over $1,000 but not over $2,000.	$140, plus 16% of excess over $1,000.
Over $2,000 but not over $4,000.	$300, plus 18% of excess over $2,000.
Over $4,000 but not over $6,000.	$660, plus 20% of excess over $4,000.
Over $6,000 but not over $8,000.	$1,060, plus 21.5% of excess over $6,000.
Over $8,000 but not over $10,000.	$1,490, plus 24.5% of excess over $8,000.
Over $10,000 but not over $12,000.	$1,980, plus 26.5% of excess over $10,000.
Over $12,000 but not over $14,000.	$2,510, plus 30% of excess over $12,000.
Over $14,000 but not over $16,000.	$3,110, plus 31% of excess over $14,000.
Over $16,000 but not over $18,000.	$3,730, plus 34% of excess over $16,000.
Over $18,000 but not over $20,000.	$4,410, plus 35.5% of excess over $18,000.
Over $20,000 but not over $22,000.	$5,120, plus 38.5% of excess over $20,000.
Over $22,000 but not over $24,000.	$5,890, plus 40% of excess over $22,000.
Over $24,000 but not over $26,000.	$6,690, plus 42% of excess over $24,000.
Over $26,000 but not over $28,000.	$7,530, plus 43.5% of excess over $26,000.
Over $28,000 but not over $32,000.	$8,400, plus 44.5% of excess over $28,000.
Over $32,000 but not over $36,000.	$10,180, plus 46.5% of excess over $32,000.
Over $36,000 but not over $38,000.	$12,040, plus 48% of excess over $36,000.
Over $38,000 but not over $40,000.	$13,000, plus 49.5% of excess over $38,000.
Over $40,000 but not over $44,000.	$13,990, plus 50.5% of excess over $40,000.
Over $44,000 but not over $50,000.	$16,010, plus 53.% of excess over $44,000.
Over $50,000 but not over $52,000.	$19,190, plus 54.5% of excess over $50,000.
Over $52,000 but not over $60,000.	$20,280, plus 55.5% of excess over $52,000.
Over $60,000 but not over $64,000.	$24,720, plus 56.6% of excess over $60,000.
Over $64,000 but not over $70,000.	$26,980, plus 57% of excess over $64,000.
Over $70,000 but not over $76,000.	$30,400, plus 58% of excess over $70,000.
Over $76,000 but not over $80,000.	$33,880, plus 58.5% of excess over $76,000.
Over $80,000 but not over $88,000.	$36,220, plus 60% of excess over $80,000.
Over $88,000 but not over $100,000.	$41,020, plus 60.5% of excess over $88,000.
Over $100,000 but not over $120,000.	$48,280, plus 63% of excess over $100,000.
Over $120,000 but not over $140,000.	$60,880, plus 64.5% of excess over $120,000.
Over $140,000 but not over $160,000.	$73,780, plus 65% of excess over $140,000.
Over $160,000 but not over $180,000.	$86,780, plus 66% of excess over $160,000.
Over $180,000 but not over $200,000.	$99,980, plus 66.5% of excess over $180,000.
Over $200,000 but not over $300,000.	$113,280, plus 67% of excess over $200,000.
Over $300,000	$180,280, plus 67.5% of excess over $300,000.

"(D) TAXABLE YEARS BEGINNING AFTER DECEMBER 31, 1971.—In the case of a taxable year beginning after December 31, 1971, there is hereby imposed on the taxable income of every individual who is an intermediate tax rate individual a tax determined in accordance with the following table:

"If the taxable income is:	The tax is:
Not over $1,000	14% of the taxable income.
Over $1,000 but not over $2,000.	$140, plus 16% of excess over $1,000.
Over $2,000 but not over $4,000.	$300, plus 18% of excess over $2,000.
Over $4,000 but not over $6,000.	$660, plus 20% of excess over $4,000.
Over $6,000 but not over $8,000.	$1,060, plus 21% of excess over $6,000.
Over $8,000 but not over $10,000.	$1,480, plus 24% of excess over $8,000.
Over $10,000 but not over $12,000.	$1,960, plus 26% of excess over $10,000.
Over $12,000 but not over $14,000.	$2,480 plus 29% of excess over $12,000.
Over $14,000 but not over $16,000.	$3,060, plus 30% of excess over $14,000.
Over $16,000 but not over $18,000.	$3,660, plus 33% of excess over $16,000.
Over $18,000 but not over $20,000.	$4,320, plus 35% of excess over $18,000.
Over $20,000 but not over $22,000.	$5,020, plus 37% of excess over $20,000.
Over $22,000 but not over $24,000.	$5,760, plus 39% of excess over $22,000.
Over $24,000 but not over $26,000.	$6,540, plus 41% of excess over $24,000.
Over $26,000 but not over $28,000.	$7,360, plus 42% of excess over $26,000.
Over $28,000 but not over $32,000.	$8,200, plus 43% of excess over $28,000.
Over $32,000 but not over $36,000.	$9,920, plus 45% of excess over $32,000.
Over $36,000 but not over $38,000.	$11,720, plus 46% of excess over $36,000.
Over $38,000 but not over $40,000.	$12,640, plus 47% of excess over $38,000.
Over $40,000 but not over $44,000.	$13,580, plus 48% of excess over $40,000.
Over $44,000 but not over $50,000.	$15,500, plus 51% of excess over $44,000.
Over $50,000 but not over $60,000.	$18,560, plus 53% of excess over $50,000.
Over $60,000 but not over $80,000.	$23,860, plus 55% of excess over $60,000.

"If the taxable income is:	The tax is:	
Over $80,000 but not over $100,000.	$34,860, plus of excess over $80,000.	57%
Over $100,000 but not over $120,000.	$46,260, plus of excess over $100,000.	60%
Over $120,000 but not over $160,000.	$58,260, plus of excess over $120,000.	62%
Over $160,000 but not over $200,000.	$83,060, plus of excess over $160,000.	63%
Over $200,000 but not over $300,000.	$108,260, plus of excess over $200,000.	64%
Over $300,000	$172,260, plus of excess over $300,000."	65%

(c) OPTIONAL TAX TABLES.—Section 3(b) (relating to optional tax) is amended—

(1) by inserting in the heading before the period the following: "And Before January 1, 1970";

(2) by inserting in the text "and before January 1, 1970," after "beginning after December 31, 1964,";

(3) by inserting after "After December 31, 1964" each place it appears in the tables the following: "And Before January 1, 1970"; and

(4) by adding at the end thereof the following new subsection:

"(c) TAXABLE YEARS BEGINNING AFTER DECEMBER 31, 1969.—In lieu of the tax imposed by section 1, there is hereby imposed for each taxable year beginning after December 31, 1969, on the taxable income of every individual whose adjusted gross income for such year is less than $5,000 ($6,100 for the calendar year 1970) and who has elected for such year to pay the tax imposed by this section, a tax determined under tables, applicable to such taxable year, which shall be prescribed by the Secretary or his delegate. The tables so prescribed shall be the same as the tables contained in this subsection as in effect before August 1, 1969, except the amounts and rates of tax shall be computed on the basis of the taxable income computed by taking the standard deduction and on the basis of the rates prescribed by section 1."

(d) TAX NOT COMPUTED BY TAXPAYER.—

(1) The first sentence of section 6014(a) (relating to election by taxpayer) is amended by striking out "gross income is less than $5,000" and inserting in lieu thereof "adjusted gross income and". The last sentence of section 6014(a) is repealed.

(2) Section 6014(b) (relating to regulations) is amended—

(A) by inserting after the first sentence the following: "Such regulations may provide that the credit provided for by section 37 (relating to retirement income) shall be allowed in determining the amount payable and that the Secretary or his delegate shall compute the tax with regard to a taxpayer's status as an intermediate tax rate individual (as defined in section 1(b)) or as a surviving spouse (as defined in section 2(b)) electing the benefits of subsection (a).", and

(B) by adding at the end thereof the following new sentence: "The Secretary or his delegate is authorized to extend (under regulations) any election made under subsection (a) to any taxpayer regardless of the limitations provided by subsection (a)."

(3) The amendments made by this subsection shall apply to taxable years beginning after December 31, 1969.

SEC. 805. COLLECTION OF INCOME TAX AT SOURCE ON WAGES.

(a) REQUIREMENT OF WITHHOLDING.—The first sentence of section 3402(a) (relating to requirement of withholding) is amended by striking out "in accordance with the following tables." and inserting in lieu thereof "in accordance with tables prescribed by the Secretary or his delegate. The tables so prescribed shall be the same as the tables contained in this subsection as in effect before August 1, 1969, except the amounts set forth as amounts of wages and amounts of income tax to be withheld shall be computed on the basis of the rates prescribed by section 1." The second sentence of such section is amended by striking out "as shown in the table in subsection (b)(1)" and inserting in lieu thereof "as shown in the table prescribed by the Secretary or his delegate pursuant to subsection (b)(1)".

(b) PERCENTAGE METHOD OF WITHHOLDING.—Paragraph (1) of section 3402(b) (relating to percentage method of withholding) is amended to read as follows:

"(1) The table referred to in subsection (a) shall be prescribed by the Secretary or his delegate on the basis of the amount of one withholding exemption being $600."

(c) WAGE BRACKET WITHHOLDING.—Section 3402(c) (relating to wage bracket withholding) is amended—

(1) by striking out paragraph (1) and inserting in lieu thereof the following:

"(1) WAGE BRACKET WITHHOLDING.—At the election of the employer with respect to any employee, the employer shall deduct and withhold upon the wages paid to such employee a tax (in lieu of the tax required to be deducted and withheld under subsection (a)) determined in accordance with tables prescribed by the Secretary or his delegate. The tables so prescribed shall be the same as the tables contained in this subsection as in effect before August 1, 1969, except the amounts set forth as amounts and rates of tax to be deducted and withheld shall be computed on the basis of the rates of tax prescribed by section 1(a) and the additional low income allowance."

(d) EFFECTIVE DATE.—The amendments made by this section shall apply with respect to wages paid after December 31, 1969.

LEGISLATIVE PROGRAM FOR WEEK OF AUGUST 4

(Mr. SMITH of California asked and was given permission to address the House for 1 minute.)

Mr. SMITH of California. Mr. Speaker, I take this time in order to inquire of the majority leader the program for today and for next week.

Mr. ALBERT. Mr. Speaker, will the gentleman yield?

Mr. SMITH of California. I yield to the gentleman from Oklahoma, the majority leader.

Mr. ALBERT. Mr. Speaker, in response to the request of the acting minority leader, we have no further legislative business for this week.

The program for next week is as follows:

Monday is Consent Calendar day.

Immediately after the call of the Consent Calendar, House Resolution 509, to concur in Senate amendments to H.R. 9951, providing for extension of the income tax surcharge until December 31, 1969, will be called up by the distinguished gentleman from Mississippi on which there will be 1 hour of debate.

There will be four suspensions, as follows:

S. 912, to provide for the establishment of the Florissant Fossil Beds National Monument, Colo.

H.R. 11959, to provide increased educational assistance under the Veterans' Administration education law.

House Joint Resolution 764, to authorize appropriations for expenses of the President's Council on Youth Opportunity.

S. 1611, to provide for a National Center on Educational Media and Materials for the Handicapped.

Also on Monday there will be considered:

House Joint Resolution 247, relating to the administration of the national park system, under an open rule with 1 hour of debate; and,

H.R. 471, to hold in trust certain lands for the Pueblo de Taos Indians in New Mexico, under an open rule with 1 hour of debate.

Tuesday is Private Calendar day.

Also on Tuesday there will be considered H.R. 13018, the military construction authorization, for the fiscal year 1970, under an open rule with 3 hours of debate.

For Wednesday and the balance of the week, there are scheduled:

H.R. 13270, the Tax Reform Act of 1969, subject to a rule being granted; and

H.R. 12829, Interest Equalization Tax Extension Act of 1969, under a closed rule with 4 hours of debate, waiving points of order.

This announcement is made subject to the usual reservation that conference reports may be brought up at any time and any further program may be announced later.

Mr. SMITH of California. May I inquire of the gentleman whether he has any statement as to whether or not we may work next Friday, if necessary?

Mr. ALBERT. I am glad the gentleman reminded me of that, because it is not only possible but it may be quite probable, if the tax reform bill takes as long as might be indicated, that we may have to meet on Friday to consider the Interest Equalization Tax Extension Act.

Mr. SMITH of California. I thank the gentleman.

ADJOURNMENT TO MONDAY, AUGUST 4, 1969

Mr. ALBERT. Mr. Speaker, I ask unanimous consent that when the House adjourns today it adjourns to meet on Monday next.

The SPEAKER. Is there objection to the request of the gentleman from Oklahoma?

There was no objection.

DISPENSING WITH BUSINESS IN ORDER UNDER THE CALENDAR WEDNESDAY RULE ON WEDNESDAY NEXT

Mr. ALBERT. Mr. Speaker, I ask unanimous consent that business in order under the Calendar Wednesday rule may be dispensed with on Wednesday next.

The SPEAKER. Is there objection to the request of the gentleman from Oklahoma?

There was no objection.

RECAPITULATIONS ON BUDGETARY REQUESTS, UNEXPENDED BALANCES, AND TOTAL AMOUNTS OF FOREIGN AID

(Mr. PASSMAN asked and was given permission to address the House for 1

minute and to revise and extend his remarks and to include pertinent information.)

Mr. PASSMAN. Mr. Speaker, I am today inserting in the RECORD a recapitulation showing the total new budgetary requests for foreign aid. Also a recapitulation showing the unexpended balances of all spigots of foreign aid, known as the pipeline. And also a recapitulation showing the total amount of foreign aid given to 121 nations of the world since the inception of the foreign aid program.

Incidentally, all three recapitulation sheets will be mailed to each Member of the House and Senate for their information. The envelopes will be marked "Personal." Whether you agree or disagree with my philosophy on foreign aid, the statistics are extremely important and represent some 120 hours of painstaking research on my part.

The material follows:

New budgetary requests for authorization and appropriation for foreign assistance for fiscal year 1970

Foreign assistance (mutual security)	$2,710,020,000
Receipts and recoveries from previous programs	274,785,000
Military assistance (in Defense budget)	2,230,900,000
Economic assistance (in Defense budget)	76,600,000
Foreign military credit sales fund	275,000,000
MAAG's, missions, and mil-groups	168,800,000
Export-Import Bank:	
Long-term credits	1,872,200,000
Regular operations	570,423,000
Export expansion program	100,000,000
Public Law 480 (agricultural commodities)	986,600,000
Inter-American Development Bank (FSO)	300,000,000
International Development Association:	
1.	160,000,000
2. Supplemental	160,000,000
Asian Development Bank:	
Regular contribution	20,000,000
Special funds	25,000,000
Peace Corps	101,100,000
Permanent military construction—foreign nations	255,300,000
Contributions to international organizations	130,187,000
Educational (foreign and other students)	43,614,000
Ryukyu Islands	20,651,000
Migrants and refugees	5,511,000
Trust Territories of the Pacific Islands	41,612,000
Total new requests for foreign assistance for fiscal year 1970	10,528,303,000

Unexpended balances in pipeline from prior years for foreign aid programs

Foreign assistance (mutual security)	$5,265,936,000
Foreign military credit sales fund	222,000,000
MAAG's, missions, and mil-groups	5,000,000
Military and economic assistance (in Defense budget)	1,086,000,000
Export-Import Bank:	
Long-term credits	3,296,800,000
Regular operations	193,400,000
Uncommitted borrowing authority	5,288,300,000
Public Law 480 (agricultural commodities)	507,748,000

Unexpended balances in pipeline from prior years for foreign aid programs—Continued

Inter-American Development Bank	$2,109,494,000
International Development Association	103,600,000
Asian Development Bank	130,000,000
Peace Corps	35,619,000
Permanent military construction—foreign nations	390,000,000
Contributions to international organizations	2,838,000
Educational (foreign and other students)	29,263,000
Ryukyu Islands	7,705,000
Migrants and refugees	3,616,000
Trust Territories of the Pacific Islands	16,551,000
Inter-American Highway	14,146,000
Total	18,708,016,000

Total net foreign assistance to 121 nations and 7 territories of the world, fiscal years 1946 through 1969—Statistics finalized July 1, 1969

[*The 5 "F" formula: Frustrating, Fanatical, Frightening, Foolish, but Factual*]

Afghanistan	$370,500,000
Albania	20,400,000
Algeria	193,500,000
Argentina	447,500,000
Australia	697,000,000
Austria	1,106,000,000
Barbados	200,000
Belgium-Luxembourg	1,747,500,000
Bolivia	532,000,000
Botswana	16,500,000
Brazil	2,772,500,000
Burundi	6,800,000
Burma	84,700,000
Cambodia	341,400,000
Cameroon	32,900,000
Canada	46,900,000
Central Africa Republic	4,600,000
Ceylon	158,900,000
Chad	8,800,000
Chile	1,410,000,000
China, Republic	5,006,900,000
Colombia	962,700,000
Congo:	
B	2,000,000
K	440,900,000
Costa Rica	172,600,000
Cuba	43,800,000
Cyprus	20,300,000
Czechoslovakia	189,500,000
Dahomey	12,000,000
Denmark	875,900,000
Dominican Republic	461,500,000
East Germany	800,000
Ecuador	268,900,000
El Salvador	123,200,000
Ethiopia	357,000,000
Finland	30,200,000
France	7,014,300,000
Gabon	7,500,000
Gambia	1,600,000
Ghana	268,700,000
Germany and Berlin	3,675,600,000
Greece	3,681,200,000
Guatemala	318,800,000
Guinea	107,700,000
Guyana	61,200,000
Haiti	108,800,000
Honduras	109,400,000
Hungary	13,500,000
Iceland	67,300,000
India	7,464,400,000
Indochina	1,535,200,000
Indonesia	940,100,000
Iran	2,047,100,000
Iraq	96,800,000
Ireland	122,900,000
Israel	860,200,000
Italy	5,393,700,000
Ivory Coast	69,000,000
Jamaica	76,400,000
Japan	3,606,900,000

Total net foreign assistance to 121 nations and 7 territories of the world, fiscal years 1946 through 1969—Statistics finalized July 1, 1969—Continued

Jordan	$635,300,000
Kenya	62,700,000
Korea	7,817,200,000
Kuwait	49,400,000
Laos	643,300,000
Lebanon	86,200,000
Lesotho	4,800,000
Liberia	228,600,000
Libya	221,500,000
Malagasy	13,400,000
Malawi	25,900,000
Malaysia	76,300,000
Mali	21,300,000
Malta	6,700,000
Mauritania	3,300,000
Mauritius	1,400,000
Mexico	569,000,000
Morocco	685,300,000
Nepal	129,600,000
Netherlands	2,050,500,000
New Zealand	66,800,000
Nicaragua	158,000,000
Niger	16,700,000
Nigeria	275,000,000
Norway	1,130,200,000
Pakistan	3,527,300,000
Panama	221,200,000
Paraguay	116,900,000
Peru	476,300,000
Philippines	1,839,900,000
Poland	453,800,000
Portugal	477,100,000
Rwanda	7,400,000
Saudi Arabia	70,300,000
Senegal	36,200,000
Sierra Leone	40,900,000
Singapore	33,900,000
Somalia	76,200,000
Southern Rhodesia	2,000,000
Spain	1,960,000,000
Sudan	97,200,000
Surinam	10,000,000
Swaziland	500,000
Sweden	156,000,000
Syrian Arab Republic	60,400,000
Tanzania	65,400,000
Thailand	1,144,900,000
Togo	14,900,000
Trinidad-Tobago	55,400,000
Tunisia	606,600,000
Turkey	5,391,200,000
Uganda	35,800,000
United Arab Republic	900,900,000
United Kingdom	7,690,700,000
U.S.S.R.	186,400,000
Upper Volta	12,100,000
Uruguay	154,600,000
Venezuela	361,500,000
Vietnam	5,856,000,000
Western Samoa	1,500,000
Yemen	42,800,000
Yugoslavia	2,593,400,000
Zambia	9,800,000
Bahamas	34,700,000
British Honduras	5,200,000
West Indies	8,000,000
Hong Kong	43,800,000
Ryukyu Islands	399,100,000
Trust Territory of Pacific	225,300,000
CENTO	54,700,000
W/W regional	14,896,500,000
Total net disbursements to foreign nations (1946–69)	122,048,200,000
Total net interest paid on what we have borrowed to give away (1946–69)	60,535,175,000
Grand total—cost of foreign assistance (1946–69)	182,583,375,000

Of the 3½ billion people of the world, all but 36 million have received aid from the United States.

SLICING DEFENSE FAT

(Mr. CABELL asked and was given permission to address the House for 1 minute, to revise and extend his remarks and include extraneous matter.)

Mr. CABELL. Mr. Speaker, in recent months there has been a great deal of discussion and debate on the subject of reduction of military expenditures.

Some of this has been aimed at a reduction of our military posture that would be a suicidal move in relation to our defensive capability.

Some have been a meat-ax approach that completely ignores the fundamental approach to the needs of our country in the maintenance of our obligation as a defender of freedom-loving peoples of the world.

One very practical and sensible approach to this subject has come to my attention. The author of this approach is eminently qualified in this field, and it is worthy of the attention of all Members of the Congress. He is a man who "has been there" but is not looking to the past—he has a clear perspective of the present and the future.

At this point I insert in the RECORD the remarks of Gen. Ira C. Eaker on the subject of "Slicing Defense Fat."

SLICING DEFENSE FAT

(By Ira C. Eaker)

Two recent Pentagon announcements, manpower cuts and restoration of the military to advisory status, have not yet received the public recognition they deserve.

First there was the great debate about weapons like the ABM and MIRV, which dominated the national security area. Then speculation on the rate of withdrawal of U.S. forces from Vietnam moved up front as the foremost defense issue. More recently the well earned and richly deserved headline harvest of Apollo 11 pushed Pentagon news to the back pages.

The recent revelation that defense manpower was to be cut initially by 25,000 with the hint of more to come is very encouraging.

During the seven years of the McNamara reign as Secretary of Defense manpower costs rose by about $7 billion. This was not due to the Vietnam War, since it has been U.S. policy to fight that limited war largely with existing forces and thus avoid the great troop buildups of earlier wars with the consequent shock and fracture to the national economy when peace came.

The McNamara rationale for DOD management included two factors largely responsible for the dramatic rise in manpower requirements and costs.

First there was the determination to reduce military influence in the decision making process on weapons selection, size of defense forces and budget for the armed services. This made it necessary to create a much larger civilian staff and superimpose it between the Secretary and his military advisers, the Joint Chiefs of Staff.

Thomas L. Gates, McNamara's predecessor had a staff of 200 civilians and 200 military. Seven years later the DOD staff had grown to more than 10,000.

The second decision which skyrocketed manpower costs was the determination to centralize command and control at the DOD level. This organizational change created several new agencies like DSA (Defense Supply Agency), DIA (Defense Intelligence Agency) and DCA (Defense Communications Agency).

It was planned originally that when these new organizations became operational, similar activities in the Army, Navy and Air Force would be greatly curtailed or abolished. In fact the Armed Services have been forced to increase their staffs in these areas, due to the fact that one busy beaver bureaucrat at DOD level can demand so many reports and studies.

Now there are nearly five times as many people in DOD, supervising 3½ million people, civil and military, as there were at this level at the height of World War II when the defense establishment was 12 million strong!

In order to reduce DOD manpower costs the place to start is in the Pentagon. If the people employed there were reduced by 50%, the Army, Navy and Air Force staffs could be reduced accordingly and with increased efficiency.

The decision, announced recently by Under Secretary Packard, to restore the military to their former advisory status will also result in defense savings. Many of the costly mistakes in weapons selection during the past seven years were directly due to failure to heed military advice. The TFX, a $5 billion dollar blunder and the McNamara Line in Vietnam, at a cost of $2 billions and now abandoned, are such examples. There are many others, including the strategy and tactics employed in the Vietnam War.

In the past, defense budget cuts have resulted in reduced military hardware and less funds for research and development, defense muscle. Some esesntial new weapons systems have been killed to match the money squeeze.

There is now hope that the Laird-Packard team may have discovered, in their defense survey which has been in progress for several months, that personnel cuts offer the best way to reduce defense budgets without jeopardizing a sound defense posture.

THE COMPLEXITY OF MAN-BEAR RELATIONSHIPS

(Mr. KOCH asked and was given permission to address the House for 1 minute, to revise and extend his remarks and include extraneous matter.)

Mr. KOCH. Mr. Speaker, none of us will forget the tragedy that took place in August 1967, when two girls camping in two locations on the Glacier National Park were attacked and killed by grizzly bears. Fortunately, no one was killed last year in our parks, but there were 777 "bear incidents" reported. This was an 8-percent increase in incidents over the previous year.

It has gotten to the point that campers sleep with fear in our mountain campgrounds as stories circulate daily about bears running through the campsites tearing up tents, threatening visitors, and stealing food.

This matter was brought to my attention by Mrs. Pat Thaler, my sister, who is traveling with her husband and three young children through the western part of the United States. She reported that "we had lovely weather and beautiful sights," but she was not able to escape reading in a local newspaper about the "latest bear incident"; in Yellowstone National Park two sleeping campere were injured when a bear invaded their tent about three in the morning. The two young men were bitten about the head.

Certainly we do not want to eliminate the bears from our parks; but it is a needless tragedy for our campers who are on their vacations to be attacked, maimed and at times killed. My sister made several suggestions for improving camp safety:

First, that camping areas be enclosed with a bear-proof fence with a lighted gateway:

Second, tenting areas be eliminated in areas frequented by bears;

Third, that bears be physically removed to noncamping areas; and

Fourth, that people be fined for encouraging or approaching bears in that there are already signs advising "bears are dangerous, do not get out of cars," which are all too often disobeyed.

I have received a response from Theodor R. Swem, Assistant Director of the National Park Service, which I would like to submit for reprinting in the RECORD. In his letter, Mr. Swem assures me that "the total problem of man-bear relionships is highly complex," and that the Park Service is continually working to improve the situation. Mr. Swem also noted that the last three suggestions made by my sister have been implemented and the first is being considered.

With his letter, Mr. Swem included a pamphlet on enjoying bear country entitled, "In Grizzly Country." I read this pamphlet with interest and would like to quote from part of it on what one should do when suddenly confronted by a grizzly:

> Whatever you do, try to remain calm. Speak softly to the animal. Steady soft human monotones often appear effective in assuring bears that no harm is meant to them. However, while standing your ground and speaking softly, look for a tree to climb.

This is fine advice for those standing and awake. But, it is useless for those in sleeping bags who are suddenly awakened by a bear sniffing their belongings and about to take a bite.

The two girls killed in 1967 were both sleeping in populated camping grounds. The bears' existence was well known, and in fact they had been encouraged by open garbage containers to come into the camp as a tourist attraction. While the nightly bear visits and antics were well known throughout the Glacier Park, nothing was done by the rangers to stop them.

Because of the articles in the press and national magazines on the 1967 incidents indicating possible negligence on the part of the National Park Service, it is apparent that only a public hearing getting all the facts on what happened then and what is being done now will satisfy the public and in particular those who use the national parks. The National Park Service conducted an extensive investigation of the 1967 incidents, but we all recognize that investigations by a department of itself are rarely satisfactory, and do not have the public acceptance of an independent investigation.

Therefore, I would urge the appropriate congressional committee to hold a public hearing on the total problem. Bears and men are not compatible in close quarters and perhaps thought should be given to having areas of our wilderness free of man for bears and surely camp sites should be free of bears.

The material referred to follows:

U.S. DEPARTMENT OF THE INTERIOR,
NATIONAL PARK SERVICE,
Washington, D.C., July 28, 1969.

HON. EDWARD I. KOCH,
House of Representatives,
Washington, D.C.

DEAR MR. KOCH: Secretary of the Interior Hickel has asked that we reply to your inquiry concerning bears in national parks.

Each bear incident that results in personal injury or destruction of property is investigated to determine the extent of injury or damage, the circumstances surrounding the incident and, more specifically, the probable cause of the incident. The enclosed report on the tragic deaths of two young girls in Glacier National Park, while somewhat more elaborate than a routine bear accident report, will give you an idea of the types of information we believe are essential to understand the man-bear conflict problem.

The facts surrounding each incident vary, of course, and we must recognize that the total problem of man-bear relationships is highly complex. Food, however, appears to be directly or indirectly associated with the majority of incidents. Therefore, one of our major efforts in bear management is directed toward improving campground and roadside sanitation and methods of garbage disposal.

The above effort is supplemented with public relations, educational and law enforcement programs, park zoning—that include temporary and permanent closures of certain high risk areas—and the physical removal or destruction of troublesome bears from areas of visitor concentration.

Our bear management objectives are: (1) Totally eliminate all man-bear conflicts that are attributable to man's use of, or behavior in, the national parks. (2) Restore and maintain natural abundance, distribution, and behavior of the bear populations for the aesthetic, educational, and scientific enjoyment of man. While there are many problems yet to be resolved, we are pleased to state that a great deal of progress has been made to reduce the hazard of bears in national parks. In Great Smoky Mountains National Park, for instance, the installation of bear-resistant garbage cans and timely garbage collections have reduced significantly the frequency of bear incidents. Our experience in this park indicates that without the open garbage cans the bears do not remain on the park road shoulders. Therefore, bear feeding by the park visitors has dropped off considerably. The need to take direct action against the bears also has been reduced; through the middle of July only four bears had to be live trapped from campgrounds and picnic areas.

The comparative lack of roadside bears in Great Smoky Mountains has resulted in a public relations problem. Both the park Superintendent and this Office are receiving a rash of complaints from visitors demanding that the bears be reinstalled along the roadsides. We do not believe, however, that national parks were meant to be roadside zoos and feel justified, both from the standpoints of maintaining healthy wildlife populations and public safety, in continuing our bear management program.

Certainly, we cannot deny that people have derived considerable enjoyment over the years watching bears rummaging through garbage cans. If the current management program is to receive public acceptance, it is imperative that public informational and educational programs be strengthened so that park visitors can find equal enjoyment observing wild bears in their natural environment. The enclosed leaflet, "In Grizzly Country" is an example of the type of education we are attempting.

We appreciate the four suggestions made by your sister. Most people are either probear or antibear, and it is a rare delight to receive objective comments on the bear problem. She will be pleased to know that all of her suggestions are being considered; indeed, the last three have been implemented. It may be necessary to separate physically man from the bears by fencing the campgrounds. Fences have been used with limited success to keep bears out of small areas in Alaska; but if food is available within the fence, we are inclined to believe there is no such thing as a bear-proof fence. With better camper food storage facilities and garbage disposal practices we believe the bears will avoid the campgrounds.

You will be interested in the enclosed summary of bear incidents for 1967–68. None of the 38 injuries reported last year were serious, and only one was attributed to a grizzly bear. Some 37 million visits were made to the 16 "bear" parks during 1968, and the vast majority of the park visitors enjoyed the park bears without injury.

We appreciate your interest and hope the enclosed information will be useful to you.

Sincerely yours,

THEODOR R. SWEM,
Assistant Director.

SUMMARY OF BEAR MANAGEMENT ACTIVITIES, 1967–68

Areas	Incidents (total)		Personal injuries		Property damage (value): Visitor		Property damage (value): Government		Property damage (value): Concessioner-contractor		Bears trapped		Bears killed		Arrests	
	1967	1968	1967	1968	1967	1968	1967	1968	1967	1968	1967	1968	1967	1968	1967	1968
Blue Ridge	3	8	0	0	$149	$37	0	0	$10	$30	1	2	0	0	0	0
Crater Lake	9	6	0	0	66	34	$38	0	0	0	3	2	1	0	0	0
Glacier	45	44	5	2	1,255	627	350	$380	0	0	38	38	11	[1] 22	0	0
Glacier Bay	6	2	0	0	50	0	75	10	0	0	0	0	0	0	0	0
Grand Teton	19	5	0	0	84	85	0	90	0	0	12	8	1	0	0	0
Great Smoky Mountains	77	142	12	7	1,023	2,779	0	65	0	0	47	61	10	[2] 11	0	53
Katmai	0	2	0	0	0	0	0	25	0	0	0	3	0	[3] 1	0	0
Lassen Volcanic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mount McKinley	1	1	1	0	0	0	0	10	0	0	0	0	0	0	0	0
Mount Ranier	13	23	0	0	175	225	0	0	0	0	15	6	3	3	0	0
Olympic	10	61	0	1	50	800	10	50	0	0	0	1	0	2	0	0
Rocky Mountain	27	0	0	0	12	0	20	0	0	0	1	0	0	0	0	0
Sequoia-Kings	168	153	0	1	1,847	1,050	301	415	225	100	5	4	4	3	0	0
Shenandoah	3	15	0	1	320	690	0	0	15	0	8	20	0	[4] 9	0	0
Yellowstone	256	260	61	20	6,736	8,659	33	0	0	0	100	[5] 171	20	[6] 22	13	6
Yosemite	83	55	11	6	2,628	2,500	185	115	30	55	33	13	17	4	0	0
Total	720	777	90	38	14,395	17,486	1,012	1,160	280	185	263	329	67	77	13	59
1968 increase or decrease:																
Number	+57		−52		+3,091		+148		−95		+66		+10		+46	
Percent	+7.9		−58		+21		+14.6		−34		+25		+15		+35	

[1] 2 grizzlies.
[2] 3 by vehicles, 5 unintentional, 1 by poacher.
[3] Tranquilized, accidentally drowned.
[4] 1 by automobile, 2 by poachers.
[5] 52 grizzlies trapped.
[6] 6 grizzlies (2 accidentally).

Note: Personal injuries breakdown: Visitor, 37; concession employee, 0; contractor, 0; park, 1.

SUMMARY OF BEAR MANAGEMENT ACTIVITIES, 1967–68

Year	Incidents	Personal injuries	Visitor property damage	Government property damage	Concessioner-contractor property damage
1958		58			
1959	2,025	71	$18,868	$1,610	
1960	1,401	103	24,864	2,506	
1961	938	82	19,644	1,126	
1962	748	63	9,479	1,370	
1963	689	50	15,606	3,206	
1964	588	38	14,090	2,077	
1965	1,159	63	14,247	1,239	
1966	836	125	22,488	863	
1967	720	90	14,395	1,012	280
1968	777	38	17,486	1,160	185
10-year total	9,881	[1] 781	171,167	16,169	465
Average	988	[1] 71	17,117	1,617	[2] 233

[1] 11-year total and average.
[2] 2-year average.

VETERANS OUTREACH SERVICES TO ASSIST RECENTLY DISCHARGED VETERANS

(Mr. ANDERSON of California asked and was given permission to address the House for 1 minute and to revise and extend his remarks and include extraneous matter.)

Mr. ANDERSON of California. Mr. Speaker, I am introducing legislation to help rectify the present inadequacies of the current veterans law, under which only 21.4 percent of the returning Vietnam veterans have utilized the college and vocational aid programs since January 1966. This bill would amend chapter 3 of title 38, United States Code, to provide the Veterans' Administration with a veterans outreach services pro-

gram. This program would assist eligible veterans in the application for and acquisition of, benefits and services—as well as education, training, and employment—to which they are entitled.

The need for such legislation is cogently attested to by comparison of the utilization of benefits today and utilization following World War II and the Korean war. Whereas barely over 20 percent of the Vietnam returnees are using their rights, 50 percent of the World War II veterans, and 42 percent of those after Korea, used theirs.

Such disuse is especially unfortunate in light of the large number of veterans who are high school dropouts and could profit from use of the available educational aid. Out of the total of 1 million men or women to be discharged this year from the Armed Forces, 23 percent have not completed a high school education. Tragically, it is exactly these veterans who need to use the GI bill the most and who have the most to gain who show the least interest and desire to participate. Only 2.4 percent of the veterans who are high school dropouts are participating in GI bill education programs.

The executive branch has made an attempt to provide for the services needed by increasing numbers of Vietnam veterans. Following the passage of the Veterans' Readjustment Benefits Act of 1966, the Veterans' Administration assigned personnel to military hospitals and to military installations discharging large groups of servicemen. Concurrently, the Veterans' Administration extended itinerant counseling service to locations not having full-time VA installations as a further step toward satisfying the increasing requests. However, it became obvious that these measures were not adequate to meet the increasing need for assistance.

In November 1967, the President set up a task force of representatives of administrative agencies to formulate a method of dealing with the problem. Based on the detailed plans developed by that task force, the President directed the establishment of an initial group of 20 veterans assistance centers, known as USVAC's. One-stop service on all Federal benefits is provided to veterans in these centers. The initial 10 centers were opened in February 1968, the next 10 in March, and in July another 51 locations were established.

These efforts taken by the executive are commendable, but they are not, in themselves, adequate to the need for such assistance. Although the Veterans' Administration characterizes the USVAC program as directed toward the educationally disadvantaged, only two or three of these centers actually are located in neighborhoods where the educationally disadvantaged veterans reside. Furthermore, of the total of 232,125 initial interviews at the 71 centers during fiscal 1969, only 37,179—about 16 percent—were with the educationally disadvantaged. That is considerably below the figure of 23 percent that represents the total percentage of discharged veterans who are educationally disadvantaged, and the discrepancy is especially appalling when it is taken into account that it is the educationally disadvantaged whom we should be seeking out and who are in greatest need of these services. Clearly, the services must be made more accessible to these people.

It is in recognition of this need that I am introducing this bill. Such legislation has been introduced in the Senate as S. 2700 by Senator ALAN CRANSTON and coauthored by Senator KENNEDY, Senator RANDOLPH, Senator SCHWEIKER, and Senator YARBOROUGH. This bill would aim to aid discharged veterans, especially those who are educationally disadvantaged, in securing the maximum services and benefits which they are entitled to under VA programs, as well as under other Federal, State, or local governmental programs. Also, this bill would charge the VA with a congressionally sanctioned obligation of seeking out and offering a wide range of assistance to recently discharged veterans—a sanctioned obligation that is necessary in view of the fact that the VA has been operating the centers on questionable statutory authority.

If enacted, this bill would provide for the Veterans' Affairs Administrator to make specified outreach service available to all eligible veterans and dependents, and especially to recently discharged veterans who are educationally disadvantaged—that is, those who have not completed a high school education. The outreach functions which are specified in the bill include the following:

The distribution of full information regarding all benefits and services veterans may be entitled to under laws administered by the Veterans' Administration and to which they are entitled under other governmental programs;

The arrangement and conduction of person-to-person interviews to explain benefits and services and to plan individual programs of education, training, and employment as may best be suited to rapid social and economic readjustment to civilian life;

The provision of job and other appropriate referrals and job placement assistance when appropriate;

The provision of social and other special services necessary to aid veterans in obtaining maximum assistance from the benefits and services to which they are entitled;

The provision of aid and assistance in the preparation and presentation of claims under the title and in connection with any other program;

The maintenance of full records of the outreach services offered and the conduction of periodic followups to determine the success of this assistance.

This bill would require that USVAC's be located with due regard to areas with high concentrations of educationally disadvantaged veterans and the provision of appropriate outreach services in less populated areas would also be required. Also, under this bill efforts would have to be made to employ veterans who personally reside in the regions served at these outreach centers.

This bill would charge the VA with conducting studies in consultation with other Federal agencies to determine the most efficacious type of program to carry out the purposes of this bill regarding the educationally disadvantaged veterans. Finally, the Administrator of Veterans' Affairs would be required to present semiannual reports to Congress on the program's effectiveness, the amount of coordination with other agencies and programs, and on recommendations for improvement.

Mr. Speaker, I believe the enactment of this bill would constitute an important step toward increasing GI bill participation by Vietnam era veterans, especially the educationally disadvantaged. The country must not lose the energy and potential of these young men; let us make it possible for them to develop that potential and make a contribution to society. Veterans' benefits are more than recognition of past services performed in service to our country—they are an investment in the future of the veteran and the Nation.

U.S. PARTICIPATION IN AN ISRAEL DESALINATION PLANT

(Mr. RYAN asked and was given permission to extend his remarks at this point in the RECORD and to include extraneous matter.)

Mr. RYAN. Mr. Speaker, on July 30, I testified before the House Committee on Foreign Affairs in support of U.S. participation in an Israel desalination plant. The committee is presently conducting hearings on the foreign assistance program.

During the last two Congresses, I have introduced legislation to provide assistance to Israel in the design, development, and construction of a dual purpose desalination and electric power plant. In the 90th Congress, this legislation was introduced as H.R. 14250 and, with cosponsors, as H.R. 14438. In the current Congress, I have introduced H.R. 587 and H.R. 4307, which, in addition to myself, has eight other cosponsors—Mr. ADDABBO, Mr. BURTON of California, Mr. CORMAN, Mr. GIAIMO, Mr. HELSTOSKI, Mr. SCHEUER, Mr. VAN DEERLIN, and Mr. WOLFF.

The depletion of existing sources of fresh water in Israel, as well as our own need for additional research and technical information on desalination processes that will help this country to meet its own needs for additional sources of fresh water, underscore the urgency of enacting this legislation.

The prospect of American participation in an Israel desalination project has been extensively studied and discussed in the 5 years since President Johnson announced in 1964 that the United States and Israel would cooperate in desalting research and development.

On January 19, 1969, the late Premier Levi Eshkol of Israel announced to the Israel public that President Johnson had promised executive support for U.S. participation in the construction of a desalination plant. Two days earlier, on January 17, Assistant Secretary of the Interior Max Edwards transmitted a bill to Congress similar to my own.

Despite the commitment made by President Johnson to Israel, however, the Nixon administration has declined to affirm its support for U.S. participation in this vital program. Even though I have written to President Nixon on

two occasions, February 18 and April 2, urging that the administration take a position on this project, the White House has declined to state its position on the bill recommended to Congress by President Johnson.

The Foreign Affairs Committee has an opportunity to contribute to stability in the Middle East by approving this project, and I hope that it will take the necessary action.

I include at this point in the RECORD the statement which I made in support of U.S. participation in a dual purpose desalination and electric powerplant before the House Commitee on Foreign Affairs on July 30. My exchange of correspondence with the President was presented in the CONGRESSIONAL RECORD on May 14, 1969, at page 12459 when I spoke on the authorization bill for the Office of Saline Water. The statement follows:

STATEMENT OF CONGRESSMAN WILLIAM F. RYAN

I appreciate having this opportunity to appear in support of legislation which would provide assistance to Israel in the design, development, and construction of a dual purpose desalinization and electric power plant.

As one who for two years now has sponsored legislation for United States participation in the construction of a prototype desalinization project with Israel, I am pleased that the Committee on Foreign Affairs is considering incorporating such a project into the foreign assistance program. The depletion of existing sources of fresh water in Israel, as well as our own need for additional research and technical information on desalinization processes that will help this country to meet its own needs for additional sources of fresh water, underscore the urgency of enacting this legislation. Already, 95% of presently available fresh water supplies in Israel are being utilized. Israel presently has a population of approximately 2.7 million people. With the need for fresh water for irrigation of arid land already acute, about 95% of existing fresh water sources have already been tapped. With Israel's population scheduled to increase by at least 1.5 million by the early 1980's, it is clear that agricultural needs will not be met if additional sources of fresh water are not developed. If these sources are to be developed, it is imperative that development of a saline water conversion facility be begun as soon as is technically possible. In light of the fresh water requirements of this Nation in the next decade, U.S. participation in a desalinization project in Israel is also important to the development of a domestic saline water conversion program in this country.

During the last two Congresses, I have introduced legislation to provide assistance to Israel in the design, development and construction of a dual purpose desalinization and electric power plant. In the 90th Congress, this legislation was introduced as H.R. 14250 and, with co-sponsors, as H.R. 14438. In the current Congress, I have introduced H.R. 587 and H.R. 4307, which, in addition to myself, has eight other co-sponsors.

Under the provisions of H.R. 587, which has been referred to the House Foreign Affairs Committee, the Secretary of the Interior would be authorized to enter into an agreement with the government of Israel to share the cost of constructing a desalinization plant which is capable of producing 100 to 150 million gallons of fresh water and 300,000 to 400,000 kilowatts of electricity daily. I advocate the construction of a plant of this size on the basis of a report made by the American-Israel Desalting Board which concluded that a facility producing the quantities of fresh water and electricity mentioned in my bill was both appropriate to the needs of Israel and technically feasible.

Support for United States participation in the construction of a desalting project in Israel has been evident since 1964, when then President Johnson announced that the United States and Israel would cooperate in desalting research and development. Since that time, several Members of Congress in addition to myself—in both the House and the Senate—have proposed that Congress authorize the Executive Branch to enter into an agreement with Israel to construct such a facility. While the feasibility of a desalting program has been thoroughly studied in the five years since President Johnson first authorized this joint saline water conversion research, no action has been taken since the Senate adopted a resolution in December of 1967 calling for regional plants to provide water and power for both Israelis and Arabs and to stimulate refugee resettlement. This plan had been proposed by former President Eisenhower and Admiral Lewis Strauss, the former chairman of the Atomic Energy Commission. It was hoped that Senate passage of this plan would lead to action; however, the political intransigence of the Arabs undermined hopes for cooperation in the development of saline water conversion facilities.

Since 1967, development of a saline water conversion project has focused on U.S. participation in a prototype plant in Israel. On January 19 of this year, Premier Levi Eshkol told the Israeli public that President Johnson had written to him promising Executive support for the construction of a desalinization plant. Two days earlier, on January 17, 1969, Assistant Secretary of the Interior Max Edwards transmitted a bill to Congress similar to my own. Assistant Secretary Edwards pointed out in his accompanying letter of January 17 to the President of the Senate and the Speaker of the House of Representatives that the project, in addition to being "vital to Israel in terms of water supply and power," also gives the United States "an opportunity to improve and advance science and technology in the field of saline water conversion and to contribute materially to the development of low-cost desalinization processes." The Interior Department went on to urge the enactment of legislation which would give the Secretary of the Interior authority to enter into a formal agreement with Israel to construct a desalinization plant.

As one who had long advocated the development of such a program, I was extremely pleased that the Johnson Administration had recommended this legislation to Congress and had made the commitment to Premier Eshkol. Because President Johnson was about to leave office, it was essential that President Nixon promptly reaffirm Executive support for this program.

On February 18, during the course of his appearance before the House Committee on Interior and Insular Affairs, however, Secretary of the Interior Walter Hickel indicated that the Interior Department was considering deleting the $40 million from the FY 1970 budget of the Office of Saline Water Research which former President Johnson recommended be allocated for participation in the construction of a prototype desalinization plant in Israel. Because I believed Executive support to be vital to the enactment of this legislation, I wrote to President Nixon on the same day (February 18, 1969) urging him to uphold the commitment which President Johnson had made for Executive support of this program. In its reply of February 24 the White House declined to state its position on the Johnson Administration's bill, but promised that I would "hear further soon."

When no answer was forthcoming, I again wrote to President Nixon on April 2. In an April 11 reply, however, the White House again declined to state its position on the Israeli desalinization project.

To this date, the Administration refuses to take a position on this important commitment to Israel by President Johnson.

If the Administration will not uphold the commitment this Nation has to assist Israel in her economic and technological development, then Congress must take action on its own. New incremental sources of water, as former Assistant Secretary Edwards noted, "must be made available by the mid-seventies" if Israel is to maintain her industrial and economic growth. A desalinization plant would make it possible for Israel to cultivate large portions of arid desert land which cannot now be utilized. The usable land and jobs which would be created by such a plant would make a significant contribution to the stability of the entire Middle East.

I believe the Foreign Affairs Committee has a clear opportunity to assist Israel in the development of water and electric power resources that are crucial to its future economic and industrial strength. By incorporating legislation which would authorize the Executive Branch to enter into an agreement with Israel to construct a prototype desalinization plant, the Committee can also lay the groundwork for the development of our own technical ability to produce large amounts of fresh water at low cost. The benefits to be gained by both Israel and the United States by participation in this project lead me to believe that the development of a desalinization plant in Israel should receive high priority in the foreign assistance program.

POST OFFICE SERVICE—A GOVERNMENT FUNCTION

(Mr. MADDEN asked and was given permission to extend his remarks at this point in the RECORD and to include extraneous matter.)

Mr. MADDEN. Mr. Speaker, during my recent survey of the postal service in my congressional district I found practically no sentiment either from postal employees or the public that the Post Office administration should be removed from Government control.

When one considers the limited budget for the operation of this gigantic business of distributing multimillions of pieces of mail daily and the low wage of postal employees, coupled with limited facilities, it must be conceded that the American people are getting outstanding postal service under unfavorable circumstances.

President George Meany, of the AFL–CIO, testified before the House Post Office Committee recently. Under unanimous consent, I include in my remarks excerpts from his testimony recorded at the hearings from a news release in the AFL–CIO News of August 2, 1969:

POST OFFICE REFORMS FAVORED OVER CORPORATION PROPOSAL

Labor wants to see "substantial reform" in the nation's postal service but it strongly believes that the government must continue to "carry the mail," Pres. George Meany testified.

Meany and the AFL–CIO Government Employes Council attacked provisions of the Administration-backed corporate structure bill which would "drastically undercut the bargaining power of postal employes and their unions."

The AFL–CIO and GEC supported a second bill before the committee to provide postal reforms without altering the department's public service functions.

Despite valid criticisms of the Post Office, Meany pointed out, it handles over 80

billion of pieces of mail a year—millions of pieces each day—with a smaller "error factor" than any giant corporation can boast in its operations.

"Certainly America's big car manufacturers, now calling back thousands of defect-marred automobiles—can't claim such a record," he said.

While there are delays in delivery and operations are not always efficient, he continued, "the Post Office performs this service with such a high degree of integrity and honesty, that America's trust in the mails is legendary."

The postal problems, he said, spring from the fact that the Post Office "is woefully undercapitalized," forced to use old structures in traffic-jammed streets, and burdened by "unrealistic rates" for circular mail—so-called junk mail.

"It is also burdened by a high rate of employe-turnover," Meany added, "reflecting poor working conditions and inadequate wages in today's job market."

He then stressed that these and other problems can be resolved by adequate financing of the Post Office and improved postal management—reforms that can be achieved within the present structure.

He warned that the "widely advertised" efficiency of a postal corporation could be achieved only by eliminating services, such as home delivery of mail.

"We opposed the abandonment of such service," he added. "Substantial reform—rather than a corporate setup—is the prudent realistic and workable approach to the problem."

WORST FEATURES

The corporate structure legislation's provisions pertaining to employes, Meany said, "combine the worst features of public and private labor laws" in that they would wipe out civil service while continuing to deny workers the right to strike.

"If the Administration has decided that postal employes should no longer be considered government employes," he said "then it should go all the way and grant them the right all private employes have in a free country—the right to strike."

He pointed out that Dulski's bill contains reforms while retaining Congress' right to "oversight" of postal operations, as well as financing them through appropriations.

Stripping Congress of its continuous right of review of postal operations, he stated, "would work an injustice on American mail users and taxpayers because they would lose a highly important opportunity to contribute their views through elected officials."

THE ENVIRONMENTAL QUALITY AND PRODUCTIVITY ACT OF 1969

(Mr. DADDARIO asked and was given permission to address the House for 1 minute, to revise and extend his remarks and include extraneous matter.)

Mr. DADDARIO. Mr. Speaker, on behalf of Congressman CHARLES A. MOSHER and myself, I rise to propose the Environmental Quality and Productivity Act of 1969, which I shall include at the end of my remarks as exhibit 1. This Congress has had before it over 40 bills dealing with various aspects of the environment, certainly a major issue of our time. A review of all these pieces of legislation shows a remarkable degree of agreement on a national policy of restoring, maintaining, and enhancing the values found in our natural surroundings. At the same time, there is a bewildering variety of organizational proposals to put this policy into practice. Our bill is an attempt to simplify matters in a way which will assure that the executive and legislative branches will be served with the information, advice, and coordinated constructive action which they demand.

Actually, the Congress is to be complimented in what it has already contributed to the betterment of environmental management. The intense interest in this problem over the past few years has caused many committees to look into different aspects including, of course, the basic legislation to abate air and water pollution. The result is that innovative alternatives have been generated for organization, policy, and programs. The executive branch has chosen to implement many of these legislative suggestions and thus a number of Members may now feel a well-justified satisfaction from leadership in the new emphasis on environmental quality and productivity.

In the case of our Science, Research, and Development Subcommittee, I would mention specifically four examples apparent from the excerpts appended to this statement.

First. In 1966 we recommended a system approach in environmental matters with coordination of all Federal R. & D. and operational programs. The FCST Committee on Environmental Quality was formed in 1967 to accomplish this assignment. See exhibit 2.

Second. In 1968, one of our reports called for a national policy to be expressed in legislation by both Houses, a step we are undertaking today. See exhibit 3.

Third. Our 1968 report called for an environmental Cabinet to assure conformity of Federal operations with the national policy for the environment. This suggestion has been implemented in the Cabinet-level Environmental Quality Council established by President Nixon. See exhibit 3a.

Fourth. We recommended a strengthening of OST and the recent Presidential announcement has assigned that office a major role in science related to the environment. See exhibit 3.

Thus, a considerable history of legislative influence in addition to specific laws can be demonstrated.

Title I of the bill we are introducing today is a declaration of policy. Its exact wording is not critical but nevertheless these words are the result of several years' work by legislative and executive branch officials and their staffs. See exhibit 4. Title I affirms the great interdependence of man and his environment and the ultimate requirement for harmony between his actions and ecological principles. It recognizes a human right to a healthful environment and a personal responsibility for preservation and enhancement of these values.

The bill calls on all agencies to conform their activities to these policy statements. This directive should provide an administrative route for redress of grievances by citizens groups who now must go to court in order to bring the rights for environmental quality into balance with Federal or private operations.

The origin of national policy for the environment can be traced back over the past several years. There was an apparent and growing concern of citizens everywhere that the earlier guidelines of economic exploitation were yielding by-products of deterioration, pollution, and esthetic offense. Many organizations in Government and the private sector began studies and programs to describe the cause-and-effect relationships between society's actions and environmental quality. At the same time, increased productivity from the landscape was demanded by a growing world population and desire for higher living standards. These studies found that environmental quality and productivity go hand in hand. In fact, in the long run the most productive environment is one which is kept at a high state of quality.

We are pleased to recognize phrases in title I which have stemmed from the hearings and reports of the Subcommittee on Science, Research, and Development of the House Committee on Science and Astronautics. It is for this reason that we are prompted to advocate this bill as the best measure before the House, even though no hearings have been held on it per se. In effect, our committee and several others in both Houses have been holding appropriate hearings for years.

Title II of our bill would satisfy the clearly defined need for an independent advisory group by giving a statutory basis to the present Citizens' Advisory Committee on Environmental Quality established by Executive Order 11472, May 29, 1969. Funds for adequate staffing would make this unit able to perform an information-gathering analysis and program review function which has been shown to be necessary by recent hearings in the House and the Senate. Since the present terms of the members of the CACEQ will expire in 1970, the President will have immediate opportunity to broaden and deepen the expertise in this group beyond the present makeup which stems from its former designation as the Citizens' Advisory Committee on Recreation and Natural Beauty.

By establishing the CACEQ by legislation, the authority and concern of the Congress will be clear. Adequate appropriations for its functions will be defensible.

At the same time, no new agency would be added. We believe this is extremely important. President Nixon has announced the formation, by the same Executive order, of a Cabinet-level Environmental Quality Council. It is agreed by all that this is necessary to assure that the action programs of the Government are coordinated and conform to national policy. The President ultimately would resolve conflicts among the departments and agencies and so it is very encouraging to see him clearly accepting the responsibility as Chairman of the new Council.

The other Presidential moves are to redesignate the former Advisory Panel on Recreation and Natural Beauty as the Citizens' Advisory Committee on Environmental Quality and to assign to the Office of Science and Technology the staff work for both the Cabinet Council and the Advisory Committee. On these two counts, the criticism has mounted. We would not take issue with those who doubt the ability of the CACEQ and OST to do what is necessary under present conditions of status and funding.

But it seems patently foolish for the Congress to add another new, unwanted

agency to the Executive Office of the President. Rather, we see great value in using the structure that the President is in favor of and providing for it the statutory base and funding support to assure the performance that the entire Nation desires.

The Citizens' Advisory Committee, when established by congressional action, would satisfy all the demands for independent, expert, balanced, widely representative assistance. The membership of 15 would allow the inclusion of the diversity of talent which environmental matters require. An executive secretary and staff of great competence should be attracted by the central role which the CACEQ will play. The participation of private sector leaders, including industry—which must bear the brunt of environmental enhancement while continuing efficient productivity—will give all citizens a direct access to governmental planning and priorities for the environment.

We believe we must take the President's announcement at face value and help him make it work, and strengthen the role of the Congress at the same time. The number of different bills before us illustrates the difficulty of agreement on these administrative formats. Surely we do not need an array of advisory groups, one selected by the President and one chartered by the Congress. The possibilities for conflict should be obvious to anyone. It is for this reason that our bill specifically directs the CACEQ to overview the functions of the many environmental advisory groups now proliferating in the agencies. Special task forces may be attached to the CACEQ to develop advice for any department or agency upon request. But a plurality of uncoordinated advisory groups is to be avoided.

Finally the CACEQ established by our bill will issue an annual report to the President, the Congress, and the Nation on the state of the environment. We will receive authoritative information on status and trends. We will have confidence in a balanced and independent review of Federal programs. We will obtain the depth of study and analysis which long-range planning demands. We will strengthen rather than confuse the President's arrangements. And we will bring the intent of the Congress directly to bear on the activities of the executive branch.

The exhibits referred to follow:

EXHIBIT 1

A bill to establish a national policy for the environment and to establish a Citizens' Advisory Committee on Environmental Quality

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 "Environmental Quality and Productivity Act of 1969".

The purposes of this Act are: To declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Citizens' Advisory Committee on Environmental Quality.

TITLE I

DECLARATION OF NATIONAL ENVIRONMENTAL POLICY

SEC. 101. (a) The Congress, recognizing that man depends on his biological and physical surroundings for food, shelter, and other needs, and for cultural enrichment as well; and recognizing further the profound influences of population growth, high-density urbanization, industrial expansion, resource exploitation, and new and expanding technological advances on our physical and biological surroundings and on the quality of life available to the American people; hereby declares that it is the continuing policy and responsibility of the Federal Government to use all practical means, consistent with other essential considerations of national policy, to improve and coordinate Federal plans, functions, programs, and resources to the end that the Nation may—

(1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;

(2) assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings;

(3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;

(4) preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity and variety of individual choice;

(5) achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and

(6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

(b) The Congress recognizes that each person has a fundamental and inalienable right to a healthful environment and that each person has a responsibility to contribute to the preservation and enhancement of the environment.

SEC. 102. The Congress authorizes and directs that the policies, regulations, and public laws of the United States, to the fullest extent possible, be interpreted and administered in accordance with the policies set forth in this Act, and that all agencies of the Federal Government—

(a) utilize to the fullest extent possible a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decisionmaking which may have an impact on man's environment;

(b) identify and develop methods and procedures which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decisionmaking along with economic and technical considerations;

(c) include in every recommendation or report on proposals for legislation and other Federal actions significantly affecting the quality of the human environment, a finding by the responsible official that—

(i) the environmental impact of the proposed action has been studied and considered;

(ii) any adverse environmental effects which cannot be avoided by following reasonable alternatives are justified by other stated considerations of national policy;

(iii) local short-term uses of man's environment are consistent with maintaining and enhancing long term productivity; and that

(iv) any irreversible and irretrievable commitments of resources are warranted.

(d) study, develop, and describe appropriate alternatives to recommend courses of action in any proposal which involves unresolved conflicts concerning alternative uses of land, water, or air;

(e) recognize the worldwide and long-range character of environmental problems and lend appropriate support to initiatives, resolutions, and programs designed to maximize international cooperation in anticipating and preventing a decline in the quality of mankind's world environment; and

(f) review present statutory authority, administrative regulations, and current policies and procedures for conformity to the purposes and provisions of this Act and propose to the President and to the Congress such measures as may be necessary to make their authority consistent with this Act.

SEC. 103. The policies and goals set forth in this Act are supplementary to, but shall not be considered to repeal, the existing mandates and authorizations of Federal agencies.

TITLE II

CITIZENS' ADVISORY COMMITTEE ON ENVIRONMENTAL QUALITY

SEC. 201. (a) There is hereby established the Citizens' Advisory Committee on Environmental Quality (hereinafter referred to as the "Committee"). The Committee shall be composed of a Chairman, Vice Chairman, and not more than thirteen other members appointed by the President. Appointments to membership on the Committee shall be for staggered terms. The Vice Chairman shall perform the duties of the Chairman in his absence.

(b) Persons appointed as members of the Committee (1) shall be selected from among representatives of various State, interstate, and local government agencies and including, but not limited to, representatives of industry and commerce, public utilities, colleges and universities, land use planning, water resources management, conservation and beauty, recreation, and reclamation who have demonstrated competence, ability and foresight with regard to problems of the environment; (2) shall be selected solely on the basis of established records of distinguished service; and (3) shall be so selected as to provide representation of the views of all areas of the Nation.

(c) Members of the Committee shall receive no compensation from the United States by reason of their services, but shall be entitled to receive travel and expenses, including per diem in lieu of subsistence as authorized by law (5 U.S.C. 5701–5708) for persons in the Government service employed intermittently.

(d) The persons who on the date of the enactment of this Act are members of the Citizens' Advisory Committee on Environmental Quality established by part II of Executive Order 11472 of May 29, 1969, shall, until the expiration of their respective terms as such, and without further action by the President, be the initial members of the Committee established by this title. Upon the date of the enactment of this Act the Citizens' Advisory Committee on Environmental Quality established by part II of such Executive order shall cease to exist, and the Committee established by this title shall be its successor.

SEC. 202. (a) The function of the Committee shall be to study and anlyze environmental trends and the factors that affect these trends, relating each area of study and analysis to the conservation, social, economic, and health goals of this Nation. In carrying out this function, the Committee shall:

(1) report at least once each year to the President and to the Environmental Quality Council on the state and condition of the environment;

(2) provide advice, assistance, and staff support to the President on the formulation of national policies to foster and promote the improvement of environmental quality;

(3) obtain information using existing sources, to the greatest extent practicable, concerning the quality of the environment

and make such information available to the public; and

(4) perform such other activities or studies as the President may direct.

(b) The Committee shall periodically review and appraise Federal programs, projects, activities, and policies which affect the quality of the environment and make recommendations thereon to the President and to the Environmental Quality Council.

SEC. 203 (a) In order to promote efficient and coordinated Federal practices, the Committee is authorized to appoint special advisory commissions to render specific advice on agency operations, including those of wholly owned Government corporations.

(b) Members of the Commissions so appointed shall receive no compensation from the United States by reason of their services under this title but shall be entitled to receive travel and expenses, including per diem in lieu of subsistence, as authorized by law (5 U.S.C. 5701–5708) for persons in the Government service employed intermittently.

(c) It is the sense of Congress that agency heads, including the heads of wholly owned Government corporations, utilize the service and advice of the Committee insofar as practicable in planning and executing their respective programs.

(d) It is further the sense of Congress that any advisory group heretofore or hereafter created by regulation or law to advise any agency, including wholly owned Government corporations, on matters relating to the quality of the environment shall coordinate its activities with the Committee and shall keep the Committee fully and currently informed.

SEC. 204. The Committee shall render an annual report to the President for submission to the Congress on or before the 15th day of January of each year summarizing the activities of the Committee and making such recommendations as it may deem appropriate. Such report shall set forth (a) the status and condition of the major natural, manmade, or altered environmental classes of the Nation; and (b) current and foreseeable trends in quality, management, and utilization of such environments and the effects of those trends on the social, economic, and other requirements of the Nation.

SEC. 205. The Committee may employ a staff to be headed by a civilian executive secretary who shall be appointed by the President and shall receive compensation at a rate established by the President and not to exceed that of level II of the Federal Executive Salary Schedule. The executive secretary, subject to the direction of the Committee, is authorized to appoint and fix the compensation of such personnel, including not more than seven persons who may be appointed without regard to the provisions of title 5, United States Code, governing appointments in the competitive service and compensated at not to exceed the highest rate authorized for grade GS–18 by section 5332 of such title, as may be necessary.

SEC. 206. There are hereby authorized to be appropriated such sums as may be necessary to carry out the purposes of this title.

EXHIBIT 2

[Excerpts from report of the Subcommittee on Science, Research, and Development to the Committee on Science and Astronautics, House of Representatives, October 1966]

ENVIRONMENTAL POLLUTION—A CHALLENGE TO SCIENCE AND TECHNOLOGY

Environmental quality, pollution abatement, waste management—these are concepts closer to everyday life than some other highly technical programs such as military weapons or space projects. The intricacies of pollution are of keen interest (which leads to public awareness and consensus for action) because each one of us is immersed in the environment. We are the polluters and the polluted, and our own senses tell us that the surroundings are not right. There is no need for detailed instrumental measurement or for emotional appeals of naturalists, we freely admit that we have a problem. Further definition of the problem, however, becomes a very difficult project involving natural and social sciences, economics, and governmental and private institutions. Making appropriate choices as we proceed will depend on much more knowledge than we now have.

Since man is very much a part of the biosphere, the living environment, he has always been changing and using the natural resources for his own benefit. Mistakes have been made and consequencies have not always been foreseen, but civilization has advanced by taking risks which were largely overshadowed by obvious benefits. Furthermore, man is an adaptive creature, a product of evolutionary processes through which he could cope with these slow environmental changes.

* * * * *

Considering the powerful forces for ecological change which are at man's disposal, admitting the impossibility of complete foreknowledge of the consequences of many activities, and granting that a highly technical, over-populated world must continue to take risks with natural resources, an "early warning system" for unwanted consequences is extremely important. We do not have such a system at present.

* * * * *

Federal Government scientific activities are not yet channeled to support announced goals in pollution abatement. There is no organization or coordinating group capable of systems analysis and broad management of Federal projects. Insufficient funding has made support of research spotty and disproportionate among problem areas. Agency missions may inhibit long term and comprehensive ecological studies. "Pollution" can cover an enormous variety of Federal agency programs ranging from water resources research to agricultural engineering. Limitations of definition will be necessary for effective program coordination.

Technical manpower will be a limiting factor in abatement progress unless additional effort is organized into retraining, graduate education, and transfer of skills from other technology programs.

Ecology, as an organized profession, is not in good condition to become the umbrella for increased research. As a scientific discipline it is the logical focal point. As a point of view it is already effective in coordinating other sciences and this may be the most important function in the long run.

Complete solution of pollution problems may not be possible, but two trends are discernible. More recycling of materials is a way of managing and eliminating wastes as well as a sound conservation policy. The impact of recycling on the economy can be lessened by imaginative product and process design. The other trend is the controlled transport of unusable wastes to some sort of perpetual safe storage. The use of ocean depths, deep wells, salt domes, burial, and caves needs careful study to assure that there are no undesirable effects on the biosphere from such disposal.

To improve our knowledge of what we are about, scientific activity in ecology and related fields should be immediately expended to provide—

(*a*) Baseline measurements in plant and animal communities and the environment—an ecological survey.

(*b*) Continued monitoring of changes in the biosphere.

(*c*) Abilities to predict the consequences of man-made changes.

(*d*) Early detection of such consequences.

(*e*) Knowledge of the environmental determinants of disease.

Ecological surveys and research should be centralized as to management in some one science-based Federal agency. The scientific activity should be performed (whether in Government laboratories or under contract by local universities and research institutes) in geographical regions which correspond generally to natural environmental boundaries.

To place pollution abatement on a comparable basis with other national technology programs, systems analysis and management capability should be established within the Federal Government. This approach should be used along with the "planning, programming, budgeting" technique to organize both near and long-term Federal research and operational efforts in pollution abatement. More attention should be paid to interfaces between agency missions which make the management of environmental problems difficult.

* * * * *

The Federal Government should undertake an analysis to identify and separate those abatement action programs which are well supported by facts and for which practical answers are available, from those problem areas where more R. & D. is needed. A public information program should make these differences clear to the Nation so that installation, enforcement, and research can each proceed on a logical timetable. Actions to decrease pollution should continue even though the ultimate criteria cannot be set at this time.

The Congress should endeavor to review its broad authorizations and appropriations for water, reclamation, transportation, and conservation in the context of environmental quality goals. The diversity of executive agency missions places an added responsibility on the legislative branch to avoid conflicts in large-scale engineering projects.

The scientific and engineering community should respond to the challenge of the pollution problem as a major opportunity to serve a public need. Work in this field should be recognized as interesting, rewarding, and important. Proposals for organization, funding, and schedules which will assure the participation of excellent technical personnel in adequate numbers should be the joint responsibility of Government and private sector research and development leaders.

EXHIBIT 3

MANAGING THE ENVIRONMENT—EXCERPTS

(NOTE.—In 1968, the subcommittee held hearings on bills to establish various versions of environmental advisory councils. The testimony reviewed environmental quality in considerable detail and resulted in a report, "Managing the Environment." Its conclusions and recommendations include the following.)

The human race is, in fact, managing the environment today. The powerful forces of technology at our disposal give us capabilities to alter and control the populations of other species, and the natural resources of air, water, minerals and food supplies. The task of optimizing the use of the world to the benefit of man is inescapable. There is no retreat to a passive, noninterfering, Eden-like relationship with nature.

The population of human beings is already great enough to require a careful and methodical approach to the environment, if all are to achieve a reasonable standard of living. There is little doubt that population pressures will increase for many years to come. Thus, the environment, both natural and artificial, will be subjected to heavier usage in the future than in the past.

One lesson of this technological age is that machines must be kept in good condition if they are to deliver high performance. This appears to apply to the mechanisms operating in ecosystems, as living things interact with each other and their physical surroundings. From this viewpoint, the maintenance of a high environmental quality is rationalized on the simple

basis that it is the best way to run the world. Degradation of the environment increases overall costs and may eliminate desired options of management. A high quality environment is also the most efficient environment in serving man's needs.

The long-term support for civilization must be based on a farsighted management of a healthy productive worldwide environment. The two are incapable of separation.

It is difficult to evaluate changes or uses for immediate gain in terms of their eventual effect on the status of the environment. There are conflicts when environmental quality is managed by different policies originating in conservation, agriculture, esthetics, recreation, economic development, human health, and so forth.

An overall policy for the environment must be established which integrates these purposes and objectives and which provides for choice when they are incompatible. Within such a policy, for example, pollution abatement would be balanced against other national needs and other threats to environmental quality. Choices are not always quantitative and trade-offs are not systematic.

It is the mistakes in management, and not the concept of management, which should be our concern. Science and technology must be employed to reduce the number of mistakes in environmental management and to improve our ability to take the long view.

Increased knowledge and a national policy can result in individual (and, therefore, institutional) attitudes toward the environment which will support a restoration and maintenance of quality. This personal responsibility is the only means of achieving the indicated goals. The ultimate quality of the environment depends on the discipline of its human inhabitants.

The human environment is recognized as a whole (the "web of life"), but virtually all activities are directed at small parts. A lifetime spans many years but is lived a day at a time. These simplistic facts mean that a comprehensive policy toward the environment cannot help but be philosophical rather than specific. Regardless, such a policy does exist in the habits and attitudes of a nation. Presumably, these can be changed by discussion and education to become more mature. The quality of the environment is not a human health issue, per se. It is more a matter of the unacceptability, at face value, of offensive odors, discolored water, low visibility, eye irritation, littered landscapes, and nuisance soiling.

The recent history of Federal legislation and its administration illustrates the searching of society for a better balance between immediate exploitation of resources and a recognition of noneconomic, long-term values. The present laws relate pollution to the impairment of a desired use. The refinement of the relationship depends on scientific knowledge and technical economics.

The intent of Congress in these laws is to avoid arbitrary regulation and to establish a fact-based, rational decisionmaking process which integrates all the needs of society. The evidence to date is that the laws are floundering due to inadequate information, and misinterpretation of existing facts. The translation of information into action has not been smooth.

Both administrative and judicial bodies are being asked to act wtihout being able to document the basis for their decisions. Because the pace of technological change is rapid, and the pressures on natural resources from a rising standard of living and a growing population are great, actions cannot often be delayed. Some will be correct and others will turn out to be wrong. There is a difference betwen actions to correct clear and present dangers and those required for gradual eventual improvements which may take generations to accomplish. When the difference is not recognized, disappointing delays are likely to occur.

If errors in management are to be minimized, a greatly accelerated search for knowledge of the environment is necessary. Data must be organized and correctly interpreted. The physical, biological, and social sciences must be deployed to obtain this knowledge. A research strategy must be devised to get the relevant facts as soon as possible. An organizational structure of public and private institutions must use the facts efficiently and objectively.

The past several years have demonstrated this need but there is today no Federal Government plan to satisfy it. The short term, highly visible, demands on scientific resources are a barrier to formulating this strategy for ecological research and environmental engineering. But the leadership of the Nation, both public and private, must organize and carry out such a program. Otherwise, future subcommittees will again study the problem of environmental management and come to the same conclusion as does this one:

A well intentioned but poorly informed society is haphazardly deploying a powerful, accelerating technology in a complex and somewhat fragile environment. The consequences are only vaguely discernible.

III. RECOMMENDATIONS

A. National policy for environmental management

1. A national policy of the United States for the environment should be developed by Government and private sector interests. Worldwide effects should be considered during the planning of this policy.

2. Hazards to human health from environmental degradation cannot be the sole basis of policy (although research to elucidate these relationships should be accelerated). Legally useful cause-and-effect data may be so difficult to obtain that dependence on human health as the determinant of abatement action may delay management progress.

3. Elements of the policy should include:

a. Use of the environment for the benefit of all mankind;

b. Maximized productivity of the environment consistent with continued usage into the very long-term future;

c. Systematic management of applied science and technology to achieve best usage;

d. Incentives to industry, land developers and local governments;

e. International agreement on projects which have widespread or long-term effects;

f. Anticipatory assessment of new and extended applications of science;

g. Avoidance of speculative statements and emotional appeals in public relations;

h. An increased education and information program for the public in ecological principles.

4. The policy should be expressed in legislation after due deliberation by both Houses of the Congress. Informal joint House-Senate study groups should be convened from time to time to coordinate national policy in operational programs.

B. Science and technology related to the environment

1. The Office of Science and Technology should coordinate allocations and priorities in Federal agency R. & D. funding so that a greatly expanded knowledge of the environment is secured. The activities of the Committee on Environmental Quality should be conducted in a more open manner and be summarized in a promptly issued annual report to the Congress.

2. Baseline ecological information should be obtained by adequate funding and organization of the international biological program and the environmental sciences and biology program of the National Science Foundation.

3. Social science information to reduce the need for subjective choice among environmental values should be developed rapidly under the leadership of the National Science Foundation.

C. Organization for environmental engineering management

1. The Department of the Interior should be designated as the lead agency in coordinating environmental engineering operations of all Federal programs.

2. The hearings record suggests that the major environmental engineering operations of all Federal agencies should be placed together in the Department of the Interior. For example, the domestic environment related activities of the Corps of Engineers should be transferred from the Department of Defense. The nonhealth programs of the National Center for Air Pollution Control and the Solid Waste Division within the Department of Health, Education, and Welfare should be separated and transferred to the Department of the Interior.

It is recommended that the appropriate committees of the Congress (including the Subcommittee on Executive and Legislative Reorganization of the House Committee on Government Operations and the Subcommittee on Executive Reorganization of the Senate Committee on Government Operations) should immediately undertake the study which will be necessary to implement this suggestion in its organizational detail. The Executive Office of the President should consider initiating reorganization plans which may be necessary.

3. Human health criteria for environmental contamination (including air and water) should continue to be constructed and published under the direction of the DHEW, but with the full participation of all interests in an open manner characterized by the scientific method.

4. In each agency with substantial programs related to the environment, a high level official should be designated to supervise and correlate such activities.

5. An "Environmental Cabinet" should be formed of the designated officials from each agency plus the Chairman of the FCST Committee on Environmental Quality. This group, under the leadership of the Secretary of the Department of the Interior, should assure conformity of Federal operations with the national policy for the environment. If this mechanism does not achieve coordination, then a legislatively created special council should receive further consideration.

6. The Congress should proceed to develop an independent capability for assessing the impact of technology on the environment.

EXHIBIT 4

JOINT HOUSE-SENATE COLLOQUIUM ON A NATIONAL POLICY FOR THE ENVIRONMENT

Last summer, a joint House-Senate colloquium was held on a National Policy for the Environment. A Congressional White Paper was written on the basis of these discussions and issued over the signatures of seven Representatives and Senators from both political parties. The elements of policy were stated in these words:

"It is the policy of the United States that:

"Environmental quality and productivity shall be considered in a worldwide context, extending in time from the present to the long-term future.

"Purposeful, intelligent management to recognize and accommodate the conflicting uses of the environment shall be a national responsibility.

"Information required for systematic management shall be provided in a complete and timely manner.

"Education shall develop a basis of individual citizen understanding and appreciation of environmental relationships and participation in decisionmaking on these issues.

"Science and technology shall provide management with increased options and capabilities for enhanced productivity and constructive use of the environment."

Mr. Speaker, last November, the white paper referred to was sent to the Executive Office of the President for comment. A group of agency environmental experts was convened by the Federal Committee for Science and Technology in its Committee on Environmental Quality. In April 1969, they responded with an endorsement of the congressional views and some valuable additional policy elements. This correspondence was published in the CONGRESSIONAL RECORD on May 20, 1969—page 13148—for the benefit of the many Members and committees who were drafting legislation in this area.

PERSONAL EXPLANATION

(Mr. LOWENSTEIN asked and was given permission to address the House for 1 minute.)

Mr. LOWENSTEIN. Mr. Speaker, I am recorded as voting "yea" on rollcall No. 102, H.R. 11400, the conference report on the second supplemental appropriation bill. Title I of that bill contained additional funds for our military effort in Vietnam, and I had joined Congressman RYAN in moving to strike it when it came before the House on May 21. As I suspect everyone in the House knows by now, I am opposed to further military appropriations for Vietnam. At this point, I am not going to explain again why I oppose such appropriations. I have discussed that here several times, including once on July 9 in connection with the vote on the supplementary appropriations.

But I do want to be sure that the record is clear: that I am recorded as voting "yea" on rollcall No. 102 only because I had been misadvised about the parliamentary situation. I had been told that a "yea" vote would be consistent with moving again to delete title I; would in fact be the proper procedure if one approved of other items provided for by the supplemental appropriation. The distinguished majority leader, Mr. ALBERT, who was in the chair at the time recalled that when I explained my purpose to him, he informed me that my understanding of the parliamentary situation was incorrect. Since it was then too late to change my vote, he suggested that the best way to avoid confusion about my position would be to put an explanation in the permanent RECORD of the circumstances attending the vote on rollcall No. 102.

I realize this whole matter is of small moment since the vote in favor of H.R. 11400 was so overwhelming, but I do want the record to be clear that I was as opposed to the second supplemental appropriations bill when it came back from conference as I was when I voted against it on May 21 after we lost the motion to strike title I.

As I remarked on July 9, I cannot believe that it is healthy parliamentary practice, let alone in the best interests of representative government, to deny Members the opportunity to vote separately on matters that are separate or to deprive voters of a way to know how their representatives voted on matters of great moment. But the procedures being what they are, I want to take this occasion to announce again that I am utterly opposed to all further military funding for Vietnam while our present policies there continue.

AIR SAFETY

(Mr. HARVEY asked and was given permission to extend his remarks at this point in the RECORD and to include extraneous matter.)

Mr. HARVEY. Mr. Speaker, it is my privilege as chairman of an informal study group, formed over a year ago, to announce completion of an extensive research project into the problems and needs of air safety. Our study does not contain all the answers to the multitude of growing problems confronting air transportation. It does not include all the problems or all the solutions. But the sponsors of this study group paper, along with 25 other Members of Congress who have become associated with this project, believe the document contains recommendations and suggestions worthy of consideration by this Congress and the administration.

At this time, I would like to cite three other Members who joined with me as sponsors of this study group. They include FRANK HORTON, of New York, ROBERT T. STAFFORD, of Vermont, and J. WILLIAM STANTON, of Ohio.

The following Members of Congress have joined the study group in calling attention to our air safety needs by means of this study. They include:

JOHN B. ANDERSON, of Illinois;
MARK ANDREWS, of North Dakota;
ALPHONZO BELL, of California;
WILLIAM E. BROCK, of Tennessee;
GEORGE BUSH, of Texas;
SILVIO O. CONTE, of Massachusetts;
JOHN DELLENBACK, of Oregon;
MARVIN L. ESCH, of Michigan;
PAUL FINDLEY, of Illinois;
PETER H. B. FRELINGHUYSEN, of New Jersey;
PAUL N. MCCLOSKEY, JR., of California;
JOSEPH M. MCDADE, of Pennsylvania;
WILLIAM S. MAILLIARD, of California;
CHESTER L. MIZE, of Kansas;
F. BRADFORD MORSE, of Massachusetts;
CHARLES A. MOSHER, of Ohio;
HOWARD W. POLLOCK, of Alaska;
ALBERT H. QUIE, of Minnesota;
OGDEN R. REID, of New York;
HOWARD W. ROBISON, of New York;
PHILIP E. RUPPE, of Michigan;
FRED SCHWENGEL, of Iowa;
GARNER E. SHRIVER, of Kansas;
ROBERT TAFT, JR., of Ohio; and
CHARLES W. WHALEN, JR., of Ohio.

A new statement, now being released with the study, highlights the report. I am enclosing it at this time to be followed by "A Study of Air Safety":

REPUBLICAN CONGRESSMEN PROPOSE AIR SAFETY MEASURES

After a year of extensive research into the problems and needs of air safety, four Republican Congressmen today urged that the Federal government take positive steps to ensure safe air travel.

Their recommendations are contained in a study group paper prepared by James Harvey (Mich.), the group's chairman; Frank Horton (N.Y.); Robert Stafford (Vermont); and William Stanton (Ohio). Twenty-five other Republican Congressmen joined the group in calling attention to our air safety needs by means of this study. They are concerned about our safety preparations for 1980 when four times as many Americans will be flying as in 1965.

The group emphasized that it was not in disagreement or in competition with the air transportation message presented by President Nixon on June 16th. They considered their study as complementing the Administration's proposals, some of which are nearly identical.

The authors assert that it is inadequate to concentrate our safety efforts on the airworthiness and crashworthiness of the aircraft itself when the causes of air accidents are increasingly found in the approach and landing phase, in unknown and hazardous weather and environmental conditions, and in the interaction of human factors with the system. They say that air safety efforts must focus on the interaction of all elements of air travel.

They point out that the systems management approach has not been used to control air traffic, that nearly half of the airports served by scheduled airlines are underequipped, and that the plans for the development of new airports are still inadequately conceived.

The Congressmen recommend that the Federal government "prescribe a comprehensive air traffic system" and use a systems management approach to coordinate all its aspects. The FAA must give top priority to planning and Congress should provide the funds to develop the air traffic management that is necessary for us to be the masters rather than the victims of our technology.

One of the many recommendations is that the FAA receive funds to train and hire more air controllers. The pay, rest periods and vacations of air controllers must be increased and their administrative duties lightened to increase their effectiveness.

Also recommended are an Airport Trust Fund to help finance the development and operation of safe airports and the requirement of location signal devices to expedite the finding of missing planes.

A STUDY OF AIR SAFETY

INTRODUCTION

Our purpose is to define a new context within which to view the technological wonder of American air travel and to ask whether we are being swept along by the momentum of technology without adequate concern for the consequences of our acts—whether we have become the slave rather than the master of the revolution of technology.

This study has not been primarily concerned with passenger facilities on the ground, or in the air, or with hi-jackings, or airport delays, or scheduling foul-ups, or reservation mistakes, or noise levels in the suburbs. This study is not focused on the convenience of air travel, but on its safety. Implicit in our findings is the conclusion that too often the passengers, industry and government have sacrificed safety to convenience.

While the technical nature and vocabulary of today's aeronautical science defy in-depth understanding by the layman of all aspects of the air safety problem, we have tried to explore each aspect with the goal of establishing general familarity with the subject matter.

This basic paper can serve both as an introduction to more complete discussions in the appendices—and as a summary of our findings and conclusions. It contains a series of facts and impressions which we strongly recommend to the attention of the Congress, the Administration and the American people.

The history of aviation accidents indicates that flying has been relatively safe in comparison to other modes of travel, but that the safety factor is not increasing. Rather,

because of the increased volume of air traffic, the increased number of passengers which an aircraft can carry, and the increasing complexity of mechanisms for general aviation, the air accident fatalities will probably increase in the future.

Heretofore, aviation safety has been thought of entirely in terms of airworthiness and crashworthiness of the aircraft. But increasingly we find that the causal factor is rarely the aircraft. Accidents occur with increasing frequency in the approach and landing phase, in unknown and hazardous weather and environmental conditions, and because of the interaction of the human factor with the system.

The greatest single failure of the Federal effort in the development of civil aviation has been the failure of the FAA to conceive a program of planning and research and development aimed specifically at the development of the civil transport system's facilities. To date, the technologies which have supported air system activities have been largely derived from military research and development. They found their way into the total air transportation system at random. This course will no longer be adequate to follow, because military and civil aeronautical development is becoming more divergent.

The Federal government did not hesitate to come to the aid of the automobile when numbers surpassed the system's ability to accommodate them.

Likewise, the Federal government must now take a strong leadership position in formulating the research and development plans for the air system and must bear the financial burden to the point where the private sector can see the opportunity for profit. The government's role in the development of the SST is an example, but it is time that attention be focused less on the aircraft and more on the development of the system which accommodates it. It is vital, also, that the goals we seek improve the productivity and safety of the total transportation system.

The most critical parts of the civil aviation system which will bear directly on the potential for safe operations in the future are (1) air traffic control systems, (2) airport and facilities development, (3) noise and air pollution abatement, (4) human factors and their interaction with environment and equipment, (5) the relationship of the aviation system to the total transportation system and (6) the Federal effort to take a leadership position in directing the safe civil aviation effort.

SITUATIONS AND TENDENCIES

In the next pages we will do two things. First, we will comment on some of the situations and tendencies which trouble us. Thereafter, we will present our recommendations. The appendices provide supporting materials and cover the field in a more comprehensive manner.

Item: Between 1965 and 1980 the number of passengers carried by U.S. commercial airlines will have expanded four fold, while the total number of aircraft operations at FAA tower airports will have increased at an even greater rate (from 35.6 million to 184.6 million). (See Append.).

And yet, there is not now, nor is there contemplated, any comprehensive effort to apply the systems management approach to the control of air traffic. The government, the manufacturers, the airlines, and the pilots' associations are all concerned—over weather and airport standards and airport traffic control and aircraft construction and pilot training. Some progress in air safety can be cited in each area, but the growth of air traffic seems to overwhelm the planners—and we are losing ground.

The need, and it is desperate, is to create an air travel management system which integrates all aspects of the problem, and measures each proposed change against the capacity of the system to absorb it.

Item: Air traffic at some of our most important airports today has increased at a rate greater than the present or programmed traffic contol system can handle. This has already necessitated restricting flights at Washington's National Airport, Chicago's O'Hare and three New York area airports—Kennedy, LaGuardia and Newark.

Instrument operations increased by 5% between fiscal year 1965 and 1966 and forecasts indicate that this trend is not likely to diminish.

Instrument landing systems are still absent at more than 300 commercial airports today, out of 560 which service scheduled airlines. (See chart 19B, append.)

And yet, while many new instrument landing systems (ILS) are proposed for the next decade, a large number of these systems is proposed for big, multi-runway airports which already have ILS. There is growing evidence that such improved facilities simply concentrate traffic at a few airports and do nothing to relieve the growing tangle of air traffic jams elsewhere. Nearly half of the 560 airports served by scheduled airlines fall in the underequipped category. Congestion at major airports might be relieved if sufficient funds were given to these smaller underequipped airports, thus making them capable of handling more traffic. This aid might also reduce the growing number of air tragedies occurring at smaller airfields, for example, those which occurred on December 24, 1968, and January 6, 1969, at Bradford, Pennsylvania.

Item: The nation's airport and support facilities are in dire need of planning. By 1979, 85% of the air carrier fleet will be jets, but only 483 of today's 709 air carrier airports can handle jets, and only 500 will be able to handle jets in 1975. The amount of cargo handling and the number of passengers will triple in the next decade, far outstripping the airports' ability to handle all the traffic. (See Append.)

And yet, there is every indication that the National Airport plans of the past, whose funds have been allocated largely to a few airports, have, in fact, created congestion at many airports by luring traffic in search of good facilities. The next National Airport Plan, 1969–1972, is pursuing a similar course. The most crucial aspect—the development of a long-range national and international plan for the placing of airports—is still inadequately conceived and aimed at developing a system in a few urban areas only. There is insufficient attention to the following problems: air cargo, the linkage of remote population areas with urban centers, short-haul and long-haul operations, general aviation and commercial aviation interests, the connection between terminal and ground transportation, land acquisition and adequate funding, and the potential for improved runway utilization, configurations, and taxiway systems. The future of safe civil aviation operations hinges on this planned development.

Item: The nation's airports and support facilities are in dire need of financing. Federal estimates now call for a $6 billion investment by local, state and Federal governments over the next eight years—more than has been expended in total during this century for the National Airport System. The Federal Share of this development alone would amount to $1.53 billion for fiscal years 1967 through 1973. (See Append.)

And yet, the $6 billion is an underestimation of what is needed in the next decade. Excluded from this figure are major areas such as air traffic control systems, the state and local share for runway development, passenger handling, and the money the airlines themselves will spend. Add to this the fact that two-thirds of the airports are privately owned, and it is readily seen that much new money (beyond the Federal share of $1.53 billion) must be raised to meet the needs of the entire airway system. It is encouraging that President Nixon has suggested new methods for raising additional funds.

Item: Noise and air pollution directly caused by aircraft will almost certainly increase dramatically due to the increasing frequency of operations and the growing proximity of aircraft movement. Present noise abatement techniques such as slow climbs, sharp turns, steep descents, and noise levels, are a hazard, are expensive to monitor, and concentrate traffic. Air pollution abatement techniques have had little effect in increasing visibility.

And yet, the Federal government continues to consider its present air traffic control techniques to be a safe and effective noise and air pollution abatement program despite the fact that there is evidence to the contrary. It continues to rely on the good will of aircraft companies to develop quieter exhaust-free engines and on local communities to establish compatible land-use practices and building codes. Clearly the Federal government must appropriate more money for elementary research in noise and air pollution abatement far beyond what it is affording in the SST project, and it must control either by persuasion or mandate the land-use practices and building codes at the local level.

Item: After the introduction of the Boeing 727, a series of fatal crashes occurred within a 3 month period. Preliminary reports cite "pilot error" as the cause.

And yet, there is a recurring awareness that accidents should not always be blamed solely on aircraft failure or solely on "human error". Inadequate attention is being paid to how the human element reacts to the machine and to the environment. In the example cited above, further investigation by the FAA indicated that the pilots involved had not fully realized the high sink rate characteristic of the 727. Rather than being a "human error", it was simply a lack of adjustment between man and machine. This relationship is known as the "interface problem".

Item: The relationships of the aviation complex to the total transportation system and the environment in general have not been identified, analyzed, and ranked in a systems approach frame of reference. The benefits of faster and larger aircraft cannot be fully utilized if there are excessive delays to and from the airport.

And yet, the Federal government has failed to adequately coordinate industries' effort to develop faster, higher capacity aircraft with its own efforts in the related fields of mass transit, construction of airport facilities, and other related areas. To encourage the development of these large aircraft on the one hand, and neglect the development of related facilities on the other hand, seems to contradict the aim of the national transportation system.

More is involved than increased convenience for those seeking access to airports; alternative modes of transportation could be made more attractive so that the acceleration of pressure on our air system—and thereby on air safety—could be reduced.

Item: Implementation of most changes needed can be made within the present governmental structure and framework if the public would but recognize the need for this advance planning. The Federal Aviation Act, the Federal Airport Act, the National Aeronautics and Space Act, and the Department of Transportation Act have provided the necessary legislation and Congress has provided the necessary committees.

And yet, past administrations haven't given sufficient priority to the airway problem. There was inadequate coordination of federal, state and local government effort. We have needed stronger leadership to assure

adequate appropriation and sufficient programs to meet future needs.

Item: Aircraft operations at FAA tower airports manned by FAA personnel will have expanded over 400% between 1965 and 1980. (See Append.)

And yet, while experts agree that it is difficult for a traffic controller to handle more than seven planes at a single time, there is such a shortage of personnel today at some of the busiest airports that traffic controllers have been known to be responsible for between thirty and forty planes at one time.

Item: Today's total U.S. civil fleet consists of 128,500 planes, 98% of which are used in "general aviation," as contrasted with the airlines' carrier operations. In turn 20–25% of general aviation consists of personal pleasure flying—and the amount of personal pleasure flying is expected to double in the next ten years. (P. 3—Nat. Airport Plan—1968).

And yet, the licensing system for general aviation pilots surely will become inadequate to maximize safety in the future. Growing congestion increases the complexities which every pilot must be able to handle.

Item: In 1970, the first of the jumbo jet carriers, the Boeing 747, will be in operation. Within the next decade, other new aircraft, among them the Lockheed L–500, and the SST, will also become a reality. There is growing concern about handling their 400–700 passengers on the ground.

And yet, while this is a meritorious concern, we should be even more concerned about greater safety in the air, where one accident can be fatal to such large numbers of people.

Item: In considering the magnitude of the air safety problem, it is important to know not only of the crashes but of the near-misses ("incidents") as well.

And yet, information on near-misses has been woefully incomplete. Until 1968, many incidents were not reported by pilots because of the fear of punitive action which might be taken against them. In order to get accurate information, pilots reporting near-misses are now (as of January 1, 1968) granted immunity from punitive action in relation to them. By mid-March 1968, the pilots with their new immunity had reported as many near-misses as had been reported in all of 1967. For all of 1968, they submitted to the FAA more than 2,200 reports of near-misses. Presumably a great number of near-misses still goes unreported because pilots prefer not to have it on their record or to get involved. Experts estimate a total of 20–25 near-misses a week in the Boston–New York–Washington air corridor. (See append.)

Item: It is generally estimated that air crash fatalities could be cut in half if post-crash fires could be eliminated. In other words, 50% of air crash fatalities occur in the crash itself while the other 50% stem from burns or suffocation in fires which break out upon impact.

And yet, no major push for fire prevention or control is evident on the part of private enterprise or government. Not a single major civilian airport is equipped with the helicopter firefighting apparatus which is considered standard at military air fields for rapid access to crashes which occur on approach, landing or take-off. Many airports do not maintain any type of firefighting equipment and there is no requirement that they must. Gelled fuels and aircraft fuel systems designed to alleviate the instances of post-crash fire, have received some, but no major attention.

Item: In the last five years more than sixty planes have disappeared in the continental United States and Alaska. Presumably they crashed, but the wreckage has never been found. Obviously the chance of surviving a crash is partly a function of getting help to the scene quickly. The Federal government spends almost $60,000,000 a year in Search and Rescue operations.

And yet, there is no requirement that aircraft carry a location signal device, even though such devices are available and are quite inexpensive. Much money could be saved by making it easier to locate crashes.

Item: At the peak air traffic hour in New York, 6 p.m., there are over 35 airline carriers in the immediate landing pattern at JFK airport, over 25 at LaGuardia, and over 25 at Newark; at the same time there are over 80 carrier aircraft on the ground awaiting take-off at the three airports. There are literally dozens of aircraft at these three airports scheduled to take-off at precisely the same minute.

And yet, the government makes no effort to use its authority to adjust the scheduling of airlines to avoid the inevitable hazards of this kind of scheduled congestion. The strain on traffic controllers, by this kind of congestion, when added to the predictable hazards of weather conditions, human error, and mechanical failure means that this acquiescence in jammed scheduling is tantamount to courting disaster. Voluntary efforts at cooperative scheduling among the airlines have produced unsatisfactory progress.

Item: In addition to the commercial airlines under control of the traffic control towers in the New York area at the peak hour of 6 p.m., there are also likely to be at the same time on any given day between 200 and 300 general aviation aircraft in the same air space—operating under visual (VFR) rather than the system's instrument (IFR) flight rules.

And yet, the government has not as yet established adequate regulations with regard to the type of aircraft, aircraft instrument equipment and pilot instrument ability necessary for flying in areas of high air traffic density. Only recently has it barred VFR traffic from certain high density air traffic areas. The role of federal jurisdiction in imposing and enforcing comprehensive safety standards at hub airports—or any airports—is unclear, with resulting disparity among the various airports across the nation.

Item: The FAA has been curiously cautious and reluctant in utilizing its authority to issue safety regulations without assurance that its fears were actually justified. Too often, this means that safety precautions are issued only after accidents prove the wisdom of them—and justify them to potential critics.

And yet, on the other hand, crash investigation reports by the National Transportation Safety Board takes an inexplicably long time to produce—sometimes as long as two full years after the accident occurs. In the meantime, the conditions which contributed to the crash are likely to be reproduced because of the absence of regulations—and upon occasion the slow report is largely irrevelant when it is finally filed because the systems involved have been replaced by technological innovations.

The delay of the NTSB investigation reports is a possible obstacle to the cause of air safety. The recent issuing of interim reports is helpful, but the NTSB ought to be able to reach a conclusion in less than the two years it occasionally takes. Hopefully, a better system of investigating and reporting will be found to hasten the report of the accident while maintaining accuracy.

Item: Most air carrier crashes occur near airports in the take-off or approach and landing process. Thus, particularly as instrument flight rules govern an increasing proportion of these operations, the FAA air traffic control towers and personnel become absolutely critical factors in air safety.

And yet, the government, through the National Transportation Safety Board, is charged with the responsibility of investigating all crashes, and, therefore of passing judgment on the performance of its own personnel, procedures, equipment and regulations. Not the least factor to be considered is that the findings of the government's agency, the NTSB, are likely to be the principal basis for claims against the government. It is a fact that in only two instances have FAA tower operations or personnel ever been cited as even contributing factors in official accident reports. The tendency toward apologia or worse is too great a risk when men are asked to investigate the performance of those who are close to them. The suggestion that the investigative function be contracted to private enterprise has yet to be considered seriously as an alternative. In this case, the NTSB would still retain the authority of reviewing the findings and recommending action to be taken by the FAA.

Item: The only source of comprehensive statistical information on air traffic and air safety is the FAA.

And yet, the FAA has seemed often to interpret its role in this area as the responsibility to join with the airlines industry to assure the public that air travel is impressively safe. Thus, FAA statistics have been based on measures which tend to paint a more serene picture than really exists. Only recently has the FAA begun to measure safety in terms of fatalities rather than in terms of accidents. Comparing the number of fatalities to the number of total passenger miles in effect is misleading when each year bigger planes are carrying more passengers longer distances. And trying to compare air safety with highway safety is irrelevant in the extreme, given the price of any single air crash and the total absence of control an air passenger has over his own fate.

Item: A continuing and major government research and development program in the techniques of all air safety is an obvious requirement of the rapid growth of American air traffic.

And yet, neither the FAA nor the Department of Transportation conducts or controls a major "R and D" program of its own in this area. They make recommendations on aeronautical research needs to NASA, some of which are pursued and some are not. They benefit from, but do not exercise a controlling interest in, the research programs of both NASA and the Department of Defense. The past R and D priorities of the government in air safety appear best illustrated by a heavy pre-occupation with developing safety programs for the SST, which is scheduled for operations in 1980. More government money and effort are concentrated on that effort than on all other aspects of air safety combined. (See append.)

RECOMMENDATIONS

The comprehensive list of recommendations which follow is based on the detailed studies present in the technical appendices attached. Although we would like to see change in all the areas we mention, we believe that top priority must be given to improving air traffic control systems, developing airports and facilities and abating noise and air pollution. If we do not see immediate, massive and drastic change in these three areas, we will be in danger of being completely overwhelmed by the civil aviation complex we have created. The recommendations appear under several sub-headings.

AIR TRAFFIC CONTROL SYSTEMS

1. The first object of government in air travel must be to guard the public's welfare. The Federal government should prescribe a comprehensive air traffic system which is safe. Only the Federal government can implement or permit such changes which are consistent with a safe system and reject or prohibit those which are not. Through systems management it must coordinate all aspects of an integrated air traffic system—personnel training, airport standards, air-

craft production, airlines scheduling, pilot certification, weather observation, traffic control. The government must be able to supervise; the capacity to cope is not good enough.

2. The proposed plans for the development of the National Airspace System must be reassessed and a specific research project undertaken which will forecast needs and develop hardware for the improvement of the air traffic control system. In this project attention should be given to such things as enroute navigation systems, all-weather landing system, airborne collision avoidance systems, automatic weather communications system, nationwide traffic patterning systems and all other relevant aspects of the air traffic control complex. Particular attention must be given to the establishment of priorities so that a just, orderly, and efficient pattern of improvement will occur. Placing all new and advanced air traffic control equipment in certain areas of high density traffic is an inadequate answer to our present problem.

3. In accordance with its new emphasis on development of a long-range, comprehensive and safe systems management approach to air traffic control, the FAA should involve a greater proportion of its personnel in planning, which should receive top priority. It should recruit staff with planning skills. Day-by-day operations of the air traffic system can hardly be ignored, but when planning for a safe future is given less than top priority, as is the case today, the FAA is not fully doing its job.

4. Congress should appropriate the funds necessary for safe systems management over air traffic. Doing so will be necessary if we are to be the masters rather than the victims of our technology. In the past the FAA has lacked an adequate system and the Budget Bureau has cut those funds it did seek; furthermore, the FAA appears to have defined its needs in accordance with what it thought it could get from the Congress. What the FAA has been spending on airports and all other programs is infinitesimal compared to the budget of the Bureau of Public Roads. The old $1.5 billion FAA estimate for pre-1975 federal expenditures on the National Airport Plan, for example, was so obviously inadequate that it casts doubt upon the whole plan. We applaud the present administration's foresight in seeking the need for additional funds for the National Airport Plan and believe it to be a step in the right direction.

5. Congress should appropriate funds sufficient to train and hire enough traffic controllers to permit safe operations at all air traffic control centers. At the same time the FAA should make extensive efforts to reduce the strain on traffic controllers through a cutback in their administrative duties, more equitable holiday assignments, guaranteed annual two-week leaves with pay, earlier retirement provisions, and liberalized regulations regarding controller workload.

6. In developing a comprehensive and safe systems management approach to air traffic control, the FAA should reverse the disastrous trend of concentrating jet operations and passenger operations (and corresponding feeder line operations) into relatively few major hub airports. This trend amounts to a courtship of convenience pointing toward a marriage which cannot work. It is the major weakness of the National Airport Plan 1969–1972.

7. In order to reduce traffic congestion at peak hours, the FAA should implement to the fullest its authority to veto any airlines flight schedules it feels to be inconsistent with safe operations.

8. On the basis of extensive research, the FAA should issue new regulations governing the use of carrier pilots and crew on long-distance flights, which can seriously impair efficiency through fatigue and disruption of the standard 24-hour physiological cycle. Such regulations might also cover crew facilities for relaxation and reorganization of cockpit procedures and team functions to reduce procedural errors through fatigue.

9. As a priority matter, provisions must be established for periodic retesting for all general aviation pilots—both in terms of their knowledge of developments related to their flying and their continued capacity.

10. The FAA must devise a more satisfactory means of assuring full knowledge of near-collision incidents. The current system of pilot immunity upon reporting near-misses has increased reports, but probably not to a satisfactory point. It might be more appropriate to suggest that when a pilot participates in a near-miss, but does not report it, the incident should be investigated and appropriate action should be considered.

11. The FAA should require installation of a locating device in every aircraft flying in certain defined high hazard areas to aid search parties to find it in case of accident.

DEVELOPING AIRPORTS AND FACILITIES

1. An airport trust fund, similar in nature and operation to the successful highway trust fund, should be established to help finance the development and operation of safe public airports. A variety of potential sources of trust revenue should be considered including a minimal passenger tax (perhaps distinguishing between domestic and international travel), a non-refundable fuel tax on all aviation fuel users (commercial as well as private), and/or an annual aircraft license fee for all civil aviation based on the value of the aircraft.

2. The proposed National Airport Plan must be reassessed and a specific research project awarded which will find answers to the following problems: land acquisition, funding, linkage of remote and urban areas, short-haul and long-haul operations, general aviation and commercial aviation interests, procedures for cargo handling, airport placement, runway configuration and utilization, and airport design and facilities.

3. The FAA should encourage the development of and make use of state departments of aviation in order to attempt to resolve predictably difficult questions of conflicting local jurisdictions before resorting to the imposition of Federal authority. The state departments of aviation should also be encouraged to promote the orderly development of land acquisitions for future airports, as well as to identify and define air traffic control systems which will ensure the safe operations of general aviation and air carrier operations alike.

4. The Civil Aeronautics Act should be amended to require that certification shall be issued for the operation of airports used in interstate commerce. Such certification should define the standards for safe operation, proper maintenance, and safety equipment (e.g. firefighting equipment). Airport certification should also be tied to the kind of aircraft which can operate at the airport, or the manner in which aircraft may operate at the airport.

5. Because 50% of all air crash fatalities stem not from the crash itself but from the resulting fire, federal airport certification as recommended above should include requirements for minimal firefighting apparatus capable of rapid access to any plane which might crash upon take-off, landing or approach. Similar emphasis in FAA-sponsored research should be given efforts to developing aircraft fuel systems or fuels which are fire, smoke and toxic gas preventive.

6. The Federal government must pursue the development of civil aviation within the context of total transportation systems development. Otherwise, the benefits of high speed travel will be in danger of being completely negated by the growing speed differentials between ground and air travel. Of crucial importance at this time is the development of hardware and the concentration on applications research rather than basic research in order to make door-to-door travel a reality.

NOISE AND AIR POLLUTION ABATEMENT

1. A concentrated effort must be made in research and development to attain the most basic understanding of air and noise pollution phenomena. If the most effective and economical method of abatement seems to be the development of noiseless and pollution-free aircraft engines, that must be pursued. If the answer appears to be in the control of land-use and environmental factors like sound-proofing, that must be pursued. In the meantime, all noise abatement regulations now in effect should be carefully reviewed, particularly in order to eliminate any regulations which impose risks to safety.

OTHER RECOMMENDATIONS

Weather

1. U.S. support for current but long-standing Geneva negotiations on the establishment of a global weather observation system should be underscored—and the U.S. negotiating team should transmit to its colleagues the sense of urgency with which the American government views their deliberations.

Research

1. The FAA should conduct its own aeronautical research and development program; relying on the good sense and will of NASA and the Department of Defense is simply insufficient. Spinoffs from the research of others can be valuable, but FAA should not be at the mercy of anybody else's definition of need or decision on timing.

2. A specific research project should be undertaken to study how the human element reacts with other components of the aviation system to effect a safer operating system. Attention should be given to such aspects of the problem as: air traffic controller stress, pilot fatigue, private sector pilot performance, the understanding of weather phenomena, the collection and dissemination of weather information, environmental hazards, cockpit configuration (e.g. altimeter placement) and aircraft evacuation procedures.

Reorganization

1. The FAA, through the Department of Transportation, should be represented on the Aeronautics and Astronautics Coordinating Board, so that it can have maximum influence on the R and D directions which other agencies pursue and receive maximum information on related research projects.

2. On the other hand, the functions of the National Transportation Safety Board, at least as they relate to air travel, should be performed by an agency or bureau totally separated from the FAA. There should be careful examination of the adequacy of the present statutory separation. It may be appropriate to establish an adequately-funded independent board which would report directly to the Congress.

3. The Civil Aeronautics Board should be abolished and its only remaining function (regulation of fares and awarding of routes) transferred to the FAA. Its present separation from the FAA serves no rational purpose and flows only from now obsolete legislative history.

SUMMARY PERSPECTIVE

The airplane has surely changed our lives. It has quickened the pace of society and business. It has made us an even more mobile society. It has brought opportunities and nations and recreation and loved ones closer.

But the nagging questions remain. We have allowed numbers of aircraft to increase

without providing a system adequate to regulate their safe movement. We have tended to interpret safety only in terms of aircraft capability rather than considering the interface of these elements with others in the aeronautical system.

Most of all, we have failed to face the fact that civil aviation has reached a point where we must make a massive financial and intellectual effort in the public sector of the aviation complex—airports, air traffic control systems, air and noise pollution, and human and transportation interface problems if safe air travel is to continue. Public concern must force the government to take the leadership position necessary—and we must pay.

APPENDICES

INTRODUCTION TO APPENDICES

Each appendix to this report covers an aspect of air safety. Each of the aspects covered is important. This organization of the study has been followed to facilitate both the layman's understanding of it and the expert's reference to it.

Nonetheless, the treatment of the subject matter in distinct appendices, no matter how necessary for our purposes, is artificial—and if not recognized as artificial can compound a fundamental error which many concerned with air safety have been making for too long.

Each component part of the problem can be discussed separately, but does not exist in a vacuum. The safe management of air traffic will not result from an effort to solve each individual problem, but from a comprehensive systems management approach which can impose a comprehensive plan or system on every facet of the field. The nature of the big problem is far more serious than merely the sum of the artificially isolated aspects treated in these appendices.

An accident may well be caused by a pilot's inability to read quickly and accurately an indication of crucial information. This inability may stem from lack of training, which is a shortcoming of pilot certification procedures, or it may stem from an inappropriate layout of pilot information dials, which is a shortcoming.

On July 31, 1968, a Piedmont Airlines plane crashed upon approach to the mile-long mountaintop runway at Charleston, West Virginia, killing 32 of 37 persons aboard. The radio glide slope for the airport's Instrument Landing System was not operating at the time of the crash; visibility was approximately one mile; another 50 yards of runway would have meant the plane might have cleared the ravine where it crashed; the pilots had to rely on the dual altimeters in the aircraft. The causal factors in the crash thus may have included airport facilities, weather, traffic control, aircraft capability and pilot ability. To single out one and ignore the rest would be unwise; to treat each as totally unrelated to the rest would be unwise.

The most competent and correct answer to one aspect of air safety may affect adversely other parts of the problem. Systems management is needed to produce a comprehensive answer to all the problems with each answer being compatible with every other answer.

Systems management is the capacity to consider collectively a multitude of interrelated problems, to produce an integrated and internally consistent set of answers to them, and to supervise their implementation in an orderly, competent, and productive way. It is the mode of operation in the space program and in some aspects of the Defense Department—where the technical obstacles and data are obviously too great for any single mind or office to comprehend, but where every technical decision affects the range of options available in every other technical decision.

Systems management obviously must be the mode of solution to America's air traffic monstrosity. The practice has been the opposite—to segment a problem too large to handle into artificially distinct problems with which the human mind and traditional bureaucratic method can cope. The similar division of the problem into similarly artificial categories in these appendices is perhaps an aid to the reader, but we hope that his objective will be to find the means by which they all can be treated as inseparable elements of chaos in search of planning.

I. HISTORY OF ACCIDENTS

As in so many areas of modern America, the consumer of air travel services cannot easily discuss the accuracy of claims made on behalf of the product. No authoritative voice speaks for the air traveller, or to him, with relevant and decipherable information. Understandably, the industry wishes to present its safety record in the best light. Less understandably, the government has joined the industry in attempting to prove the safety of air travel rather than to determine how safe air travel is. As a case in point, this study has had to rely largely on statistical data prepared by the FAA. The statistics are not wrong, but they are misleading because they measure air safety in irrelevant ways. The following few paragraphs suggest that not even these misleading measurements paint a universally attractive picture.

For what this type of comparison is worth, the fatality rate per 100,000,000 passenger miles for U.S. domestic scheduled air transport planes has been consistently better than passenger automobiles and taxis, occasionally better than buses, and consistently (except 1966) worse than railroad passenger trains. (See Chart 1).

Comprehensively, accident rates demonstrating the annual number of accidents per million miles flown for all U.S. non-military aircraft have declined over the sixteen year period from 1951 through 1966. This accident rate figure for U.S. *air carrier operations*, for example, has declined from 0.177 to 0.044 in 1966.

Chart 2 indicates a general, but not steady, decline in the number of carrier accidents from 107 in 1951 to 78 in 1966. The number of miles flown, however, has risen sharply with a 1966 figure of 1,530,335,000 miles flown, being more than two and a half times the 1951 figure. The resulting accident rate has declined significantly.

Otherwise, viewed against the increase in mileage, even the fatal accident rate and the fatalities rate have declined. The number of fatal accidents and total fatalities, however, have not declined over the years, shifting erratically from year to year.

The accident rate for U.S. *supplemental air carrier operations* has declined from 0.536 in 1951 to 0.082 in 1966. Chart 3 indicates that, again in this category, the total number of accidents has declined, but not steadily, over the 16 year period from 24 to 7. Miles flown, however, have increased from 44,732,000 in 1951 to 94,911,000 in 1966. Thus, the resulting accident rate has declined significantly. Fatalities varied from zero in 1956 to as high as 169 in 1953, with no discernible trend. Fatal accident rates have declined as a result of increased mileage.

The accident rates per 100,000 hours and per million plane miles have steadily decreased for *General Aviation* flying over the last 16 years. (See Chart 4). The number of accidents has increased from 3,824 in 1951 to 5,425 in 1966. The number of fatal accidents has increased from a low of 356 in 1956 to a high of 538 in 1966. The number of fatalities has fluctuated with a general increase from 750 in 1951 to 1069 in 1966. However, because both estimated hours and plane miles flown have more than doubled since 1951, rates have decreased for accidents, fatal accidents and fatalities.

Close examination of General Aviation statistics reveals great differences in accident rates according to use of aircraft. "Pleasure" flying had the highest accident rates per 100,000 hours in 1966 for both total and fatal accidents, 40.63 and 5.36 respectively. "Aerial Application" was next highest in both categories with 31.12 and 4.24, respectively. "Air Taxi" had the lowest total accident rate with 12.44; and the second lowest fatal accident rate of 1.43, practically identical with that of "Business Corporate," 1.45. "Instructional" flying had by far the lowest rate of fatal accidents, 0.68, and its total accident rate, 15.71 was only slightly higher than that for "Business Corporate" at 15.45.

The vast majority of "Business Corporate" flying employes full-time professional pilots. The majority of these command pilots hold airline transport ratings, despite the absence of any legal requirement.

There were some 84 deaths in air-taxi operations in 1967; in 1966 the figure was 32 (out of a total of 272 for all air carrier operations, and 1,069 for general aviation). The difference is due to the phenomenal growth of the air-taxi business, which promises to expand rapidly in the next years as a vital link in the commercial air carrier business. There are over 3,800 air-taxi operators in the U.S., 165 of whom are "scheduled". Two certified airlines have contracted with scheduled air-taxi operators to operate a segment of the carriers' route, and there are 42 interline agreements between certified airlines and scheduled air-taxi operators for the onward carriage of airline passengers. The Post Office Department in 1967 had 80 mail routes operated by 35 air-taxi opeartors, carrying $3,500,000 worth of mail.

The accident rate statistics produced by the FAA are misleading and imply that a growth of safety has occurred, which is a dubious conclusion.

Measuring safety by comparing the number of accidents with the miles or hours flown ignores the exposure factor that does not exist with automobiles or pedestrians: an air accident involves many lives. For instance, a relatively small proportion of accidents between 1959–65 occurred on jet passenger service, but they produced a high proportion of all fatalities (1886 lives lost in 125 accidents). Nearly 41% of all fatalities occurred in only 18% of the total accidents.

Furthermore, relatively few accidents occur in "flight" as compared to takeoff and landing operation. Therefore, indices such as hours flown, miles flown, passenger miles, or passenger hours are far less relevant than the indices of numbers of flights and passengers per flight.

Norbert E. Rowe, Vice President for Engineering, de Havilland-Canada, has suggested a better measurement: "Statistics of fatalities in air transport must be related to the unit of carriage, the aircraft, rather than its overall productivity . . . I would suggest dual criteria in this respect: 'accidents per flight' and 'fatal accidents per flight.' It is a reduction of the former which gives a clear index of flight-safety progress. This is particularly important in the coming decade when aircraft seating capacity will increase to 500, even 1,000 per unit of carriage."[1]

It is also vital to realize that air carrier safety statistics are so sensitive to the relatively few number of major crashes, which produce most of the fatalities, that year-to-year comparisons can vary widely—and are largely irrelevant.

Footnotes at end of article.

Using more relevant measurements than the FAA employs produces a picture of the trends in air safety which is discomforting:

In a Senate Committee Report, "Policy Planning for Aeronautical Research and Development," May 19, 1966, the scheduled air carrier accident statistics indicate that aviation safety had not improved much over the previous 16 years. (See Chart 5.) Although 1966 saw only four fatal accidents, seven occurred in 1967. The "fatalities per million departures" and the "fatal accidents per million departures" for 1967 were about the same as they were during the first five years of this decade.

While U.S. commercial aviation in its forty-year history has shown a spectacular increase in safety measured in terms of passenger miles, a variety of recent indicators have not deviated sufficiently from their 15-year averages to establish a meaningful trend for the future.

General air accident rate statistics fail to reveal an important change in the dangers of air traffic.

In the next 10 years commercial air jet travel is expected to triple. If fatalities continue at the average rate of the past 12 years—airline deaths will reach aproximately 1,100 in 1977.[2]

K. O. Lundberg says that, "At the beginning of the next century the (free world) death toll would be some 60,000 per year due to, on the average, some three to five big newspaper headline air catastrophies every day, not to mention the practically countless accidents to private aircraft.[3]

The news is even more distressing when the history of "near misses" is examined. An average of 532 "near misses" per year have been reported in recent years, with approximately 11 to 17% of these rated as "critical." A "near miss" is usually thought of as an instance in which an accident would have occurred if corrective action had not taken place, and is recorded as such when the pilot reports the near miss. Near misses are classified by the FAA in three categories:

1. "No hazard"—when direction and altitude would have made a midair collision improbable regardless of evasive action taken (e.g., a pilot may report a near miss but he was at least 1,000 feet away);

2. "Potential"—an incident which would probably have resulted in a collision if no action had been taken by either pilot (a proximity of less than 500 feet would usually be involved in this type case);

3. "Critical"—a situation where collision avoidance was due to chance rather than pilot action (the pilot did not, or did not have time to, take action).

The near misses which have been reported in recent years numbered 563 in 1963, 562 in 1965, and 463 in 1966. But these statistics are not particularly reliable. Pilots may not wish to report near misses because of potential consequences to them—a situation not necessarily corrected by a recent FAA decision to give immunity from penalty to pilots who report being involved when a near miss is reported because the aircraft involved was not identified.

David Thomas, Deputy Administrator of the FAA, has reported that most near misses occur while a plane is en route and not under radar surveillance rather than in the situations which are generally considered most hazardous—i.e., at airports lacking radar or at crowded terminals even with radar.

But on April 26, 1968, the FAA gave a different report to representatives of the aviation industry on the first two and one-half months of its study after granting immunity from penalty to pilots who reported near misses. During that time, they received 554 reports of near mid-air collisions from pilots and other sources. Of the reports filed, general aviation pilots submitted 251, airline pilots 160, military pilots 141, and air traffic controllers 2. Incidents in the terminal area were the subject of 339; the remaining 215 dealt with en route incidents. Of the 436 reports submitted in January and February, 250 were classified as "no hazard" (no evasive action needed) and 186 were classified as "hazardous" (action was needed).

Of the 186 described as hazardous, 117 occurred in the terminal area (airport) and 69 en route. Sixty-three of the terminal incidents involved one plane operating under instruments (IFR) and the other under visual rules (VFR). In 53 cases, both aircraft were under VFR. Only one case involved aircraft both under IFR.

And as a final statement on the current hazards of complacency over air safety, we cite the words of Stanley Lyman, Vice President, Federal Aviation Administration Affairs, who reports that in the "Golden Triangle," the Boston-New York-Washington air corridor, the FAA has "information that shows anywhere from five to nine near misses a day being reported . . . and additional information documented by people in the various facilities within the east coast areas that shows we have near misses occurring unreported at the rate of 20 to 25 per week, depending on the weather conditions at the time." [4]

Footnotes at end of table.

CHART 1.—COMPARATIVE ACCIDENT DATA: 1948-66

[Passenger fatalities per 100,000,000 passenger-miles]

Year	Passenger automobiles and taxis	Buses	Railroad passenger trains	Domestic scheduled air transport planes
1948	2.10	0.18	0.13	1.33
1949	2.70	.20	.08	1.32
1950	2.90	.18	.53	1.15
1951	3.00	.24	.43	1.30
1952	3.00	.21	.04	.38
1953	2.90	.18	.16	.56
1954	2.70	.11	.08	.09
1955	2.70	.18	.07	.76
1956	2.70	.16	.20	.62
1957	2.60	.19	.07	.12
1958	2.30	.17	.27	.43
1959	2.30	.21	.05	.69
1960	2.20	.13	.16	.93
1961	2.10	.19	.10	.38
1962	2.20	.11	.14	.34
1963	2.30	.26	.07	.12
1964	2.40	.15	.05	.14
1965	2.40	.16	.07	.38
1966	2.50	.20	.16	.09

Source: Motor vehicle data (automobiles, taxis, and buses) from the National Safety Council "Accident Facts" based on data from State traffic authorities, Bureau of Public Roads, National Association of Motor Bus Operators, and the American Transit Association. Railroad data from the National Safety Council "Accident Facts" based on date from the Interstate Commerce Commission. Domestic scheduled air transport data from the National Transportation Safety Board.

CHART 2.—AIRCRAFT ACCIDENTS, ACCIDENT RATES, AND FATALITIES—U.S. AIR CARRIER OPERATIONS: 1951-66

Year	Number of accidents: Total	Number of accidents: Fatal	Aircraft miles flown (thousands)	Accident rate per 1,000,000 miles flown [1]: Total accidents	Accident rate per 1,000,000 miles flown [1]: Fatal accidents	Fatalities: Total	Fatalities: Passengers	Fatalities: Crew	Fatalities: Others
1951	107	23	601,495	0.177	0.038	323	264	58	1
1952	104	13	670,720	.155	.019	246	202	26	18
1953	90	18	734,894	.122	.024	312	255	54	3
1954	93	8	758,654	.122	.010	40	25	13	2
1955	93	17	862,787	0.106	0.018	271	224	42	5
1956	103	9	993,055	.103	.009	174	156	18	0
1957	112	13	1,089,727	.101	.011	98	73	20	5
1958	91	14	1,084,652	.083	.012	160	128	29	3
1959	101	18	1,155,520	.087	.015	340	271	61	8
1960	90	[2]17	1,130,069	.078	.011	499	429	57	13
1961	84	11	1,104,042	.076	.009	311	275	35	1
1962	70	10	1,168,757	.060	.008	330	279	48	3
1963	77	13	1,232,833	.062	.011	264	223	41	0
1964	78	13	[3]1,338,415	.058	.009	238	202	35	1
1965	83	9	1,536,395	.054	.006	261	226	35	0
1966 (preliminary)	78	8	1,768,451	.044	.005	272	137	27	108

[1] Accident rates exclude dynamite/sabotage accidents: Nov. 1, 1955; July 25, 1957; Jan. 6, 1960; May 22, 1962; and May 7, 1964.
[2] Includes 3 midair collisions nonfatal to air carrier occupants; excluded in computation of fatal accident rates.
[3] The nonrevenue miles of the supplemental air carriers included in the 1963 and 1964 figure are estimated.

Source: Bureau of Safety, CAB.

CHART 3.—AIRCRAFT ACCIDENTS, ACCIDENT RATES, AND FATALITIES—U.S. SUPPLEMENTAL AIR CARRIER OPERATIONS: 1951-66

Year	Number of accidents: Total	Number of accidents: Fatal	Aircraft miles flown (thousands)	Accident rate per 1,000,000 miles flown: Total accidents	Accident rate per 1,000,000 miles flown: Fatal accidents	Fatalities: Total	Fatalities: Passengers	Fatalities: Crew	Fatalities: Others
1951	24	5	[1]44,732	0.536	0.111	90	78	12	0
1952	10	2	[1]51,760	.193	.038	31	26	5	0
1953	21	7	48,937	.429	.143	169	142	27	0
1954	13	1	39,104	.332	.025	10	9	1	0
1955	13	3	43,206	.301	.069	33	27	5	1
1956	9	0	44,822	.201	.0	0	0	0	0
1957	8	1	35,486	.225	.028	2	0	2	0
1958	6	1	39,213	.153	.025	2	0	2	0
1959	8	1	42,817	.186	.023	3	1	2	0
1960	8	[2]4	52,324	.152	.057	106	93	11	2
1961	6	3	47,983	.125	.062	162	151	11	0
1962	7	1	53,270	.131	.019	3	0	3	0
1963	11	3	[3]52,213	.211	.057	5	1	4	0
1964	9	1	[3]52,368	.172	.019	4	2	2	0
1965	10	1	[4]62,050	.160	.016	5	0	5	0
1966 (preliminary)	1	2	84,911	.082	.024	85			

[1] Revenue miles only.
[2] Includes 1 midair collision nonfatal to air-carrier occupants. This accident excluded in computation of fatal accident rate.
[3] The nonrevenue miles included in the 1963 and 1964 figures are estimated.
[4] Estimated.

Source: Bureau of Safety, CAB; FAA Statistical Handbook of Aviation.

CHART 4.—AIRCRAFT ACCIDENTS, FATALITIES, AND ACCIDENT RATES—U.S. GENERAL AVIATION FLYING: 1951–66

Year	Accidents		Fatalities	Estimated hours flown (thousands)[1]	Estimated plane-miles flown (thousands)[1]	Accident rates			
						100,000 hours		Million plane-miles	
	Total	Fatal				Total	Fatal	Total	Fatal
1951	3,824	441	750	8,451	975,480	45.2	5.2	3.9	0.45
1952	3,657	401	691	8,186	972,055	44.6	4.8	3.7	.41
1953	3,232	387	635	8,527	1,045,346	37.9	4.5	3.0	.37
1954	3,381	393	684	8,963	1,119,295	37.7	4.3	3.0	.35
1955[2]	3,343	384	619	9,500	1,216,000	35.1	4.0	2.7	.32
1956[2]	3,474	356	669	10,200	1,315,000	34.0	3.4	2.6	.27
1957	4,200	438	800	10,938	1,426,285	38.4	4.0	2.9	.31
1958[2]	4,584	384	717	12,579	1,660,109	36.4	3.1	2.8	.23
1959[2]	4,576	450	823	12,903	1,716,019	35.5	3.5	2.7	.26
1960	4,793	429	787	13,121	1,768,704	36.5	3.3	2.7	.24
1961[2]	4,625	426	761	13,602	1,857,946	34.0	3.1	2.5	.23
1962[3]	4,840	430	857	14,500	1,964,586	33.4	3.0	2.5	.22
1963[2]	4,960	482	893	15,106	2,048,574	31.0	3.2	2.3	.24
1964	5,070	504	1,056	15,738	2,180,818	32.2	3.2	2.3	.23
1965	5,196	536	1,029	16,733	2,562,380	31.1	3.1	2.0	.21
1966 (preliminary)	5,425	538	1,069	21,023	3,336,138	25.8	2.6	1.6	.16

[1] Estimated by FAA.
[2] No general aviation survey was conducted for the designated years. Estimated hours flown and estimated plane-miles flown for 1958–61 have been revised according to a correction factor based on the 1962 survey of aircraft use in general aviation. Data for 1963 are based on hours and use reported on aircraft inspection reports adjusted by the same correction factor.
[3] The 1962 general aviation survey excluded gliders, dirigibles, and balloons. These data have been adjusted to include them.

Source: Bureau of Safety, CAB; FAA Statistical Handbook of Aviation.

CHART 5.—AVIATION SAFETY (UPDATED THROUGH 1967)[1]

Item	Calendar year							
	1960	1961	1962	1963	1964	1965	1966	1967
Departures, domestic (thousands)	3,619	3,532	3,446	3,557	3,692	3,917	4,087	4,662
Departures, international (thousands)	212	198	201	214	239	257	286	306
Total	3,831	3,730	3,647	3,771	3,931	4,174	4,373	4,968
Fatal accidents	12	5	5	5	9	7	4	7
Fatal accidents per million departures	3.1	1.0	1.7	1.6	2.0	1.7	.9	1.4
Fatalities (total)	378	135	183	145	226	257	72	250
Fatalities per million departures	99	36	50	39	57	60	16	50

[1] Table 1 was extracted from table 28, p. 92 of "Policy Planning for Aeronautical Research and Development," S. Doc. 90, 89th Cong., second sess., May 19, 1966, and updated with information from the CAB and the National Transportation Safety Board. Data for 1967 are preliminary and estimated.

II. PILOTS

In 80% of all accidents in 1966, the FAA cited the pilot as "a" cause but not necessarily "the" cause. In a separate study made several years ago by the Civil Aeronautics Board, pilot error was cited for 42% of air carrier accidents and 64% of general aviation accidents. (See Chart 6.)

Through the Federal Aviation Act of 1958 (Public Law 85–726), the FAA, for all practical purposes, has almost unlimited authority to say who may and who may not fly.

"The Administrator is empowered to issue airman certificates specifying the capacity in which the holders thereof are authorized to serve as airmen in connection with aircraft."

Pilot certification today involves written and practical examinations administered by FAA-designated or supervised examiners (generally private flight training schools) and medical examinations given by physicians in private practice whom the Agency has designated official aviation medical examiners. The system is haphazard. The quality of pilot competence in the air carrier industry is principally the result of industry rather than government standards. In general aviation there is no effective method in operation to double-check the relatively inattentive government testing procedures.

Written tests are developed by FAA and distributed to licensed flight schools for administration by the school. An article published in the February 29, 1968, issue of Business and Commercial Aviation reported that there were schools where fees were paid not to learn about the art and science of flying, the rules and regulations, but to learn in less than two days the exact answers to the written FAA tests being given. Citing legal obstacles to closing down such operations, the FAA has satisfied itself with only suggesting various alternatives to the existing system such as eliminating the tests and letting each licensed school devise its own examination, or simply eliminating all written exams altogether and evaluating a student's record of achievement or relying on a statement from his instructor.

General aviation, which would be most affected by such a procedure, has itself supported the establishment of a prescribed course from the FAA which must be completed before testing is administered. And a prototype is now offered at many flight schools to educate general aviation pilots in air traffic control regulations and procedures. In California, where such courses are under way, pilots have been known to come hundreds of miles to attend these workshops two and three nights a week.

Aviation medical examiners are given seminars by the FAA to receive training in modern aeromedical concepts, certification practices and procedures, and accident-investigation techniques. If an examiner denies an applicant medical certification, there are two avenues of appeal open to the applicant—one is the Federal Air Surgeon in Washington; the other is the Administrator who may exempt an applicant from established medical standards. Air carrier pilots, at the insistence of the industry, undergo periodic medical examinations and recertification procedures.

The lay reader may be surprised to learn that in general (non-carrier) aviation a private pilot's right to fly a certain type of craft is automatically retained merely by taking off and landing such a craft at least five times every three months and by passing a physical examination every 24 months. He need never take a second written or practical test. This is true despite the fact that more than half the people who hold pilot's licenses fly less than 50 hours a year. The conditions mentioned must raise questions as to many pilot's continued proficiency as the airways and traffic systems become more congested.

Training—Commercial aviation airline transport pilots are generally trained extensively by the employing carrier airline company and required to take refresher courses periodically. Airlines select one applicant out of 20, spend $100 an hour to train him, retest him every six months, send him back to flight school once a year, and pay him up to $40,000 a year. Electronic stimulators that faithfully reproduce the performance, visual and aural cues of aircraft in flight, have long been a cornerstone of such training and they will be even more important in the future. It has been said by experts that no man is one-tenth as capable of driving an automobile as the greenest carrier co-pilot is capable of flying. Flight crews which are to operate a new aircraft—one on which they have not previously been qualified—begin their training with a ground indoctrination course, which typically consists of 90 hours of classroom time and many more hours of homework. After the paperwork has been mastered, it is followed by intensive training in the aircraft, including take-offs and landing during day and night, normal emergency flight maneuvers, and flight under simulated instrument flight conditions. With this flight and ground training completed, but before the pilots begin service in scheduled operations, they are given a check flight in the aircraft under the supervision of a company check pilot or an FAA inspector to determine whether their proficiency meets the high standards of the airline and the FAA. Before going to command duty, the flight captain makes a check flight as captain with a Check-Flight Captain riding as monitor. Only then is the captain qualified to take command of the type of aircraft in which the checkout procedure has been completed. These training and checking programs are additional to the basic and comprehensive training and checking which flight crew members must have taken in order to obtain the FAA license which is a prerequisite to their receiving the airline training.

The industry and the FAA take steps to keep pilot training relevant to the new problems of new aircraft. For example, a number of accidents involving failure of jet transport aircraft to pull out properly from a high rate of descent when approaching for landing introduced altitude awareness and descent management subjects into the training program; these subjects include: first, a demonstration maneuver designed to show pilots the proper techniques for recovering from high rates of descent; secondly, an adequate experience on the part of pilots in command of certain types of turbojet aircraft before they could permit a co-pilot to make takeoffs, instrument approaches, or landings; and, thirdly, required completion during initial checkout in jet aircraft of an adequate number of landings under varying conditions. Similarly, to help pilots avoid accidents due to wake turbulence, which is a vortex phenomenon occurring behind larger aircraft, the FAA issued a circular describing the hazard, pointing out how it can best be avoided, and released a motion picture training film on the subject.

TRAINING—GENERAL AVIATION

Major General Joseph D. Caldera, President of the Flight Safety Foundation, Inc., states in an Air Safety Conference in Cincinnati, February 4, 1968, that too many licensed private pilots today cannot manage their aircraft in the environment in which they place themselves.[5] This is true in terms of weather, which is cited by the National

Footnotes at end of article.

Transportation Safety Board as a related factor in over 13% of all accidents, 22% of which are fatal. It is true in terms of the planes flown. (A 1967 study by the National Transportation Board found that 80% of the general aviation accidents are due to lack of proficiency or lack of procedural knowledge on the part of the pilot.) But it is even more true in terms of new traffic control and communications systems.

Virtually all commercial aviation pilots must be instrument-qualified, but this is not so with general aviation pilots. It used to be that a general aviation pilot was proficient if he kept himself alive. Now to be proficient he must learn procedures—what they are, how to talk his way through them—and how to push his vehicle through the necessary maneuvers to duplicate the sometimes complicated lines drawn on airline maps. In fiscal year 1966, general aviation conducted 25% of the instrument approaches recorded by the FAA, reflecting an increased technical capacity in general aviation which suggests that by 1980 general aviation will conduct over 70% of the civil instrument approaches in the United States. This accomplishment, however, does not flow from any systematic effort to require greater technical capacity from private pilots.

Training for the general aviation pilot can be improved by simplifying approach procedures whenever possible and by standardizing them so the transient pilot can expect the same thing to happen to him whether he is at his home field or anywhere across the country.

Also some technical advances could help, such as the single-frequency radar approach (TERPS), which allows thousands of small airfields to have their own instrument approach network which would result in more pilots developing instrument rating, Category II capability. And, of course, it is not inconceivable simply to require instrument ratings to be required for any pilot to use certain airports.

One of the better efforts on the part of the FAA toward encouraging instrument pilots to gain the necessary "live" experience to gain proficiency is the SIP program. This series of classes given at FAA flight schools have been extremely popular with general aviation pilots. An FAA funded program of the Flight Safety Foundation, known as General Aviation Pilot Education, has been successful and is being developed on a regional basis. Another effort was made when the *Airman's Information Manual,* the basic U.S. civil flight information publication, was refined and updated both in form and content. Furthermore, the FAA has also tried to modernize and develop cartographic materials used in operating the airspace system which are standard and easy to interpret.

It still remains to be demonstrated, however, that significant improvement in general aviation air safety is possible without stiffer testing and retesting of the pilots.

A GROWING PROBLEM OF PILOT FATIGUE

Pilot fatigue from new planes and practices comes from long hours without rest because of delays and night departures, night flying, and the disruption of the circadian rhythm (24 hour psychophysiological rhythm) involved in the rapid crossing of several time zones. FAA regulations limit pilot flight time to sixteen hours per day and it has a permitted emergency extension to 20; but delays and diversions caused by congested airports and jet scheduling practices which increase aircraft utilization, have caused greater pilot utilization without rest.

In the Australian Defense Scientific Service Aeronautical Research Laboratories, it was found that "since the introduction of jet transport aircraft, the volume and intensity of reports of fatigue among crews has tended to remain high and even to increase, contrary to the trend observed during the early days of service of piston-engine and turbo-prop aircraft."[6] The Australian study centered on the following causes of pilot fatigue: (1) late afternoon and night departures (over 50% after 1800 hours); (2) night flying (59% are at night); (3) morning arrivals after night work, requiring day sleep and a temporary reversal of the light-dark cycles; (4) time shift; and (5) early morning departures requiring early morning wake-up times. The major complaints made by the crews examined were just these and the chief symptom is lack of sleep, which has a marked effect on efficiency of physiological functions. There is a high level of stress among crew members during the approach and landing phases of flight, as the statements of the pilots themselves indicate.

The Australian study group concluded that "the present system followed in scheduling has many disadvantages."[7] They questioned the wisdom of heavy nighttime scheduling when the internal systems are at their least active, when the work load (approach and landing) is heaviest, when the crew is least physiologically prepared. They questioned the wisdom of setting the slippage points (where crews change and the tired are to rest) at the furthest geographical distance from home base, and, therefore, when the tired crew is least able to adapt. They questioned why the majority of slips are of a 24-hour duration, which is the least beneficial physiologically (12–14-hour and 36-hour slips are preferable to 24-hour and 48-hour because they have the advantage of remaining in-step with a 24-hour rest cycle).

The study suggested that the 16-hour flight duty time is to be seriously questioned *per se,* not only because of the growing instances of diversions and delays which extend the flight time considerably, but because as in any other occupation when the safety factor is less relevant, a 16-hour work day would be considered an unnecessary extension of human capacity and efficiency. The concept of extended working hours for flight personnel began in the days when air speeds necessitated long hours in the air just to reach a landing point, but aircraft capability and increased numbers of flights no longer make long hours necessary. The long duty times for crews makes consideration of the rest-time scheduling even more mandatory, but there is no evidence in present practices to suggest that slippage patterns are established more out of concern for pilot fatigue than for aircraft scheduling convenience and the economic advantage of the carrier.

The Australian study of pilot fatigue states that 46 of the 60 pilots interviewed attributed some effect of fatigue due to the discomforts of the flight deck—uncomfortable seats, cramped quarters, and unavailability of crew rest quarters. Food, feeding facilities and procedures, and dry cabin air causing dehydration were also sources of complaint. The interviewed pilots noted a state of heightened tension on the completion of a flight, manifested in reduced comprehension and retention, an increase in irritability, a greater inability to relax, a lack of energy, a decrease in sociability, and an unusual need for sleep accompanied by an inability to sleep. The symptoms associated with the "unwinding process" tend to persist for a period of two to three days.

In the light of these findings, it is only mildly conforting to know that the general health of commercial pilots has been found to be good and is not generally impaired as a result of flying as an occupation. Pilots have been found to be relatively free from cardiovascular and cardiac impairment. Nonetheless, many studies confirm that short-term disturbances, like indigestion and disrupted physiological functions, seem to be common due to irregular eating and sleeping patterns. Finally, it might be noted that though crew restrictions on drinking while on duty and for periods before duty are strict, over 68% of the pilots interviewed in the Australian study said they drank more when they were away from home, and 56% said that they smoked more.

In 1966 there were 548,757 active pilot certificates held, the number having very nearly doubled in ten years. (See Chart 7). The largest number of the certificates are for private flying (222,427), followed closely by the student and commercial categories (165,177 and 131,000 respectively). All categories have shown dramatic growth—practically tripling in ten years.

There are many more certificate holders than active airmen in both the pilot and non-pilot categories, because many pilots hold more than one kind of certificate. For instance many private pilots also fly for business and pleasure; many who hold commercial instrument certificates also have mechanic certificates and can service their own aircraft; many mechanics and controllers hold pilot's certificates; and as many as 10,000 pilots work part time as weekend instructors or charter flight pilots. (See Chart 8).

World War II and subsequent military operations have trained a large cadre of aircraft operating personnel—a source of civil aviation manpower ever since. This source of pilots is no longer adequate, according to The Report of the Aviation Human Resources Study Board, (September, 1964, FAA) because of the decreased military flight training and also because of the increase in air carrier traffic. Over half of the present commercial pilots are 45 years of age or older. A single aircraft requires five complete crews. New pilot hirings by U.S. carriers were estimated to be 4,454 in 1966 and Chart 9 indicates new aircraft cockpit crew estimates from 1967–75 to number 16,275 in total manpower.

One avenue of solution, suggested in the Congress, would be the establishment of a four-year program of instruction at a Civil Aviation Academy to train young men and women in all aspects of aviation, allowing the cadet to major in any one of a number of aviation fields—radar and electronics, aircraft maintenance, navigation, airways operations, pilot training, etc.

CHART 6.—CAUSAL FACTORS, 1959-62

[In percent]

	Air carrier	General aviation
Pilot	38	64
Copilot	4	
Total pilot	42	54
Other personnel	13	4
Total personnel	55	68
Landing gear	9	5
Powerplant	7	6
All other	8	3
Total equipment	24	14
Weather	14	10
Airport, terrain	7	8
Grand total	100	100

Source: Federal Aviation Administration.

Footnotes at end of article.

The Report of the Aviation Human Resources Study Board concluded that the future employment demand can be met by existing education and training resources if a well coordinated industry-government program is aimed at continued motivation of American youth toward careers in aviation. They recommended the FAA to lead this effort. Also, research and training devices, simulators and flight proficiency testing can speed and improve the training of new crews. Better guidance and control techniques can keep manpower requirements per crew from rising as aircraft becomes more complicated.

History offers a warning. In the past, as any field of endeavor expanded to include many more participants, the average quality and competence of the participants seemed to suffer. In contemporary aviation, as the planes and the airways become more complex, increased manpower needs are matched by increased needs for quality and excellence on the part of all participants.

CHART 7.—ACTIVE AIRMAN CERTIFICATES HELD: DEC. 31, 1958-66

Category	1958	1959	1960	1961	1962	1963	1964	1965	1966
Pilot	354,365	359,875	348,062	[1] 352,860	365,971	378,700	431,041	479,770	548,757
Student	103,456	107,815	99,182	93,973	95,870	105,298	120,743	139,172	165,177
Private	140,573	139,804	138,869	[1] 144,312	149,405	152,209	175,574	196,393	222,427
Commercial	93,126	93,815	89,904	[1] 92,976	96,047	96,341	108,428	116,665	131,539
Airline transport	15,840	16,950	18,279	[1] 19,155	20,032	20,269	21,572	22,440	23,917
Helicopter (only)	579	610	616	[1] 677	738	823	1,058	1,392	1,819
Glider (only)	674	721	802	894	967	1,045	1,227	1,411	1,602
Other pilot	117	160	410	873	2,912	2,715	2,439	2,297	2,276
Nonpilot	157,424	167,074	169,598	[1] 175,287	181,982	186,304	195,396	204,463	217,132
Mechanics	107,072	113,520	115,688	118,689	122,160	124,945	130,131	135,351	140,799
Parachute rigger	2,543	2,835	2,936	3,127	3,400	3,669	4,226	4,584	4,927
Ground instructor	28,306	30,179	29,421	29,526	29,964	30,295	30,801	31,403	32,217
Dispatcher	3,437	3,282	3,405	3,542	3,669	3,796	3,961	4,104	4,259
Contro tower operator [2]	8,584	9,203	9,784	[1] 11,110	12,436	12,987	14,304	14,875	16,046
Flight radio operator [2]	203	137	131	[3] 0	0	0	0	0	0
Flight navigator [2]	1,426	1,495	1,533	[1] 1,529	1,630	1,620	1,625	1,797	2,384
Flight engineer	5,853	6,423	6,680	7,701	8,723	8,992	10,348	12,349	16,500
Flight instructor certificates	25,903	26,753	31,459	[1] 30,165	28,873	29,618	32,158	34,904	38,897
Instrument ratings [4]	62,176	64,506	63,204	[1] 68,092	72,920	74,451	84,442	93,637	107,171

[1] Estimated.
[2] No medical examination required, therefore, no determination as to activity can be made. Numbers represent all certificates on record.
[3] Requirements for issue and possession of flight ratio operator certificates deleted from the Federal Aviation Regulations.
[4] Special ratings shown on pilot certificates represented above; hence do not indicate additional certificates.

Source: Federal Aviation Administration.

CHART 8.—CERTIFICATED CIVIL AIRCRAFT AND AIRMEN, 1927-60

As of Dec. 31	Total U.S. civil aircraft	Certificated airplane pilots: Total	Airline transport	Commercial	Private	Student pilot issuances during the year	Mechanics
1927	2,740	1,572	[1]	[2]	[2]	545	
1928	5,104	4,887	[1]	[2]	[2]	9,717	4,383
1929	9,922	10,430	[1]	6,165	4,265	20,400	7,701
1930	9,313	15,280	[1]	7,847	7,433	18,398	8,993
1931	10,780	17,739	[1]	8,513	9,226	16,061	9,016
1932	10,324	18,594	330	7,967	10,297	11,325	8,373
1933	9,284	13,960	564	7,635	5,771	12,752	8,226
1934	8,322	13,949	676	7,434	5,789	11,994	8,156
1935	9,072	14,805	736	7,362	6,707	14,572	8,432
1936	9,229	15,952	842	7,286	7,322	97,675	8,738
1937	10,836	17,681	1,064	6,411	10,206	21,770	9,314
1938	11,159	22,983	1,159	7,839	13,985	15,556	9,884
1939	13,772	33,706	1,197	11,677	20,332	29,839	10,296
1940	17,928	69,829	1,431	18,791	49,607	110,938	11,177
1941	26,013	129,947	1,587	34,578	93,782	93,366	14,047
1942	27,170	166,626	2,177	55,760	108,689	93,777	18,097
1943	27,180	173,206	2,315	63,940	106,951	36,802	20,805
1944	27,919	183,333	3,046	68,449	111,833	51,276	23,157
1945	37,789	296,895	5,815	162,873	128,207	77,188	27,272
1946	[3] 81,002	400,061	7,654	203,251	189,156	173,432	[2]
1947	[3] 94,821	[4] 433,241	[4] 7,059	[4] 181,912	[4] 244,270	192,924	[5] 51,102
1948	[3] 95,997	[5] 491,306	[4] 7,762	[5] 176,845	[5] 306,699	117,725	[5] 60,420
1949	[3] 92,622	525,174	9,025	167,769	328,380	49,575	64,736
1950	92,809	[2]	[2]	[2]	[2]	44,591	[2]
1951	[3] 88,545	580,574	10,813	197,900	371,861	45,003	73,964
1952	[3] 89,313	581,218	11,357	193,575	376,286	30,537	77,391
1953	[3] 91,102	585,974	12,757	195,363	377,854	37,397	81,763
1954	[3] 92,067	613,695	13,341	201,441	398,913	43,393	85,558
1955	[3] 85,320	643,201	13,700	211,142	418,359	44,354	91,001
1956	[3] 87,531	669,079	15,295	221,096	432,638	45,036	95,436
1957	[3] 93,189	702,519	16,900	237,149	448,470	76,850	102,691
1958	[3] 98,893	731,078	18,303	245,541	467,234	58,107	107,072
1959	[3] 105,309	758,368	19,364	255,377	483,627	67,618	113,520
1960	[3] 111,580	783,232	20,935	262,437	499,810	51,465	115,688

[1] Airline transport rating became effective May 5, 1932.
[2] Not available.
[3] Includes gliders.
[4] As of April 1, 1968.
[5] As of May 1, 1949.

Due to frailties of the record-keeping system, "registered" or "certificated" figures are somewhat meaningless and are generally ignored in favor of "active" if "eligible" figures which reflect a positive knowledge of some kind of recent activity.

Source: Federal Aviation Administration.

CHART 9.—NEW U.S. AIRCRAFT COCKPIT CREW ESTIMATES 1967-75

Type	Number [1]	Cockpit crew complement [2]	Total manpower [3]
Boeing 737, Douglas DC-9, BAC 111, FH-227	367	2	3,370
Boeing 727	398	3	5,970
Boeing 707 and Douglas DC-8 (both regular and stretched)	189	3	2,835
Boeing 747 [4] and Douglas DC-10 [4]	106	3	1,590
Anglo-French Concorde	51	3	765
U.S. supersonic transport	30	3	450
All-cargo Boeing 707 and Douglas DC-8	73	3	1,095
Total new U.S. Aricraft	1,264		16,275
Total U.S. trunk and international fleet by 1975	1,756		

[1] Air Transport Association estimates.
[2] No account has been given for optional or nonstandard cockpit crew positions.
[3] An assumption was made by A. W. & S. T. that each aircraft requires 5 complete crews on an industrywide basis.
[4] No decision has been reached on whether to build these aircraft.

Source: Aviation Week & Space Technology, Jan. 31, 1966, p. 55.
Source: Federal Aviation Administration.

III. OTHER PERSONNEL (PLANE CREW, TRAFFIC CONTROLLERS, MAINTENANCE)

Plane crew

It is generally accepted that a jet carrier aircraft can only be safely flown with a minimum cockpit complement of three men. Most jet aircraft, as chart 9 in Section II indicates fly with a three man cockpit crew, but this has not been made mandatory. Most large jets (e.g., Boeing 707 or DC-8) are operated with an option on cockpit crew size depending on the number of hours in flight. To some extent, the manufacturers have had more influence than the airlines or the pilots on the decisions made by putting planes with two-man cockpits on the market, such as the DC-9, the BAC-1-11, and the Boeing 737.

Most pilots appear to agree that existing air traffic and navigational systems require better qualified co-pilots, who would be able to take over absolutely, and flight navigators or engineers over long flights. They insist that ultra "human" systems capabilities and the clock of trained pilots makes this necessary and possible. The airlines claim that aircraft can be safely *flown* by two pilots; pilots claim these aircraft cannot be operated safely by a two pilot crew.

A similar question exists concerning the number of stewardesses or "flight attendants" on each flight. The FAA now requires that there must be at least one flight attendant if a flight has nine or more passengers and that a flight of 149 or more passengers must have at least four flight attendants.

The regulation does not appear to be very helpful, for it can and does mean that the fewer the passengers, the greater the ratio of attendance to their needs (both convenience and safety) and that the greater the number of passengers the less attendance to their needs. Small flights can operate with one stewardess to every nine passengers; large flights can operate with one stewardess to every 35 passengers. When measured against the need, in crash conditions, of efficent and knowledgeable operators to evacuate the airline, the regulation seems insufficient. The stewardess' unions have sought more attendants; the airlines view the added cost as prohibitive.

Traffic controllers

Currently, the FAA employs about 18,100 air traffic controllers who operate in three

kinds of facilities—air route traffic control centers (28 national centers which watch all en route traffic over the United States); airport control towers (at 304 of the 831 airports serving commercial traffic); and flight service stations (332 stations which provide to pilots additional service, such as weather information).

On July 4, 1968, and thereafter, arrivals and departures of commercial airline flights at the Nation's largest airports began to experience massive delays due to what air traffic controllers, particularly officials of PATCO (Professional Air Traffic Controllers Organization) claimed was strict enforcement of FAA landing and take off requirements and procedures. The slow down occurred within 48 hours of the July series of meetings of PATCO.

Apparently the issue was not so much whether FAA regulations had been or should be enforced strictly, but whether controllers' grievances were to be met, particularly their demand for more personnel help.

The Air Traffic Controllers Association charged that "flight was reaching a point of public peril because of shortages of trained men and modern equipment . . . we are fortunate that we don't have the collisions now . . . ninety percent of this is pure luck."[8] They cite instances of vacancies occurring in certain high density centers, necessitating use of trainees who are not checked out.

They point to the heavy work load which demands that they handle as many as 35 to 40 aircraft at a time. David Thomas, Deputy Administrator of the FAA, himself a veteran controller, has said that the man behind the radarscope should not be asked to keep track of more than six at one time.

Medical research done by such organizations as the FAA medical staff at Georgetown Medical Center, the FAA Aeromedical Institute at Oklahoma City, the U.S. Air Force Human Factors Research Laboratory and the British RAF Institute of Aviation Medicine report that controllers have an undue amount of tension and pressure. The ACTA has said that over half of the eleven controllers who retired in April, 1968 were disability retirements, and that in the same month, five controllers suffered heart attacks on the job.

The retirement age for controllers is now 55. Many of the medical studies mentioned above and the Air Traffic Controllers Association point to an unsafe situation created by the fact that controller ability begins to slip after age forty. Much of the burden must shift to other men.

The number of air traffic controllers has doubled over the past 10 years and is expected to increase by 10% this year. But the ACTA says that recruiting and retention of controllers is becoming an increasing problem. Representing about 5,500 controllers, the Association suggests that people no longer want to enter service because of the job pressure.

Many suggest that the pay is too low in view of the hazards and skill needed in the job. Controllers earnings are determined by the experience of the controller and the level of the facility in which he operates—a variable which depends on the number of operations at the facility and the hours of operation of the facility. The average air traffic controller has a General Services rating of GS–11, 12 or 13. In 1968, the salary range from a low GS–11 to a high GS–13 was $10,203 to $18,729.

Deputy Administrator of the FAA, David Thomas, has stated that the addition of the 2,400 new air traffic controllers to the system as provided for in the DOT appropriations for 1969 would help ease congestion by perhaps only 5%; the limiting factor in easing congestion, he said, is the amount of concrete available for takeoffs and landings. Furthermore, it will take nearly two years to train the 2,400 new controllers adequately to assure high proficiency.

Authorizing, attracting and training more men is not a sufficient answer. It will also be necessary to reduce the pressure of the job which the air traffic controller is expected to perform. That pressure can result in errors. Consideration must be given to such changes as: a cutback of the administrative duties of controllers; liberalization of overtime and stand-by pay practices (Public Law 90–556 passed in the second session of the 90th Congress rectified one aspect of unfair overtime pay procedures); guarantee of at least two consecutive weeks of earned leave a year and more equitable holiday, pre-holiday and post-holiday duty assignment; accelerated training for new controllers; earlier retirement; creation of a Commission on Air Traffic Control to study the work-load and stress on controllers (S. 3727); and participation of representative groups of working level controllers in the development and establishment of national air traffic control procedures.

Even more important is some rational limitation on the growth of the traffic system these men are expected to control.

The incidents of accidents officially attributed to controller error are relatively low; usually 180 to 200 controller errors are reported in a year, 35 being classified as "near misses." This figure may be inaccurate due to the fact that like pilots, controllers do not record all their errors for fear of being reprimanded for lack of proficiency.

But the job they are expected to do keeps getting bigger and bigger. In 1967, the average number of operations at 308 towers was 154,942; at the ten busiest towers the number of operations ranged from 596,949 at Opa Locka, Florida to 382,548 at San Jose, California. These ten represent only 3% of the total number of towers, but handled about 15% of the operations. Unless a number of changes occur in other aspects of the airways system (e.g., more airports, relief of congestion at certain airports at certain times, more and better equipment) the addition of more controllers will be of dubious value.

Maintenance

In 1965, there were 135,351 aircraft mechanics certified by the FAA. With the implementation of the Airway Facilities Maintenance Certification Program in 1965, the FAA Academy was assigned responsibility for overall program administration in connection with the written, oral and performance examinations to prepare facility maintenance personnel for active employment.

The training program presently involves 78 types of systems in four career fields, with plans for expansion to include 86 systems in five fields. Centrally administered, the training program combines resident, on-the-job and correspondence training as well as distribution of refresher and briefing materials to Agency air traffic facilities.

Increasingly, maintenance is becoming automated by the use of computers which automatically "read-out" the state of the "health" of the aircraft. For example, the entire TWA DC–9 fleet will be equipped with this data analysis system which monitors 50 separate parameters of engine information and transmits it over the company's teletype system to the TWA maintenance center in Kansas City, where rapid computer analysis facilities quick and accurate diagnosis of maintenance requirements.

Pan American has recently purchased a computer oriented testing machine called TRACE 600, which can check out a Boeing 707 automatic pilot computer in ninety minutes (compared to 18 hours used in conventional testing methods) and can perform tests on anti-skid computers, general control panels, cabin address amplifiers, pneumatic systems, radio components and navigational aids on the Boeing 707 and 727 and on the DC–8 jet clippers.

Some computerized service does not, of course, decrease the need for highly skilled mechanics, but it does increase the proficency of the system considerably. The recourse to systems management techniques in the maintenance of aircraft is a logical outgrowth of the utilization of systems management in the design and manufacture of planes. In fact, the systems management approach to problem solving was invented precisely because the aircraft industry in the 1940's reached a stage where no single man or team of men had the capacity to retain the vast realm of technical knowledge and variables necessary to design or produce a modern plane. It is ironic that the field which mothered the concept of systems management for production of an individual plane has been so slow to see it as the only rational approach to govern the traffic of a multitude of planes.

IV. WEATHER (AND OTHER ENVIRONMENTAL FACTORS)

For general aviation, weather was cited by the National Transportation Safety Board as a related factor in 13.1% of all accidents—more frequently than any other factor in a study based on 1965–66 accident figures. Fatal accidents are far more likely to occur when weather forces a pilot to instrument flying than when he can follow Visual Flight Rule (VFR).

Weather conditions	Percent of accidents which were fatal	
	1965	1966
VFR	7.2	7.4
IFR	64.0	53.6
Below minimum	53.8	23.1

Source: National Transportation Safety Board, Department of Transportation, 1966.

Poor visibility on approach and clear air turbulence have been cited as major causes of commercial aircraft accidents. As well, Najeeb Halaby, former Administrator of FAA has said that the present aviation weather system is "obsolete and inadequate", and that of all the elements in aircraft accidents, weather is the least subject to control. A similar assessment was made by Capt. Eduward J. Burke, chairman of the Air Line Pilots Association's all-weather flying committee, when asked if all-weather flying was here yet. "Yes," he said. "It's still in the experimental stage, the same as it was in General Doolittle's time in 1929."[9]

There are four areas of principal concern relating to weather and air traffic: 1) Landing facilities at air terminals are insufficient; 2) Too little is known about the phenomena of air turbulence; 3) En route weather information is sparse and the capacity for weather prediction is limited; 4) The FAA has not acted.

Air terminal facilities

Najeeb Halaby suggested a few years ago that "at this date the best way to find out what the runway visibility is at an airport that has nearly a half-billion dollar investment in it . . . is to send a man out from the tower and have him stand at the end of the runway. In 1965 that is really primitive."[10]

Bad weather causes

One of the greatest problems facing air transportation today is the limitation on landings and take-offs and the resulting congestion at some airports. The question of what to do about it is seldom answered with a willingness to forgo business but rather

Footnotes at end of article.

with a drive for even more complicated systems pointing toward all-weather landing.

Current use of airports under adverse weather conditions are limited by regulation depending on available air traffic control equipment. The general situation is as follows: If weather conditions are below the "minimums"—500 foot ceiling and 1 mile of forward visibility—an airport may not be used unless it is equipped with an instrument landing system based upon radar (or a radio beam supplemented by a high-intensity approach light system). If that equipment is present, approaches are permitted at 200 foot ceilings and one-half mile of forward visibility. (Some instrument landing system installations due to geographical obstruction may be restricted below 400 feet).

Instrument landing equipment increases airport utilization. But it may also increase congestion by attracting aircraft which ordinarily would not land at that particular airfield. The equipment does not assure safety; it is dependent upon its own reliability and upon the airmen's ability to use it.

Minimums are being continually reduced as aircraft equipment becomes more sophisticated. Currently, most planes may land under Category I minimums (vertical visibility or "decision height" of 200 feet—horizontal visibility or "runway visibility range" RVR of at least 2,400 feet). By the end of 1966, however, four air carriers had received approval for operations under the minimums of 150 foot decision height and 1,600 foot RVR. This is the first step to qualifying for Category II operations—100 foot decision height and 1,200 RVR. At the end of 1966, runways at three major airports had qualified for Category II landing systems, and FAA reported that 20 additional runways had been identified for installation of the equipment necessary. Category III in which the decision height and the RVR are reduced to zero, is envisioned for the future as part of the all-weather landing system.

Instrument landing is at a stage where further developments and improvements are extraordinarily difficult and perhaps prohibitively expensive. A new system is under evaluation which uses microwave beam-forming techniques, but the problems in all-weather landing systems are subtle and more serious. In order to make substantial improvements, the system must fly the aircraft automatically which raises the problems of a) reliability; b) failure detection; c) corrective action or emergency procedures; d) acceptance by pilots; and e) procedures in case of sudden loss of electrical power. All-weather landing is complex, involving the ground system, the airborne system including autopilot and control characteristics of the airplane, displays, human factors, airport design, economics and reliability.

British manufacturers feel the ultimate solution lies in full automation with the pilot as a monitor. American manufacturers and operators are reluctant to accept this solution and favor retaining the pilot in the control loop while improving the instrumentation and visual guidance systems. In this approach minimum landing conditions (in terms of weather) are lowered as instrumentation and equipment are developed (such as an improved autopilot-amplifier-computer which provides on-course localizer and glide slope precision and autopilot controls integrated into a single display in the cockpit. This is the course present policy is following.

The vigor with which an all-weather landing system is pursued is a reflection on the relative emphasis national aviation places on the reliability of service as compared with safety. The airlines have a great desire to reduce the weather restrictions within which they operate because to minimize diversions and cancellations produces better service, better operations, and better profits. FAA recently accepted a study by United Research, Inc. covering 1957 operations which placed a dollar value on the improvement in the capacity of the system, improvement in the efficiency and reliability of the system, and benefits from improvements in the margin of safety as a result of an all-weather landing system. The total value of utilization of an all-weather landing system was placed at $24,962,000—$3,791,000 of which was the value of accidents prevented and $11,500,000 stemmed from increased revenues to air carriers. (See Chart 10).

The approach and landing phase remains the most dangerous in air travel. Thus, from a safety standpoint there is every reason to develop an all-weather landing system. This argues for significant improvement in research and development into such items as full automation of the landing system, the new microwave system intended to determine the reliability, failure detection, and emergency procedure aspects of automatic landing. But it is sadly ironic, and a reflection of distorted perspective, to approach such advances not with the goal of maximum safety in cases where landings must be made, but with the goal of maximum landings in presently unsafe conditions.

While much is done about limiting the effect weather has on landing, little is done to change the weather. Fog is an exception. About four years ago the airlines began a cooperative program to open some airports in the Pacific Northwest to regular operations by dropping dry ice into cold fog from a light plane. This method is successful only when the fog is supercooled. The airline supercooled fog dispersal program has now grown to include 19 airports, with seven participating airlines. Efforts to disperse warm fog have been less successful. FAA is now preparing to establish a program to test the more promising dispersal techniques with warm fog. It could produce important benefits for all of aviation.

Air turbulence

There are many types of turbulence. They are generally understood to exist in four general forms—mountain waves, gravity waves, thunderstorms and frontal systems. The first two are forms of clear air turbulence (CAT). Mountain waves are a vertical deflection of air masses. Gravity waves are found at the interface of air masses of different density and velocity, such as at the edge of a jetstream. Flying in turbulence has become more critical with advancements in speed, because aircraft velocity amplifies gust loads and stresses.

The instances of aircraft coming in contact with CAT increased dramatically with the introduction of jet transport in 1958. By 1964, there was a CAT report from an aircraft somewhere over the U.S. nearly once every hour; a commercial jet transport encountered moderate-or-greater CAT once every 34 hours. 50% of some 20 reports investigated between 1960 and 1963 occurred in clear air where the X- or C- band weather radars installed on transports could not detect the turbulence. The effect of CAT on passengers and control of the airplane is considerable, and numerous passenger and crew injuries as well as aircraft damage has been directly attributed to this phenomenon. There have been many fatal accidents in which CAT has been suspected as a cause.

Theoretical studies, supported by limited experimental evidence, show clearly that the influence of turbulence-induced stresses on the pilot and on the aircraft load is a critical factor affecting safety, especially on large aircraft. However, a technique of accounting for pilot's behavior must be developed before the available data can be applied to future aircraft.

Some improvement has been made by the airline industry in attempting to counteract this phenomenon. Meteorological forecasting has improved; pilots have been given briefing concerning the action of turbulence on aircraft; and instruments have been modified to portray clearly the attitude of the aircraft at large departures from horizontal.

Still the detection and forecasting of clear air turbulence is largely beyond present capabilities. There are no CAT detectors which can be considered sufficiently developed to even evaluate the problem. Forecasting capabilities have not progressed since 1959 when the jet aircraft promoted high-level mountain wave forecasting. Lasers, temperature sensors (on the aircraft), electric discharge monitors, and VHF radar and ozone detectors have been tested, but no one method of CAT detection has yet been demonstrated to be operationally useful and practical. It is NASA's conclusion that "Despite many commonly quoted theories about the nature and meteorology of CAT, not enough is actually known and proven about the phenomenon to enable the practical value of proposed CAT detection methods to be predicted with any useful degree of confidence." [11] NASA has recommended a broad scientific overview of research and development, and coordinated and increased effort in Research and Development work sponsored by the Government agencies in the area of CAT detection and warning.

En route weather information and the capacity to predict

Three hundred and thirty-three weather reporting stations in the United States serve over 16,000 civilian aircraft (183,500 estimated in 1977) at nearly 7,000 airports. Airport weather observing stations take hourly reading and 3- and 6-hour synoptic observations on a 24-hour, 7-day a week basis at all 333 locations. The basic communication system which gathers the observations and sends them to the weather forecast centers and then distributes forecast data is operated by the FAA as part of the over-all communication system. The Weather Bureau operates a number of flight advisory weather service centers to serve aviation directly.

Dr. Robert D. Fletcher, Director of Aerospace Sciences for the Air Weather Service, feels that science has hit a plateau of forecasting capability from which it is unlikely to climb much higher until more basic research is accomplished. He contends that the scientist and forecaster must work together more than they have in the past to bridge the gap between basic research and practice.

For many years, radar has been used to observe weather because large collections of raindrops, snowflakes, or cloud droplets backscatter enough of the radar energy incident on them to constitute detectable radar targets. Present day radar can only indicate the presence of precipitation and the relative size of the area it covers. Under study is a Doppler radar system which will detect the velocity of the raindrops or snowflakes in much the same way that police radar determines the speed of a car. Doppler radar will aid aviation weather research by finding the altitude at which snow turns to rain, the wind structure in storms, and the exact configuration of updrafts and downdrafts so that frontal systems may be determined.

Automated aviation weather forecasting and broadcasting has made some significant strides. "Mesonet" consists of 13 automated weather stations spaced within 30 miles of the National Aviation Facilities Experimental Center (NAFEC) in Atlantic City, New Jersey. Each station measures and transmits 10 different weather elements on an intricate time scale to a central collection point. The Mesonet approach is being followed to explore factors involved in providing effective short-range terminal weather forecasts for periods of one hour or less for highly critical subsonic and supersonic jet operations at high-density terminals.

A statistical terminal forecast technique called "Regression Estimate of Event Probability" (REEP) was also developed and

Footnotes at end of article.

tested in operational environment. The REEP technique provides automated probability forecasts for ceiling and visibilities in future time periods of 2, 5, and 7 hours. REEP forecasts have been transmitted to Los Angeles, San Francisco, Seattle, Chicago, New York, and Washington. Results to date indicate the feasibility of utilizing this technique at a centralized computer facility with forecast accuracies equivalent to those made by average aviation forecasters. The cost of processing and transmitting is minimal. Improvement in this type of weather forecasting and data transmission will lead to better forecasting capability, reduce manpower needs, and reduce costs.

As of June 1966, Automatic Terminal Information Service (ATIS) was operating at 23 of the Nation's busiest airports and projected for another 50 airports. Broadcasts are recorded on magnetic tape, giving ceiling, visibility, wind direction, barometric pressure, runway in use, and other pertinent data. The broadcasts ease controller workload, reduce radio frequency congestion, and permit pilots to obtain routine non-control information when cockpit duties are least pressing.

There is a possibility that a global weather observation system which includes the use of satellites to gather data from remote unmanned weather stations will be developed in the next few years. To the end of developing such a system, Congress passed H. Con. Res. 723, May 20, 1968, expressing "the sense of Congress that the United States should participate in and give full support to the world weather program." This resolution, in effect, gave U.S. representatives to an international weather program in Geneva, May 29, 1968, added impetus to continue work begun in 1961; this work is approaching the stage of important initial success.

Development of such a system would include the Weather Bureau's TIROS Operational Satellite System, or a more advanced system, which might be used to obtain daily cloud cover information on a global basis. Modern computer technology would speed the solution of mathematical weather forecasting formulas. A satellite communications network would connect world meteorological centers in Washington, Moscow, and Melbourne. The ultimate operational systems would give meteorologists three-dimensional atmospheric data in addition to day and night cloud cover pictures. The program would provide comprehensive data on temperature, humidity, and wind velocity from the surface up to an altitude of 100,000 feet. Satellites could conceivably report directly to a computer which would draw a weather map in great detail and also feed out printed weather forecasts.

Accurate forecasting will take on even greater importance when the giant jet transports become operational; and accurate forecasts of upper-air temperature will enable acceleration to supersonic speed at an altitude low enough to avoid excessive fuel consumption yet high enough to need to be forecast so that the pilot may choose a route to take advantage of these winds but also to avoid turbulence which may amplify sonic-booms to several times normal intensity.

Weather forecasting is an integral part of planning future facilities to minimize weather effects on air-traffic management techniques and systems.

The role of the FAA

The Federal Aviation Act of 1958, Sec. 310 provides that the "administrator is empowered and directed to make recommendations to the Secretary of Commerce for providing meteorological service necessary for the safe and efficient movement of aircraft in air commerce . . ." Thus, though the weather analysis system is administered through five different government agencies, the Administrator of FAA is empowered to recommend adequate weather analysis for a safe air traffic system, but he lacks the authority to do more than recommend. The fact is that FAA has largely abdicated even its responsibility to recommend.

The greatest amount of funding related to aviation weather service goes to the Department of Commerce—Weather Bureau—($93,888,000 in 1965) followed closely by the Air Force ($88,213,000 in 1965). The FAA's proportion in 1965 was $18,755,000 in 1965. The Weather Bureau estimates that about $12 million (12%) of its funds are spent each year in aviation services. FAA spends about 2% of its own funds for weather.

FAA has never defined with precision a weather information system adequate to the safety needs of a comprehensive air traffic system.

Other environmental factors

Terrain, as a category of environment, was cited by the FAA as a factor in less than 1% of the air carrier accidents between 1960–1964, and in 6% of general aviation accidents between 1959–1964, but it was cited as a related factor in 380 accidents for general aviation in 1966, 6.7% of the total; 7.1% of these were fatal. The mountainous areas of the East, West, and Far West have consistently been cited as particularly hazardous to general aviation because of severe weather changes, altitude, air density and down drafts, and inadequate weather reporting equipment and communication facilities in these areas.

Birds, as a category of environment, have been responsible for accidents and are still a hazard and a consideration in airport planning. In Boston, an ingestion of starlings in the engines on take-off caused the downing of an Electra; in Ellicott City, Maryland, in 1963, a United Viscount was downed after whistling swans struck the horizontal stabilizer. In four years the Civil Aeronautics Board has received 1,100 reports from pilots of bird strikes—primarily starlings and pigeons in altitudes of from 4,000 to 6,000 feet in the fall and spring.

Rather than trying to prevent the ingestion of birds (because frequently they cannot be seen in time), FAA's approach has been to try to develop equipment which will handle the ingestion. In the case of the Viscount, the windshield was strengthened to carry a 4-pound bird at 300 knots; and the Electra engine has been made to delay the automatic feathering, so that any ingestion that does occur would not cause the engine to feather and stop.

Low visibility, whether caused by smog, air pollution or darkness, and its interaction with other environmental factors like unmarked protruding objects are a continuing and increasing safety hazard. A study of "landing short" accidents by O. E. Kirchner of the Flight Safety Foundation, in December of 1960, showed that the leading type of approach accident occurred in aircraft which were on-course, more than one mile out, and struck a protruding object. The planes involved were on Instrument Flight Rules (IFR) at nighttime more often than any other combination followed by flying by Visual Flight Rules (VFR) under IFR conditions and in severe weather.

CHART 10

The analysis of the United Research survey resulted in the following values being placed on an all-weather landing system:

(1) Additional demand leading to increased revenues to air carriers	$11,500,000
(2) Cost savings to air carriers	9,379,000
(3) Cost savings to general aviation	292,000
(4) Value of accidents prevented	3,791,000
Total	24,962,000

Source: FAA

V. AIRCRAFT AIRWORTHINESS

Obviously, many factors can contribute to an air accident—weather, pilot error, inadequate traffic control, etc. Presumably, one of the areas most easily subjected to effective accident prevention is the plane itself. If the aircraft itself is a cause of an accident, the malfunction probably could have been predicted.

Nonetheless, faulty aircraft have been cited as a reason in a number of air accidents:

Power plant failure was cited as a cause in 7% of air carrier accidents studied between 1960 and 1964—and 5% of general aviation accidents between 1959–1964.

Landing gear failure was cited as a cause in 7% of air carrier accidents studied between 1960 and 1964—and 6% of general aviation accidents in 1966.

The air frame was cited as a cause in 1% of air carrier accidents studied between 1960 and 1964—and less than 1% of all general aviation accidents in 1966. (In the instance of clear air turbulance the air frame may be more of a cause than is presently thought.)

Altimeters may have been a causal factor in some instances. (The FAA estimates that there is a 0.3% probability that even given the correct information by the controller, a modern transport aircraft will be more than 200 feet off the assigned altitude. Roderick A. Dennis, President of Zeta Engineering Co. in Dallas, says that present altimeter capabilities may have caused two crashes in the Cincinnati area since 1965 and others in the Salt Lake City and Chicago areas. Dennis' theory is that moisture-laden air rising from a body of water causes an error in a plane's altimeter. When a plane calls an airport for landing instructions, the airport radios altimeter settings at the airport and in the case of the Greater Cincinnati Airport, the air at the field might be considerably dryer than the air two miles north over the Ohio River.)

Responsibility for assuring airworthiness of all aircraft lies firmly with the FAA. Under the Federal Aviation Act of 1958, Public Law 85–726, Title VI:

Section 601 empowers the Administrator "to promote safety of flight of civil aircraft in air commerce by prescribing . . . minimum standards governing the design, materials, workmanship, construction, and performance of aircraft, aircraft engines . . . a production certificate authorizing the production of duplicates of such aircraft . . . and if the Administrator finds that the aircraft conforms to the type certificate therefore, and, after inspection, that the aircraft is in condition for safe operation, he shall issue an airworthiness certificate."

Section 605 provides that "It shall be the duty of each air carrier to . . . maintain, overhaul, and repair. . . . The Administrator shall employ inspectors who shall be charged with the duty of making inspections. . . ."

Before a newly developed aircraft can be put into use, it must be "Type Certified" by the FAA. Certification is not given until the aircraft has passed its flight test, which means it is possible for a manufacturer to build an aircraft which never gets certified. Such an instance is rare, however, because manufacturers work closely with the FAA through a plane's final development and production stages. Nevertheless, the burden of proving the airworthiness of an aircraft is squarely with the manufacturer according to the rules laid down by the FAA.

Supplemental type certification is required when there is modification of the original model which is not great enough to require a new type certification. Such modification may occur after the aircraft has been in operation for a long period of time or after a series of accidents isolates some special characteristic of the plane which necessitates construction adjustment.

The FAA may issue a directive prescribing

appropriate methods of compliance to the manufacturer. In lieu of such directive, the FAA can be satisfied that all aircraft have been corrected as a result of an "alert" issued by the manufacturer or FAA.

In the example of the Boeing 727, after the investigation of the crash at Salt Lake City, approximately fifty amendments of the standards were recommended. The purpose of these modifications was to improve the emergency evacuation equipment requirements and the operating procedures in order to increase substantially the probability of occupant survival in an aircraft accident.

As an extreme measure, aircraft may be grounded until necessary changes are made. From 1938 to 1963, at least 8 such mandatory and voluntary groundings have taken place, according to the CAB. In two instances, the Beechcraft D–18C and the Martin 202, the aircraft was never returned to service.

To review the policies and concepts out of which emerge FAA's airworthiness standards for aircraft and equipment, the Administrator has appointed an Airworthiness Standards Evaluation Committee consisting of FAA personnel. The committee is assisted by five adjunct subcommittees which include in their membership advisors from other Government agencies and various segments of the aviation industry.

The FAA continuality monitors and evaluates the airworthiness of an aircraft. One program, implemented in June, 1966, is the performance and reliability system (PAR) which monitors performance in the airline industry as represented by 15 participating airlines. Information on certain selected safety parameters is displayed in graphs and charts for each airline taking into account such exposure factors as hours operated, aircraft movements and aircraft utilization.

Another new program is the Systemsworthiness Analysis Program (SWAP) which is a revision of the present system of routine inspections performed by cadres of inspector domiciled at the location of the air carrier's principal operations and maintenance base, instead of providing for strategically located teams of inspectors who periodically check air carrier compliance with the rules and regulations pertaining to the operations and maintenance of their aircraft. Normally FAA rides 1 to 1½% of an airlines' flights annually.

Surveillance of general aviation aircraft has been far less stringent than for aircarriers, for the mere reason that volume makes the task difficult. Some tightening has taken place in the last few years, however, e.g., inspection of air taxi aircraft at the rate of two per month per maintenance, inspector (formerly air taxi aircraft had no special surveillance), conversion from an annual to a when-needed basis for conducting formal inspections of repair stations, and requiring a maintenance system for large pressurized and turbojet aircraft.

The airlines themselves conduct a constant search for ways to reduce the unexpected malfunction of equipment essential for safety. One device is the airborne maintenance recorder which has been developed to the point that over 50 separate parameters of engine information can be recorded and monitored. This information provides a daily "health report" on the aircraft engines and systems. Each day a computer analysis can furnish an accurate diagnosis of maintenance requirements.

Regarding the substance of standards which FAA requires for airworthiness certification, David Thomas, Deputy Administrator FAA has said, "It is a fundamental assumption that they have redundant (back-up) systems and emergency devices. For example, in the electrical system there are in some cases three and four inverters and all sorts of switching arrangements; hydraulic systems operate the booster on controls; antiskid brakes may not work on the alternate hydraulic systems, but there is an alternate hydraulic system to lower the gear, and if that doesn't work there is an airbottle to blow it down." [12] Dynamic analysis, strength of materials, aerodynamic design, fire prevention, multiple engines, and parallel controls have been parts of the airworthiness standards effort.

Continued research, development and testing in the area of new materials, new components and higher performance will be needed, particularly in order to establish the highest standards for type certification of the jumbo jet and the supersonic transport.

One unsolved area to date is the aircraft requirements to withstand the phenomenon called clear air turbulence. As little is known about it, no standards have yet been established. Nevertheless, the pilot flying into clear air turbulence unexpectedly can expose his plane to severe aerodynamic loads which it must, but may not, withstand.

Another area of growing concern is what might be called "second generation airworthiness." It is simply not possible to say with precision that an aircraft which is safe when initially certified cannot through use develop unsafe characteristics. This is a problem similar to that faced in medicine where the long-range effect of some drugs is simply unknown until they have been used over the long-range. It is a relevant question to ask: Should commercial air carrier flights be the first test of the airworthiness of an aircraft at any age? Should not there be ongoing airworthiness tests of aircraft undertaken continuously, so that commercial flights are never the first to test the plane under new conditions—even if those conditions are merely that no aircraft of the type had ever accumulated so many total hours in flight before?

What FAA attempts to do in certifying airworthiness is done reasonably well, but the whole concept of FAA "airworthiness" certification and inspection can be challenged as an unrealistic isolation of one factor, the aircraft, in maintaining a safe system.

In an article by Prill and Hoekstra entitled "Transports of the Future—A Systems Approach," it is suggested that "the traditional concept of 'airworthiness' be broadened into a new concept of 'systemworthiness' "—that is to recognize and intensify the relationship between the transport manufacturer, the air carrier operator, and the FAA. Indeed, the very divergence between the operational and utilizational features of aircraft points to a direct need for this approach in FAA certification and surveillance procedures.

FAA has made a step in this direction in the establishment of MAC. The Maintenance Analysis Center which "contemplates systemworthiness analysis programs . . . will provide a centralized responsibility and capability for broad review and diagnosis of maintenance data and the issuance, when indicated, of alert warnings."

But the systems approach must be carried further. Besides the aspect of intersystem aircraft airworthiness consideration, the human interface problem (i.e. between aircraft and pilot) has also been a factor largely ignored in evaluating aircraft airworthiness. The "Aircraft Design-Induced Pilot Error Project" sponsored by the National Transportation Safety Board in 1967, found, for instance, that certain types of accidents were related primarily to detail design—particularly such things as those involving retractable landing gear and fuel systems mismanagement. In these cases improper sensing of control, inadequate identification of controls, inadequate indication and/or warning to the pilot, and lack of standardization were found to be the major design factors.

Similarly, there has been some indication that the design of altimeter dials may cause pilots to misread their altitude. The top dial is read for altitudes above 10,000 feet; the lower dial provides altitudes of less than 10,000 feet. Both sometimes show the same number. The problem is elusive, but FAA investigators now suspect pilot misinterpretation of the altimeter dials as a factor in a Boeing 727 crash into Lake Michigan, August 16, 1965, a TWA Convair 880 crash in Cincinnati, November 29, 1967, and a West Coast Airlines DC–9 crash near Wemme, Oregon, October 1, 1966.

VI. AIRCRAFT CRASHWORTHINESS

One goal of any air safety program is to minimize accidents; a second is to minimize fatalities when and if accidents occur. The FAA is thus concerned with both the airworthiness and the crashworthiness of craft. Its performance in the latter area has been distinctly less distinguished than in the former.

Public Law 85–726, Title VI, Sec. 601(a)(6) provides:

"The FAA Administrator is empowered and it shall be his duty to promote safety of flight of civil aircraft in air commerce by prescribing and reversing from time to time . . . such reasonable rules and regulation or minimum standards governing other practices, methods and procedure . . ."

FAA has interpreted this as authority to establish rules and standards of design and equipment which the aircraft must carry to insure the highest degree of survivability if an accident does occur. FAA has established rules based on knowledge gleaned from its own research studies, from conference studies, from the regular emergency evacuation tests required periodically of air carriers and from the industry. It requires a crashworthiness certificate for aircraft used in carrier operations.

An example of regulations instituted as a result of FAA research studies undertaken in 1966 are as follows:

Regulations adopted as a result of emergency evaluation medical research studies

1. Emergency evacuation demonstrations required on each type of air carrier passenger aircraft;
2. Portable battery powered megaphone(s) required;
3. Uniform passenger briefing procedure provided for;
4. Location and operation of emergency exits must be described to passengers;
5. Specific ratios of flight attendants to the number of passengers prescribed;
6. Emergency evacuation procedures made available by diagram;
7. Exit signs and opening clearly demarcated;
8. Life raft location and operation briefing on over-water flight;
9. Exterior markings around emergency exits required;
10. Clearly indicated external openings available on emergency exits;
11. Prescribed performance standards for flotation seat cushions;
12. Evacuation demonstrations must encompass 120 seconds or less time;
13. Separate demonstrations for ditchings must be accomplished;
14. Emergency exit operating handles must have instructions readable at 30 inches and have uniform markings; and
15. A source of light independent of the main lighting system must be installed to illuminate each emergency exit and locating sign.

Regulations under considerction as a result of emergency evacuation medical research studies

1. Individual passenger portable smoke mask (could double as emesis bag);
2. Delethalized seat back;
3. Individual passenger single strap inertial reel torso restraint (suitable for adult and child);

Footnotes at end of article.

4. Emergency escape procedures in 400–1,000 passenger aircraft;

5. Dynamic tests of 40g (all directional) passenger seats.

Source: "Federal Aviation Agency Air Traffic Control Operations", *Hearings Before a Subcommittee on the Government Operations*, House of Representatives, 89th Congress, Second Session, April 26, 1966, page 70–71.

A study by the Aviation Crash Injury Research Division of the Flight Safety Foundation in 1961, indicated that occupant protection criteria of the FAA do not fully recognize safety advances which can be implemented on the basis of existing technology. Failure of the seat belt tie-down, rigid service trays, the design of seat backs and seat back webbing, and seating configuration all contributed to fatalities in crashes where the fuselage structure was left relatively intact. It would appear that not much change in any of these areas has occurred since the study was concluded.

The FAA consults industry during development of a new aircraft to define and establish criteria for crashworthiness certification. In the certifying of the new airbuses, for instance, (DC–10, Boeing 747) the FAA has followed the industry during development. The safety standards which are likely to emerge, however, will probably be little different from what is in effect today with smaller craft. McDonnell-Douglas says that no passenger will be more than one seat away from an aisle and that cabin width of more than 19 feet is 7 feet greater than the jetliners now flying. But these advertisements are misleading: The first claim refers only to first class configuration; and the latter claim fails to recognize that there will be just that many more seats across the cabin width. It is clear that a seating capacity of 300 passengers will mean that crowded seating conditions and hampered access to exits will be even more of a problem with the new airbuses than in today's craft. Aisle width of the DC–10 will measure 19 inches, which is one inch wider than in current coach sections. There will be only eight entrance and exit doors, more than on current aircraft, but possibly inadequate for a 300 passenger evacuation process. It is not clear that the FAA is exercising sufficient authority over the industry in defining what is and what is not safe.

Information gleaned from flight recorders is another source upon which regulations have been established. Flight recorders are instruments installed on the aircraft which record the actions of the aircraft and when played back after a crash can reveal aspects of causal factors. Formerly just a few parameters like the pilot's conversation with the ground, air speed, etc., were recorded, but equipment is now available which increases the parameters significantly, recording such things as pitch attitude, angle of attack, angle of bank, pitch rate, yaw rate, roll rate, position-control column, position-control wheel, position-rudder pedals, position-pitch trim, position flaps, ambient air temperature and engine parameters.

FAA is now considering making such equipment mandatory on certain types of air carrier aircraft at an estimated cost of from $20,000 to $25,000 for equipment and installation per aircraft. The value of such recorders is being debated, first because they do nothing to prevent a crash, and second because it is a very long and expensive procedure to process the "read-outs" from recorders—with results which are then often of such poor quality that they are all but useless. A somewhat more serious concern is the degree to which increased reliance is being placed upon recorder read-outs to provide the basis for future regulation changes. It may be administratively more "comfortable" to base safety regulations on facts which are proven in a crash than to act boldly before a crash proves you correct.

Crashworthiness regulations are almost non-existent for general aviation. Beyond FAA monitoring of repair stations and instrument schools, general aviation aircraft safety has been the responsibility of the manufacturer and the individual owner (except for air taxi or certain aerial applications).

The two principal areas of concern over the crashworthiness of aircraft are fire prevention and evacuation capacity.

Fire

An "FAA-Industry Conference on Crashworthiness and Passenger Evacuation Standards for Transport Category Airplanes" held in 1966 provided a list of 14 topics which represent areas of focus for crashworthiness attention. Ten of them related to fire prevention: crash resistant fuel tanks; combustible characteristics of cabin interior materials; cabin fog and foam systems; gelled fuels; fuel containment to prevent spillage; fuel cell inserting; ignition suppression; prevention of fire in cargo compartments; self contained fire extinguisher systems; rescue and fire fighting (exterior).

Time Magazine cites experts who figure that the number of crash deaths could be reduced by 50% if fire could be prevented.[13] Though all the passengers survived the crack-up of a United Boeing 727 crash at Salt Lake City on November 11, 1965, 42 died in the fire.

In a CAB investigation over an 11-year span, it was found that fire following the crash—not injuries resulting from the force of impact—killed 221 of 543 aboard the planes or 41% of all occupants. Only 24 or 4% were fatally injured by disintegration of the plane's structure. CAB predicted that all 221 who burned or suffocated would have survived had there been no fire. CAB said "had modern fire fighting and rescue equipment been on hand, an additional 17 lives probably would have been saved."[14]

There are a number of fire prevention features already required by FAA relating to hand fire extinguishers, cargo compartments, protection of electrical and hydraulic systems against fire, and extinguishing systems for the power plant. A new flame detection and suppression device has been recently developed which will virtually eliminate the possibility of lightning igniting volatile fuel vapors vented from fuel tanks. Improvements "under consideration" are: new container materials to keep fuel from escaping from ruptured tanks; use of emulsified or gelled fuel; fire reducing foam; smothering gases; explosion detectors and automatic cut-off valves.

There are more than 15 to 20 different plastic items used in cabin interiors in different amounts, some more or less toxic than others, as well as inflammable upholstery fabrics.

Materials contained in commercial airline cabins which release toxic gases upon thermal decomposition can cause modern airliners to become lethal gas chambers when afire. Tests run in mid-1966 by the Airline Pilots Association showed concentrations of hydrogen cyanide of at least 50 times the lethal level, and Cleveland fire tests established that the life of a passenger may be endangered by the presence of these toxic fumes even during the established 90-second escape period.

FAA's approach has been to develop some kind of means to protect the passengers from the smoke and toxic gases elicited from the burning materials rather than to regulate the use of materials. They have, therefore, developed a little bag which contains a bottle of compressed air which discharges when the bag is put on and will give up to 8 minutes of oxygenated air. It would seem that regulation of materials in future aircraft is well within the realm of reason and feasibility.

Evacuation

Since emergency evacuation demonstrations were first required of the airlines by FAA on December 11, 1961, in order to monitor the effectiveness and operational maintenance programs, there have been over 300 demonstrations conducted by air carriers and additional tests have been conducted by air carriers for their own benefit. The demonstrations have included the following types: 45% simulated aborted take-offs; 35% simulated gear-up crash landings; 20% ditching demonstrations.

In the demonstrations, at least 30% of the passengers must be females, at least 5% must be over the age of 60, at least 5% must be age 12 or under, at least 3 dolls must be carried to simulate infants, one-half of the exits on the aircraft are closed, and nighttime conditions are simulated.

Of the combined total of 250 take-off and gear-up crash landing demonstrations, 70 deficiencies were noted during 55 separate demonstrations. Of the 70 deficiencies noted, 59 involved slides and 11 were due to miscellaneous causes such as stuck cabin doors, jammed overwing exits, malfunctioning jump seats which blocked the exits, inadequate procedures or crew member training. Of the 58 ditching demonstrations, 22 deficiencies were noted on 10 of the tests. Twenty-one of the 22 deficiencies involved malfunctioning rafts or their stowage compartments. Only one involved lack of crew member training.

FAA emergency evacuation demonstration procedures have been under attack by those who say that the subjects used are "practiced" and not typical of the passenger type—such as stewardesses, professional actors, etc. FAA points to their requirements regarding the composition of the group, and in addition, they say that in evaluating an aircraft they use two kinds of tests—one with a stereo-typed individual to determine the minimum escape time for a given airframe and the second with a naive subject to simulate the actual operational time. It is undeniable that as long as the subjects know it is a test, they are inevitably primed to react in a certain way, and thus leeway in interpretation of the results is necessary.

FAA now requires that an aircraft be evacuated in 120 seconds or less. Many assert that this is unrealistic. FAA points to the fact that of the more than 300 demonstrations conducted by air carriers, approximately ⅔ of the timed demonstrations were completed in 90 seconds or less. In an effort to shore up regulations, as of October 24, 1967, the aircraft manufacturers were required to demonstrate that their designs are capable of evacuation of the maximum seating capacity through the exits on only one side of the aircraft within 90 seconds.

FAA now requires that for a minimum of 9 passengers there must be one flight attendant and that for as many as 149 there must be a minimum of 4 flight attendants. The requirement has been noted as absurd, because for higher density aircraft where the need for additional attendants might be greater, the ratio of flight attendants to passengers is 1 to 35, while on aircraft of lower density the ratio can be as low as 1 to 9. There is no doubt that among the crowded conditions on the larger long haul jet aircraft, a crew ratio of 1 to 35 is a questionable figure.

The demonstrations indicated that, more than any other item, ineffective slides were the cause of deficiencies in emergency evacuation procedures. FAA now says that improved inflatable escape chutes attached to

Footnotes at end of article.

the doors, designed to be more dependable and more rigid, are being developed and required.

Exits and seating have also been cited as factors in the fatality rate after crash. In the Boeing 727 Salt Lake City crash, passengers opened five of the six exits but they fumbled with three of these before getting them open—no one will ever know how many lives were lost because of the few seconds delay.

The high ratio of passengers to exits and the positioning of these exits can result in crowded aisles in attempts to escape. On the 113-passenger 720 which has only six exits, two are over the wing and partially blocked when seats are in their normal upright position.

Present FAA standards call for a certain number of exits per passenger, depending on the type of exit. It has been suggested that rather than require manufacturers to abide by this sort of formula, manufacturers should be required to demonstrate that an aircraft can be evacuated in 90 seconds and then have them develop whatever type of exits are necessary to implement this. This is especially of interest to those concerned with the coming of the jumbo jets and the number of exits which may have to be provided to evacuate the aircraft adequately. It may well be that the creative and innovative expertise of the aircraft industry can come up with better exit types and location given a stricter code of evacuation criteria by FAA.

FAA has regulations and minimum standards for seat spacing and aisle width. They are primarily based on the airline manufacturers' ability to demonstrate that the seating configuration allows for emergency evacuation in the prescribed time. As Mr. David Thomas, Deputy Administrator, FAA has said, "I quite agree that all seating arrangements are not comfortable, but it has been demonstrated that they may be evacuated, with part of the exits covered in a minimum time".[15]

It would seem that the interrelationships between seating, aisle widths, exit number and location, regulations as to hand luggage brought on board, distance of the flight should be the criteria for seating regulations rather than the relationship between the number of passengers and their ability to get out of an aircraft in a certain length of time. Again, the failure of a comprehensive systems management approach to air safety is evident.

Locating downed aircraft

Downed and missing aircraft are a crucial factor in the lethality rate of general aviation. Survivability for downed aircraft might be most directly related to the speed with which the downed aircraft can be found and the ability of pilot, crew, and passengers to carry through survival procedures.

In the last five years (1962–1967) there were 60 aircraft in the continental U.S. and Alaska which were missing and have never been found. In the continental U.S. between 1965–1967, 32 aircraft were missing for more than three days and 40 were missing for a period of from one to three days. These aircraft "emergencies" are not limited to mountainous areas, large bodies of water or sparsely settled areas.

In fiscal year 1966, the Air Force flew 57,585 hours in Search and Rescue operations at a total cost of $59,224,142 ($112,808 per person) and claims to have saved 525 persons as a result of these operations. In search operations, however, the Civil Air Patrol (Air Force) in 1967 had two accidents with three lives lost; in 1966, two accidents with no lives lost; in 1965, three accidents with one life lost. In test missions in 1965, practicing the procedures for rescue, they had five accidents with two lives lost.

Footnotes at end of article.

Recently it has been suggested that all small aircraft be required to carry a device called the DART (Downed Aircraft Rescue Transmitter) which transmits a locator beacon which can be picked up by a suitably equipped search aircraft. The device costs only $200.

VII. AIRPORT REGULATIONS

Quite aside from the aspects of air safety involved in technical traffic control systems (see Section VIII) and in airport construction and equipment (see Section IX) there are three aspects of airport operations which require in-depth attention: Carrier scheduling; runway congestion; and noise abatement.

Carrier scheduling

Departure and arrival schedules which are approved by the Civil Aeronautics Board increase traffic and add to the complexity of traffic control at major airports.

In New York, for instance, 67 flights are scheduled to leave the airport between 7 and 9:30 a.m. Thirteen flights are scheduled to leave at precisely 9 a.m. alone. (See Chart 11). In 1963, FAA conducted a study of New York air traffic between 5 p.m. and 7 p.m. to illuminate the complexity of the delay and congestion problem, and one of their findings was that airline scheduling contributed significantly. Between 5 p.m. and 7 p.m., for instance, at Kennedy, there were 10 departures scheduled on-the-minute at 5 p.m. and six on-the-minute at 5:30 p.m., yet only two in between. Of 21 departures scheduled during this hour, 16 were scheduled in two minutes. At 6 p.m. there were 12 departures scheduled on-the-minute; at 6:30 p.m., there were five departures on-the-minute. Of 30 departures scheduled between 6 p.m. and 7 p.m., 17 were scheduled in two minutes.

Thirty-seven and five-tenths (37.5) percent of the total weekly departure traffic is scheduled during 3.3 percent of the total time. In fact, at current major hub airports, there are as many arrivals scheduled for the same minute.

With such departures scheduled, according to the FAA, "delays would occur were there no other contributing factor." [16] Travel across the Atlantic indicates the same thing. On July 11, 1967, at 11:30 p.m., of 85 scheduled aircraft, 82 were eastbound to Europe, only three were westbound.

General aviation constitutes a large portion of traffic at our commercial airports, but it is an even greater portion during the all-important peak hours. According to surveys made in 1965, however, 23 out of the 30 general aviation movements during the peak hour at Kennedy were to make airline connections, only seven were to conduct local business. (See Chart 12).

FAA has not in the past interpreted its role of protector of air safety in terms of regulating aircraft scheduling, although air traffic is increasingly becoming a factor in promoting a safe airways system. In hearings before a Subcommittee of the Committee on Government Operations, House of Representatives, April 1966, when asked if CAB routinely inquires of the FAA what the impact of additional scheduled flights might have on traffic control, Mr. David Thomas said that they did not.

According to a staff study prepared by the Systems Research and Development Service of FAA in November, 1967, flattening of schedule peaks could significantly reduce delay. (It is typical that the concern was primarily expressed in terms of passenger convenience rather than passenger safety.) Reducing demand peak operations per hour from 8% to 7% for 600,000 operations per year, for instance, could reduce delay by 42%; reducing demand peak from 8% to 6% could reduce delay by 58%. (See Chart 13).

Restricting the use of large airports by general aviation would definitely reduce delay, but raises the question of defeating feederlines and "hub-service." Commercial aviation in the end will be restricted in growth if general aviation cannot supply the link which it now provides. That general aviation which is not relevant to commercial traffic, however, is another question, although it rarely causes congestion problems because most pleasure flying pilots prefer not to use busy airports.

Alternative suggestions to restricting the use by general aviation of large airports include: construction of shorter, parallel runways; the establishment of separate radio frequencies; separate approach and departure routes and altitudes; dissemination of better and more accurate information by FAA in the Airmen's Information Manual to enable general aviation to utilize airports more safely and effectively; improvement of existing reliever airports to permit all weather operations; and improvement of ground transportation facilities from these airports to the downtown area. All of these suggestions relate to relieving delay; none would appreciably relieve congestion.

Other scheduling procedures which might be considered to relieve congestion are limiting airport use in accordance with traffic flow direction and the functionalized airport concept. Concentrating traffic flow direction would decrease the amount of airspace sharing, crossovers and devious vectoring around nearby airports, but it would increase traffic concentration in one lane thus increasing holding patterns and concentration of traffic in one airspace. Functionalized airports will result in more efficient utilization of airports and system facilities and augment safety by permitting segregation of aircraft performance characteristics, but it would greatly complicate connecting passenger traffic.

Runway congestion

To the extent that traffic congestion approaching an airport can be reduced by more efficient, but not less safe, landing procedures, those procedures should be amended. A number of areas need study.

Reducing the spacing between aircraft is a hotly contested issue between pilots, controllers and the FAA. The three-mile present radar separation standard came about quite arbitrarily many years ago—so arbitrarily that it jumped 15% when the U.S. adopted the nautical miles terminology. The present three-mile standard normally provides ample time to get the No. 1 arrival off the runway before the No. 2 aircraft is committed to land. Lowering the spacing for same-speed aircraft from 3 to 2 nautical miles would reduce the landing interval from 1½ to 1 minutes.

The crux of the issue is that airspace separation should be evaluated in terms of the type of aircraft performance rather than solely on the basis of runway occupancy constraints. Such constraints are already in existence by the procedure requiring that the preceding arrival either be off the runway before a landing clearance is given or have reached a minimum distance from the landing threshold. For instance, the time interval for a long haul four-engine jet from the point of commitment to the time it exits the runway is about equal to the time interval required to maintain three miles longitudinal separation on final approach. A small aircraft, on the other hand, with lower approach speeds, takes much longer to travel the three miles than the time required to land and clear the runway. Thus the gain in capacity from reduced radar spacing increases as the proportion of small aircraft increases. The gain is also greatest at airports where arrival capacity is less than departure capacity as departures are generally not affected by reduced radar spacing.

Current procedures give arrivals priority over departures. A strict first-come first-served treatment of arrivals and departures is not possible because an arrival once sequenced to final approach must have priority

to use the runway. Thus every time a large jet arrives, it preempts a departure up to 60 seconds. Because of this, it would be most beneficial to get a sequence of two or more spaced arrivals in order to reduce as much as possible this preempting of runway use.

Speed class sequencing can also help to increase capacity. Whenever a slow aircraft follows a fast aircraft, an excessively long approach interval is produced. One way to reduce the fast/slow interval is to reshuffle the landing sequence many minutes ahead of time using the air traffic control computer in order to minimize the number of fast/slow pairs.

Reducing runway separation criteria between parallel runways would enhance capacity. Existing Air Traffic Control procedures specify that a departure from any runway cannot be released in front of an incoming arrival unless at least two nautical miles separation exists, whether arrival and departure are on the same runway, or on parallel or non-intersecting runways. Approaches to runways separated by less than 5,000 feet must maintain at least three miles airspace separation. This criterion applies whether runway separation is 400 feet or 4,000 feet. A revamping of criteria according to separation could increase capacity. The 5,000 foot standard was arrived at without the present controller monitoring system in mind.

At airports where there are a number of runways being used, mixing large and small aircraft on the same runway reduces capacity. Ideally it would be beneficial to have separate independent runways for large and small aircraft, but this is usually impossible. One study indicated that a mix of 60% long haul four-engine jets, 20% F-27 type aircraft, and 20% between these two can increase capacity of IFR landings by from 5 to 11 percent, and VFR capacity by from 11 to 16%.

Prodded by the President's September 20th letter to DOT requesting Secretary Boyd to tighten up on air traffic safety, the FAA has come up with a new traffic segregation plan for high density terminals. Starting with the premise that the safest traffic environment is one in which all traffic is separated by ATC—but recognizing that in our busiest terminal ATC cannot possibly control everything that flies—the FAA concept would establish special controlled airspace zones around certain designated primary airports. Only controlled traffic would be allowed within these special zones.

Comments on the plan have been varied—among them that the plan did nothing to meet the nation's requirement for additional traffic capacity and merely increased the complexity of the air system, geometi and controller workload. On the other hand the system has been working well in Atlanta and it is one of the few measures which can be started immediately under the present constraints on funds and personnel.

Noise abatement

Though no crash has been directly blamed on noise abatement procedures, at least one American 707—which plunged into Jamaica Bay and killed all 95 aboard in 1962—would have had a better chance if the pilot had been allowed to climb away fast and straight. Says Pilot Harry Orlady, a 25-year veteran with United: "Noise abatement procedures force you to fly as close to danger as you dare to. You don't have much margin for error." [17]

NASA concluded after a study of noise abatement procedures that guidance equipment, aircraft capability, and high pilot workload are limiting factors in using steep approaches for noise abatement—a procedure now sometimes used.

A major problem is competing jurisdictions. The New York Port Authority maintains it has a right to regulate aircraft noise on take-off procedures because the plane is on Port Authority property—that is, the airport. However, once the plane is airborne, jurisdiction passes to the FAA which has control over the aircraft until it sets down at another airport at which time another local regulatory unit takes over control. For this reason, the Port Authority refuses to prescribe noise restrictions for landing operations. The FAA declines to set engine noise levels for landings (except through approach patterns) referring to the jurisdiction of the Port Authority, the difficulty of obtaining accurate measurements, emergency margins of safety, preferential runways and structural limitations of aircraft.

The mechanics of noise abatement procedures can be explained in terms of procedures at Kennedy which require that when the aircraft reaches an altitude of three hundred feet, the Captain is required to make a twenty degree turn to the left and reduce the power of his engines (which reduces noise). "Boxes" which record the noise level are strategically set around Kennedy and record any level of noise greater than 103 PNdb (Perceived Noise decibels). In the first eight months of 1967, of the 98,443 take-offs at Kennedy, 690 involved noise violations.

The safety factor which is involved is that the speed at which the plane is flying when it is required to make the turn and reduce power (200 mph) is a marginal speed to keep the plane aloft. Captain Vernon Lowell in his book says that 250 mph is a safe speed in a heavily loaded plane, that 200 mph is less than the required minimum in case two engines fail, and given the altitude at which it occurs, it is not enough to recover from a possible stall.[18]

The irony of the procedure is that as now practiced it may actually *increase* the noise level. After the aircraft passes the noise recording point, power is again applied in concentrated quantities, thus increasing noise levels along certain paths in that area.

Another procedure which is used at some airports for noise abatement is the preferential runway system. Implementation is usually through an Operations Letter by the FAA which designates the runways by order of preference under certain wind conditions. Exceptions are made when in the judgment of the pilot the use of the preferred runway will jeopardize safety or when, in the opinion of the Tower Supervisor, a hazard could be created. Visual markers such as beacons and other visual guidance to the runways are provided to help keep the pilots on appropriate course.

Theoretically the approach profile should not be as noisy as the departure profile, as the latter is basically full-power while climbing for altitude. On the other hand, slow, dragged-in approaches which are often necessitated by the acceptance of a high speed aircraft behind a low speed aircraft, require use of flaps, configuration with gear, spoilers and power to compensate for speed; all of which means noise.

Solutions to the noise problem which are consistent with safety include restrictions on night operations, increased visual and non-visual glide slope angles and delayed acceptance into the final approach sequence. The FAA is currently developing instrumentation to permit quieter approaches beyond three miles from the airport. If the results of the current study show that two-segment approaches meet adequate levels of safety, then the installation costs for airborne instrumentation necessary to achieve the resulting two-segment approach noise benefits would be approximately $2,000 per aircraft. (At those airports not presently equipped with terminal DME installations, a $50,000 ground facility would be necessary.)

A more promising solution to the noise abatement problem would be found in the design of the jet engine. Noise was accepted as a necessary evil in the early military turbojet engines from which civil jet engines descended, but now an attempt can be made by government and private industry to design jet engines from the very beginning calling for less energy to be wasted on noise and exhaust. An ineffective compromise in the meantime is the establishment of acceptable noise levels—requiring a high degree of technical skill and elaborate facilities for the development of such criteria, the tedious chore of measuring the noise characteristics of each aircraft operation, and the difficulty of enforcing the procedure.

A final area of safe solution for the noise abatement problem is land use, including extending runways, planting rows of pine trees to absorb noise, adopting zoning laws, greater concern to future airport site selection—and, of course, sacrificing passenger "convenience" to both passenger safety and the hearing comfort of populated areas through utilization of existing airport facilities farther from urban centers.

CHART 11.—SCHEDULED DEPARTURES OF MAJOR AIRLINE PLANES FROM JOHN F. KENNEDY AIRPORT, NEW YORK, BETWEEN THE HOURS OF 7 A.M. AND 9:30 A.M.

Time	Flight	Destination	Airline
7:00	81	Pittsburgh	United.
7:00	556	Providence	American.
7:15	361	Charlotte	Eastern.
7:45	425	Philadelphia	National.
7:45	243	Washington-Miami	Pan American.
7:45	425	Washington	National.
7:45	370	Nantucket	Northeast.
8:00	203	Minneapolis	NW. Orient.
8:00	123	Chicago	United.
8:00	233	Santo Domingo	Pan American.
8:00	281	San Juan	Do.
8:00	9/819	Los Angeles	American.
8:00	923	San Juan	Eastern.
8:00	105/31	Acapulco	Braniff.
8:05	469	Norfolk	National.
8:10	401	do	Do.
8:10	285	Memphis	American.
8:10	241	Cincinatti	Do.
8:15	153	Jacksonville	Eastern.
8:20	101/726	Greenville	Do.
8:20	69	San Francisco	United.
8:25	923	San Juan	Eastern.
8:30	540	Easton	Northeast.
8:30	51	Houston	Eastern.
8:30	9	Miami	Do.
8:30	209	Milwaukee	NW. Orient.
8:30	9, 971	Chicago	United.
8:30	291	San Juan	Pan American.
8:40	103	Baltimore	National.
9:45	71	Phoenix	American.
8:45	155	Denver	TWA.
8:45	129	Dayton	Do.
8:45	164	Denver	United.
8:45	205	Detroit	NW. Orient.
8:50	819	Atlanta	Delta.
8:55	21	Tampa	National.
8:55	546	Providence	American.
9:00	901	Mexico City	Eastern.
9:00	49	Seattle	United.
9:00	921	San Juan	Eastern.
9:00	205	Dallas	American.
9:00	151	Orlando	Eastern.
9:00	37	Miami	Do.
9:00	1	Los Angeles	United.
9:00	127	Tampa	Northeast.
9:00	819	Bermuda	Eastern.
9:00	59/801	San Francisco	American.
9:00	87	Los Angeles	TWA.
9:00	907	Dallas	Delta.
9:00	261	St. Thomas	Pan American.
9:10	69	New Orleans	Eastern.
9:15	140	Bermuda	Pan American.
9:15	229	Barbados	Do.
9:20	11	Miami	Eastern.
9:20	33	Columbus	American.
9:30	165	Chicago	Do.
9:30	7	Seattle	NW. Orient.
9:30	21	San Francisco	United.
9:30	1	Dallas	Braniff.
9:30	1	Miami	Northeast.
9:30	191	West Palm Beach	Eastern.
9:30	213	Detroit	American.
9:30	211	San Juan	Pan American.
9:30	483	Washington	National.
9:30	125	Fort Lauderdale	Do.
9:30	3	Sarasota	Do.
9:30	61	Orlando	Do.

Source: "Congestion in Air Traffic" Congressional Record, vol. 114, pt. 20, p. 26396.

Footnotes at end of article.

CHART 12.—PLANE MOVEMENTS, 1967—5 MONTHS
[In percent]

	New York-New Jersey metropolitan region	Kennedy	La Guardia	Newark
Airline	58	85	60	70
General aviation	42	15	40	30
Air taxi	10	10	14	12
Business and private	22	5	25	17
Government	(1)	(1)	1	1
School	10			

[1]Less than 0.5 percent.

PEAK HOUR PLANE MOVEMENTS—1967—5 MONTHS
[In percent]

	New York-New Jersey metropolitan region	Kennedy	La Guardia	Newark
Air line	54	69	38	48
General aviation	45	31	62	52
Air taxi	24	22	25	27

Source: Port of New York Authority.

CHART 13(A)

TABLE 13.—FLATTENING OF SCHEDULE PEAKS

Demand operations per year	Annual delay for peaking factor [1] of			Benefit of flattening demand peaks			
	8 percent	7 percent	6 percent	From 8 percent to 7 percent	From 8 percent to 6 percent	From 8 percent to 7 percent	From 8 percent to 6 percent
	Annual delay in minutes per year			Savings in delay, minutes per year		Percent reduction in delay	
200,000	91,200	82,600	75,100	8,600	16,100	9	18
300,000	441,000	369,000	309,000	74,000	132,000	17	30
400,000	1,760,000	1,320,000	1,126,000	440,000	634,000	25	36
500,000	5,470,000	4,040,000	3,340,000	1,430,000	2,130,000	26	39
600,000	19,460,000	11,380,000	8,080,000	8,080,000	11,380,000	42	58

[1] Based on parallel runways at 3,500 feet separation, i.e., configuration 3, table 1a. Peaking factor is defined as the percentage of daily activity occurring during the peak hour of the day (averaged for the two consecutive busiest hours of the day).

Source: Federal Aviation Administration.

CHART 13(b).—PROGRESSION OF DELAYS DURING PEAK HOURS OF THE DAY

Airport	Year delay may reach—			
	¼ to ½ hour	¼ to 1 hour	1 to 2 hours	Infinity[1]
Kennedy	1966	1968	1970	1973
La Guardia	1970	1973	1976	1978
Newark	1969	1972	1974	1975
National[2]				
O'Hare	1966	1969	1972	1974
Los Angeles	1970	1972	1975	1977
San Francisco	1979	1984		
Oakland	1985			

[1] Delays will carry through from one year to the next.
[2] Leveling off of demand keeps the delay level less than ½ hour during peak periods.

Source: Department of Transportation, 1967.

VIII. THE FEDERAL AIR TRAFFIC CONTROL AND NAVIGATION SYSTEMS

The present air traffic control and navigation system is valued at $1.25 billion and requires about a half-billion dollars annually to operate and maintain. During fiscal year 1966, the FAA obligated approximately $54.4 million for the procurement and installation of new facilities and equipment of all types in the Federal airways system. Of this amount, $7.8 million was for projects undertaken at the request of other Federal agencies (the military services predominantly) and local or State governemnt.

Navigation

Navigation facilities aid a pilot in directing his aircraft to his destination. Such equipment is independent of attempts to control the flight of an aircraft by air traffic controllers.

The first essential in navigation is for the pilot to be able to find his destination, another airport. Conspicuous markings, lights, etc., were the first devices used. In addition to visual means, the simplest form is a nondirectional beacon from a radio station transmitting its identity in a dot-dash code. The aircraft can use a direction finder radio to "home in" from any direction. This technique is now obsolete and is only found in remote locations.

The best current available means for locating an airport is with a Very High Frequency Omnidirectional Radio Range (VOR) station. This station provides 360 courses radiating like the spokes of a wheel, and with the proper airborne receiver, a pilot can fly any selected course to or from the station. As of June 30, 1967, there were 318 VOR stations. A similar military system (TACAN) is also available for properly equipped aircraft.

The standard means of navigation between airports along the airways is the VORTAC station, which makes up the fundamental navigation system in the United States. VORTAC combines a VOR for civilian use with a TACAN station which provides at very high frequencies an omnirange facility used by military aircraft and a distance measuring system used by both civilian and military aircraft. As of June 30, 1967, there were 566 VORTAC stations. Supplementing VORTAC and principally in remote locations are 62 of the now obsolete low frequency ranges and 304 homing beacons.

The future offers three types of improved navigation equipment:

The integrated Doppler-inertial-stellar-radio navigation system with central digital computers, presently installed on all TWA fleet carriers and all of the PAA DC–8 fleet, (as of April, 1966, this constituted perhaps 60% of the total fleet which operates across the Atlantic); Doppler equipment is reported to have a standard deviation of 12.2 miles;

A more sophisticated ground reference navigation system, particularly the VOR–DME–TACAN, which combines a very high frequency omnirange with distance measuring equipment;

Synchronous satellites which offer international air carriers an improved communications link.

Air Traffic control—its use

Air traffic control is a "service provided for the purpose of keeping aircraft safely separated while operating in controlled airspace, which can include taking-off and climbing, en route, and approaching and landing at air terminals." Control is exercised by direct contact between pilots and air traffic controllers.

Not all airspace is presently under control. The actual air traffic control is divided into air route traffic control centers (ARTCC) which handle the airplane from point to point en route and the airport traffic control towers (ACTCT) which handle them at the terminal area during landing and take-off. As of June 30, 1967, there were 28 ARTCC's, 309 ATCT's and 65 combined station/towers (CS/T). (See Chart 14).

There are some areas, usually surrounding the busiest terminals, where all aircraft entering that area must come under the control of the air traffic controllers.

When flying in adverse weather conditions less than 3 miles lateral visibility and/or less than a 1000 foot ceiling) or when flying above 27,000 feet (an area populated exclusively by jets), the aircraft is required to fly under Instrument Flight Rules (IFR). In order to fly under IFR, a pilot must be licensed for this special type of flying and the aircraft must be equipped with properly calibrated instruments. All aircraft flying under IFR must be under the control of the air traffic controllers.

When the weather conditions permit, or when not flying above 27,000 feet, a pilot may take the option to fly under visual flight rules (VFR). This "see and be seen" concept means that aircraft separation and collision avoidance are the responsibility by law of the pilot.

A summary of control and flight rules follows:

Conditions	Flight rules	Subject to air traffic control
Above 27,000	IFR required	Yes.
All areas—bad weather	do	Yes.
Nonrestricted areas in good weather.	Optional VFR or IFR	No. Yes.
Restricted areas in good weather—heavy traffic areas.	Optional VFR or IFR	Yes. Yes.
Restricted areas in good weather—highest priority traffic areas.	IFR required	Yes.

One principle area of debate has been the continued use of VFR flying. Much of the criticism is based on the conclusion that VFR flying causes accidents. Some suggest that this is an inaccurate conclusion, based on the misconceptions that all air carriers are jets flying constantly at 300 mph thereby generating instantaneous closure rates, and that most flying occurs around crowded airports. In reality, Federal Air Regulations require that airplanes flying in opposite directions above 3,000 feet must fly with vertical separation of 1,000 feet (jets with vertical separation of 2,000 feet), which means that only if they are going in the same direction can they be at the same altitude. The relevant closure rate then, is the difference in air speed between the overtaking airplane and the one being overtaken, not "instantaneous". In addition, at low altitudes, regulations impose speed restrictions on jet aircraft, VFR, many contend, is still a workable concept within the rules of its operation, though its applicability may diminish in the future as the types of aircraft change.

The question of mixing VFR and IFR landings at certain unrestricted airports is still vital.

Air traffic control—equipment

The first air traffic control was simply a matter of signaling to the pilots when they were in sight of the airport. This process remained crude until ground-air and later air-ground radio communications were feasible. This basic system in terms of procedures and control has not changed fundamentally in 20 years, though it has been improved and electronic supplements have been added to the system so that a top-notch crew in a tower such as Chicago O'Hare International can maintain an an-

nual rate of one operation every 70 seconds with peak rates of perhaps one every 30 seconds (using parallel runways).

Voice Communication is maintained by RCAC (peripheral communications installations) which provides coverage to the periphery of the designated control area (usually an area around an airport) by which the pilot and air traffic controller talk directly. In 1966, 361 airports were equipped with RCAC installations.

Positioning is determined by radar, an electronic device that, in its primary form, locates an aircraft by transmitting radio energy pulses toward it and timing the echo's return. Reflected on the cathode-ray tube of a radar console, the echo, called a "blip", furnished the controller with the actual position of the aircraft. Primary radar is distinguished from the radar beacon system (or secondary radar), the latter dispensing with the echo and making use of a radio transmitter/receiver (interrogator) on the ground and a radio receiver/transmitter (transponder aboard the aircraft. When radio pulses transmitted by the interrogator are received by the transponder, they trigger transmission of a reply in the form of a distinctive signal which is received at the site of the interrogator and identifies the aircraft. (It does not identify altitude). The radar beacon system is more sophisticated and is being more extensively used. Presently 532 air carriers (and all new equipment) are fitted with transponders, all military have transponders, and general aviation has 4,000. General aviation equipment is not required to be fitted with transponders. FAA estimates that it would cost $147 million to equip the total fleet, commercial and general with transponders (radar beacon)—$20 million for air carriers, $44 million for general aviation, and $30 million for military.

There are numerous types of radar equipment all of which are designated to affect an approach controlled from the ground. The ground controller communicates instructions to the pilot giving direction, distance, and elevation along a fixed approach path to an airport.

Presently the equipment is sophisticated enough to affect an automatic landing up to 1,600 feet visual range (200 foot ceiling and ½ mile visibility). In some places, automatic landing can be used at 1,200 feet.

As David Thomas said in April, 1966: "It will be several years before you will be able to buy a ticket on a plane that lands without visual reference, though we will be doing it on a test basis within a year."[19]

Presumably air traffic capacity increases as the equipment enables landing the all visibilities. Radar sophistication includes the following:

1. Long Range Radar (LRR). This is a radar of approximately 150-mile radius used by air route traffic control centers to control air traffic between terminals. As of June 30, 1966, 89 airports were equipped with LRR.

2. Airport Surveillance Radar (ASR). This is a short range radar system which maintains constant surveillance over aircraft at the lower levels of flight, normally within a 30-mile radius of an airport. The altitude coverage ranges from 10,000 to 30,000 feet. As of June 30, 1966, 81 airports were equipped with ASR.

3. Airport Surface Detection Equipment (ASDE). This is radar that shows the movement of aircraft and other vehicles on the ground at an airport.

4. Instrument Landing System (ILS). This is a facility based on radar in the vicinity of an airport which radiates direction and position signals to approaching aircraft. The signals are received on an instrument in the aircraft and alert the pilot to any deviation from the safe approach path to the correct touchdown point on the runway. The signals can be fed directly to the autopilot for automatically controlled approaches. It is usually supplemented by a high-intensity approach light system, and normally the two installed together can permit approaches at 200-foot ceiling and ½ mile of forward visibility. As of June 30, 1966, 257 airports were equipped with ILS. At the same time, 223 airports were equipped with an approach light system with sequence flashing (ALSF).

5. Precision Approach Radar (PAR). This is radar used by traffic controllers to "talk" a pilot on final approach down a prescribed path leading to the runway. The military uses the devices extensively but the airlines prefer to treat it only as a monitoring and emergency facility. As of June 30, 1966, 27 airports were equipped with PAR.

6. Military Radar Approach Control Facility (RAPCON or RATCC). This is a military radar station that controls arriving and departing IFR traffic at Air Force and Navy bases. At certain locations RAPCON's and RATCC's are operated by FAA personnel. As of June 30, 1966, 36 airports of all types were equipped with RAPCON or RATCC.

7. Alphanumerics. This is a "bureaucratic" name for a sophistication of the read-out on the radar scope. Instead of lots of light spots and blips, each one is tagged with as much information as the accompanying computer equipment can digest. Indianapolis Air Route Traffic Control Center established alphanumerics in a device called SPAN which is now being moved to New York. Atlanta used a limited read out showing altitude and identity in a test program called ARTS.

Regardless of how sophisticated radar equipment becomes, it is limited by runway capacity and air traffic control procedures. Radar can organize and sequence the traffic under adverse visibility conditions, thus creating a safer system, but safe clearance distances are greater in bad weather and traffic still slows down to half the rates used in clear weather. In weather restrictions in the New York area, for instance, the actual airport acceptance rate can be reduced from 120 movements (the acceptance rate under good weather conditions) to 40 or 50 in weather restriction conditions. Transponder assisted radar makes the controller's job easier.

Technologically, the air traffic control system is still largely manual despite the increased use of computers. Navigation aids, voice communications, radar beacons, and "alphanumeric tags" on radar scopes are all improved tools for the manual control of traffic and will enhance system performance. But use of computers to aid in directing traffic has been notably absent to date.

A very small beginning has been made in the form of an approach spacing computer. This present trial taking place at the FAA's National Navigation Facilities Experimental Center is demonstrating how a computer can aid a controller in computing vectors and in assigning speed control in order to space flights more accurately on final approach. Use of computers in the more complex decision-making areas of control will provide broad opportunities in regulating and determining en route traffic patterns; in determining airport development plans; in acquiring and disseminating weather information; in coordinating intermodal transportation; in finding solutions to air space use; in examining and controlling the interrelationship of radar control with clearance limits, altitude and aircraft capability; and in analyzing terminal area bottlenecks.

An adjunct to future controlling systems will be an airborne collision avoidance system (CAS) to detect and analyze potential collision threats, then to tell the pilot what evasive action to take if a collision threat does exist. The device is not intended to substitute for air traffic control, but to provide for safe separation if, for any reason, the air traffic control system's separation does not fulfill its role or if the aircraft is flying under visual flight rules. Research and development has been somewhat successful in gaining the knowledge necessary to develop such a device, and Stuart Tipton said in 1967 that "a practical CAS now appears to be within sight."[20] The SST will be the first aircraft to incorporate a CAS from the beginning. It is hoped that the day is not far away when synchronous communications satellites will be utilized to exchange information between plane and ground automatically—akin to the telemetering principle common in space technology. In 1964, airline industry initiative started a program to make this goal a reality. Today it has grown into one of several major experiments in NASA's ATS–1 project. The project has the participation of seven airlines, valuable help from manufacturers of aircraft and airborne electronics equipment, and technical management from Aeronautical Radio, Inc.—the airline industry's own communications company.

Inevitably all air traffic systems must begin and end at an airport. Like a chain, the air traffic control system is only as strong as its weakest link. In aviation the weakest link is the saturation level of the system—under a variety of weather and control conditions. As an airport approaches its saturation level, safety is reduced.

There is also a financial cost of airport saturation. Based on 1960 figures by the Civil Aeronautics Board, the cost to the airlines due to airport crowding was $21,117,060 due to cancelled mileage and $48,890,385 due to delayed flights (15 minutes) for a total of over $70,000,000 per year. A more recent survey by United Research Incorporated forecast the average cost per diversion and cancellation for U.S. air carriers in 1965 and 1970 as $2,140 and $2,760 respectively.

Chart 14 itemized the predictable delays at major airports as they reach saturation. These are the statistics of convenience, but they imply a similar growth in tragedy.

A national airspace system

To meet the airspace system crises, FAA has undertaken "long range planning" under the program title of NAS, National Airspace System. Stage A proposes to spend $212 million from fiscal year 1966 and prior to 1970. (See Chart 15). This will fund a configuration of 15 en route air traffic control systems.

FAA reassessed the plan in 1966 to determine whether the proposed funding schedule will produce an operating improved air traffic control system in the shortest possible time. Their review indicated that fund availability is not, at present, the controlling factor:

"The production capabilities of the electronics industry, the time required to manufacture computer programs, field installation problems and the requirements for evolutionary phased implementation affect the implementation schedule to a greater degree than the funding schedule."

However, money and FAA planning may have more to do with the state of the program than the above statement suggests. FAA, for instance, is presently redirecting their terminal area air traffic control program. Previous plans called for Chicago, Los Angeles, Washington, Oakland, and New York to be equipped with a sophisticated and expensive TRACON "M" (Terminal Radar Approach Control) system involving the digitizing of all radar returns, replacements for all displays, reconfiguration of IFR rooms, etc. The first TRACON "M" installation scheduled for Chicago during 1970 had a price tag of $8.5 million.

The TRACON "M" plan has now been replaced with a new modular (building block) automation plan which is far less costly per facility. It is envisioned that the $8.5 million, plus additional monies yet to be appropriated, will be spent to provide alphanumeric identity and altitude readout capability and certain other operational capabilities at 61 of the 117 busier radar equipped airports. The new system is known as "ARTS–3" (Automated Radar Traffic Con-

Footnotes at end of article.

trol System). The group of airports affected handles about 90% of all airline passengers and about 70% of all IFR operations.

It is envisioned that ARTS-3 can eventually evolve into a highly sophisticated level of automation. Additions to the system might include the capability to—

Display identity and other flight data in association with primary radar returns;

Perform approach sequencing;

Permit the integration of additional radar sources into a single display system;

Provide weather contouring; and

Offset data blocks automatically to prevent overlaps.

A limited ARTS program, showing altitude and identity on the radar scope has been tested at Atlanta. A similar system called SPAN was established at the Indianapolis Air Route Traffic Control Center and has since moved to New York.

There are some serious questions to be raised by the program now to be implemented by NAS. One is cost. It takes a tremendous amount of computer equipment to make alphanumerics work—to take the beacon code data, make it suitable for transmission over telephone lines, sort it out, reassemble the information, attach it to the radar return, and display it in the form that the controller wants. David Thomas, in testimony before a Subcommittee of the Committee on Government Operations, in 1966, said that "each center will have from $15 to $20 million worth of electronics to just make alphanumerics work." [21] This figure is almost twice the estimates ($8.5 million) for TRACON "M" which was abandoned because of cost.

Can the equipment justify the cost? Atlanta Controller Dwayne B. Carlson says that there are weaknesses in the ARTS system—"changes in headings are not as quickly detected and precipitation and other clutter is more pronounced;" [22] but he thinks it is here to stay and is an "improvement". Some ask whether such a huge expenditure benefiting so few airports with such little improvement is the best approach to upgrading the airways system. Should the whole National Airspace System be devoted to 117 airports? As with the National Airport Plan (see Section X, Airport Construction and Use), the NAS is based on the rationale of passenger volume as the criteria for need when, in fact, a safe airways system is not solely the province of the busy airport.

In addition, the NAS is less a design of a safe airways system, than it is an identification and tally of a series of airports which need more equipment. NAS reflects limited imagination in gathering all the resources, in connecting all the components, in projecting the course of technology and in developing a comprehensive structure to fit the growth of safe and efficient use of the airways.

Stuart G. Tipton, President of the Air transport Association, suggests that 292 control tower services, 421 radar installation facilities, and 337 instrument landing systems are needed to equip adequately the 526 airline-served airports. As of now, only 105 of the airports served by airlines have radar, only 234 have control tower services, and only 189 have any instrument landing system at all.

CHART 14.—NUMBER OF MAJOR AIR NAVIGATION FACILITIES OPERATED/FUNDED BY FAA AT END OF FISCAL YEAR 1966 AND 1967 [1]

Major facility	Number		
	June 30, 1967	June 30, 1966	June 30, 1965
Approach light system with sequence flashing (ALSF)	234	223	215
Airport surveillance radar (ASR)	83	81	76
Instrument land system (ILS)	265	257	250
Precision approach radar (PAR)	26	27	29
VOR (including TVOR) [2]	318	362	457
VORTAC	566	517	396
Flight service station (FSS)	333	333	333
International flight service station (IFSS)	12	12	13
Peripheral communication installation (RCAG)	375	361	357
Air route traffic control center (ARTCC) [3]	28	28	29
Airport traffic control tower (ATCT)	245	233	217
Combined station/tower (CS/T)	59	65	67
Long-range radar (LRR)	89	89	83
Military radar approach control facility (RAPCON) or RATCC; figure includes center approach control	36	36	40
Airport surface detection equipment (ASDE) [4]	8	4	11

[1] Figures shown include only facilities installed and/or maintained or operated with FAA funds; omitted are a small minority of military and/or non-Federal facilities that are part of the common civil-military air navigation and air traffic control system but not funded by FAA.
[2] Many of these facilities are being converted to VORTAC's.
[3] Figures include all centers outside as well as within the contiguous 48 States.
[4] Figures exclude San Francisco facility, which will be operated during the winter months only.

Source: FAA.

CHART 15. *NAS stage "A"*

Fiscal year:	*Million*
1966 and prior years	$86.1
1967	16.0
1968	33.2
1969	38.5
1970	38.3
Total	212.1

Our estimate indicates that the $212.1 million will fund a configuration of 15 en route air traffic control centers. The first center to be completed with the NAS Stage "A" system will be at Jacksonville, Fla. Our installation schedule indicates that initial operating capability for the system at Jacksonville should be realized during the third quarter of fiscal year 1968. With respect to the other centers, the following installation schedule is furnished:

Center No.:	*Initial operating capability*
2	3d quarter, fiscal year 1970
3	4th quarter, fiscal year 1970
4	4th quarter, fiscal year 1970
5	1st quarter, fiscal year 1971
6	2d quarter, fiscal year 1971
7	2d quarter, fiscal year 1971
8	2d quarter, fiscal year 1971
9	4th quarter, fiscal year 1971
10	4th quarter, fiscal year 1971
11	4th quarter, fiscal year 1971
12	1st quarter, fiscal year 1972
13	2d quarter, fiscal year 1972
14	3d quarter, fiscal year 1972
15	3d quarter, fiscal year 1972

Source: FAA.

CHART 16. *Number of airports*

1930: Airports on record	1,782
1940: Airports on record	2,331
1950: Airports on record	6,403
1960: Airports on record	6,881
1965: Airports on record	9,566
1966: Airports on record	9,482
1967: Airports on record	10,126

Source: FAA.

CHART 17.—AIRPORTS ON RECORD WITH FAA, 1949-66.[1]

Year	Total	With runway lights	With paved runways	Airports of entry
1949	6,414	1,521	1,357	47
1950	6,484	1,480	(2)	46
1951	6,403	1,670	1,422	46
1952	6,237	(2)	(2)	47
1953	6,042	1,858	1,498	56
1954	6,760	1,050	1,291	55
1955	6,977	1,108	1,084	56
1956	6,879	1,247	1,351	58
1957	7,028	1,399	1,467	59
1958	6,412	1,713	1,496	58
1959	6,018	1,809	1,632	58
1960	6,426	1,943	1,757	58
1961	6,881	2,133	1,893	58
1962	7,715	2,299	2,058	56
1963	8,084	2,481	2,355	61
1964	8,814	2,672	2,451	63
1965	9,490	2,773	2,620	[3]63
1966	9,566	2,878	2,747	64

[1] Includes seaplane bases, heliports, and subsequent to 1953 military fields having joint civil military use. For 1953 and prior yearstall military fields are included.
[2] Not available.
[3] Includes 4 airports in Alaska.

Source: FAA.

CHART 18

PROJECTED NEED THROUGH 1973 (ALL NON-FEDERAL U.S. AIR CARRIERS—525 AIRPORTS)

Year	Total	With runway lights		With paved runways		Airports of entry
Large hub	$990,000	23	$2,262,000	77	$2,952,000	
Medium hub	280,000	55	227,000	45	507,000	
Small hub	264,000	57	196,000	43	400,000	
Nonhub	750,000	77	225,000	23	975,000	
Total	1,984,000	41	2,910,000	59	4,894,000	100

ESTIMATED FUNDING REQUIREMENTS FOR DEVELOPMENT OF GENERAL AVIATION AIRPORTS [1]

Purpose of expenditure	1969–73 estimated requirements [2]		1974–78 estimated requirements [3]	
	Number of units	Millions of dollars	Number of units	Millions of dollars
1. Construction of new "reliever" airports	74	100	150	200
2. Other new airport construction	645	200	35	10
3. Development of existing airports	1,574	265	750	80
Total		565		290

[1] Total construction costs for all types of development presently eligible for FAAP assistance at airports exclusively serving general aviation.
[2] Recommended development contained in the 1966–67 national airport plan.
[3] Preliminary estimate of additional and continuing development needed to meet forecast general aviation growth through 1980.

Source: FAA.

Footnotes at end of article.

CHART 19.—AIR CARRIER INVESTMENT AT JUNE 30, 1959-67

	Asset distribution (net)								Capital distribution					
	Buildings and ground equipment		Flight equipment		Working capital and other		Total		Stockholder equity		Long-term debt		Total	
	Millions	Percent of total	Millions	Percent of total	Millions	Percent of total	Millions	Percent of total	Millions	Percent of total	Millions	Percent of total	Millions	Percent of total
Certificated route air carriers:														
1959	$160.5	8	$1,263.3	66	$496.1	26	$1,918.9	100	$931.9	49	$987.0	51	$1,918.9	100
1960	192.8	8	1,764.5	77	332.1	15	2,289.4	100	947.5	41	1,341.9	59	2,289.4	100
1961	203.7	7	2,155.0	79	369.5	14	2,728.2	100	979.2	36	1,749.0	64	2,728.2	100
1962	220.8	8	2,368.6	81	315.5	11	2,904.9	100	948.3	33	1,956.6	67	2,904.9	100
1963	219.6	8	2,304.9	82	290.5	10	2,815.0	100	992.6	35	1,822.4	65	2,815.0	100
1964	232.9	8	2,562.2	83	274.1	9	3,069.2	100	1,192.4	39	1,876.8	61	3,069.2	100
1965	292.1	8	3,009.9	84	302.3	8	3,604.3	100	1,502.5	42	2,101.8	58	3,604.3	100
1966	312.2	7	3,728.4	79	650.6	14	4,691.2	100	2,167.0	46	2,524.2	54	4,691.2	100
1967	398.1	6	4,682.7	75	1,150.1	19	6,230.9	100	2,681.5	43	3,549.4	57	6,230.9	100
Supplemental air carriers:														
1959	1.9	7	27.8	97	−1.2	−4	28.5	100	−7.4	−26	35.9	126	28.5	100
1960	.9	7	25.2	194	−13.1	−101	13.0	100	−10.6	−82	23.6	182	13.0	100
1961	1.0		15.6		−17.6		−1.0		−17.2		16.2		−1.0	
1962	1.0	6	16.0	105	−1.7	−11	15.3	100	5.0	33	10.3	67	15.3	100
1963	.6	1	63.9	135	−17.0	−36	47.5	100	10.0	21	37.5	79	47.5	100
1964	.7	1	64.5	107	−4.8	−8	60.4	100	12.6	21	47.8	79	60.4	100
1965	.8	1	62.0	93	3.6	6	66.4	100	29.7	45	36.7	55	66.4	100
1966	1.1	1	84.1	75	27.6	24	112.8	100	53.1	47	59.7	53	121.8	100
1967	2.0	1	131.6	71	52.4	28	186.0	100	83.7	45	102.3	55	186.0	100

Source: CAB.

CHART 19A

THE NATIONAL AIRPORT PLAN, 1968-72—NATIONAL ECONOMIC INDICATORS

	1965	1970	1975	1980	Percent growth 1965-80
Population (millions)	194	206	220	235	21
Gross national product (billions of 1958 dollars)	614	765	942	1,160	89
Air carrier enplaned passengers (millions)	95	168	286	482	407
Aircraft operations, FAA tower airports (millions)	−35.6	69.3	113.4	184.6	418
Fuel consumption (billions of gallons)	4	7.7	12	17	325
Civil aircraft:					
Air carrier	2,125	2,540	3,240	3,600	70
General aviation	88,742	128,000	166,000	210,000	137
Aircraft production	11,050	20,850	26,500	33,500	203

22 LARGE HUB FORECAST OF AVIATION DEMAND

	1965	1980	Percent increase
Aircraft operations (millions)	20.3	74.6	269
Enplaned passengers (millions)	69.5	370.6	433
Air cargo tons (millions)	1.3	19.7	1,377
General aviation aircraft (thousands)	20.3	50.3	146

CHART 19B

TABLE F.—ITINERANT OPERATIONS AT FAA-OPERATED AIRPORT TRAFFIC CONTROL TOWERS, CALENDAR YEARS 1956-66

Calendar year	Number of itinerant operations			
	Tota	Air carrier	General aviation	Military
1966	27,769,883	8,206,322	17,985,302	1,578,259
1965	24,212,395	7,819,114	14,706,905	1,686,376
1964	22,182,669	7,447,434	12,982,649	1,752,586
1963	20,714,673	7,339,533	11,636,473	1,738,667
1962	19,202,819	7,059,630	10,376,701	1,766,488
1961	18,232,013	6,980,246	9,417,764	1,834,003
1960	17,992,527	7,164,394	8,909,153	1,919,280
1959	18,357,411	7,352,849	8,637,675	2,366,887
1958	17,940,296	6,997,079	7,935,575	3,007,642
1957	17,070,445	7,112,208	6,616,364	3,341,873
1956	15,098,619	6,553,366	5,366,175	3,179,078
PERCENT CHANGE				
1966	+15	+5	+22	−6
1965	+9	+5	+13	−4
1964	+7	+1	+12	+1
1963	+8	+4	+12	−2
1962	+5	+1	+10	−4
1961	+1	−3	+6	−4
1960	−2	−3	+3	−19
1959	+2	+5	+9	−21
1958	+5	−2	+20	−10
1957	+13	+9	+23	+5
1956	+13	+9	+18	+10

Source: FAA.

IX. AIRPORT EQUIPMENT, CONSTRUCTION, AND FINANCING

The FAA cited airports/airways as a related factor in 6% of the air carrier accidents between 1960 and 1964 and 4.7% of general aviation accidents between 1960 and 1966. In a real sense, of course, the figures might be dramatically higher if they related to those accidents which were available if adequate airport facilities existed.

The number of airports or landing areas in the United States has leaped from 1,782 in 1930 to 10,126 as of December 31, 1967. (See Chart 16). These can be divided into three basic groups of about equal number:

	Percent
Publicly owned (3,830)	38
Privately owned, open for public use) (3,056)	30
Privately owned (not open for public use) (3,231)	32

Therefore, 63% or 6,895 airports are open to public use. This total includes seaplane bases, heliports, and military fields shared with civilian traffic, but excludes those military fields which allow civilian emergency use only.

In the short span of one year, from January 1965 to January 1966, the number of airports in the U.S. receiving scheduled airline jet service increased from 70 to 111. Based on recently announced equipment orders of scheduled carriers it is estimated that by 1970 an additional 234 airports will require the capacity to receive jet aircraft in scheduled airline service. The tremendous growth of small jet aircraft in general aviation also contributes to the need for updated safety criteria for airport design, construction and maintenance.

RUNWAYS AND OTHER AIRPORT FACILITIES

The list of airport facilities which need attention is long:

Only 223 (of 10,126 in 1967) airports had flight service stations. This is a facility which furnishes pilots with up-to-date preflight and in-flight weather information and flight following service—and which initiates search and rescue operations for overdue or unreported aircraft. The station also relays notices to airmen concerning any conditions that might affect the safety of the flight. FAA maintains 12 additional international flight service stations.

Airfield lighting systems need to be improved and extended to a large number of fields which do not have any lighting systems at all. Of the 9,566 airports on record with FAA as of 1966, only 2,878 had runway lights. (See Chart 17.)

More *exit taxiways* and improved configuration can reduce the hazard of taxiing across active runways and provide a significan reduction in aircraft delays.

Most airports have inadequate fire-fighting equipment, despite the fact that CAB studies show that fire after a crash is generally more likely to be fatal than the crash itself. Teams of two or more crash rescue helicopters are on duty at more than 75 Air Force bases around the world, but no civilian airport in the U.S. has a crash rescue helicopter team of its own.

Not only should towers be built at the more than 3,400 publicly owned airports without control towers, (only 307 airports have them), but existing towers have to be improved to allow for adequate controller views of the airfields and for up-dated facilities.

The FAA was well into a $20 million program to build about 77 air traffic control towers. In 1961, Congress directed FAA to

finance and build its own towers (formerly airport owners provided the structure). Unfortunately the program has not been fiscally responsible, and has provided few towers. In August 1963, FAA estimated construction costs of towers of Type 0 (five sided) at $180,000 but by 1966, 25 towers had been built at an average cost of $298,000 apiece. Conventional four-sided towers cost about $200,000 apiece, and as Type 0 has no known functional value over the conventional type, GAO was advised that no more such towers were to be constructed.

The most obvious and crying need, however, is in runway improvement. Of the 9,673 civil and joint use airport runways on record in 1966: 5,955 are under 3,000 feet; 1,743 are 3,000–3,999; 725 are 4,000–4,999; 586 are 5,000–5,999; 181 are 6,000–6,999; 112 are 7,000–7,999; 71 are 8,000–8,999; 50 are 9,000–9,999; 250 are 10,000 feet or over.

This means that only 483 have the approximate 7,000 feet of runway length required for most safe jet operations. Most of these, of course, are among the 709 air carrier airports.

The results of some overruns are more disastrous than others, of course, but the potential is evident: a Vanguard overrun at London in 1965 killed 36; a Convair 240 overrun at Tokyo in 1964 killed 20; a 707 overrun at Orly in Paris in 1962 killed 131. The following overrun accidents occurred in a single six week period:

November 1, 1967, a Pan American 707 skidded off the end of a runway at Logan International—one hurt.

November 2, 1967, a Seaboard World DC–8 rolled off the end of the runway at Kennedy International—none hurt.

November 5, 1967, a Cathay Pacific DC–8 crashed into the harbor on take-off from Hong Kong and broke in half—one killed.

November 6, 1967, a TWA 707 aborted a take-off at Cincinnati and rolled off the end of the runway and burned—11 injured; one subsequently died.

December 3, 1967, a Pan Am 707 ran off the runway at London Airport and got stuck in the mud—none hurt.

On April 5, 1964, there were reported three overruns in New York in a 12-hour period; two at Kennedy and one at LaGuardia.

The causes of overruns vary; brake failure; asymmetric thrust reversal; water, slush, or ice on the runway; power failure on take-off; and other factors. But the Airline Pilots Association feels that the overrun problem stems less from pilot error than from a failure to give the pilot an adequate safety margin by making the length of the runway commensurate with the type of aircraft, the load or weight of the aircraft, the conditions of environment (weather and altitude) and landing pattern procedures of the area.

Runway extension will increase safety; so will clearing the runway of obstacles. The Society of Automotive Engineers Journal, April 1966, says that "obstacles surrounding the sides and ends of runways were the major contributing factor in take-off and landing accidents of commercial aircraft in which fire was involved. It is estimated that 79 percent of the fire fatalities could have been avoided if the runway and overshoot areas would have been cleared of obstacles."[23] Accident statistics continue to increase due to lack of clear runways, and overrun and underrun zones—free of ditches, correctable irregularities, houses, wires, unnecessarily strong approach light fixtures, etc. It is interesting to note that at NAFEC—FAA's experimental center—the approach end of the runway has an adequate underrun area which is greater than the 10 percent of runway length recommended by the Airline Pilots Association in 1956.

Cost can be decreased and effectiveness increased if runways are strengthened according to use. Based on average strength of existing runways, it is estimated that 20 percent of the 234 airports receiving jet traffic in 1970 will require a three-inch overlay on approximately 95,000 sq. yards of pavement for BAC–111 and DC–9 operations. A high stressed runway costs $1,000 per linear foot, and an inexpensive low stress runway costs $10 per linear foot. Short landing areas for light aircraft do not need the benefits of a high stress $1,000 per foot runway.

Parallel runways add significantly to the capacity of an airport in visual flight rule weather, but the magnitude of increase in instrument flight rule weather depends on whether or not the operations on one runway are controlled independently from operations on the other. A single runway in IFR can land about 35 aircraft per hour or 40 mixed operations (landing and taking-off); the capacity for close parallel runways (a separation of less than 3,500 feet) is about 50 for IFR and for runways separated by more than 5,500 feet, 70 operations per hour. Additional close parallel runways will not increase the IFR capacity unless simultaneous instrument approach is provided—with it facility capability can be increased to about 140 operations per hour.

Compacted shoulders along the sides of runways provide a margin of safety similar to those along the sides of highways. Airports have been closed for extended periods of time due to one or both of the wheels of a large transport bogged down in the mud near the side of a runway—this type of accident is usually free from direct fatalities, but may result in extremely adverse safety conditions if traffic build-up is a result.

For some years the British have successfully reduced skidding of military aircraft landing on wet runways by having small grooves cut across these runways. Recent work by NASA has contributed greatly to our understanding of the causes of skidding and how grooving reduces skids. In 1966, the airlines began discussion with U.S. airport officials with the aim of having from three to five runways grooved so that the effects of grooving could be evaluated under climatic and operational conditions found in this country. More detailed studies are now in progress.

Airport certification

The Civil Aeronautics Act authorizes the Administrator to inspect, classify, and rate any air navigation facility as to its suitability and to issue certificates for any navigation facility. But the act does not require the issuance of Federal certificates to airports, nor does it make it unlawful to operate an airport without a certificate. As far back as 1953 the report of the FAA's Doolittle Committee, "The Airport and Its Neighbors", advocated: "The Civil Aeronautics Act should be amended to require that certification shall be issued for the operation of airports used in interstate commerce. Such certification should define the standards for safe operation and proper maintenance and should be revoked if the standards are not met."[24]

The Airline Pilots Association has long advocated Federal airport certification which specifies minimum standards of runway lengths, runway surfaces, obstruction-free approach and circling patterns, adequate runway markings and lighting, safe, maintained runway overrun and underrun areas, adequate and properly maintained fire fighting equipment and trained fire fighting crews, adequate snow removal equipment and procedures, positive control of airport vehicular traffic and airport zoning regulations. Capt. John McDonald, a United Airlines pilot has said, "because it does not certify airports, the FAA does not require them to have fire fighting equipment. . . . A lot of airports do not even have a bucket of sand and yet air traffic is authorized into those airports."[25]

What seems equally important is that airport certification be tied with the kind of aircraft which can operate at that airport, or the way an area in which aircraft may operate at the airport.

Most important of all, however, is the simple need for federal certificators for an airport with reasonably well defined standards on which that certification is based. In the absence of such a procedure the location and development of airports will remain a local political football where the debates between convenience and safety too often will be resolved according to the predictable but inexplicable passion of the moment for convenience.

National airport plan

The Federal Airport Act of 1946, Public Law 377, 79th Congress, Sec. 4, states that:

"In order to bring about . . . the establishment of a Nation-wide system of public airports adequate to meet the present and future needs of civil aeronautics, the Administrator is authorized . . . to make grants of funds to sponsors for airport development . . ."

Airport development is further defined in Sec. 1(3) to mean "any work involved in constructing, improving, or repairing a public airport . . ." and "any acquisition of land . . ." Sec. 3(a) further instructs the Administrator to "prepare and revise annually a national plan for the development of public airports," taking payments on a matching basis. The annual authorization and appropriation has always fallen short of the demand, and the amount available in any one year has never exceeded $75 million. In 1968, for instance, the Administration received 778 requests for aid totaling $339.3 million but only $70.2 million in matching funds for grants were provided by the Federal Government, less than a quarter of the amount requested. During the 1950's, Federal assistance was available for both terminal area development and runway construction, but since 1961 the only items eligible have been those related to safety, such as runway and taxiway construction, land acquisition, and the purchase and installation of safety devices such as high intensity, in-runway lighting.

Since its inception in 1947, the Federal grant program has contributed about $1 billion to the almost $6 billion investment made by State, local, and Federal Governments in public airports of the national airport system. The National Association of State Aviation Officials notes that "it is a popular misconception that under the present Federal aid to airport programs the cost is divided 50 percent Federal, 25 percent State, and 25 percent local. The Federal government only participates within the limits of predetermined priorities in selected items of development."[26] A comparison of airport and highway aid programs in fiscal year 1965 indicates how miniscule the Federal airport development effort is. FAA grants-in-aid totaled $74,000,000 while the Bureau of Public Roads grants totaled $3,924,143,000; FAA approved 460 projects while BPR approved 7,839. The Budget Bureau has consistently recommended reduction in airport expenditures.

The first National Airport Plan (NAP) in 1947 embraced 4,431 airports (of which 2,550 were proposed new ones) and the estimated cost of development was $985.8 million. Twenty years later the NAP still lists 4,106 locations (of which 887 are proposed new airports) and the estimated cost of development is $1.3 billion. In the intervening period 6,199 projects went into 2,006 airports for a total Federal grant expenditure of $890.1 million (to 1965).

Out of those 2,006 airports receiving aid in 1965, 716 or 35.7% took $744 million or 86.3% of the money, an average of $1,039,000 per airport to serve air carriers primarily. Six-hundred and seven million dollars or 70.4% of that money went into 240 trunk airline airports or an average of $2,530,000

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per airport. One-hundred and thirteen million dollars or 13.7% of the money was distributed among the remaining 64.3% or 1,290 airports, at an average grant of $91,473 per airport.

The 1966 Federal Aid Airport Program allocated funds on about the same distribution basis as previous programs: 73.5% for air carrier airports, and the rest for general aviation airports (13.5% for reliever airports as provided for in a $7 million a year set-aside in the 1961 extension of the Federal Airport Act.)

Thus, the FAA has spent 90% of the money originally envisioned and given aid to only 45% of the airports originally envisioned. The Aircraft Owners and Pilots Association charges that "it has given a lot of projects costing a lot of money to a few airports and neglected the development of a 'national system of airports' which requires something more than a few big terminal airports at major metropolitan hubs." [27] This growing concentration of air carrier airports and the mushrooming of non-air carrier airports is creating a serious gap in the system. There are some 9,600 airports in the U.S. used by general aviation; the airlines serve only about 600.

Air service to the remaining 9,000 is solely general aviation, and "one airline alone has estimated that 30,000 of its passengers last year connected at the major airports by air-taxi or other general aviation aircraft." [28]

In hearings held in August 1967 by the Aviation Subcommittee of the Senate Commerce Committee, a full discussion focussed on the concept of the "hub" as the determining factor in the National Plan. The "hub" concept was perceived by the FAA to relate aviation needs to population density. The simple fact is that it is unknown whether population caused the concentrated number. Using the "hub" premise, the FAA oversaw a dramatic reduction in the number of air carrier airports.

As a result of these hearings, the FAA redefined its criteria for preparing the list of locations and airports to be included in the new NAP for fiscal years 1969–1973. The new criteria are based on the principle of "need" of a community for air transportation in relation to a "national interest." Such national interest is assumed when one or more of the following conditions exist: (1) requirement for scheduled airline passenger service; (2) a substantial degree of non-local aviation activity; (3) lack of other modes of transportation; and (4) a local economy dependent upon air transportation for its contribution to the Gross National Product.

Airports included in the NAP are broken down into two main functional categories:

1. Airports to accommodate airline service which include: airports presently receiving airline service which need increased facilities; new or supplemental air carrier airports for areas in which a high degree of aeronautical activity indicates need; replacement airports where existing airports cannot be expanded to meet projected traffic; and regional airports to serve two or more communities where such is considered a feasible solution to meet long-range needs.

2. Airports for general aviation which include: those which are an integral part of a metropolitan area airport system; "reliver" airports serving to divert general aviation traffic from a congested airline-served airport; airports where total annual aircraft operations are in excess of 60% of the capacity of the airport and include at least 30,000 annual operations; airports where air-taxi service is provided on a regular basis throughout the year with at least two flights a week; airports which serve the business community interests if there is evidence of considerable use by based aircraft which is essential to the well-being of the area served; airports where there is evidence of inadequate access to another NAP airport by at least 10 aircraft owners or when owners would otherwise be at least 30 minutes ground travel time from the nearest adequate airport; airports where access to a recreational area or facility indicate extensive use by visitors; airports where a community may be isolated due to lack of adequate surface transportation.

Development criteria for airports is determined by analysis of the forecast of aeronautical demands and includes the type of aircraft expected to use the field, the frequency of use and "mix," the transportation role of the airport and its environmental relationship to the community it serves. The runway length, width, and strength determination are designed on the basis of the most critical airline aircraft anticipated within the next 5 years at the particular location for airline-served airports. For general aviation, determination is by basic utility for safe landing and take-off of a representative sampling, general utility to handle all general aviation aircraft with the exception of transports and business jets, and larger general utility to service transport-type aircraft and business jets.

Considerations of airfield lighting, clear zones, apron areas, taxiways, second runways, heliport and sea plane facilities are also included in the plan.

By these criteria the plan calls for new air carrier airports at 25 locations by 1980, 147 general aviation airports designated as "reliever", STOL (Short Take-off and Landing) ports as the need arises estimated at 25 in the New York-Washington corridor and on the West Coast at a cost of $5 billion.

These criteria appear to suffer from the same difficulty of the earlier plans—inattention to the needs of a total system and concentration on a few areas.

Even if sufficient funds were available, it is questionable whether the National Airport Plan as now envisioned is the structure adequate to ensure the greatest potential growth and development of a safe air system in the U.S.

The National Association of State Aviation Officials (NASAO) for instance, charges that "the present plan is little more than a list of anticipated airport construction projects." Arvin O. Basnight, Associate Administrator of FAA said, "This plan produces some very useful information. It identifies the composition of the national network of airports and those developments recommended at each location . . . . (the) plan identifies needed airport developments, but projects are limited to the eligibility and availability of Federal and local funds." [29] If this interpretation is indeed the essence of the "plan", it falls far short of what is needed to create a quality aeronautical system. A plan to be successful must not only identify, but create and shape the system, then devise the means to implement it. It must also be relevant to all other aspects of the system—airspace traffic and route facilities, all transportation needs of the population, land use planning, weather systems, personnel availability, research and development programs, and the type of aircraft being produced and utilized.

E. Thomas Burnard, Executive Vice President, Airport Operators Council International, Inc. said that:

"Historically, the airport planner has been the last to know what the characteristics of new aircraft will be as they relate to the airport . . . the Federal government published its airport runway criteria changes (for jets) just 30 days before scheduled jet service began." [30]

The Aircraft Owners and Pilots Association takes a realistic view when they suggest that Federal funds will never be adequate to fill all the needs, and therefore, that priorities must be established as part of the plan. They disagree with the present priorities which concentrate funds at airports with a "significant volume of commercial air traffic" because this ignores the fact that other airports are needed to complete the system. They list priorities in the following order: (1) purchase of land and initial development to public airports to complete the National Airport Plan; (2) provision of improvements for airport facilities; (3) provision of improvements to relieve congestion at major airports; (4) provision of Category I (see Section IV) capability at airports without any instrument capability; (5) improvements to provide additional runway and ramp capacity at existing airports.

The problem of financing

In hearings before the Aviation Subcommittee to the Committee on Commerce, United States Senate, August, 1967, most witnesses agreed that by the end of 1973 an additional $3 billion must be invested in the National Airport System by local, State and Federal governments and another $3 billion will be required by the end of 1975, making a total estimated investment over the next 8 years of $6 billion—$5 billion of this amount is for air carrier airports. (See Chart 18). This will require the expenditure of as much money over an 8-year period as has been expended in total during this century for development of the National Airport System.

The figures above are accurate but may be somewhat misleading. In fact, State, local, and Federal governments may have spent close to $6 billion to date, but given the fact that almost two-thirds of the airports in the U.S. are privately owned, this is no where near an accurate estimate of the expenditure to date, or the needs of the future. In addition, the fact that Federal expenditure has been limited to certain facets of airport development further dilutes the figure of estimated need. Finally, air carriers themselves invest about 7% of their capital ($400.1 million in 1967) in buildings and ground equipment and another $418 ($14.3 million or 78%) in flight equipment some of which is for navigation and safety equipment. (See Chart 19).

The present FAA 5-year plan for fiscal years 1967 through 1973 estimates the Federal share of this development alone would amount to $1.53 billion. This does not include matching funds from State and local governments for runway needs, nor the amount that must be spent for passenger handling facilities, nor money which will be required for the installation of airport control towers, instrument landing systems, terminal area radar, en route traffic control centers and parts of the National Airways System which are funded 100 percent by the Federal government out of general funds. Air carrier airports make up only 13% of the projects, but account for $5 of the $6 billion funds. Thus the same trend as in the past continues—concentration on development of a few large airports to the possible detriment of a "system".

Allocation of the funds would include about 23.2% for land acquisition, 38% for paving, 25% for site preparation, 5% for lighting, 1.8% for safety buildings, and 7% for miscellaneous.

There have been various ways suggested to help finance the huge investment which will be needed.

1. Federal Airport Loan Funds. The Federal government would extend long-term low interest rate loans for airport development.

2. Federal Airport Loan Guarantee Programs. This program would be structured on the Federal Housing Administration approach, whereby the sponsor would be the local government and private financing would be sought with the Federal government acting as a guarantor.

3. Federal Airport Grants. For some time, a large share of Federal transportation grant money has been allocated to highways. This

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90–10 highway formula may not longer be practical when viewing the needs of the airports; priorities should be reconsidered.

4. Increased User Charges. Highways offer ample precedent that user charges are an appropriate financing tool.

5. Head Tax. There are several alternatives possible through the use of a head tax. A Federal head tax of $1.00 per passenger could be charged at the time of purchase of a ticket with the funds deposited in a trust fund and distributed on a need basis. A like charge could be made for each ton of cargo. Or the airports themselves could impose the tax and use funds to maintain, improve, or expand their facilities (though this would probably not channel the funds to the most needy airports).

6. Local Bonds. Local government has rightfully carried a substantial share of the costs of airport development through general obligation or revenue bonds, and though this source is probably insufficient for the total program, they should continue to be utilized.

At the present time the airport trust fund, similar in nature and operation to the successful highway trust fund, has the greatest support. Trust fund financing would provide a reasonably certain amount each year enabling airport operators to plan their capital investments with greater care and prudence. From the Federal government's standpoint, its share of airport development cost would no longer be a direct drain on the Treasury or on the general taxpayer. Possible sources of revenue for the trust fund are head tax, an annual appropriation into the trust fund to reimburse the fund for military use of civil airports (FAA currently states that ⅓ of their budget supports military operations), ticket tax, fuel tax (on jet fuel as well as regular), annual license fees both for general aviation and air carriers, rental fees for use of terminal space by U.S. Customs Department, and user fees.

Whatever the means of financing, it must be equitable between general aviation and commercial aviation interests. There has been a great deal of criticism that general aviation has not paid its fair share. A look at the record, however, does not bear out these accusations. For example, in Rockford, Illinois the airport which is served by one commercial airline, receives 10 percent of its airport income from the airline, 60 percent from general aviation and the remainder from concessions. General aviation pays substantial fuel taxes (6¢ a gallon) while jet fuel is not subject to a Federal tax. General aviation is also responsible for the development of the 6,296 (1967) privately owned airports in the U.S.; only half of these are used exclusively for private aircraft.

The fuel tax, which is the only direct tax paid by the airlines (ticket taxes are absorbed by the passenger), is taxing general aviation more than the airlines, which is equitable, if contributions are compared with the number of aircraft using the system.. On the other hand, the total airline contribution ($244 million in 1969) compared with the total private aviation ($8.3 million in 1969) does not seem inequitable in view of the Federal contribution to commercial airport development rather than general aviation airport development.

X. THE FEDERAL ROLE IN THE ADMINISTRATION OF AIR SAFETY

The major Federal administrative agencies involved in civil aviation operation are the Federal Aviation Administration (FAA), the Civil Aeronautics Board (CAB), the National Transportation Safety Board (NTSB), and the Department of Transportation (DOT).

The interrelationship between these different agencies is at times elusive and the lines of authority since the creation of the Department of Transportation in 1968 have yet to be clearly drawn.

The National Transportation Safety Board (NTSB)

The NTSB was created by the Department of Transportation Act of 1966, Public Law 89–670 and is housed within the DOT structure for operating and administrative purposes only, reporting directly to the Congress annually. It consists of five members (no more than three of the same political party), appointed by the President with the consent of the Senate for terms of five years. The NTSB's main functions in relation to aviation are to determine the probable cause of civil aircraft accidents (a function formerly performed by the Civil Aeronautics Board) and to review on appeal the suspension, amendment, modification, revocation, or denial of any certificate or license issued by the Secretary of the Department of Transportation or by the Administrator of the Federal Aviation Administration. The organization in NTSB which investigates accidents is the Bureau of Aviation Safety.

The National Transportation Safety Board is charged with the responsibility of determining the probable cause of all aircraft accidents in the U.S. involving civil aircraft, a duty it may not delegate. It may delegate the investigation function; and it does in certain categories of light plane accidents.

In addition to determining the cause of transportation accidents, the NTSB is also authorized to:

Make recommendations to the Secretary or Administrators concerning rules, regulations, and procedures for the conduct of accident investigations;

Arrange for the personal participation of members or other personnel of the Board in accident investigations conducted by the Secretary or Administrators in such cases as it deems appropriate;

Insure that in cases in which it is required to determine cause or probable cause, reports of investigations adequately state the circumstances of the accident involved;

Make recommendations to the Secretary which, in its opinion, shall tend to prevent transportation accidents and promote transportation safety.

The organization in NTSB which investigates accidents of civil aircraft is the Bureau of Aviation Safety. The Bureau maintains eleven field offices, located throughout the country, staffed by from three to ten investigators. The field offices investigate general aviation accidents and the lesser accidents to air carrier aircraft and give administrative assistance to the investigations of major air carrier accidents.

In its Washington offices, the Bureau has a staff of investigators specializing in meteorology, metallurgy, structures, aircraft systems, electronics, aircraft maintenance, piloting, powerplants, flight and voice recorders. The Bureau has a total complement of 184 employees comprised of 52 field investigators, 55 investigators in Washington plus administrative and clerical personnel.

The NTSB investigative procedure employs the "specialty group system" concept whereby one of the Board's experienced investigators is dispatched to the scene where he is briefed on the known circumstances of the accident after which he appoints several specialty groups who often sub-contract part of the fact gathering and reporting operation.

Most of the governments of the world now have established accident investigation staffs, policies, and procedures; and the vast majority, with minor modifications follow the basic Investigator-in-charge, specialty group approach. The International Civil Aviation Organization with headquarters in Montreal and supported by over 100 nations, including the United States, has for many years now been the instrument through which accident notification, investigation, and reporting has been standardized on a near world-wide basis. The "bible" of these functions is Annex 13 to the Convention on International Civil Aviation.

Prior to 1963, the Bureau's investigating arm was made up of a combination of personnel from one or more field offices and from the Washington office. After the onsite portion of the investigation, during preparation for the public hearing and later in the analysis and final report phases, there was a degree of continuity lost in some areas of endeavor and duplication of effort in others. Therefore, in 1963, the so-called Team Concept came into being whereby four Supervisory Air Safety Investigator positions are established in the Washington office to provide for Investigator-in-Charge on a rotating assignment basis. On Friday of each week a "Go-Team" is established on a standby basis made up of one of the Investigators-in-Charge (IIC) and investigators in the several specialty areas, an Assistant IIC for Airworthiness and an Assistant IIC for operations.

The team which proceeds to the accident site for conduct of the investigation remains a unit, operating as a team, insofar as possible, throughout the field investiagtion, public hearing, analysis, and drafting of the Board's Aircraft Accident Report. The Bureau has sufficient personnel to staff four such teams in most of the specialty areas, but in some areas such as air traffic control, flight recorder and weather, it has been and still is necessary for specialists to serve double and triple duty from team to team.

Criticism has been directed toward the practice of admitting organizations whose functions, equipment, or service is involved to participate actively in the fact-finding phase of the investigation because of the danger of diluting the objectivity of the investigation. The Bureau has apparently not found this generally to be true. On the contrary, the Bureau cites two advantages to this practice of admitting participating parties:

It permits a rapid and natural flow of information to the participating organization leading to early, coordinated corrective action in many areas of design, manufacture, and operation of the aircraft and its components, thus enhancing future safety.

The government realizes a reduction in the cost of each investigation. It contends it would be impossible for the Bureau to maintain a staff large enough to contain up-to-date knowledge of all the models of aircraft and their many systems.

However, some have been critical of the Board's procedure by claiming that interested parties should be allowed to participate in the analysis phase as well, indicating that the NTSB, to the degree it inevitably must pass judgment on its sister governmental operations risks losing objectivity in its conclusions. Here the Board and the Bureau believe that analysis is, in fact, a process of cause determination, a function which the Board is not permitted under law to delegate, that it would seldom be possible to get absolute agreement of all parties, and that the Bureau's trained and experienced staff is the most eminently qualified to analyze accident data and should do so in a completely unobstructed atmosphere.

In view of the elaborate investigations which the NTSB structure suggests, it is remarkable that to date there has been little evidence that information gleaned from the investigations has been helpful in preventing further aviation accidents and promoting air safety.

The lengthy investigations have been able to placate the public and provide an image that "something is being done," but it is a fact that it usually takes two years for the NTSB to release a report which means that the conclusions reached usually are outdated before they are released.

One important question is the relationship between the NTSB and the FAA. Formal relations occur only when FAA provides a coordinator for the investigation team that the NTSB appoints to determine the cause of an aviation accident, when the FAA initiates corrective action as a result of information gleaned from an investigation, and when an appeal is made due to the denial of a certificate or license by the FAA.

FAA approves the operating manual, issues licenses, qualifies mechanics, installs and checks navigation aids, declares new aircraft airworthy, and reviews pilot qualifications on a semi-annual basis. As qualified and as fair as the NTSB may be in its procedures, the fact remains that not once since October, 1958, has the NTSB (or its predecessor at CAB) found the FAA to be the probable cause of an airline accident. On at least two occasions, the CAB accused the FAA of being a "contributing factor" in post-1958 accidents, but neither involved fatalities.

One example of an NTSB report which simply ignored relevant factors relating to FAA personnel was issued on September 11, 1968, and covered an aborted take-off (and resulting crash) of a TWA jet from the greater Cincinnati airport on November 6, 1967. All 29 passengers and 7 crew members escaped from the plane; 11 were treated for injuries; and one passenger died from injuries four days later.

A Delta Airlines jet had landed and while taxiing slipped off the runway into a muddy area where it was positioned perpendicular to the runway, with its aft section only seven feet from the runway, and with the idling jet engine sending its exhaust from the tail directly across the runway. While the Delta jet appeared to be taxiing clear of the runway, the TWA jet was cleared for take-off by the FAA controller in the tower. Before the TWA plane started, the controller saw that the Delta plane was still surprisingly close to the runway, and he inquired of it: "Delta 379, you're clear of the runway, aren't you?" The Delta response was: "Yeah, we're in the dirt though." The controller then advised the TWA plane that the Delta plane was clear of the runway and cleared the TWA take-off.

As the TWA plane passed the Delta plane, the latter's jet exhaust caused sufficient noise and yaw in the TWA jet to cause the first officer who was at the TWA controls to believe that there had been a collision and to attempt to abort the take-off despite the fact that he was beyond the safety point to do so. As the pilots worked to stop the plane it rolled 275 feet beyond the runway to the brow of a hill, became airborne for 67 feet, landed further down the hill and came to rest straddling a highway 421 feet from the end of the runway. Despite a fire, evacuation was prompt and orderly.

The NTSB finding of cause is reprinted here in its entirety:

"The Board determines that the probable cause of the accident was the inabiltiy of the TWA crew to abort successfully their take-off at the speed attained prior to the attempted abort. The abort was understandably initiated because of the first officer's belief that his plane had collided with a Delta aircraft stopped just off the runway. A contributing factor was the action of the Delta crew in advising the tower that their plane was clear of the runway without carefully ascertaining the facts, and when the fact their aircraft was not a safe distance under the circumstance of another aircraft taking-off on that runway." [21]

The finding of probable cause had not one word to say on the actions of the FAA control tower—even though it was the tower's ultimate responsibility and no one else's to determine whether the runway was or was not cleared and safe—even though it was visibly ascertainable that the Delta jet was much less than 100 feet from the runway, the distance which aircraft preparing for take-off must "hold" in order to keep the runway clear—even though a control tower's job is to control not to rely upon the casual judgment of others who are not in a distinctly better position to judge than the tower—and even though it surely is the tower's responsibility to resolve all questions of doubt on the side of caution. The failure of self-criticism in the government's report seems all the more serious, when it is realized that while the Delta jet with engines idling remained perpendicular to and only off the runway by seven feet, and while one TWA plane was aborting its take-off, the tower without pause immediately cleared a second TWA jet to land on the same runway.

Finally, it should be noted that the report of this crash, where the facts were readily attainable, did not appear until ten months later. The findings of the need for new regulations on runway clearance could have been made in five minutes.

The Civil Aeronautics Board (CAB)

The Civil Aeronautics Board was created by Title II of the Federal Aviation Act of 1958, Public Law 85–726, but was really just an extension of the Civil Aeronautics Authority already in existence by the 1938 Civil Aeronautics Act. The Board consists of five members appointed by the President with the consent of the Senate for terms of six years. CAB is an independent agency whose main function is the fostering of air commerce. To this end CAB awards routes and regulates fares. The law specifically gives CAB the power to regulate "air transportation in such a manner as to . . . . assure the highest degree of safety . . . .", which certainly makes regulation of aircraft schedules in accordance with safety standards well within its jurisdiction. CAB had the additional function of investigation of aircraft accidents until the 1966 Department of Transportation Act transferred this function to the NTSB.

As the air congestion problem grows, it becomes clear that there is a connection between route awards and fares and the operation of the civil aeronautical system, the jurisdiction of FAA. It could well be that the concept of CAB is a hangover from previous legislation and original Federal involvement in civil aviation, that it is now outmoded, and that such a function would be better served as an integrated part of the development of a safe air system under FAA.

The Federal Aviation Administration—Its responsibilities

The major function and responsibilities of operation and development of the air system are given to the FAA by Public Law 85–726, the Federal Aviation Act of 1958. At that time the FAA was an independent agency, and remained so until Public Law 89–670 moved the FAA within the new Department of Transportation in 1966.

The Federal Aviation Administration is headed by an Administrator who is appointed by the President with the consent of the Senate. The Administrator is not bound by the decisions or recommendations nor the approval of any other organization created by Executive order, but reports directly to the Congress. The main function of the FAA is the operation and development of a safe civil aeronautical system.

The Federal Aviation Act of 1958, Public Law 85–726, grants large powers and a broad jurisdictional authority to the Federal Aviation Administration for the establishment and operation of civilian aeronautics in the U.S. Specifically, some of the areas are as follows:

Sec. 305.—"development of civil aeronautics and air commerce in the United States and abroad."

Sec. 306.—"consideration to the requirements of national defense, and to commercial and general aviation. . ."

Sec. 102.—"development of an air-transportation system . . . the regulation of air transportation . . . promotion of safety . . ."

Sec. 307—"supervision of air traffic and provision for air navigation facilities. . . ."

Sec. 309—"no airport or landing area . . . shall be established . . . unless reasonable prior notice thereof is given to the Administrator . . . so that he may advise . . ."

Sec. 310—"providing meteorological service. . ."

Sec. 312—"The Administrator is directed to make long range plans for and formulate policy with respect to the orderly development and use of the navigable airspace . . . landing areas . . . airways . . . radar installations . . . facilities."

Sec. 601—"duty to promote safety . . . by prescribing standards of . . . design of aircraft . . . inspection . . . service of airmen . . . rules and regulations."

Sec. 602—"issue airman certificates . . ."

Sec. 603—"issue type certificates . . . production certificates . . . airworthiness certificate."

Sec. 604—"issue air carrier operating certificates . . ."

Sec. 605—"inspectors who shall be charged with the duty of making inspections (maintenance) . . ."

Sec. 606—"inspect, clarify, and rate any air navigation facility."

Sec. 607—"the examination and rating of civilian schools giving instruction . . . repair stations."

The FAA is given further authority under the Federal Airport Act, Public Law 79–377, "to provide Federal aid for the development of public airports", specifically.

Sec. 3—"Administrator is hereby authorized and directed to prepare . . . a national plan for the development of public airports . . . take into account the needs of both air commerce and private flying . . . the probable technological development in the science."

Unfortunately, the FAA has not interpreted its role as broadly as the powers delegated to it allow. Repeatedly, the FAA has seen its jurisdiction to extend only as far as a narrow interpretation of "air safety" allows. Thus, while former FAA Administrator General William F. McKee said that "our basic responsibility is safety in aviation" [22] and saw FAA authority to manage the navigable airspace, air traffic control system, air navigation facilities, certification and licensing system, enforcement program, and administration of airport grant-in-aid program, at the same time, FAA, has not interpreted its role in "air safety" as power to regulate air carrier schedules, airport certification standards, airport development plan, and the direction of growth of civilian aeronautics. It is difficult not to conclude that the FAA has defined "safety" less from a vantage point of lives saved than of a compromise with the cost-benefit economics of commercial aviation. Jurisdiction to impose stricter standards and codes and to develop and implement a plan of safe air management is clearly present to the extent which FAA wants to utilize it.

The FAA has not interpreted its role to include regulating traffic at airports by amending existing airline schedules. Historically in awarding routes, the Civil Aeronautics Board has prescribed minimum flight frequency between whole metropolitan areas, not maximum flight frequency between specific airports. Only in the last two or three years has the Civil Aeronautics Board awarded new routes on the condition that airlines serving them even land at specified airports. The airlines claim the exercise of the power of regulating flight frequency so specific airports would be tantamount to expropriating private property. The question is not a legal one; it is whether the FAA wants

Footnotes at end of article.

to use the power it has and in this instance risk alienating the airlines. As traffic congestion mounts and delays increase, the airlines themselves will be the losers if changes do not occur. In this fear, several airlines at the encouragement of TWA President Tillinghast, have recently entered into discussion to coordinate their air schedules, but the attempt has thus far proved futile.

The FAA has not interpreted its role to exercise responsibility in airport development over State and local governments. One of the grave difficulties in developing a safe and rational airport system has been the lack of defined responsibility between local and Federal government. The FAA has claimed that it does not possess the whole responsibility. In testimony before the Committee on Interstate and Foreign Commerce of the House of Representatives on March 8, 1967, Mr. Oscar Bakke, Director, Eastern Region, FAA said: "The Agency not only does not possess the whole responsibility, I doubt very much, sir, whether we possess the primary responsibility. In this respect we can only assist local and State governments." [33] As a result of FAA's failure to interpret the airport systems development as critical to "air safety" and to exercise the responsibility it has to the fullest measure, within 50 miles of the Empire State Building there exist some 1,300 separate political jurisdictions which in some manner have the capability of participating in the development of aviation facilities—but not one of the jurisdictions has *the* responsibility and it ends not being exercised at all.

The FAA has not interpreted its role to include coordination of the various Federal agencies in the development of aviation facilities. Such development has been dispersed among, for example, the Department of Housing and Urban Development, the Bureau of Public Roads, the National Aeronautics and Space Administration and the Department of Health, Education and Welfare.

The FAA has not interpreted its role to include adequate planning for the orderly development of the civil aeronautical system. Such responsibility is specifically delegated to it in the Federal Aviation Act of 1968, Sec. 102. Bill Gale, in his article in the *Providence Sunday Journal* of November 26, 1967, entitled "Many Midair 'Incidents' Go Unreported" wrote: "The FAA has allowed the air traffic control system to become undermanned, underequipped, and undermaintained. It has allowed "controller expertise' to make up for deficiencies." [34] Likewise, Senator Peter Dominick stated that: "The problems are not with personnel but with inferior planning at the top levels." [35]

The recent Administration did not prod FAA to do its job. The White House in 1965 announced the formation of a Presidential task force on the problems of airport development. Senator Jacob Javits has charged that "the membership of the task force was secret, the goals of the task force were secret, and the report which allegedly went to the White House was secret." [36] With the failure of the FAA and the Presidency to come up with any concrete plan for action, the Senate Aviation Subcommittee of the Committee on Commerce of the U.S. Senate conducted a series of hearings in August, 1967 on the "maintenance of an Adequate Airport System" which concluded in a Senate Report and plans to hold more hearings. Later, the Department of Transportation conducted a report on airway modernization and in January, 1968, the press reported a briefing where "certain officials told of the Department's plans to seek some legislation sometime in the Spring." [37] It never came.

The relationship between the Congress and the FAA has always been cordial but remote. The FAA has tended to ask what it thinks it can get, and its unaggressive and unimaginative policies have never stirred the ire of the appropriators.

The Aircraft Owners and Pilots Association has charged that Congress itself has been negligent in its role in civil aviation development. "The fashion in which the Federal Airport Aid Program was changed and administered without effective correction from Congress indicates to us a critical failure in legislative oversight . . . The Congress and the Executive have both studiously avoided establishing objective standards for the measurement of safety." [38]

Perhaps the reason is that Congressional committees do not have the technical staff assistance to cope with the intricacies of the program; perhaps the legislative committees abdicate too much of the responsibility of oversight to the appropriations committees as is indicated by the substantial differences between what is authorized and what is appropriated; perhaps the committees merely need to be more demanding of compliance with legislative direction. Whatever the reason, Congress has not taken as active and responsible a role in aviation affairs as the present state of aeronautics suggests is desirable.

The Federal Aviation Administration—Its efficiency

The cost of administration per employee between FAA and the Bureau of Public Roads in 1965 was almost equal ($13,110—FAA, and $12,434—BPR). (See Chart 20). But there is a marked difference in the efficiency at dispensing grants in aid on either an administrative cost ("dollar of grant per dollar of administrative cost"—$7.77—FAA, and $83.89—BPR) or position basis ("dollars of grant per position"—$101,902—FAA, and $1,044,210—BPR). A substantial part of the FAA Airports Service administrative cost is composed of incomparable overhead burden allocated running to 25–30%. But even with the adjustment on this score, the difference appears more than can be justified, according to the Aircraft Owners and Pilots Association.

In 1967, FAA employees numbered 42,354. This means that there were 2.5 active aircraft per FAA employee, 13.0 active pilots per FAA employee. Working with a 1968 FAA budget expenditure estimate of $892,010, FAA cost per active aircraft (omitting the SST) is $7,144 and FAA cost per active pilot (omitting the SST) is $1,394. These figures may indicate the reason why FAA has been charged with being "an over-controlled bureaucracy," and a "management monstrosity."

Though the method of procurement policy has been relatively free of criticism, the category of procurement policy has from time to time been the object of criticism. As of June 20, 1967, the FAA owned a total of 101 planes, about the same size as the fleet of Delta Airlines, with an inventory value of $46,000,000 and a yearly maintenance cost of $14.5 million in 1967. The list includes large aircraft like the Boeing 720, the Boeing 727, the DC–9—planes that cost as much as $4,000,000 apiece, as well as a number of executive-type aircraft like the Beechcraft Quenn Aires, and the Lockheed Jet Star—planes that cost about $1,360,000 apiece. These planes are used for calibrating and checking the navigational aids installed near airports, for "job performance" (a category which has been vaguely defined), and for training purposes. Congressman Fletcher Thompson of Georgia has charged that the FAA fleet is too large; that FAA personnel who hold pilot rating, but whose jobs are not as pilots, have been using the aircraft as a means of continuing their pilot skills; that the theory that the FAA must have one of each type of aircraft for training purposes is questionable; and that some aircraft like the Convair 880 Model M which FAA owns has no purpose because it is the only one of its type in the world today. He also states that "GAO states that it was 'unable to obtain complete information on all aircraft because the agency does not have a uniform cost reporting system for its aircraft operations'." [39]

Senator Peter Dominick reported in 1967 that FAA had spent $267,000 in the Pacific Region "which could not be justified or could be justified only partially by conditions existing at the time of the procurement" [40] while needed weather equipment was not procured. FAA has made a significant breakthrough in the method of procurement in the area of research and development contracting which deserves special note. It put a clause in the contract which allows that if the product has a commercial application and the company makes sales as a result of this, the company has to give FAA a royalty on their sales. In essence, FAA gets its money back for research and development as Chart 21 indicates.

Engineering trade-offs which in essence increase comfort or some other factor at the expense of safety have long been an accusation toward the aviation industry, FAA and NASA policy alike. Former FAA Administrator McKee has said: "The primary mission of FAA is aviation safety. It is not our policy to trade-off other performance advantages to the detriment of safety." [41] The Administrator of NASA has said: "NASA's role is to provide valid technical data from which trade-off studies can be made by other agencies with confidence, to assist in proper interpretation of these data, and when requested, to comment on the technical validity of arguments used to arrive at regulations." [42] Yet, Stuart Tipton, President of ATTAA says: "The basic responsibility for the safety of their operations rests with the airlines. Consequently the ultimate resolution of such trade-offs as are available also rests with the airlines. However, unlike the case of other forms of transport, the government long ago decided to regulate safety and aviation in detail and thus must take some responsibility in trade-offs." [43] The airlines contend that trade-offs are the responsibility of FAA; NASA contends that it can provide suggestions as to how FAA can evaluate trade-offs; and FAA says that trade-offs do not exist. In fact, one of the most biting criticisms to date of FAA has been levied against the utilization of the cost-benefit ratio concept: "Critics say the agency has gone too far—the agency says it is just trying to save the taxpayer's dollars." [44]

CHART 20.—COMPARISON OF AIRPORT AND HIGHWAY AID PROGRAMS, FISCAL YEAR 1965

	FAA	BPR
Grants in aid	$75,000,000	$3,924,143,000
Administrative costs	$9,649,000	$46,727,000
Positions	736	3,758
Projects	460	7,839
Ratios:		
Dollar of grant per dollar of administrative cost	$7.77	$83.98
Dollars of grant per position	$101,902	$1,044,210
Dollars of grant per project	$163,043	$500,592
Administrative cost per project	$20,976	$5,961
Administrative cost per position	$13,110	$12,434

Source: Federal Aviation Administration.

Footnotes at end of article.

CHART 21.—PAYMENTS RECEIVED FROM CONTRACTORS HAVING CONTRACTS WITH "RECOVERY OF DEVELOPMENT COSTS" CLAUSE—MAY 9, 1966

Contract number and contractor	Amount		Date
U.S. supersonic transport delivery position agreement[1]	$9,600,000.00	May	4, 1966
BRD-234, Wilcox Electric Co., Inc.	4,593.60	May	15, 1963
	5,289.60	Aug.	15, 1963
	8,953.20	Nov.	15, 1963
	11,840.40	Feb.	11, 1964
	12,180.00	Apr.	9, 1965
	22,183.59	May	21, 1965
Final	77,500.00	Oct.	18, 1965
Total	142,540.39		
ARDS-476, Transco Products, Inc.	16,000.00	Apr.	12, 1965
FA-WA-4591, Aircraft Armaments, Inc.	(2)		
ARDS-558, Hazeltine Corp.	8,672.96	Dec.	30, 1965

[1] Advance royalties paid by airlines for the purpose of reserving preferential delivery positions for production supersonic jet transports with the Government's airframe contractor.

[2] In final stages of negotiation of an agreement covering Aircraft Armaments, Inc., licensing of Electronic Modules Corp. for the use of AAI technical and sales data in the manufacture and sale of electronic modules, module card assemblies, and circuit boards developed, at least in part, under the contract.

Source: Federal Aviation Agency.

XI. RESEARCH AND DEVELOPMENT

There are significant gaps in the aeronautical research and development effort which could weaken the entire fabric of the aviation system if attention is not immediately focused on them.

1. A Comprehensive Plan for Aeronautical Research and Development: A single national plan for aeronautical research and development does not exist. The Federal government's policy is a composite of the separate policies of various agencies and committees. As a result, research and development has touched components of the aeronautical system piece by piece, with little or no attention to how the components—equipment, personnel, weather, the funding commitment of the Nation—interact. An efficient and safe air system is dependent upon an accurate analysis of the entire fabric as well as upon a prediction of what the needs of the system will be in order that the proper hardware can be developed.

The National Airspace System is not the answer, as it is addressed only to increased input of already existing systems equipment—more towers, more runways, more airports. Entire areas directly related to the system—e.g., general aviation—have been ignored.

A specific mechanism is needed to act as the focal point for the development of a more comprehensive and better coordinated aeronautical research and development policy.

2. General Aviation Research and Development: Insufficient attention has been given to the aeronautical area identified as "general aviation." Smaller aircraft operations and private aviation is a growing segment of aeronautical operations and is becoming an essential part of our national transportation system. Little research is being done on general aviation and the problem of traffic control, the inter-mixture of general aviation operations with large commercial aircraft, and improving utility and safety of these aircraft flown by less experienced pilots.

3. Technological Utilization and Transfer: A purposeful effort to transfer space technology and military technology (the bits and pieces of know-how, not just packages of equipment) needs to be initiated. Teams of competent technical people are needed to identify, evaluate, select, and apply technology from the space and military programs for transfer to and utilization in civil aviation.

4. Pilot Training for the SST: Electronic simulators that reproduce faithfully the performance, visual and aural cues of aircraft in flight have long been a cornerstone of airline pilot training and will be even more important in preparing for the supersonic transport. Stuart Tipton says, "manufacturers of flight simulators, airline training experts, NASA, and FAA officials should join forces now to develop a simulator that meets airline training requirements and FAA regulator requirements to perform the maximum amount of SST qualification and proficiency training." [45]

5. Weather Information Systems: More basic knowledge is needed about weather phenomena as well as its prediction, interaction with aircraft, and communications advisability systems. This will be particularly important in relation to the SST, general aviation safety, satellite weather systems, all-weather landing systems, and the vexing phenomenon of clear air turbulence.

6. Cargo: Little research has been done on cargo handling systems, cargo capabilities of new aircraft, cargo potential and predicted volume. This will probably be the area of most intense growth in the aeronautical operations systems in the near future.

The Report of The Committee on Aeronautical and Space Sciences, United States Senate, May, 1966, listed a number of other areas in which research and development will be vital for future advancement:

Service to more cities and between fringe areas to separate cities;

Efficient short-haul transport;

Guidance and control improvements to aid commercial and general aviation pilots;

Better over-water communications and navigation aids;

Lower cost and less frequent maintenance;

Better use of airspace through efficient traffic control and scheduling;

Decreased capital and direct operating costs through improvement in aerodynamic and propulsive efficiency;

Decreased perceived noise and pollution levels;

Passenger comfort, including effects of circadian rhythm due to rapid time zone changes.

The role of the Federal Government

The Federal Government from the very beginning has been involved in the development process of the transportation industries, from the early post roads and land grants to railroads to today's Northeast Corridor project and the supersonic transport.

Although many Federal agencies are involved in some form of aeronautical research and development, no single agency plays the lead role in planning. As a result, the structure of aeronautical research and development is highly fragmented.

The leading groups which plan and oversee aeronautical research and development are:

Federal Aviation Administration (Department of Transportation)

National Aeronautics and Space Administration (National Aeronautics and Space Council) (Office of Science and Technology)

Department of Defense.

It has been suggested that the Bureau of the Budget might be considered the dominant, though indirect force, in shaping policy because of its control over the funds for aeronautical R & D. Or it might be the President as he decides who will participate in planning. President Johnson tended to use the Space Council, the Office of Science and Technology, and even special committees to achieve his aims. In any case, an overall Federal architecture to effect quality comprehensive planning is lacking.

The Federal Aviation Administration has been given broad statutory authority by the Federal Aviation Act of 1958, Public Law 85-726 in the field of research and development.

"SEC. 312(a) The Administrator is directed to make long-range plans for and formulate policy with respect to the orderly development and use of the navigable airspace, and the orderly development and location of landing areas, Federal airways, radar installations, and all other aids and facilities for air navigation. . . .

"SEC. 312(b) The Administrator is empowered to undertake or supervise such developmental work and service testing as tends to the creation of improved aircraft, aircraft engines, propellers, and appliances.

"SEC. 312(c) The Administrator shall develop, modify, test, and evaluate systems, procedures, facilities, and devices as well as define the performance characteristics thereof, to meet the needs for safe and efficient navigation and traffic control of all civil and military aviation except for those needs of military agencies which are peculiar to air warfare."

Federal Aviation Administrator, William F. McKee has interpreted this statutory authority as follows:

"The FAA role is to *identify* the research and development needs for the system we operate and to do the testing and application research in the development of our system, including our regulatory work, and to identify for NASA the aeronautical areas where we believe more R & D can be profitably undertaken." [46] (Emphasis supplied.)

As a result, the Federal Aviation Administration has one major research facility involved primarily in aircraft operational problems, (The National Aviation Experimental Center, Atlantic City, N.J.) but it has no aircraft development facilities and relatively few scientists and engineers.

Such interpretation of the FAA role has led to the FAA spending about one-third as much as NASA and about 3 percent as much as the Department of Defense in aeronautical research and development. (See Chart 22). FAA spent about $20 million between 1960 and 1965 on research and development. About 85% of the FAA research and development effort goes into the design, development, and testing of equipment to improve the interface between aircraft and ground environment; the other 15 percent of the budget is spent for aviation safety and aeromedicine. (See Chart 23). In addition, the proportion of the FAA budget devoted to research and development has always been low (about 5 percent) and the proportion is declining. (See Chart 24).

The majority of the in-house research and development work of the Federal Aviation Administration has been conducted as a part of the Civil Aeromedical Research Program which is conducted by FAA at the Civil Aeromedical Institute in Oklahoma City. There a staff of 30 professional scientists supported by 90 paramedical personnel produced more than 200 scientific reports in the 1964-66 period. A listing of a few of those which have made contributions to the body of information vital to air safety is instructive as to the scope of the effort:

Footnotes at end of article.

1. Tests of the durability of some 37 different items of safety equipment in crash testing.

2. Tests to evaluate the injury potential of present day commercial airline seats.

3. Biomedical evaluation of air traffic controllers, which showed that ATC personnel do physically differ in body size and physical measurements as a group and therefore provided a basis for improved design of workspace area, equipment, and placement.

4. Study to determine what can be predicted about the adequacy of present pilot experience and regulatory requirements, and how future safety and human factor problems can be anticipated in time to take corrective action with the new generation of jet executive aircraft soon to be available to general aviation pilots.

5. Study leading to recently tightened rules on passenger emergency evacuation requirements of airlines.

6. Biomedical assessment of stress and fatigue in pilots.

7. Evaluation of turbulence on air crews.

8. Effect of simulated altitude on binocular fusion time in young men: (A slower reaction time of people at altitude may be significant when a pilot's gaze is changed from the instrument panel to the sky and vice versa).

9. Effects of age on binocular fusion time.

10. Effects of commonly used (tranquilizers) drugs on aviation personnel.

11. Effects of dieting on performance of air crews.

12. Study of vertigo incurred in air crew by rotating beacons or sunlight on propellers.

13. A study to examine the optimum work schedules at ATC facilities.

14. Examination of the effect of scheduling disruption in the physiological day-night cycling upon proficiency and health of air crew members.

15. Controller selection analyses which resulted in new selection procedures and aptitude tests which more accurately assigned individuals to training sections and thus improved the output of training courses.

16. Studies to ascertain the performance gap necessitated by using masks due to decompression.

17. Development of a new ATC "System Error" reporting system, evaluation of training procedures and techniques, and appraisals of operating procedures at field installations.

18. Consultation in ionizing radiation and other aspects relative to aircrew and passenger safety in the supersonic transport.

19. Study of the effect of blood, alcohol, altitude, and drugs on pilot performance.

20. Development of fire prevention techniques to allow passengers to get out of a crashed aircraft.

FAA contracts out the major portion of aeronautical research and development to other government agencies like NASA or the Defense Department or attempts indirectly to stimulate research in the aircraft industry by tightening requirements, suggesting areas that need improvement, and sometimes by doing the initial phases prior to the later development and implementation by industry.

The Space Act of 1958 placed the responsibilities for research programs in both space and aeronautics in NASA. NASA's work has been mainly in basic research and in fundamental investigations that will lead to long-range improvements rather than provide immediate solutions to current problems. Some studies pertaining to aircraft safety are done in its research centers or other research laboratories by contract.

NASA's final decision on the distribution of its aeronautical research and development funds is dependent upon the needs. Of the total NASA budget, the amount of money devoted to aeronautics has been consistently less than 2 percent. During the period 1962–65 $5,753,000 of the NASA aeronautics research and development budget was spent on safety programs. In this same time period $2,963,000 was spent to develop a flying simulator to be used in one of the most basic aircraft safety program areas, i.e., research on aircraft flying qualities.

Some examples of NASA projects related to air safety are: research on the operating environment; gust load effects on structure; runway skidding; fire hazards from lightning; flight dynamics; aerodynamic stability; pilot as a control mechanism; SST simulator; air-ground-air satellite communications; propulsion and engine noise; clear air turbulence; sonic boom.

In 1969, aeronautical research will continue in V–STOL, subsonic, supersonic, and hypersonic technology in support of civilian and military aircraft development. Increased emphasis will be placed on research in noise reduction.

The Department of Defense spends more money in aeronautics than all other Government agencies combined. As Chart 22 indicates, fiscal year 1967 expenditure estimates for aeronautics at $1.2 billion for DOD, $103 million for NASA, and $43 million for FAA.

The problem is deciding how to make the DOD aeronautics program more useful to civil aviation without compromising military requirements. Unfortunately, this may not be possible if the predictions of NASA Administrator James E. Webb are correct:

"As we look forward into the future, we see a growing divergence between the requirements for civil and military aircraft systems . . . With the changing nature of military aviation reducing the number of commercially usable concepts being proven through development, a civil aircraft technology must be established at a level of confidence which is acceptable for the investment of private capital." [47]

The interrelationship between FAA, NASA, and DOD has been a pragmatic progression of communication links created as the need arose. Most contact among these agencies has been through the Aeronautics and Astronautics Coordinating Board co-chaired by the DOD and NASA where the largest amounts of funds are involved. The obvious weakness is that the Department of Transportation is not represented. The connecting link between this body and DOT has been through a NASA-FAA Coordinating Committee whose overall purpose has been more to avoid duplication than to develop policy. As special areas of interest have arisen where coordination and cooperation between various Federal agencies was needed, interagency committees have been set up on an *ad hoc* basis. For example, NASA alone participates in 27 committees involved with one aspect or another of aeronautics with one or more other Federal agencies or other groups. Needless to say, the sprawling nature of this structure and its momentary involvement with issues is not conducive for long-term and comprehensive planning and development.

Suggested solutions to this problem have been either to improve existing communication links, or to create a new structure entirely.

Advocates of retaining (and improving) the existing structure cite the following points:

1. The Department of Defense aeronautical research and development results might be made more directly available to civil aviation through the creation of a DOD technology utilization program similar to the one at NASA. For example, DOD might offer its unclassified information to NASA, and NASA, through its own technology transfer program could release the information to industry.

The Aircraft Owners and Pilots Association representative in hearings before the Committee on Aeronautical and Space Sciences, U.S. Senate in January 1967 said that Defense aeronautics programs should be coordinated from the outset because there is no valid reason why defense-type aircraft must be extensively modified to meet civil airworthiness standards. The FAA Administrator agreed and said that he believed that if they were in close contact with DOD in the early stages of the development of a system, they would be able to avoid some duplication in systems development.

The Air Transport Association of America spokesman disagreed. It was his opinion that requiring more coordination of defense aeronautics programs with civil aircraft needs at the outset only compromises the military capability of the resulting aircraft without making it suitable for civil use. He did agree that within the limits of national security, civil aviation should be kept fully informed of technological advancements from military research and development.

2. It has been suggested that NASA's approach of supporting mainly basic research in aeronautics is too limited in scope and therefore its definition and commitment should be enlarged. In the hardware demonstration phase of aeronautical research and development the willingness to take risks in order to make new advances is becoming a critical part of the aviation environment, and only through the Federal government or through collective arrangements of government and industry can adequate amounts of risk capital be developed. Stuart Tipton called for such an enlargement of effort when he said: "of the ten research and development areas listed in our statement of January 26, at least eight either require new research and development or acceleration of present efforts." [48]

3. Another suggestion simply advocates a redefinition of NASA's responsibilities. One approach is that in the field of basic research, NASA and its advisory committees should choose and support aeronautical projects, but in the field of advance development projects should be selected for support only after extensive consultation between agencies such as DOT, DOD, FAA, NASA, and the user industries.

4. It has been suggested that NASA be given a specific assignment for research in aeronautical safety. There were two distinct opinions—one from industry and one from government. The Administrator of the National Aeronautics and Space Administration said that NASA should not be given a specific safety assignment: "We are doing a good deal of work in safety now . . . I think that it would be quite hard to improve on the relationships between the agencies where safety is involved." [49] The FAA Administrator agreed and said, "I do not believe that it is necessary or desirable to give NASA a specific assignment." [50]

5. Another suggestion is that FAA be represented at the Aeronautics and Astronautics Coordination Board. Dr. John S. Foster, Jr., Director, Defense Research and Engineering, testified before the Committee on Aeronautical and Space Sciences, U.S. Senate:

"I agree that there should be a convenient procedure whereby the aeronautical activities of the DOD and NASA can be presented for exchange with the FAA and in the future the Department of Transportation . . . The Aeronautics Panel of the Aeronautics and Astronautics Coordination Board is the group most heavily engaged in coordinating the activities of the two agencies which are likely to encompass any areas of interest to the FAA. Even though the preponderance of the activities of this Panel are of primary interest to NASA and DOD, I believe it might be useful for the FAA to have a representative at the Aeronautics Panel meetings." [51]

6. Dr. Edward C. Welsh, Executive Secretary, National Aeronautics and Space Council, advocates DOT representation on the

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Aeronautics and Space Council requiring an amendment to the National Aeronautics and Space Act.

The other approach to possible improvements in the Government's part of the process of aeronautical research and development advocates the designation of a Federal lead agency in aeronautical research and development and the organization of aeronautics as a separate program in the U.S. budget.

The desirability of one organization becoming the focal point for coordinating the Nation's aeronautical research and development is not free from divergent views. The Administrator of the National Aeronautics and Space Administration said: "My own view is that it would be very, very difficult for one intelligence to encompass all of this and attempt to do a job of coordination." [52]

The Executive Secretary of the National Aeronautics and Space Council said: "It makes good sense for NASA to join with FAA on the civilian side and to join with DOD on the military side," but "it would probably be an inefficient use of the FAA's time and DOD's time to have each in on all the examination and discussion of the aeronautical issues of the other." [53]

Alan S. Boyd, first Secretary of the Department of Transportation, argues: "It has been suggested that there be a separate agency created to direct all the research efforts of the aeronautical research and development effort . . . but I would like to see if the P-P-B (Program-Planning-Budgeting) approach within the Department of Transportation cannot solve the problem." [54] Secretary Boyd, however, cited two obstacles to his own solution—first, the difficulty in finding people with the competence to do that sort of planning, and second, the objectives are much more difficult to establish in the civilian economy than in the Defense Department where P-P-B has become a standard tool in the development of weapons systems.

The role of private industry

Most of the aeronautical research and development is performed in profit-making organizations today. (See Chart 25). Funding is provided largely (65.6 percent) by the Department of Defense; and most of the R & D is defense-oriented. Company funded research has the purposes of obtaining new business and backing up on-going production work. No authentic subdivision of this funding is available, but because Government production contracts often have a built-in research and trouble-shooting factor, it might be inferred that much of the $300 million in private industry R & D is directed toward ultimate application in civil aviation. The scientific and engineering talent, and most facilities of private industry are quite adequate when given the task to perform. An example of how the FAA and industry work together in a program of air safety, is provided by the Aerospace Industries Association, (AIA)—an association of aircraft industries producers in their "Crashworthiness Development Program." In this instance the development program was contingent upon the enactment by FAA of certain regulatory changes. AIA/FAA coordination planned during the program so that as major tests or decision milestones were reached, program progress could be monitored. AIA submitted test reports and proposed wording for regulatory changes to the FAA in each technical area; AIA proposed incorporation of the necessary hardware to comply with the suggested regulation changes on all new jet transport aircraft.

The objectives of the AIA Crashworthiness Development Program were improvements in the state-of-the-art as it applies to aircraft crashworthiness and the determination and evaluation of new and improved methods, equipment, and design characteristics that would substantially increase the passenger's chance of survival in an aircraft accident. The areas to be covered in the 12-month development program were: (1) fire resistant materials; (2) fire-suppression systems and smoke and fume protection; (3) emergency lighting and exit awareness; (4) evacuation improvement.

The problem of the role of private industry is the old one—from the source of the funds comes the mentality that guides their use. Today the Federal government provides 73% of the money for aircraft industry research and development. To the extent that research and development is a product itself, useful for decision making in public purpose missions, this percentage is understandable. But many opportunities in civil aeronautics could be approached without any Federal backing. Thinking that a military requirement may come along to pay for or accelerate a certain improvement is a faulty basis for policy planning. Industry leadership is needed to preserve as much of a free enterprise environment as possible, as well as to lend another viewpoint in the definition of goals and the direction of effort.

Various ideas have been suggested to goad private industry into increased participation. One is to consider providing incentives and disincentives so that the industry will continue to advance its capability to meet opportunities. Some of these might be: (1) making new technology economically available for incorporation into aircraft; (2) progressive governmental procurement policies; (3) instituting regulatory measures that require upgrading aircraft; (4) tax credits for research and development; (5) providing for the prototype construction of aircraft and systems financed with funds obtained from the general public rather than from the U.S. Treasury (by sale of development bonds to the public with the Government guaranteeing repayment of the investment in the event of default).

The role of the universities

Prior to World War II, the university research programs were primarily geared to the needs of graduate students and the interests of individual members of the staff. After the war there were changes: Federal laboratories or research centers were built and continuously funded by the government but managed by a university; the university-sponsored laboratory became principally supported by government contracts.

Control of university research is much looser than that exercised over industry. It depends importantly upon the ambitions or interests of the researchers, though the requests for grants tend to appear where the dollars are.

Besides providing much of the basic work in concepts, techniques, devices and materials, the university scientists extend their usefulness through government committees and advisory boards such as the Von Neumann Committee, the Air Force Scientific Advisory Board, and the FAA Technical Advisory Board, and through consultation agreements with industry.

In addition there are many private organizations which lend their efforts to the pursuit of air safety development. High among them is the Flight Safety Foundation, Inc., an independent, non-government, non-profit organization which devotes its entire effort to the improvement of air safety. It functions as an "Air Safety Information Interchange," working closely with manufacturers in the production of all types of aviation products. It also sponsors some independent research through one of its divisions in Phoenix, Arizona.

The SST

Finally, it might be well to recognize what motivates the U.S. government to heavy commitments in R & D. As *Fortune* Magazine said in the February 1967 issue relating to the SST: "there seems little doubt that the U.S. will proceed eventually with an SST—not, however, as the world's richest and most advanced nation asserting technological leadership, but more as a country engaged in a program conceived as an economic defense against the threat of a superior new product from abroad." [55]

Our purpose is not to question the military or economic or political or scientific or psychological motivations which may justify or be used to justify the appropriation of massive R & D funds for the SST. Our purpose is at once to point to the opportunities and problems which will flow from that technological advance and to suggest that it is ludicrous to deny 10 percent as many funds to research the means by which we might safely manage the technology it signals—to say nothing of the need to manage safely the technology in use.

The SST will use a Boeing design for the air frame and a General Electric concept for the engines. Ironically, the 18-month delay caused by President Johnson's order in 1965 for 18 more months of design competition pushing the completion date until 1974 (the Concorde 1971), permitted a drastic overhaul of U.S. designs and the evolution of a probably superior plane. (See Chart 26).

The SST will probably: be able to carry more passengers to and from Europe in a year than six Queen Marys (350 per trip); draw Asia as close in time to the U.S. as Europe today (speed of 1,780 mph); be so big (six feet longer than a football field) that the pilot will sit 175 feet ahead of the main landing gear; behave so much like a missile—requiring about 220 miles to make a 180° turn—that computerized inertial navigation will probably be necessary; fly so high (64,000 feet on the average) that a special watch will be needed on solar radioactivity to signal the pilot to descend to denser atmosphere during periods of dangerous intensity; and dwarf other aircraft in revenues and work capacity.

FAA estimates that the program will require an investment of some $4 to $4.5 billion before the first SST can be delivered to an airline. In 1961, Congress appropriated an initial $11 million for exploratory research; $1.1 billion is expected to be expended on advanced design, construction and flight test of two prototypes; $2.8 to $3.3 billion more will be needed for such costs as certification, tooling up and accumulating inventories; manufacturers hope for some additional help in the production phase, all of which is expected to boost the government's investment to $4 billion.

Boeing estimates an SST market running as high as $50 billion by 1990; 26 U.S. and foreign airlines have paid deposits of $11,400,000 to reserve 114 "positions in the quest for the American SST (though these are not binding). Market estimates are that 300 to 400 planes could be sold at a production cost of $26–$37 million per plane at 300 planes.

A Boeing study projects free world air travel in 1974 at a "possible" 500 billion passenger miles, which would mean a "travel glut so bad that there would be a 2-hour wait for runway clearance." [56] One expert estimates that the average passenger would be willing to pay an additional $8 for each hour saved of travel time, all of which leads to the conclusion that there would be adequate demand for such an aircraft.

Besides the expense, the sonic boom has created the other public area of controversy around the SST. The SST will create a "carpet" of thunderclaps beneath its flight path, which is an inescapable by-product of forcing any large, heavy object through the air at speeds greater than the velocity of sound (Mach 1). The sonic boom is an abrupt change in air pressure, interpreted by the

Footnotes at end of article.

ear as a startling noise and by structural materials as a force which may, if the intensity of the boom is high enough, exceed their strength.

Boeing says the SST can be limited to 1.5 psf (pounds of pressure per square foot) at cruising speed and altitude (60 to 70 thousand feet), or 2 psf while accelerating to cruise speed, meeting present FAA requirements. "The issue is whether booms of that magnitude will be annoyance enough to lead to a ban on supersonic flights over populated areas." [57] (It would be possible to eliminate the boom by flying the plane at subsonic speeds over population centers, though this would boost seat-mile operating costs so much it could apparently be done profitably only on short segments.)

The experts' consensus is that sonic boom is not a deadend problem, since there is good evidence suggesting that continued research can solve the problem, if given the financial support it deserves. (NASA fiscal year 1967 expenditure for sonic boom was $1.7 million).

The SST contracts include a requirement to implement and maintain a formal system safety program. The group responsible for safety management is responsible for identifying safety hazards, keeping up on current aviation safety development, establishing subcontractor safety requirements, and monitoring suppliers' designs and tests to ensure compliance with General Electric, Boeing and Government standards.

Safety will be insured by establishing safety evaluation criteria and utilizing failure mode and effect analyses of subsystems and component designs in order to identify and classify real or potential hazards and operationally critical failures, singly or in combination.

Areas of safety improvement already identified and being worked on include the following:

1. In order to provide the pilot with better visibility during the take-off and landing modes than he has today, the SST will provide a movable nose fairing.

2. More powerful engines and design refinements using aerodynamic direct lift control systems, to effect better pitch response and controllability, will, we are told, make the SST safer in the take-off and landing phases than today's jets.

3. Four separate and independent air conditioning and pressurization systems will be provided in order, we are told, to insure an absolutely failsafe cabin situation.

4. To assure integrity of the pressure shell the dimensions of titanium structure and thermal cycling in testing have been added as well as a thorough and massive effort to validate material selection.

5. Solar activity and the resulting radiation hazard is being studied by the Committee on Radiation Biology Aspects of the SST, a joint FAA/NASA/Air Force research project.

6. Flight characteristics that will permit the SST to fit into the normal air traffic control procedures and patterns are being studied with a flight simulator at NASA's Langley Research Center linked with the air traffic control simulation facilities at the FAA's National Aviation Facilities Experimental Center at Atlantic City.

An official FAA publication tells us that "the entire cost of the formal system safety program effort will be paid for many times over in the prevention of just one SST accident." [58] A sensitive person would probably find the prospects inherent in that statement as horrifying as the statement is true. And it certainly is true, given the fact that "just one SST accident" would risk the lives of more pasengers than the mid-air collision of 3 or even 4 of the largest commercial jets now in service. Of course, the SST seating capacity will seem small compared to the Boeing 747 (490 passengers) and the Lockheed L-500 (750–1,000 passengers) which will precede it into service.

Regardless of the position one holds on the wisdom of the government's sense of priorities in underwriting the costs of developing the SST, it is an undeniable fact that this plane is not only the symbol of America's mastery of aeronautical technology—the SST is also a symbol of America's concern for air safety.

Footnotes at end of article.

CHART 22.—AERONAUTICS RESEARCH AND DEVELOPMENT BUDGET

[In thousands of dollars]

	1964 [1]	1965 [1]	1966 [2] actual	1967 [2] estimate	Request for 1968 [2]
DOD (obligations) (all services)	1,081,968	1,135,785	1,096,700	1,291,200	1,098,000
NASA (NOA) [3]	53,400	82,100	80,400	103,400	119,600
FAA (NOA)	37,700	32,124	30,693	43,489	35,500
Total	1,173,077	1,250,000	1,207,793	1,428,089	1,253,100

[1] S. Doc. 90: DOD, table 51, p. 182; FAA, table 56, p. 210.
[2] President's budget request of Jan. 24, 1967. NASA includes R. & D., C of F, and AO.

Source: FAA, DOD, NASA.

CHART 23.—FAA EXPENDITURES FOR RESEARCH AND DEVELOPMENT IN AERONAUTICS [1]

[In thousands of dollars]

	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Research and development	12,322	18,946	41,200	42,077	52,817	59,113	37,709	32,124	48,682	35,000
Breakdown by activities:										
Air traffic control and navigation			32,382	32,140	33,621	43,386	20,390	22,624	36,150	25,969
Aviation weather			5,554	6,272	8,827	4,333	940	1,571	3,020	2,434
Aircraft safety			1,047	581	4,774	6,931	3,010	4,766	5,063	4,100
Airports			1,313	1,636	4,160	2,472	2,560	1,385	2,042	1,047
Aviation medicine			704	1,448	1,435	1,991	1,809	1,778	1,750	1,750

[1] Taken from the Budget of the United States.

Source: Bureau of the Budget.

CHART 24.—FEDERAL AVIATION ADMINISTRATION BUDGET OUTLAYS, RESEARCH AND DEVELOPMENT

[In thousands of dollars]

	1962	1963	1964	1965	1966	1967	1968	1969 (est.)
Research and development	48,372	54,953	51,534	35,768	32,315	36,241	37,738	39,000
Supersonic		6,792	4,993	47,922	99,244	145,332	99,673	126,405
Total FAA budget	698,410	726,311	750,550	794,613	803,919	882,941	895,788	1,096,800

Source: Bureau of the Budget.

CHART 25.—FUNDING SOURCES AND PERFORMERS OF AERONAUTICAL R. & D., FISCAL YEAR 1967 (ESTIMATES BASED ON NEW OBLIGATIONAL AUTHORITY REQUESTS IN THE BUDGET, FISCAL YEAR 1967)

[Dollars in millions]

Sources	Performers						
	DOD	NASA	FAA	Industry	Other [1]	Total	Percent
DOD	$268			$660	$100	$1,028	65.6
NASA		$50		$52	$1	$103	6.6
FAA	(2)		$29	$397	(2)	$126	8.0
Industry				$300	(2)	$300	19.2
Other					$10	$10	.6
Total	$258	$50	$29	$1,109	$111	$1,567	100.0
Percent	17.1	3.2	1.8	70.8	7.1	100.0	

[1] Includes universities, foundations, research institutes, and nonprofit organizations.
[2] Less than $0.5 million.
[3] Includes $80 million for the supersonic transport.

Source: Science Policy Research Division, Legislative Reference Service, Library of Congress.

AIRLINE PROFIT PLAN FOR A SUPERSONIC FLEET

Airplane	Hours in use per day	Average trip speed	Average seat capacity per trip	Available seat-miles per day	Passenger revenue per day	Cargo revenue per day	Total revenue per day	Direct operating costs per day	Indirect operating costs per day	Total operating costs per day	Interest cost per day	Net revenue per day	Post-tax return on investment (percent)	Return at 15 percent fare surcharge (percent)
707-320B: Maximum cruising speed: 540 miles per hour; price: $7,700,000	11¼	485	140	783,000	$22,300	$4,600	$26,900	$9,900	$11,900	$21,800	$300	$4,800	23.0	----------
747: Maximum cruising speed: 595 miles per hour; price: $20 million	10⅜	525	370	2,108,000	60,400	7,400	67,800	18,900	29,600	48,500	900	18,500	33.0	----------
Concorde Maximum cruising speed: 1,450 miles per hour; price: $18 million	8½	1,025	130	1,139,000	32,750	5,550	38,300	17,600	16,000	33,600	745	4,000	10.0	19
U.S. SST: Maximum cruising speed: 1,780 miles per hour; price: $36 million	8¼	1,125	300	2,720,000	77,000	6,500	83,500	33,300	34,700	68,000	1,500	14,000	15.5	26

Note: In 1967 dollars. Source: John Mecklin, "The $4-Billion Machine That Reshapes Geography," Fortune magazine, February 1967.

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[44] Bill Gale, *op. cit.*

[45] "Aeronautical Research and Development Policy," *op. cit.* Testimony by Stuart Tipton, p. 103.

[46] *Ibid.*, Testimony by FAA Administrator McKee, p. 16.

[47] *Ibid.*, Testimony by James E. Webb, p. 8.

[48] *Ibid.*, Testimony by Stuart Tipton, p. 106.

[49] *Ibid.*, Testimony by James E. Webb, p. 8.

[50] *Ibid.*, Testimony by FAA Administrator McKee, p. 16.

[51] "Maintenance of an Adequate Airport System," *op. cit.* Testimony by John R. Wiley, p. 328.

[52] "Aeronautical Research and Development Policy," (*Report*) *op. cit.* Testimony by James E. Webb, p. 10.

[53] *Ibid.*, Testimony by Dr. Edward C. Welsh, p. 10.

[54] "Aeronautical Research and Development Policy," *op. cit.* Testimony by Alan S. Body, p. 74.

[55] John Mecklin, "The $4 Billion Machine That Reshapes Geography," *Fortune* Magazine, February, 1967.

[56] *Ibid.*

[57] *Ibid.*

[58] Douglas Dail, "U.S. Supersonic Transport System Safety Status," U.S. Department of Transportation, FAA, Washington, D.C. October 23, 1967.

VISIT OF PRESIDENT AND FIRST LADY TO SAIGON

(Mr. ADAIR asked and was given permission to address the House for 1 minute, to revise and extend his remarks and include extraneous matter.)

Mr. ADAIR. Mr. Speaker, the visit of the President and the First Lady to Saigon is an inspiration to the entire free world. The very fact that the Frst Lady can visit orphans and the sick and wounded in a city that only a short year ago was under siege is ample proof of American gains during that period.

It should lend renewed confidence to American and South Vietnamese fighting men, and should also give second thoughts to the North Vietnamese and to those who insist the Communists are invincible.

In addition, the courage and concern of the First Lady in accompanying her husband and in visiting the wounded casts a lustre on the White House.

Americans can take deep pride in the leadership of the President and the compassion of the First Lady.

NATIONAL FOREST TIMBER SUPPLY ACT

(Mr. WYATT asked and was given permission to extend his remarks at this point in the RECORD and to include extraneous matter.)

Mr. WYATT. Mr. Speaker, yesterday at Seattle, Wash., the Western Governors' Conference concluded its 1969 annual meeting. The chief executives of 13 Western States, including Washington, Oregon, California, Montana, Idaho, Colorado, New Mexico, Arizona, Nevada, Utah, Wyoming, Alaska, and Hawaii, met to examine regional and national public issues.

Among those issues was the effective management of our natural resources, including public timber.

After a full hour of careful discussion by all of the Governors with Edward P. Cliff, Chief of the Forest Service, of the U.S. Department of Agriculture, and other noted timber management authorities, the conference unanimously endorsed the general policy stated in the National Forest Timber Supply Act of 1969 as presently written and urged its immediate enactment into law.

This act, H.R. 12025, which I have the honor of cosponsoring, will provide the means for the Forest Service to apply modern management techniques to the vast commercial timber holdings in its care and afford assurances that the wood fiber needs of the Nation will be met.

The significance of this unanimous action by this distinguished body of public servants is that they are all directly concerned, and the States they represent are the principal source of the softwood lumber and plywood required to meet our national housing goals. The resolution adopted by the conference took cognizance of the fact that the Nation faces a desperate need for housing, particularly for low- and moderate-income families, and that

softwood lumber and plywood are the basic materials for meeting that need.

It further noted that 60 percent of the total national softwood timber inventory is on national forests, largely concentrated in the West.

Relying upon Chief Cliff's own testimony that the yield on certain national forests can be increased by as much as two-thirds, and understanding that intensive forest management can be practiced without impairing other forest values such as recreation, fish and wildlife, grazing and watershed, the Western Governors' Conference took its forthright stand.

I am heartened by this new evidence of the soundness of this proposed legislation in the public interest. My own district lies in the heart of these Pacific Coast States which have the highest concentration of commercial forest land and the highest proportion of lands where intensive management can materially increase productivity. Under present restraints of policy and funding, the national forests will be unable to realize the substantial benefits which will accrue to the Nation from application of modern forestry methods to these fertile forests.

The direct concern of the Western Governors in this public business is wholly understandable. The West has 57 percent of the growing stock and 72 percent of the sawtimber in the entire Nation. These States also contain 86 percent of the total softwood sawtimber which can provide the lumber and plywood necessary if our people are to be adequately housed.

The National Forest Timber Supply Act of 1969 is, therefore, directly pertinent not only to the fulfillment of our national housing goals of 26 million units in the next decade but to the realization of the tremendous untapped potential for improved growth and harvest on these public lands.

The passage of the National Forest Timber Supply Act is of critical concern to the Governors and people of the Western States, because 79 percent of the national forest lands covered by the act lie within their State boundaries. It is of critical concern to the rest of the Nation, because without its passage we will never be able to achieve the housing goals we set in the Housing and Urban Development Act of 1968.

I commend the Western Governors' Conference for its wisdom in adopting the resolution and submit it for the RECORD:

III. NATIONAL FOREST TIMBER SUPPLY ACT OF 1969

Whereas the western states and the nation face a desperate need for housing, particularly housing for low and moderate income families; and

Whereas wood products, primarily of softwood species, continue to be the basic materials for residential construction; and

Whereas 60 percent of the nation's softwood timber inventory is on national forests, and concentrated in the western states; and

Whereas the yield from the national forests can be increased by as much as two-thirds by intensive forest management without impairing other forest values such as recreation, fish and wild life, grazing and watershed; and

Whereas the National Forest Timber Supply Act establishes policies and provides funds to improve timber production, while insuring that other multiple-use values of the national forests are protected;

Now, therefore, be it resolved that the 1969 Annual Meeting of The Western Governors' Conference in Seattle, Washington, endorses the general policy as stated in the National Forest Timber Supply Act of 1969 as presently written and urges its immediate enactment into law.

WHEN IS A SURPLUS NOT A SURPLUS?

(Mr. WYATT asked and was given permission to address the House for 1 minute, to revise and extend his remarks and include extraneous matter.)

Mr. WYATT. Mr. Speaker, the time has come to ask, "When is a surplus not a surplus?"

The answer is, that a surplus is not a surplus when you include in the operating budget funds you cannot spend.

Mr. Speaker, it is time to set the record straight about the so-called surplus. It is a phony surplus.

Our major trust funds—the highway fund, the social security fund, and others ended the fiscal year with an $8 billion surplus. Which is fine. But the Treasury tells us that our total surplus was only about $3 billion.

This means that, no matter how you add it up, you come up with about a $5 billion operating deficit.

No, Mr. Speaker, the budget was not balanced in fiscal 1969. Instead we went $5 billion deeper into debt. The publicity unfortunately generated during the past week has given many people the impression that fiscal 1969 ended with a $3 billion surplus. Everyone in the United States should know that in real terms we ended with a $5 billion deficit.

The President is determined this will not happen in 1970. I, for one, intend to help him in his efforts to give us the balanced budget we need if the fight on inflation is to be successful.

ADDRESS OF RICHARD KLABZUBA ON AIRLINE FARES AND EARNINGS

(Mr. SISK asked and was given permission to extend his remarks at this point in the RECORD and to include extraneous matter.)

Mr. SISK. Mr. Speaker, on April 21, 20 Members of Congress filed a complaint with the Civil Aeronautics Board requesting, among other things, a general rate hearing plus the suspension and investigation of a number of fare changes then being proposed by five airlines. On May 8, the Board announced that it had decided by a 3 to 2 margin to suspend the proposed changes and institute an investigation as to their lawfulness.

As part of our complaint, we proposed a cost-value oriented formula using a time-distance approach to ratemaking. Since this approach is inherently more amiable to airline operations, the Members' formula eliminates many of the acknowledged inequities in the present fare structure on a more rational, fair, and just basis.

For example, our formula is designed to take into consideration the many varying characteristics of the different markets such as their composition of vacation, pleasure, and business travel, their elasticity of demand or probability of pricing certain services—particularly the short-haul traffic—out of the market, their state of market development, and density of traffic.

Density of traffic and elasticity of demand are especially important to the commercial success of any airline venture. Historically I am informed that the bulk of airline passenger traffic has been concentrated within the shorter distances. As a result, the demand for air travel has generally shown a tendency to decline with distance. This in turn has been demonstrated by the airlines in a need for a larger proportion of discount fares in the long-haul markets to attract business, and less of an ability to attain as high load factors on long-haul nonstop flights.

This fact, of course, has meant that a greater percentage of long-haul traffic must be served with multistop and connecting flights. On the other hand, the higher occupancy rates achieved using these multistop and connecting services has been, and will continue to be partially offset by a greater amount of circuitry and a higher proportion of interline transfers, both of which tend to dilute a fare's actual yield.

With regards to this latter point, I believe it is important to point out that the Members' formula does recognize the fact that the net yield to the carrier is a more significant indicator of the prevailing price level and airline revenues than the fare per se. It does this with not just one, but three different elements: the load factor, value adjustment, and time-distance factors.

The value adjustment factor, however, is really the key element. First, it compensates for the increased dilution usually encountered in long-haul markets from the social and commercial requirement for more common-rating and prorating of fares between airlines. Next, of course, there is the purely commercial need for a greater variety and number of discount and promotional fares to bring in customers as the unit price per sale increases. And finally, the variations in yield caused by the changing distribution of longhaul traffic between nonstop and multistop services.

From a cost standpoint, Members' formula is also designed to compensate for the higher costs now being incurred in some congested areas by adjusting the fare according to the actual cost differential being experienced in each particular market. Consequently, it does not arbitrarily penalize traffic in different city pairs of the same size or at similar mileage intervals where no such congestion is being experienced.

The Member's formula is geared to

facts—not assumptions nor presumptions. It measures the cost differential by individual markets, and by degree of congestion in that market, rather than any arbitrary grouping.

Furthermore, the Members' formula is designed to give separate attention to changes in out-of-pocket costs for such items as labor, materials, fuel, landing fees, and other services not accompanied by improvements in productivity, as well as to changes in the rate of return required to provide an adequate return to investors in whatever is the prevailing money market. No other formula so far put forward by either the carriers or the CAB has offered the investor this type of protection.

In other words, unlike all other proposals, the Members' formula provides guidelines for fare changes where justified by changes in the cost and value of a service, density of traffic, or dilution of the fare.

Recently this formula was put to the acid test for the first time. In a presentation to a group of Wall Street analysts, Mr. Richard W. Klabzuba applied the Members' formula to 22 of the top airline markets in the United States, and one "hypothetical" airline. In his talk, Mr. Klabzuba first observed that the airlines financial need for increased allowed earnings is just and reasonable, and that rising cost of labor, materials, and other services has not been, and probably could not be, off-set by increased productivity. On the other hand, when he turned his attention to capacity or sales side of the formula, he stressed the need for our airlines to raise their load factors in order to reduce the cost per seat sold, and the economic waste caused by conjestion, overscheduling, and overcapacity.

The full text of Mr. Klabzuba's remarks follows:

AN AIR FARE PROPOSAL—ITS IMPACT ON EARNINGS

(By Richard W. Klabzuba)

It is indeed a pleasure to be with you again to discuss the possible impact of the events of recent days upon the future earnings potential of our domestic airlines.

As you are probably well aware, twenty Members of Congress and five airlines are now engaged in an adversary proceeding.[1] And, as you have so astutely surmized, I am allied with these Congressmen in an advisory capacity. It is in this latter position that I come before you today—to discuss with you, as representatives of the investors' interests, the issues involved in this case, and to seek your advice and counsel as to the recommendations which should be made to these Congressmen in the pursuit of this investigation.

There is no point in reviewing the events leading up to this investigation; they are already well documented in great detail in the complaint, answers and Board order. Rather, let us devote our time to the issues involved, to the proposals which I plan to make to the Members of Congress, and to the impact of these proposals on carrier earnings.

First, however, let me clarify one point: the revenue-hour is not a formal issue in this proceeding. At this time, the two principal issues appear to be load factor standards and Board procedure.

Second, I want it clearly understood at the outset that the primary objective of the recommendations which I plan to make to the Congressmen will be to improve net earnings and cash-flow by (1) widening the operating- and profit-margins in some cases, (2) increasing load factors and (3) reducing the cash operating costs and overhead per seat *sold* or passenger carried.

As in the past, I will continue to put the public interest, investor and consumer, first. Which is exactly why I am here today—to inform you as representatives of the investors of these recommendations and *to get your comments and suggestions.* We have established a line of communications which I would like to keep open during the critical days ahead. For my part, you may be assured that your views, favorable and unfavorable, will be made known to the Representatives.

Turning now to those recommendations themselves, they will of course be based in part upon the revenue-hour approach and the cost-value oriented formula incorporated in the Congressmen's complaint. As I informed you the last time I was here, it was my inability to accurately project earnings (on a mileage basis) which initially sparked my interest in this problem. I still cannot project earnings accurately and consistently on such a basis, and know of no one else who can.

In formulating these proposals, the first step was to determine exactly what the need of the air carriers is for revenue sufficient to enable them (under honest, efficient and economical management) to provide adequate and efficient airline service.[2] Since earnings, profit and net-income are all determined by their relationship to costs,[3] and the Board has repeatedly held that "rates must at all times be reasonably related to costs," [4] it makes eminently good sense to begin by determining (A) what the relationship should be between profit and cost, and then (B) what are the costs.

Starting with the relationship, it must first be noted that the Board has already fixed the income element as approximately a 10.5% rate-of-return on investment.[5] However, as many of you who have been faithfully following my recent discussion of this issue are aware, I am not in total agreement with the present approach—specifically, the fact that it does not recognize changes in the market price of capital. Therefore, for the purpose of these recommendations it is my intention to use a higher rate-of-return which will reflect about an 11% increase since 1960 in the security cost of equity and new debt capital.[6] I feel the result reached using this approach is more fair and reasonable to the investor.

Second, as previously observed in the *General Passenger Fare Investigation*, the margin-of-return and rate-of-return are mathematically related by and through the rate of capital-turnover.[7] Hence to establish a relationship between rate-of-return and cost, it is necessary to first fix a rate of investment or financial structure turnover. In the case at hand, a 1.2 financial structure turnover, or 1.4 investment-turnover, is utilized. Considering debt service as an operating expenditure, the resulting equation produced a 13% operating-margin (earnings on sales *before* taxes), or a 15% mark-up on costs.

Finally, regarding the operating expenses, the latest published data of the Civil Aeronautics Board was used,[8] with debt service being added in as an operating cost.

You may recall that the last time I appeared before this distinguished group of working analysts, you were given a schedule of the revenue requirements for various classes of aircraft. I would like to bring that schedule up to date.

Two quick observations: First, operating costs have risen during the last year and a half for various and sundry reasons which we need not explore here. Second, in accordance with the return formula just outlined, it is necessary to reduce the operating-margin from 20% (including debt service) to 13%, excluding debt service. This is the main reason why the changes are so relatively small; I was purposefully more liberal last time.

Anyway, using about a 13% operating-margin or 15% mark-up, it now appears that a 2-engine prop-jet requires $460 to $500 per hour; a 2-engine jet, $950 an hour; a 3-engine jet, $1,200 to $1,250 per hour; and a 4-engine jet, $1,600 to $1,650 an hour. The two 3-engine wide-body jets may need something in excess of $2,250 to $2,500 an hour plus, while a guess on the 747 is probably more than $3,000 to $3,400 per hour. Unless cash operating costs are brought under control, it may become necessary to apply a surcharge on these aircraft just to break-even.

One again, the revenue required per passenger-hour to attain these or similar levels will vary depending upon differences in operating philosophies between carriers, seating configurations, density of traffic, load factors, and value-of-service. Which of course brings us to an extremely important part of the equation: the need in the public interest for adequate and efficient airline service at the lowest cost in the sense of the lowest fare—and therefore the issue of load factors.[9]

If there is any one issue which is going to be fought tooth and nail in this investigation, my guess it is this one—load factors.

Why? Because the relationship between cost, price and load factors underlies the whole area of airline profitability, and Members of Congress in their complaint have specifically requested the Board to take load factors into consideration in determining the just and reasonable fare.[10]

As far as you are concerned as financial analysts, the main thing at stake in the load factor issue is the possibility of a major shift in operating philosophy, with the principal emphasis shifting from production or capacity to sales . . . and from revenue to earnings.

Our scheduled airlines are engaged in what Edward Chamberlin refers to as "monopolistic competition". Since this is something different from pure competition or pure monopoly, revenues are governed by different factors. Under monopolistic competition, sales are limited by (1) price, (2) service, and (3) the advertising and sales effort, so that depending upon demand and costs, earnings are determined by adjustments in price, service or selling costs, or a combination thereof.

In addition, a distinction is drawn between the concept of "competitive prices" and "competitive profits". The monopoly element produce higher rates, *but not greater earnings* because the competitive element tends to bring about greater costs. To quote Mr. Chamberlin, "Competition, in so far as it consists of a movement of resources into the industry, reduces profits to the competitive level, but leaves prices higher to a degree dependent upon the strength of the monopoly element. Competitive profits, then, never mean competitive prices under monopolistic competition, for the demand curve is never tangent to the cost curve at its lowest point." [11]

In this regard, it is no industry secret that the airlines have traditionally considered business travel as their primary market. Nor that they consider this market to be price inelastic. As a result, their primary efforts to improve earnings have logically been in the direction of adjustments in service and selling costs, rather than price adjustments.

Footnotes at end of article.

"More and more is price competition evaded by turning the buyer's attention towards a trade-mark, or by competing on the basis of quality or service (or by advertising . . .).[12]

Nevertheless, as the Supreme Court has so eloquently pointed out, it is not the theory but impact of the rate order which counts.

It is rather obvious that the power and effect of today's intense airline competition is not producing low air fares—the recent wave of applications for rate increases attest to that. Instead, competition has resulted in over-capacity, over-scheduling, low load factors, smaller operating-margins, and numerous extra ancillary services such as private clubs, gourmet dining on certain flights, five abreast coach seating, etc.

In its now famous staff study, the Bureau of Economics noted at page 70, "(T)hat the fare level affects the volume of service offered by the several carriers in the market and that a fare set well above cost, based on a reasonable load factor, may contribute to the operation of excessive capacity and resulting inefficient use of resources. The data developed in this study suggest that long haul jet coach fares are quite high in relation to cost of service at even the relatively low load factors prevailing in the transcontinental markets. The latter suggests that excess capacity is being provided in these areas. It is reasonable inference that the high level of long haul jet coach fares at least tend to support such overscheduling which in turn creates a need for a higher fare level than would otherwise be necessary."

In their complaint of April 21, the Congressmen pointed out to the Board that TWA's passenger load factor between San Francisco and New York during the calendar year 1966 was 43%, and 46% in 1967. The load factors for the other two principal carriers in this market were: American, 52% and 46% respectfully; United 38% and 45%.

In the larger Los Angeles-New York market, the results were considerably better: American had a 58% load factor both years; TWA raised its load factor from 46% in 1966 to 53% in 1967; with United doing about as well, climbing from 40% to 45%.[13]

On the other hand, it must be remembered that dollarwise these are two of the most lucrative markets in the United States. Together they probably account for 4 to 5 percent of our total domestic passenger-miles. On a revenue-hour basis, the percentum of course would be smaller.

The point, however, is simply this—in two of the most lucrative markets in the U.S., where the number of competing lines has remained unchanged and a strong rivalry between carriers contributes to one of the fiercest and most competitive markets in the world, the airlines themselves continue to compete on the basis of adjustments in service and selling costs, not low fares—with the result that the overall load factor for the group was little better than that experienced by our local service airlines in the least lucrative markets.

By the way, 1966 was a relatively good year, one of the two in the last decade when the airlines' return exceeded the allowable 10.5% standard.

Low load factors obviously have an adverse affect on cost and fare levels, and consequently are not in the best interest of consumers. Their adverse impact on investors, however, is frequently overlooked. Low load factors associated with high utilization tend to dilute earnings by spreading them over a larger operating base; increase current-liabilities at a more rapid rate than other source of funds, thereby making the airline more vulnerable financially to short-term demand fluctuations.[14]

In other words, the total effect of the present fare policy can be said to be "unjust and unreasonable" because the result reached is adverse to the vital interests of the consumer and investor.

To correct this situation, it is my intention to suggest to the Members of Congress that they continue to press the Board to establish certain load factor guidelines in setting fares. Specifically, that in markets averaging more than 3,000 passengers per day,[15] a load factor of 70% be used as the standard; in markets larger than 250 to 500 passengers per diem, depending upon the size of equipment normally assigned, a 60% load factor seems reasonable. In the other markets less than 250–500 passengers per day, it may be necessary to adjust the load factor standard somewhat downward to provide an adequate minimum frequency of service; i.e., 3 to 4 flights per day.

With regards to frequency of service, the foregoing load factors should permit the carriers to proffer a minimum of 30 to 40 frequencies per day in the larger markets using todays equipment, and 12 to 17 flights per-day with wide-body aircraft. Enough in other words to assure the public adequate service and viable competition between carriers.

Finally, of course, the inherent advantages of air transportation to the user, and the effect of rates upon the movement of traffic (value-of-service), must not be overlooked, at least in the United States where they are statutory standards.[16]

Some traffic is price inelastic, others are not, so that discounts which increase traffic and raise load factors should be provided. Furthermore, the degree of price elasticity tends to shift from market to market, being greater in long-haul markets than short-haul services. Consequently, base fare levels have to be adjusted accordingly. This is accomplished with the "value adjustment" element.

In the recommendations at hand, an 85% value adjustment (or 15% discount) is used for most short- to medium-haul services. An 80% adjustment, or 20% overall discount, is used for the longer services to allow for a greater proportion of pleasure travel and greater degree of circuity in travel.

Given the foregoing, it appears that a just and reasonable level of fares in the sixty percent load factor markets should be $22.50 per passenger-hour where the value adjustment is 85%, and $24 per passenger-hour where there is an 80% value adjustment.

Where the load factor is 70%, an incentive should be proffered to the carrier because of the greater productivity, larger risk and lower fare. Granting such an incentive in the range of 11 to 12 percent, it appears that on high-density routes fares should be $20 per passenger-hour with an 85% value adjustment, and $22 per passenger-hour with the larger 80% adjustment.

In the case of high-density economy or thrift-fare services, where few discounts are proffered other than children's fares, a 90% adjustment seems more reasonable, so that the base fare should be $18.50 per passenger-hour.

These fares should yield an average revenue of about $19.20 per passenger-hour at 60% load factors; $16.75 at the 70% load factor. The gross earnings will be about $2.40 to $2.50 per passenger-hour, with a net of $1.20 to $1.25 before investment and other tax credits. In other words, an adequate and consistent level of earnings that will enable the airlines to compete vigorously for capital funds in the open market without any need to resort to changes in accounting techniques to bolster results.

The internal cash generation, or cash-flow, will be somewhere between $2.60 and $2.95 per passenger-hour, with a return on investment (the Board's test of reasonableness) ranging from $1.50 to $1.60 per passenger-hour.

The return per mile will of course vary depending upon the block speed of the aircraft. Unfortunately due to the numerous variations in operating characteristics, block speeds do not at all times vary uniformly with mileage, so a specific yield per mile by mileage-blocks has no reasonable value. It is worthless data. Nevertheless, because some of you might find the return per mile by block speed increments of some limited use for comparative purposes, I have included them in the hand-out.

If you use this schedule, use it with a great deal of caution. Remember, you cannot use the data on a cumulative or average basis—it has value only for a *specific* block speed. It has no relevance to length of haul; e.g., since United's flight time between New York-Washington is about the same as that between San Francisco-Los Angeles, it needs about the same revenue per passenger, regardless of the difference in mileage.

Returning to the revenue-hour basis, where an aircraft is leased, it appears the leasing payments will range from $2.80 per passenger-hour at a 70% load factor, to around $3.40 at 60%, leaving a net-earnings, cash-flow and return on investment of between 55¢ to 60¢ per passenger-hour.

To give you a "feel" for these fare levels from another angle, I have applied them to 22 of the top 25 markets in the U.S. in 1967 in terms of number of passengers airlifted.[17] The number of passengers have been increased by 28% per market to reflect a 13% per year traffic growth.

Please note, you are not being quoted just a fare or its potential revenue—you are being handed its projected level of *earnings, cash-flow, service on debt* (interest plus principal, the latter computed at one-half of the annual depreciation allowance) and *lease payments*. The leasing payments were included because, among other things, the degree of leasing has a material impact on earnings, cash-flow and debt service.

This is the kind of evidence I will suggest the Members of Congress offer the Board. It is the kind of evidence I would expect the carriers to come forth with too, so that the Board will be able to render an enlightened, intelligent, business like decision that protects your interest.

Some of the fares in the schedule are equal to those now in effect or proposed. Many are less. Others may be greater. Where the fares are the same, I shall recommend its approval. Where the hourly fare is greater, I shall suggest the Congressmen move for its adoption just the same as when it is lower.

Your attention is invited to another fact. If you used the 50% load factor rate with an 85% value adjustment—the $27 per passenger-hour fare level—and multiplied it by 5⅓ aircraft-hours, you will come up with a $144 fare. The present transcontinental fare is $145. Thus you can see that the projected reduction in some fares is primarily attributable to the adjustment in the level of service, or load factors, not the ratemaking formula. The revenue-hour equation, a *cost-value oriented formula*, merely explains what is going on . . . and what specific corrective action should be taken.

Second, you will observe that this $27 fare level does not produce any greater earnings,

Footnotes at end of article.

cash-flow, etc. per available seat-hour than the $22.50 level. It just requires more seat-hours, more aircraft-hours, and a greater cash expenditure to provide the same amount of service.

In its order granting suspension of the fare proposals, the Board observed "Another significant aspect of an unnecessary increase in unused capacity is the corresponding growth in investment and fixed charges." *High fare levels produce larger investments.* Large investments can mean greater potential dilution in earnings per share when traffic turns sour, reduce appreciation when the market turns around.

On the liability side of the Balance Sheet and Income Statement, larger fixed charges narrow the margin of safety, while greater cash costs associated with over-scheduling increase current-liabilities, thereby increasing short-term financial hazards and lessening the chance of turning revenues into earnings.

Higher fares are not in the consumers' interest. Are they in the investors' interest if they cannot be turned consistently into earnings?

It should also be noted that there seems to be some difference of opinion at the Board with regards to this question of over-capacity. The Chairman seems to feel there may be some excess capacity, while Member Adams has specifically not associated himself with respect to certain statements regarding equipment purchases or excess capacity.[18]

Who is right? Probably both gentlemen.

The Chairman is correct with respect to the long- and medium-haul routes where the yield per hour is high. Member Adam's opinion, however, is equally valid; there probably is not too much excess capacity in the short- and medium-haul markets where the yield per hour is lower. Two opposing views, yet both are probably equally right. Please observe again, however, you can only really arrive at the reason for this conclusion on the revenue-hour basis.

To give you yet another "feel" for these fare levels and their impact on earnings, this time from an investor viewpoint, they have been applied to the 1969 fleet of one of the Big-4 carriers . . . United. For the purposes of this demonstration the following two operational parameters were used in addition to the presumption of a 60% load factor; utilization of aircraft on-hand, 2,800 hours per annum (7⅔ hours per diem); aircraft delivered during 1969, one half the annual rate or 1,400 hours per annum.

The results: Gross earnings of $162 million on sales of $1,348 million, with an after tax profit before investment and other tax credits of $81 million. Assuming 19 million shares of stock to be outstanding, the earnings per share comes to $4.26.

Thus you have now been given an air fare proposal and its impact on earnings in five different ways—by available seat, by passenger, by aircraft-class, by market and by carrier—on both a mileage as well as hourly basis, plus per share. As the song says, "Who could ask for anything more?"

In support of their recent proposals, the airlines have repeatedly asserted that it is generally known and accepted in the air carrier industry that there is an urgent need for additional revenues because, among other things, the carriers' rate-of-return has been alarmingly low and now shows every indication of being lower than had been expected last February. According to C.A.B. statistics, only twice during the last decade has the industry's return exceeded the allowable 10.5%, and it has never reached that level on the basis of a 5-year weighted average.

While it is true the Supreme Court has said that a public utility is entitled to such rates as will permit it to earn a return equal to that being made on investments in other business undertakings attended by corresponding risks and uncertainties, the Board does not have the power to arbitrarily hold up earnings to some fixed level, for the Court has also held "It cannot be said that a corporation is entitled, as of right, and without reference to the public, to realize a given percent upon its capital stock."

For this reason, even though I may be personally sympathetic to the carriers' need for greater earnings, I do not believe that an airline can demonstrate to the Board, the Members of Congress, an Administration trying to fight inflation, nor the farepayer himself, the justification for increasing its earnings by way of a rate increase when it has not even sold 55 to 60 percent of its production during the best years in the most lucrative market in the United States. They just are not going to buy that argument!

From what has just been said, it may appear that I am being critical of management, but I am not. Before you criticize management look at the facts.

Monopolistic competition and a fixed return both discourage economy and efficiency. Independently, each is a powerful deterrent to efficiency. Fuse them together with a spice of licensing restrictions and you unleash a potent new destructive economic force which, like an A-bomb, is capable on inflicting untold economic and social devastation on society.

It is the combination of these forces working upon management, rather than undisciplined management action, that has brought us to the financial crises we face today. It is the combination of these forces which must be harnessed for the benefit of the investor and consumer, instead of his destruction. This can come only from recognition of the *cause* of the effect, followed by enlightened, intelligent, well-informed, totally objective and unbiased regulation.

In summary, it is my opinion that there will be no general fare increase this year. There may be some selective increases where the yield per hour is not sufficient, at reasonable load factors, to enable the carriers to provide adequate and efficient service at a fair profit. There will be increasing pressure to improve load factors in order (1) to lower the cost per seat *sold* even though this will probably temporarily increase the cost per available seat,[19] (2) to reduce the economic waste of our resources—aircraft, airports, airways[20]—and most important of all (3) to enable the nation to get more productivity out of its public expenditures, a matter which is at present of vital interest to the Administration and Congress who are pressed for funds, looking for ways to curb inflation, and trying to hold down taxes . . . especially since such improvements in load factors can lower fares and improve earnings to investors.

Like other men before me, I too have a dream, one which can become a reality later this year. It is simply this: any man or woman can fly round-trip to anywhere in the continental U.S. for an excursion fare of $200 or less, whether that be from Presque Isle, Maine to San Diego, or Key West to Aberdeen, Washington. That John Q. Public, traveling at his own expense can go anywhere and back in the *entire* United States (with the possible exception of some outlying points in Alaska) for no more than $400. One nation, one people, without regards to race, creed or *location*. And may be, just may be, such a sales oriented attitude as the "continental-100" and "national-200" will be as financially rewarding to the air carriers as the $1 phone rate has been to the communications carriers.

Gentlemen, that's it. I have done my thing. I have had my say. Now, how say you?

FOOTNOTES

[1] Rep. John E. Moss, Richard T. Hanna, Harold T. Johnson, George E. Brown, Jr., Edward R. Roybal, John T. McFall, Phillip Burton, Charles H. Wilson, Lionel Van Deerlin, George P. Miller, Glenn M. Anderson, Robert L. Leggett, Chet Holifield, Jerry L. Pettis, Don Edwards, Augustus F. Hawkins, Walter S. Baring, Jeffery Cohelan, B. F. Sisk and William S. Mailliard, and American Airlines, Braniff Airways, Trans World Airlines, United Air Lines and Western Air Lines.

[2] Sec. 1002(e)(5) of the Federal Aviation Act of 1958.

[3] Richard W. Klabzuba, "Airline Fare Structure and Future Earning Power," *Congressional Record*, vol. 113, pt. 22, pp. 30488–30490.

[4] Air Freight Rate Investigation, decided April 21, 1948; C.A.B. Reports, Vol. 9, pp. 921, 924.

[5] General Passenger Fare Investigation, decided November 25, 1960; C.A.B. Reports, Vol. 32, p. 291.

[6] Richard W. Klabzuba, "Earnings Tests Should Promote Efficiency," *Air Transport World*, Washington, Vol. 6, No. 4 (April 1969) pp. 53–54.

[7] General Passenger Fare Investigation, *op. cit.*, 295.

[8] Civil Aeronautics Board, Aircraft Operating Cost and Performance Report, supplement dated April 15, 1969; 12 months ended June 30, 1968.

[9] Sec. 1002(e)(2) of the Federal Aviation Act of 1958.

[10] "Complaint of Members of Congress and Air Transportation Users with Request for Tariff Suspension and a General Rate Investigtaion," *Congressional Record*, Washington (April 23, 1969), pp. 10120–10133.

[11] Edward Chamberlin, The Theory of Monopolistic Competition, Harvard University Press, Cambridge, Massachusetts (1933) p. 88.

[12] *Ibid.*, 73.

[13] Peter Clegg, "The New American," *Aeroplane*, London, Vol. 116, No. 2962 (July 24, 1968) pp. 4, 8.

[14] In 1968, for example, American Airlines increased its current-liabilities by about 11.5%, while its passenger load factor was dropping 5.8%.

[15] 1,095,000 passengers per annum.

[16] Sec. 1002(e)(1) and (4) of the Federal Aviation Act of 1958.

[17] The two Miami markets are excluded because they involve peak-responsibility pricing problems that necessitate more than just Excursion fares and Value adjustments, and hence are beyond the scope of the case at hand. The San Francisco-Los Angeles market is not included because the rate is established by the intra-state carrier, and its block time for ratemaking is approximately 0.75 aircraft-hours as opposed to 0.97 aircraft-hours for the trunklines.

[18] "Report on Meeting Between the Civil Aeronautics Board and the Domestic Trunkline Carriers on Domestic Passenger Fares," Civil Aeronautics Board, Washington (no date), pp. 7, 8.

[19] "(V)iewed as a cost problem, it is evident that trimming flight assignments over long-haul routes would tend to produce the greatest cost savings per flight removed. . . . Measured in dollars, the economic waste will continue to increase if scheduling continues

as it has in the past." Ronald E. Miller, Domestic Airline Efficiency, The M.I.T. Press, Cambridge, Massachusetts (1963), p. 134.

[20] "1. In general, the *greater* the total demand between city-pairs, the greater the absolute amount of overscheduling. 2. In general, the *smaller* the intervening distance between city-pairs (i.e., the shorter the route), the greater the amount of overscheduling. . . . 1. The most competitive routes always exhibit a great deal of overscheduling; the more competitive the route, the worse this overscheduling becomes." *Ibid.*, 108, 109.

TABLE 1.—*Relative revenue requirements for various types of aircraft equipment per aircraft hour flown, U.S. Domestic Services*

Equipment type:	*Yield required per aircraft-hour*
2-engine prop-jet	$460 to $500
2-engine jet	$950
3-engine jet	$1,200 to $1,250
4-engine jet	$1,600 to $1,650
3-engine wide-body jet	$2,250 to $2,500
4-engine wide-body jet	$3,000 to $3,400

TABLE 5.—*Price and earnings paradigms for U.S. domestic air carrier service by carrier, 1969 projected fleet of United Air Lines*

Operating revenues	$1,348,000,000
Gross earnings	$162,000,000
Net earnings before investment and other tax credits	$81,000,000
Cash-flow	$179,000,000
Return on investment	$105,000,000
Shares of stock outstanding	19,000,000
Net earnings per share	$4.26

TABLE 2.—PRICE AND EARNINGS PARADIGMS FOR U.S. DOMESTIC AIR CARRIER SERVICE BY AVAILABLE SEAT-HOUR AND PASSENGER-HOUR

	Dollars per revenue-hour			
		Per passenger (load factor)		
	Per seat	50 percent	60 percent	70 percent
Operating expenses	$10.00	$20.00	$16.70	$14.35
Operating margin	1.50	3.00	2.50	[1] 2.40
Statutory revenue need	11.50	23.00	19.20	16.75
Rate level required after value adjustment for circuity and promotional discounts:				
80 percent adjustment		29.00	24.00	22.00
85 percent adjustment		27.00	22.50	20.00
90 percent adjustment				18.50
Estimated average yield per unit:				
Revenue	[2] 11.50	23.00	19.20	16.75
Gross earnings	[2] 1.50	3.00	2.50	2.40
Net earnings (at 50 percent)	[2] .75	1.50	1.25	1.20
Cash flow (internal cash generation)	[2] 1.75	3.50	2.95	2.60
Return on investment (CAB test)	[2] 1.00	2.00	1.60	1.50

[1] Includes $0.25 per passenger incentive for lower rates than 60 percent load factor; that is, 11 to 12 percent lower fares.
[2] Yield per seat greater at 70 percent load factor fares.

TABLE 3.—PRICE AND EARNINGS PARADIGMS FOR U.S. DOMESTIC AIR CARRIER SERVICE BY PASSENGER-MILE ACCORDING TO BLOCK SPEED

	Dollars per revenue-hour and mile per passenger						
	Load factor 50 percent		Load factor 60 percent		Load factor 70 percent		
Value adjustment for circuity and discounts	80 percent	85 percent	80 percent	85 percent	80 percent	85 percent	90 percent
Rate per passenger-hour	$29.00	$27.00	$24.00	$22.50	$22.00	$20.00	$18.50
Rate per mile at block-speed of—							
200 miles per hour	.145	.135	.120	.113	.110	.100	.093
300 miles per hour	.097	.090	.080	.078	.073	.067	.062
400 miles per hour	.072	.068	.060	.056	.055	.050	.046
500 miles per hour	.058	.054	.048	.045	.044	.040	.037

TABLE 4.—PRICE AND EARNINGS PARADIGMS FOR U.S. DOMESTIC AIR CARRIER SERVICE BY MARKETS, 1969

Market	Blocktime hours	Load factor percent	Value adjustment percent	Jet coach fare	Excursion fare	Sales (millions)	Gross earning (millions)	Cash flow (millions)	Debt service (millions)	Lease payment (millions)
New York–Boston [1]	0.84	70	85	$17	$26	$43.9	$6.0	$6.3	$2.4	$0.7
New York–Washington [1]	.97	70	85	20	30	41.9	5.7	6.0	2.3	.7
New York–Chicago [1]	2.00	70	85	42	63	74.1	10.1	10.6	4.0	1.1
San Francisco–Los Angeles	.97	70	90							
New York–Miami	2.60									
New York–Los Angeles	5.33	60	80	128	192	123.5	15.2	17.5	6.9	1.9
Los Angeles–Las Vegas	.78	60	85	18	27	16.7	2.1	2.4	.9	.2
New York–Detroit [1]	1.44	60	85	33	50	28.3	3.5	4.0	1.6	.4
Chicago–Los Angeles	3.90	60	80	94	141	70.9	8.8	10.0	4.0	1.1
Chicago–Minneapolis [1]	1.10	60	85	25	38	20.3	2.5	2.9	1.1	.3
New York–San Francisco	5.33	60	80	128	192	88.0	8.4	11.4	5.1	1.4
New York–Pittsburgh	1.15	60	85	26	39	19.5	2.4	2.8	1.1	.3
Chicago–Detroit [1]	.93	60	85	21	32	15.0	1.9	2.1	.8	.2
New York–Cleveland [1]	1.33	60	85	30	45	20.6	2.5	2.9	1.2	.3
Boston–Washington [1]	1.20	60	85	27	41	17.3	2.1	2.4	.9	.3
Chicago–Miami	2.67									
Chicago–San Francisco	3.90	60	80	94	141	52.3	6.5	7.4	2.9	.8
San Francisco–Seattle [1]	1.63	60	85	37	56	21.5	2.7	3.0	1.2	.3
Chicago–St. Louis [1]	.95	60	85	22	33	12.0	1.5	1.7	.7	.2
Chicago–Baltimore/Washington [1]	1.67	60	85	38	57	27.7	3.4	3.9	1.6	.4
Chicago-Cleveland [1]	1.10	60	85	25	38	13.2	1.6	1.9	.7	.2
New York-Buffalo [1]	1.05	60	85	24	36	12.1	1.5	1.7	.7	.2
Los Angeles-Seattle	2.15	60	85	49	74	24.1	3.0	3.4	1.4	.4
Chicago-Philadelphia [1]	1.84	60	85	42	63	20.4	2.5	2.9	1.1	.3
New York-Atlanta	2.00	60	85	45	67	20.7	2.6	2.9	1.2	.3

[1] Markets involved in CAB docket No. 20928. Block time: ratemaking time not actual flight time. Jet coach fare: one-way. Excursion fare: round trip. 10 percent of equipment leased.

SUCCESS OR FAILURE—NEIGHBORHOOD DEVELOPMENT PROGRAMS

(Mr. BUTTON asked and was given permission to address the House for 1 minute, to revise and extend his remarks and include extraneous matter.)

Mr. BUTTON. Mr. Speaker, I have today introduced H.R. 13271 which seeks to give the city of Schenectady, N.Y., in my congressional district, more time to win Federal approval for its neighborhood development program. This would be accomplished by safeguarding substantial credits in excess of $2 million generated by construction of school facilities in the NDP project area.

Schenectady's NDP application has received approval in the New York Regional Office and is now awaiting review and evaluation here in Washington. But, Mr. Speaker, a very serious time problem exists with respect to approval of this application. The problem was not created by the application itself, but by the city's good-faith reliance on the ability of the Department of Housing and Urban Development to fund neighborhood development programs. HUD last year urged many cities, Schenectady included, to convert their renewal programs to NDP, and they did convert. They converted their programs and then HUD froze all NDP grant approvals after April 30, 1969. In other words, Mr. Speaker, had Schenectady gone ahead with its original plans and not applied under the new NDP, which was said at the time to be sufficiently funded, the city presumably would not be in this predicament of possible loss of these considerable credits—conditioned, of course, on later approval of its NDP application.

Mr. Speaker, the city's share of the cost of this program depends upon the use of these credits developed as a result of the construction of the Martin Luther King Elementary School and the modernization of the Steinmetz Junior

High School. Construction of these two schools began on August 1, 1966, so that the credits will expire today, August 1, 1969. Without these credits, little possibility exists of the essential renewal work proceeding inasmuch as Schenectady's financial resources are barely sufficient to meet current operating costs. Because of this inequity, Mr. Speaker, something must be done to preserve these credits if the program is improved at a later date.

Interest and enthusiasm for this project in the community are at a high level. It is extremely important, Mr. Speaker, that the Congress face the crisis of our cities. If we hold out hope one day and retreat the next, residents in our deteriorating, older, core cities of the Nation will continue to view with suspicion the Federal Government's sincerity in providing better environment and a new life for many of its citizens.

It is my understanding that there are up to 20 cities throughout the Nation which are facing similar loss in credits which will also impair their renewal plans.

Mr. Speaker, Schenectady is not alone in this problem. Since H.R. 13271, the bill I introduced today, is designed to only assist Schenectady with its long-term neighborhood development program, I would urge other Members of Congress to join with a similar measure affecting cities similarly situated. Or, better yet, Mr. Speaker, the Housing Subcommittee of the Banking and Currency Committee might consider some general legislation, when it next meets in executive session, that would cover all these cities which have lost or will lose credits. Such action by the committee would cure the administrative problem resulting from changeovers from renewal to neighborhood development programs.

Perhaps a 1-year extension of the 3-year period in the case of any community facing loss of credits would be an equitable solution. In any case, Mr. Speaker, something must be done.

At this point in the RECORD, Mr. Speaker, I include the contents of H.R. 13271.

H.R. 13271

A bill to permit expenditures in connection with certain schools in Schenectady, New York, to be counted as local grants-in-aid to federally assisted urban renewal projects and neighborhood development programs in Schenectady

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, notwithstanding the date of the commencement of construction of the Martin Luther King Elementary School and the Steinmetz Junior High School in Schenectady, New York, local expenditures made in connection with such schools shall, to the extent otherwise eligible, be counted as local grants-in-aid for federally assisted urban renewal projects and neighborhood development programs in Schenectady that will be served by such schools.

WARSAW UPRISING DAY AUGUST 1, 1969

The SPEAKER. Under a previous order of the House, the gentleman from New York (Mr. ROONEY) is recognized for 20 minutes.

Mr. ROONEY of New York. Mr. Speaker, today we are privileged to join with the membership of our patriotic Polish-American societies in commemorating one of the greatest acts of heroism to be recorded in modern history. Today marks the 25th anniversary of the Warsaw uprising.

Few times in history have the enslaved and oppressed people of a country given such an heroic account themselves in such a valiant fight as did the thousands of citizens of Warsaw in an effort to free themselves of the Nazi rapists and butchers who held them in intolerable subjugation.

With a sudden and impassioned zeal of patriotic fervor Polish men, women, and children with full realization of the overwhelming odds against them rose up en masse against their oppressors. For 63 days they fought the Nazis with every conceivable weapon which they could acquire, hoping to dislodge the overlords from their beloved capital. If this goal were achieved, they hoped Poles throughout the Nation would join in a massive revolt.

For 2 months the streets were daubed with patriots' blood as day after day courageous Poles gave their lives to attain freedom.

So it was that more than 200,000 of these heroic people perished at the hands of the Nazis while Russian Communist troops stood by and saw them die.

It should not be said that these noble fighters died in vain. Their valor and their dedication to a precious ideal gave new heart to the fighting forces of the Allies and new courage to all the people mobilized to halt the Nazi waves of terror and bring an end to the reign of suffering and horror which the mad Fuhrer had launched.

How tragic it is that once the Nazis had been overcome and the people of Poland regained some of their freedom that all too soon they would find themselves once more being ruled by an alien power and deprived of all self-determination.

Mr. Speaker, the people of Poland today need the help and sympathetic understanding of every American. They need our help to see them through one painful experience after another. Even though there have been some social and economic improvements which they have attained in spite of the Kremlin's domination of their lives, the Polish people are far from content with their false leaders and the existence which they are forced to endure.

The hunger for freedom by every Polish patriot can never be sated by the rule of aliens no matter how tolerant or benign that rule might be—which it is not. The thirst for complete independence cannot be slaked by occasional palliatives or partial concessions.

No, Mr. Speaker, for centuries the people of Poland have kept the spark of liberty glowing even in the face of prolonged and bitter adversity. Because of this great love for freedom which antedates our very existence, and because of the great help given by Polish patriots to the attainment of our own freedom, we must not let the Polish people down in their present tragic hour of need. We must join with all Polonia throughout this country to do our utmost to bring to Poland a measure of that freedom for which the citizens of Warsaw fought so gloriously.

NEED FOR WAGE-PRICE GUIDEPOSTS

The SPEAKER. Under a previous order of the House, the gentleman from Wisconsin (Mr. REUSS) is recognized for 20 minutes.

Mr. REUSS. Mr. Speaker, I have prepared for introduction today H.R. 13278, a bill to reinvigorate wage-price guidepost policy the Nixon administration has rejected.

The recent steel price increase and other price increases in copper, nickel, zinc, and aluminum in the past several months will, unless rolled back, lead to another round of price increases in everything from automobiles to safety pins.

Yet the Nixon administration stubbornly sticks to its doctrinaire position, contradicted by every fact of economic life, that monetary and fiscal policy is alone enough to fight inflation.

My bill directs the Council of Economic Advisers to prepare wage-price guideposts "after full consultation with representatives of business and organized labor." A three-man price-wage stabilization board is then "to study actual or imminent price and wage behavior inconsistent with the guideposts, to hold public hearings on their justification, and to report to the Government and the public whenever such price or wage behavior in fact threatens economic stability together with its recommendations for action."

Restrictive fiscal and monetary measures are appropriate and effective for controlling price and wage behavior caused by overall excessive demand, but may be ineffective with respect to individual price and wage behavior, particularly in industries with large firms or unions. My bill provides a mechanism for bringing to bear an informed public opinion in order to restrict such price or wage behavior when it threatens national economic stability by causing inflation.

The text of H.R. 13278 follows:

H.R. 13278

A bill to amend the Employment Act of 1946 to bring to bear an informed public opinion upon price and wage behavior which threatens national economic stability

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

DECLARATION OF POLICY

SECTION 1. The Congress hereby declares that a new mechanism is needed to carry out the aims of the Employment Act of 1946 to promote maximum employment, production, and purchasing power (which includes the concept of reasonable price stability). Restrictive fiscal and monetary measures are appropriate and effective for controlling price and wage behavior caused by overall excessive demand, but may be ineffective with respect to individual price and wage behavior in industries with large firms or unions. This Act provides a mechanism for bringing to bear an informed public opin-

ion in order to restrain such price or wage behavior when it threatens national economic stability by causing inflation.

DETERMINATION OF PRICE-WAGE GUIDEPOSTS

SEC. 2. (a) Section 4(c) of the Employment Act of 1946 is amended by striking out the period at the end of paragraph (5) and inserting a semicolon, and by adding at the end thereof the following new paragraph:

"(6) to transmit to the joint committee not later than January 20 of each year price-wage guideposts which would, if observed, achieve noninflationary price and wage behavior. Such price-wage guideposts shall be arrived at after full consideration of probable productivity increases, and after full consultation with representatives of business and organized labor."

(b) Section 5(b) of the Employment Act of 1946 is amended by striking out "and" at the end of paragraph (2), by striking out the period at the end of paragraph (3) and inserting a semicolon, and by adding at the end thereof the following new paragraph:

"(4) to review the price-wage guideposts transmitted to it by the Council. If the joint committee determines that such guideposts are not appropriate to their purpose, it shall promptly report to the Senate and House of Representatives a bill or resolution setting forth appropriate price-wage guideposts. The price-wage guideposts transmitted to the joint committee by the Council shall take effect upon transmittal, and shall remain in effect until such bill or resolution is enacted, or until superseded by the Council. Any bill or resolution relating to price-wage guideposts shall be referred to the joint committee. Such bill or resolution shall be eligible to be reported to the Senate by the members of the joint committee who are Members of the Senate, and to the House of Representatives by the members of the joint committee who are Members of the House of Representatives."

DETERMINATION OF PRICE-WAGE BEHAVIOR INCONSISTENT WITH GUIDEPOSTS

SEC. 3. (a) The Employment Act of 1946 is amended by adding at the end thereof the following new section:

"SEC. 6. (a) There is hereby created in the Executive Office of the President a Price-Wage Stabilization Board made up of three distinguished citizens recognized for their devotion to the public interest, who shall be appointed by the President, by and with the advice and consent of the Senate. The President shall designate one of the members of the Board as Chairman.

"(b) It shall be the duty of the Board to study actual or imminent price and wage behavior, particularly in industries with large firms or unions, inconsistent with the price-wage guideposts; to hold public hearings where necessary on such actual or imminent price or wage behavior which threatens national economic stability; and to report promptly to the President, the Joint Committee, the Council and the public any such price or wage behavior which does in fact threaten national economic stability, together with findings and recommendations on action in the public interest to be taken by the President, the Congress, or the parties concerned.

"(c) For the purposes of carrying out its functions under subsection (b) above, the Wage-Price Stabilization Board may administer oaths, and require, by subpena or otherwise, the attendance and testimony of such witnesses and the production of such books, records, correspondence, memorandums, papers, and documents as the Board may deem advisable. The provisions of sections 102 through 104 of the Revised Statutes of the United States (2 U.S.C. 192–194) shall apply in the case of any failure of any witness to comply with any subpena or to testify when summoned under authority of this section.

"(d) To enable the Board to exercise its powers, functions, and duties under this Act, there are authorized to be appropriated such sums as may be necessary."

PUERTO RICAN CONSTITUTION DAY

The SPEAKER. Under a previous order of the House, the gentleman from New York (Mr. RYAN) is recognized for 10 minutes.

Mr. RYAN. Mr. Speaker, I wish to extend hearty congratulations and good wishes to the people of the great Commonwealth of Puerto Rico on the occasion of the 17th anniversary of their attainment of self-government which took place July 25. In celebrating Puerto Rican Constitution Day, we commemorate far more than the constitution which went into effect on July 25, 1952, making Puerto Rico virtually autonomous. That event—made possible by the enactment of U.S. Public Law 600 of the 81st Congress—a landmark in Puerto Rican history, saw the emergence of "a new political mutation"—in the words of Luis Muñoz Marín—which is the distinctive contribution of the Puerto Rican Commonwealth whose status "as a free and associated state or community is a new dimension", according to Carl J. Friedrich, "in Federal Government." Here was created a self-governing community established by a mutually agreed-upon compact, a contractual relationship defining the conditions of freedom and self-government in terms which admit of no change without mutual consent. Whatever the future may hold, the Commonwealth ideal as enunciated by Governor Muñoz in 1950—"a union of peoples which increases the freedom of peoples"—will remain as an inspiring example of enlightened public policy.

The attainment of self-government was itself the result of a process closely bound up with the extraordinary social and economic development of Puerto Rico over the past several decades—an era of "peaceful revolution" with far-reaching consequences for other developing lands throughout the world. To a remarkable extent this peaceful revolution was directed and led by one man, Muñoz Marín, a brilliantly effective innovator in a transitional society. Combining in his person the values and traditions of both Puerto Rico and America, he was able to develop and strengthen the self-confidence of his people in ways both impressive and lasting. The achievement of commonwealth status in 1952 represented the fulfillment of his aspirations for autonomous status after many years of effort. As early as 1929 he spoke of that "vision of opulence" which had come to the people of Puerto Rico and the growing gulf between "what they—the people—have and what they can imagine." He thus addressed himself to the need for a decent standard of living for all, and by 1938 had virtually a single-minded emphasis on popular welfare—land reform, education, health, and economic development—in a land traditionally beset with poverty, disease, misery, and ignorance. His dedication to commonwealth status reflected his belief that Puerto Rico—if it continued in association with the United States—could become a cultural bridge between North America and the Latin America community. The advantages of a common market and common citizenship with the United States, as well as of fiscal autonomy, were held to outweigh the status of independence. He has lived to see Puerto Rico virtually transformed from the depressed "stricken land" of Gov. Rexford Tugwell's famous book to a condition of prosperity unprecedented in its past, under a unique status.

From the beginning, the story of Puerto Rico—discovered by Columbus in 1493, a year after his more famous voyage—has been inextricably bound up both with Europe and mainland America, foreshadowing its special relationship in later history to the United States and the Hispanic cultural world. The antecedents of constitution day are to be found in the relationship of Puerto Rico to the kingdom of Spain, a relationship extending back in time to the first Spanish settlement in 1508 by Ponce de Leon, the discoverer of Florida. The mercantilist policies of the Spanish Crown were repeated by a decree of 1815, which resulted in the promotion and growth of colonization: from 221,000 in 1815 the island population grew to 330,000 by 1832. In 1870 Puerto Rico was recognized as a Province of Spain with the right to elect deputies to the Cortes, a constitutional advance withdrawn in 1874 due to changing political conditions in Spain. However, under the constitution of 1876, Puerto Rico received the Autonomous Charter of 1897 which granted a large measure of autonomy and local self-government, including a bicameral, elected Parliament which met for the first, and only, time in the fateful year of the Spanish-American War, 1898. To a large extent, the charter of 1897 was the result of vigorous leadership on the part of Luis Muñoz Rivera, father of Muñoz Marín and often referred to as the "George Washington of Puerto Rico."

The coming of the Americans, in July of 1898, marked the end of Spanish rule which had lasted over four centuries. By the Treaty of Paris in 1899, Puerto Rico—which, mercifully, had witnessed only 3 weeks of actual fighting—was ceded to the United States. A wholly new dimension thus entered Puerto Rican life, and the subsequent history of the island is one of cultural conflict and synthesis. At first there was a policy of all-out Americanization by the military, and subsequent civil, administration, leading to inevitable stress and strain. The ensuing crisis in culture has been sensitively portrayed by Henry Wells in his recent study, "The Modernization of Puerto Rico."

Congress early recognized the need for the development of self-governing institutions, however, and in 1900 the Foraker Act established minimal forms of self-government—popular election to the lower house in a bicameral legislature; the upper house, the Governor, the judiciary, and so forth, all were to be appointed by the President of the United States. The act was widely resented in Puerto Rico. Nevertheless, it marked the first step in a 50-year process of evolution culminating in plenary self-govern-

ment in the Commonwealth Act we now commemorate.

In 1909, under the Olmsted Act, the War Department was given the supervision of Puerto Rican affairs. Significantly, Muñoz Rivera was eventually designated as the first Resident Commissioner. In large part through his efforts, the Jones Act of 1917 further extended self-government—including a popularly elected senate—to the island, affirmed the Bill of Rights as a part of the organic statutes, and granted American citizenship collectively to all who wished to claim it. Appointment of the Governor and his cabinet, as well as the supreme court, was reserved to the President. In 1947, the Jones Act was amended to permit election of the Governor, and cabinet, with the auditor and supreme judiciary only still appointive. Luis Muñoz Marín became the first popularly elected Governor, reelected regularly until 1965. In 1950, the Resident Commissioner, Antonio Fernos Isern, introduced legislation for a constitutional convention—confirmed by referendum in 1951.

In July of 1950, President Truman signed Public Law 600 of the 81st Congress, which set into motion the procedures leading to formal Commonwealth status, July 25, 1952. That status was sustained in the plebiscite of 1967—often called "the election everybody won"—in which 60.5 percent of the voters supported that status, 38.9 percent voted for statehood, and 0.6 percent for independence.

The evolution of political self-government, symbolized by the observance of Constitution Day, should be viewed against the background of economic and social development during the past half-century or more. American presence, from 1898 on, brought about a dramatic broadening of public education, a vast expansion of the sugar industry, and the beginning of a comprehensive public health program. As a direct result of the decrease in the mortality rate, paradoxically enough, unemployment steadily rose. The need for industrial development became acute. The result was "Operation Bootstrap", fathered by Luis Muñoz Marín in the 1940's in the hope of creating a modern, industrial society with a diversified economic base, as against the underdeveloped agricultural society of 1920 with its one- or two-crop economy. Lacking significant fuel or mineral deposits and limited by a relatively small land, Puerto Rico possessed one great attribute—its people.

Through the efforts of the Fomento, the Puerto Rico Economic Development Administration, and the genius of Muñoz Marín, the face of the island was transformed. Creative leadership called forth the energy, the initiative, and the adaptability of the Puerto Rican people. In 1968–69 alone, over 551 new factory projects—with the promise of 42,000 new jobs—were begun, 11 percent more than in 1967–68, and 75 percent more jobs. Personal income has risen from about $118 a year in 1940 to some $1,200 today. There are today over 1,500 Fomento factories with over 100,000 employees. The gross national product rose by 11.2 percent in 1967 alone, over 1966. Puerto Rico today is the fifth largest market for U.S. goods. There seems little doubt that the rate of euonomic growth and industrial development will continue at least into the 1980's without interruption—barring external crisis.

The level of education has also been transformed. Only 16.6 percent of the population was literate in 1899. Today, however, some 90 percent of all children between the ages of 6 and 18 attend public schools. Public health and education together have increased the life expectancy to approximately that of the United States—70. A burgeoning professional bureaucracy and the proliferation of voluntary associations also symbolize the advent of modern civilization. To a large extent, the progress of industrialization has been made possible by the special tax incentives and aids, together with the absence of Federal taxes, which are part of the fiscal autonomy provided by commonwealth status.

The future of commonwealth status appears clouded in the opinion of many observers, despite the benefits of common citizenship, currency, defense, and trade as well as various Federal tax exemptions. The absence of complete mutuality; for example, in trade relations, and the lack of any voting representation in American elections are felt keenly by an increasing number who, sensitive to certain inequalities and paradoxes of the present system, yet are anxious to retain American help during the crucial years of transition which lie ahead. Broadly speaking, there appear to be three alternatives confronting the island: First, full statehood, the desire of increasing numbers; second, independence, the desire of a distinct minority at present; and third, commonwealth status. The last might be conceived as leading to either of the first two. Probably, however, common citizenship with the United States should be seen, realistically, as an intermediate step toward statehood or some form of ultimate association not yet perceived. The election of Gov. Luis A. Ferre in 1969, an outspoken proponent of statehood and the first statehood-minded Governor, may be taken as indicative of the present direction. Close and continued association with the United States represents the desire of an overwhelming majority, regardless of the disputes surrounding the present status.

Constitution Day, 1969, is a convenient watershed from which to survey the past and to look in hope toward the future. The traditional heritage of Puerto Rico—her Hispanic culture with its ideals of respeto—respect—and dignidad—dignity—of personalismo—personalism—and individuality—belong to a proud and ancient people, blessed with an island home of surpassing beauty, linked in a hundred significant ways with Europe and Latin America as well as with the United States. Aspects of this culture, such as its fatalism, and its tendency to disvalue the empirical and the pragmatic, have come into conflict with the more aggressive North American culture and its emphasis upon wealth, well-being, skill, group activity, and the like. In this clash of culture may we not see an opportunity for mutual influence and enrichment. Both have much to offer. The humanism associated with the ideal of the hidalgo is still a vital force in Puerto Rico: we recall that Luis Muñoz Marín was widely known as el Vate—the bard—for his early poems, while Governor Ferre is himself a distinguished patron of the arts, having founded the Ponce Museum of Art.

Certainly Puerto Rico is changing. Yet the pattern of change has not appeared to destroy the underlying vitality of her tradition, her language, and her culture, which all make her an integral part of the Latin American community. At the same time she faces grave problems, which demand bold responses and new programs. Some 10 to 13 percent of the labor force is still unemployed, a problem especially severe in the rural towns. The "new life" program of Governor Ferre has recognized the need for a "successful way to be collectively generous" beyond the traditions of private, personal generosity. The presence of the first woman ever to hold a cabinet post also marks the pace of change in a land once dominated by machismo—male superiority.

There is, in summary, a real sense in which Puerto Rico is a test case for our American democracy. Hitherto, the dominant cultural patterns in our society has presumed to absorb and to assimilate divergent cultures—with varying degrees of success. Now we are confronted with prideful Spanish-speaking people, freely and intimately associated with our Nation as citizens and, indeed, present on the American mainland in ever increasing numbers, no longer a special presence only in the Southwest, but more and more a major national community. Puerto Rico and her people may yet teach us all the lesson so finely expressed by Luis Muñoz Marín in his advocacy of Operation Serenidad. He said:

> To remind us that man is man and not just a consumer, a society in which Operation Serenity has been successful, would use its economic power increasingly for the extension of freedom and knowledge rather than for multiplication of goods in hot pursuit of a still more vertiginous multiplication of wants.

SPECIAL ORDERS GRANTED

By unanimous consent, permission to address the House, following the legislative program and any special orders heretofore entered, was granted to:

(The following Members (at the request of Mr. ANDERSON of California), to revise and extend their remarks and include therein extraneous matter:)

Mr. REUSS, for 20 minutes, today.

Mr. RYAN, for 10 minutes, today.

Mr. GONZALEZ, for 10 minutes, today.

Mr. ROONEY of New York, for 20 minutes, today, to revise and extend his remarks and to include extraneous matter.

EXTENSION OF REMARKS

By unanimous consent, permission to revise and extend remarks was granted to:

Mr. MADDEN and to include extraneous matter.

Mr. DADDARIO and to include extraneous matter.

(The following Members (at the request of Mr. MILLER of Ohio), to extend their remarks and include additional matter:)

Mr. HASTINGS.

Mr. MCEWEN in 10 instances.

Mr. GUBSER.

Mr. STEIGER of Wisconsin.

Mr. KEITH in two instances.

(The following Members (at the request of Mr. ANDERSON of California), to extend their remarks and include additional matter:)

Mr. PREYER of North Carolina.

Mr. ROONEY of New York.

Mr. LONG of Maryland in three instances.

Mr. CORMAN in five istances.

Mr. FRASER in two instances.

Mr. DADDARIO in five instances.

Mr. GRIFFIN in two instances.

Mr. BURKE of Massachusetts.

Mr. CHARLES H. WILSON.

Mr. GONZALEZ in two instances.

Mr. HELSTOSKI in two instances.

SENATE ENROLLED JOINT RESOLUTION SIGNED

The SPEAKER announced his signature to an enrolled joint resolution of the Senate of the following title:

S.J. Res. 85. Joint resolution to provide for the designation of the period from August 26, 1969, through September 1, 1969, as "National Archery Week."

ADJOURNMENT

Mr. ANDERSON of California. Mr. Speaker, I move that the House do now adjourn.

The motion was agreed to; accordingly (at 12 o'clock and 23 minutes p.m.), under its previous order, the House adjourned until Monday, August 4, 1969, at 12 o'clock noon.

REPORTS OF COMMITTEES ON PUBLIC BILLS AND RESOLUTIONS

Under clause 2 of rule XIII, reports of committees were delivered to the Clerk for printing and reference to the proper calendar, as follows:

Mr. COLMER: Committee on Rules. House Resolution 509. Resolution for consideration of H.R. 9951, a bill to provide for the collection of the Federal unemployment tax in quarterly installments during each taxable year; to make status of employer depend on employment during preceding as well as current taxable year; to exclude from the computation of the excess the balance in the employment security administration account as of the close of fiscal years 1970 through 1972; to raise the limitation on the amount authorized to be made available for expenditure out of the employment security administration account by the amounts so excluded; and for other purposes (Rept. No. 91–412). Referred to the House Calendar.

PUBLIC BILLS AND RESOLUTIONS

Under clause 4 of rule XXII, public bills and resolutions were introduced and severally referred as follows:

By Mr. ANDERSON of California:

H.R. 13269. A bill to amend chapter 3 of title 38, United States Code, in order to provide for a veterans outreach services program in the Veterans' Administration to assist eligible veterans, especially those recently separated, in applying for and obtaining benefits and services to which they are entitled, and education, training, and employment, and for other purposes; to the Committee on Veterans' Affairs.

By Mr. MILLS (for himself and Mr. BYRNES of Wisconsin):

H.R. 13270. A bill to reform the income tax laws; to the Committee on Ways and Means.

By Mr. BUTTON:

H.R. 13271. A bill to permit expenditures in connection with certain schools in Schenectady, N.Y., to be counted as local grants-in-aid to federally assisted urban renewal projects and neighborhood development programs in Schenectady; to the Committee on Banking and Currency.

By Mr. DADDARIO (for himself and Mr. MOSHER):

H.R. 13272. A bill to establish a national policy for the environment and to establish a Citizens' Advisory Committee on Environmental Quality; to the Committee on Science and Astronautics.

By Mr. FRASER:

H.R. 13273. A bill to amend section 312 of the Housing Act of 1964 to eliminate the provision which presently limits eligibility for residential rehabilitation loans thereunder to persons whose income is within the limits prescribed for below-market-interest-rate mortgages insured under section 221(d)(3) of the National Housing Act; to the Committee on Banking and Currency.

By Mr. HASTINGS (for himself and Mr. SMITH of New York):

H.R. 13274. A bill to amend the Social Security Act to establish a national program of income maintenance payments to needy individuals who are aged, blind, or disabled and Federal-State programs of public assistance to all other needy individuals and families, to provide grants to States for services to all needy individuals and families, to strengthen Federal support of the State medical assistance programs, and for other purposes; to the Committee on Ways and Means.

By Mr. HENDERSON:

H.R. 13275. A bill to amend title 39, United States Code, to exclude from the U.S. mails as a special category of nonmailable matter certain obscene material sold or offered for sale to minors, and for other purposes; to the Committee on Post Office and Civil Service.

By Mr. HICKS (for himself, Mr. MEEDS, and Mr. PELLY):

H.R. 13276. A bill to amend the Tariff Schedules of the United States with respect to the rate of duty on whole skins of mink, whether or not dressed; to the Committee on Ways and Means.

By Mr. MONTGOMERY:

H.R. 13277. A bill to amend the Food Stamp Act of 1964, as amended; to the Committee on Agriculture.

By Mr. REUSS:

H.R. 13278. A bill to amend the Employment Act of 1946 to bring to bear an informed public opinion upon price and wage behavior which threatens national economic stability; to the Committee on Government Operations.

By Mr. MILLS:

H. Res. 510. Resolution authorizing the printing of additional copies of a basic report (pt. I) accompanying the Tax Reform Act of 1969; to the Committee on House Administration.

H. Res. 511. Resolution authorizing the printing of additional copies of a supplementary report (pt. II) accompanying the Tax Reform Act of 1969; to the Committee on House Administration.

SENATE—*Friday, August 1, 1969*

(Legislative day of Wednesday, July 30, 1969)

The Senate met at 11 o'clock a.m., on the expiration of the recess, and was called to order by Hon. JAMES B. ALLEN, a Senator from the State of Alabama.

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

Hear and help us, Eternal Father, to appropriate the promise of Thy word: "They that wait upon the Lord shall renew their strength." When times are tense and nerves are taut, when the body is weary and the going is hard, help us to know that "the Eternal God is our refuge and underneath are the everlasting arms." So may we lean upon the arms which support and strengthen us hour by hour that we may love Thee and serve Thee, and by loving and serving Thee minister to the needs of this Republic. May the words of our mouths, the meditations of our hearts, and the motives determining our deeds be acceptable in Thy sight, O Lord, our strength and our Redeemer. Amen.

DESIGNATION OF ACTING PRESIDENT PRO TEMPORE

The assistant legislative clerk read the following letter:

U.S. SENATE,
PRESIDENT PRO TEMPORE,
Washington, D.C., August 1, 1969.

To the Senate:

Being temporarily absent from the Senate, I appoint Hon. JAMES B. ALLEN, a Senator from the State of Alabama, to perform the duties of the Chair during my absence.

RICHARD B. RUSSELL,
President pro tempore.

Mr. ALLEN thereupon took the chair as Acting President pro tempore.

THE JOURNAL

Mr. MANSFIELD. Mr. President, I ask unanimous consent that the Journal of the proceedings of Thursday, July 31, 1969, be approved.

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

LIMITATION ON STATEMENTS DURING TRANSACTION OF ROUTINE MORNING BUSINESS

Mr. MANSFIELD. Mr. President, I ask unanimous consent that, at the conclusion of the remarks of the distinguished Senator from Connecticut (Mr. DODD), there be a brief period for the transaction of routine morning business, with statements therein limited to 3 minutes.

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