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NATIONAL INSTITUTE OF AGING

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HEARINGS

BEFORE THE

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SUBCOMMITTEE ON
PUBLIC HEALTH AND ENVIRONMENT

OF THE

COMMITTEE ON
INTERSTATE AND FOREIGN COMMERCE
HOUSE OF REPRESENTATIVES

NINETY-SECOND CONGRESS

SECOND SESSION

ON

H.R. 12308

A BILL TO AMEND THE PUBLIC HEALTH SERVICE ACT TO
PROVIDE FOR THE ESTABLISHMENT OF A NATIONAL
INSTITUTE OF AGING, AND FOR OTHER PURPOSES

H.R. 3336 (and identical bills) and H.R. 13875

BILLS TO AMEND THE PUBLIC HEALTH SERVICE ACT TO
PROVIDE FOR THE ESTABLISHMENT OF A NATIONAL
INSTITUTE OF GERONTOLOGY

H.R. 8491 and H.R. 11962

BILLS TO AMEND TITLE III OF THE PUBLIC HEALTH SERV-
ICE ACT TO AUTHORIZE GRANTS FOR PROJECTS TO DE-
VELOP OR DEMONSTRATE PROGRAMS DESIGNED TO
REHABILITATE ELDERLY PATIENTS OF LONG-TERM
HEALTH CARE FACILITIES OR TO ASSIST SUCH PATIENTS
IN ATTAINING SELF-CARE

MARCH 14, 15, AND 16, 1972

Serial No. 92-63

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American Aging Association (AGE), Dr. Denham Harman, president.
American Nurses' Association, Inc., Virginia Stone, Ph. D., chairman, Executive Committee, Division of Geriatric Nursing Practice.
American Psychiatric Association, Dr. Ewald W. Busse, president.
Burke Rehabilitation Center, Dr. Edward J. Lorenze, medical director.
Health, Education, and Welfare Department:
 DuVal, Dr. Merlin K., Assistant Secretary for Health and Scientific Affairs.
 LaVeck, Dr. Gerald D., Director, National Institute of Child Health and Human Development, National Institutes of Health.
 Lowe, Dr. Charles W., Scientific Director, National Institute of Child Health and Human Development, National Institutes of Health.
 Zapp, Dr. John S., Deputy Assistant Secretary for Legislation (Health).
Midwest Council for Social Research in Aging, Kansas City, Mo., Warren A. Peterson, Ph. D., director.
National Council of Senior Citizens, William R. Hutton, executive director.

NATIONAL INSTITUTE OF AGING

TUESDAY, MARCH 14, 1972

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON PUBLIC HEALTH AND ENVIRONMENT,
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D.C.

The committee met at 10 a.m., pursuant to notice, in room 2218, Rayburn House Office Building, Hon. Paul G. Rogers (chairman of the subcommittee) presiding.

Mr. ROGERS. The subcommittee will come to order please. We are opening hearings today on a number of bills that are directed toward coordinating and expanding the research efforts and programs of the Federal Government in the field of aging.

The subcommittee will consider H.R. 188, introduced by Mr. Jacobs, H.R. 3336, introduced by Mr. Springer, and a number of identical bills which would provide for the establishment of an Institute of Gerontology within the National Institutes of Health.

The subcommittee will also consider H.R. 12308, which I introduced along with my colleagues on the subcommittee which would provide for establishing a National Institute of Aging and a program of mental health for the aged within the Community Mental Health Centers.

In the past 50 or 60 years the overall population of the United States has tripled. The number of Americans over age 65 has increased sevenfold during the same period of time. Currently over 20 million Americans are 65 years of age or older and this number is expected to increase to 40 million by the year 2000.

During this same period, Federal programs for providing for health care delivery and mental health care of these growing numbers of older Americans have not kept pace with their needs. Often we find that the years after age 65 are accompanied by poverty and inaccessibility to proper health care delivery and a general decline in the quality of life.

The recently concluded White House Conference on Aging reflects the concern of the Government over these problems, and the President in an address to the Conference delegates pledged his personal consideration of the recommendations of the Conference.

These recommendations strongly urge increased Federal efforts in aging research, and in three separate instances call for the establishment of an Institute of Gerontology.

The problems of senior citizens are indeed a priority issue with this subcommittee and the Congress as a whole, and it is the purpose of these hearings to determine the adequacy of present Federal programs

in meeting the needs of the aged and the feasibility of the various legislative alternatives before this subcommittee.

Without objection, the text of the bills covered in this hearing shall be placed in the record at this point.

(The text of H.R. 12308, H.R. 188, H.R. 3336, H.R. 4979, H.R. 6405, H.R. 8491, H.R. 10083, H.R. 10232, H.R. 11962, H.R. 12451, and H.R. 13875, follow:)

92d CONGRESS
1ST SESSION

H. R. 12308

IN THE HOUSE OF REPRESENTATIVES

DECEMBER 14, 1971

Mr. ROGERS (for himself, Mr. SATTERFIELD, Mr. KYROS, Mr. PREYER of North Carolina, Mr. SYMINGTON, Mr. ROY, Mr. NELSEN, Mr. CARTER, and Mr. HASTINGS) introduced the following bill; which was referred to the Committee on Interstate and Foreign Commerce

A BILL

To amend the Public Health Service Act to provide for the establishment of a National Institute of Aging, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*
3 That title IV of the Public Health Service Act (42 U.S.C.
4 ch. 6A, subch. III) is amended by adding at the end thereof
5 the following new part:

6 “PART G—NATIONAL INSTITUTE OF AGING

7 “ESTABLISHMENT OF NATIONAL INSTITUTE OF AGING

8 “SEC. 461. For the purpose of conducting and sup-
9 porting (1) research of the aging process, (2) research of
10 preventive measures with respect to the special health prob-

1 lems and requirements of the aged, and (3) research of treat-
2 ment and cures for the other special health problems and
3 requirements of the aged, the Secretary shall establish in the
4 Public Health Service an institute to be known as the Na-
5 tional Institute of Aging (hereinafter in this part referred to
6 as the 'Institute').

7 "NATIONAL ADVISORY COUNCIL ON AGING

8 "SEC. 462. (a) The Secretary shall establish the Na-
9 tional Advisory Council on Aging, to advise, consult with,
10 and make recommendations to him on all matters of the type
11 referred to in section 461 under programs administered by
12 the Secretary as well as those matters which relate to the
13 Institute. The advisory council shall monitor the programs
14 conducted by the Institute and those programs administered
15 by the Secretary which relate to the aged. The advisory
16 council shall submit to the President annually for transmittal
17 to the Congress an evaluation of the efficacy of programs
18 for the aged and suggestions and recommendations for
19 improvements.

20 "(b) The provisions relating to the composition, terms
21 of office of members, and reappointment of members, of
22 advisory councils under section 432 (a) shall be applicable
23 to the advisory council established under this section, except
24 that the Secretary may include on such advisory council
25 such additional ex officio members as he deems necessary.

1 “(c) Upon appointment of such advisory council, it
2 shall assume all, or such part as the Secretary may specify,
3 of the duties, functions, and powers of the National Advisory
4 Health Council relating to the research or training projects
5 with which the advisory council established under this part
6 is concerned and such portion as the Secretary may specify
7 of the duties, functions, and powers of any other advisory
8 council established under this Act relating to such projects.

9 “FUNCTIONS

10 “SEC. 463. The Secretary shall, through the Institute,
11 carry out the purposes of section 301 with respect to
12 research, investigations, experiments, demonstrations, and
13 studies related to the diseases and the special health problems
14 and requirements of the aged, except that the Secretary
15 shall determine the areas in which and the extent to which
16 he will carry out such purposes of section 301 through the
17 Institute or another institute established by or under other
18 provisions of this Act, or both of them, when both such
19 institutes have functions with respect to the same subject
20 matter. The Secretary may also provide training and
21 instruction and establish traineeships and fellowships, in the
22 Institute and elsewhere, in matters relating to study and
23 investigation of the diseases and the special health problems
24 and requirements of the aged. The Secretary may provide
25 trainees and fellows participating in such training and in-

1 struction or in such traineeships and fellowships with such
2 stipends and allowances (including travel and subsistence
3 expenses) as he deems necessary, and, in addition, provide
4 for such training, instruction, and traineeships and for such
5 fellowships through grants to public or other nonprofit
6 institutions.”

7 SEC. 2. The Community Mental Health Centers Act
8 is amended by adding at the end thereof the following new
9 part:

10 “PART G—MENTAL HEALTH OF THE AGED

11 “SEC. 281. (a) Grants may be made to public or non-
12 profit private agencies and organizations (1) to assist them
13 in meeting the costs of construction of facilities to provide
14 mental health services for the aged within the States, and
15 (2) to assist them in meeting a portion of the costs (deter-
16 mined pursuant to regulations of the Secretary) of compen-
17 sation of professional and technical personnel for the
18 operation of a facility for mental health of the aged con-
19 structed with a grant made under part A or this part or for
20 the operation of new services for mental health of the aged
21 in an existing facility.

22 “(b) (1) Grants may be made under this section only
23 with respect to (A) facilities which are part of or affiliated
24 with a community mental health center providing at least
25 those essential services which are prescribed by the Secre-

1 tary, or (B) where there is no such center serving the
2 community in which such facilities are to be situated, facil-
3 ities with respect to which satisfactory provision (as deter-
4 mined by the Secretary) has been made for appropriate
5 utilization of existing community resources needed for an
6 adequate program of prevention and treatment of mental
7 health problems of the aged.

8 “(2) No grant shall be made under this section with
9 respect to any facility unless the applicant for such grant
10 provides assurances satisfactory to the Secretary that such
11 facility will make available a full range of treatment, liaison,
12 and follow-up services (as prescribed by the Secretary) for
13 the aged in the service area of such facility who need such
14 services, and will, when so requested, provide consultation
15 and education for personnel of other community agencies
16 serving the aged in such area.

17 “(3) The grant program for construction of facilities
18 authorized by subsection (a) shall be carried out consistently
19 with the grant program under part A, except that the
20 amount of any such grant with respect to any project shall
21 be such percentage of the cost thereof, but not in excess of
22 $66\frac{2}{3}$ per centum (or 90 per centum in the case of a facility
23 providing services in an area designated by the Secretary as
24 an urban or rural poverty area), as the Secretary may
25 determine.

1 “(c) Grants made under this section for costs of com-
2 pensation of professional and technical personnel may not
3 exceed the percentages of such costs, and may be made only
4 for the periods, prescribed for grants for such costs under
5 section 242.

6 “(d) (1) There are authorized to be appropriated for
7 the fiscal year ending June 30, 1972, and for the two suc-
8 ceeding fiscal years, such sums as may be necessary for
9 grants under this part for construction and for initial
10 grants under this part for compensation of professional and
11 technical personnel, and for training and evaluation grants
12 under section 272.

13 “(2) There are also authorized to be appropriated for
14 the fiscal year ending June 30, 1973, and each of the
15 next eight fiscal years such sums as may be necessary to
16 continue to make grants with respect to any project under
17 this part for which an initial staffing grant was made from
18 appropriations under paragraph (1) for any fiscal year
19 ending before July 1, 1974.

20 “TRAINING AND EVALUATION

21 “SEC. 282. The Secretary is authorized, during the
22 period beginning July 1, 1972, and ending with the close of
23 June 30, 1974, to make grants to public or nonprofit private
24 agencies or organizations to cover part or all of the cost of
25 (1) developing specialized training programs or materials

1 relating to the provision of services for the mental health
2 of the aged, or developing inservice training or short-term
3 or refresher courses with respect to the provisions of such
4 services; (2) training personnel to operate, supervise, and
5 administer such services; and (3) conducting surveys and
6 field trials to evaluate the adequacy of the programs for
7 the mental health of the aged within the United States
8 with a view to determining ways and means of improving,
9 extending, and expanding such programs."

[H.R. 188, 92d Cong., 1st sess., introduced by Mr. Jacobs on January 22, 1971;
H.R. 3336, 92d Cong., 1st sess., introduced by Mr. Springer on February 2, 1971;
H.R. 4979, 92d Cong., 1st sess., introduced by Mr. Jarman on February 25, 1971;
H.R. 6405, 92d Cong., 1st sess., introduced by Mr. Thone on March 18, 1971;
H.R. 10083, 92d Cong., 1st sess., introduced by Mr. Pryor of Arkansas (for himself and Mr. Roy) on July 26, 1971;
H.R. 10232, 92d Cong., 1st sess., introduced by Mr. Anderson of Tennessee on July 29, 1971; and
H.R. 12451, 92d Cong., 2d sess., introduced by Mr. Halpern on January 18, 1972,

are identical as follows:]

A BILL

To amend the Public Health Service Act to provide for the establishment of a National Institute of Gerontology.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*
3 That title IV of the Public Health Service Act (42 U.S.C.
4 ch. 6A, subch. III) is amended by adding at the end thereof
5 the following new part:

6 "PART G—NATIONAL INSTITUTE OF GERONTOLOGY
7 "ESTABLISHMENT OF NATIONAL INSTITUTE OF
8 GERONTOLOGY

9 "SEC. 461. For the purpose of conducting and support-
10 ing (1) research of treatments and cures for the diseases of
11 the aged, and (2) training relating to such diseases and

1 other special health problems and requirements of the aged,
2 the Secretary shall establish in the Public Health Service an
3 institute to be known as the National Institute of Geron-
4 tology (hereinafter in this part referred to as the 'Institute').

5 "ESTABLISHMENT OF ADVISORY COUNCIL

6 "SEC. 462. (a) The Secretary shall establish an advisory
7 council to advise, consult with, and make recommendations
8 to him on matters relating to the Institute.

9 "(b) The provisions relating to the composition, terms
10 of office of members, and reappointment of members, of
11 advisory councils under section 432 (a) shall be applicable
12 to the advisory council established under this section, except
13 that the Secretary may include on such advisory council
14 such additional ex officio members as he deems necessary.

15 "(c) Upon appointment of such advisory council, it
16 shall assume all, or such part as the Secretary may specify,
17 of the duties, functions, and powers of the National Advisory
18 Health Council relating to the research or training projects
19 with which the advisory council established under this part
20 is concerned and such portion as the Secretary may specify
21 of the duties, functions, and powers of any other advisory
22 council established under this Act relating to such projects.

23 "FUNCTIONS

24 "SEC. 463. The Secretary shall, through the Institute,
25 carry out the purposes of section 301 with respect to re-

1 search, investigations, experiments, demonstrations, and
2 studies related to the diseases and the special health problems
3 and requirements of the aged, except that the Secretary
4 shall determine the areas in which and the extent to which
5 he will carry out such purposes of section 301 through the
6 Institute or another institute established by or under other
7 provisions of this Act, or both of them, when both such
8 institutes have functions with respect to the same subject
9 matter. The Secretary may also provide training and instruc-
10 tion and establish traineeships and fellowships, in the Insti-
11 tute and elsewhere, in matters relating to study and investi-
12 gation of the diseases and the special health problems and
13 requirements of the aged. The Secretary may provide
14 trainees and fellows participating in such training and in-
15 struction or in such traineeships and fellowships with such
16 stipends and allowances (including travel and subsistence
17 expenses) as he deems necessary, and, in addition, provide
18 for such training, instruction, and traineeships and for such
19 fellowships through grants to public or other nonprofit
20 institutions."

[H.R. 8491, 92d Cong., 1st sess., introduced by Mrs. Hicks of Massachusetts on May 18, 1971, and
H.R. 11962, 92d Cong., 1st sess., introduced by Mr. Fauntroy on November 30, 1971,
are identical as follows:]

A BILL

To amend title III of the Public Health Service Act to authorize grants for projects to develop or demonstrate programs designed to rehabilitate elderly patients of long-term health care facilities or to assist such patients in attaining self-care.

- 1 *Be it enacted by the Senate and House of Representa-*
- 2 *tives of the United States of America in Congress assembled,*
- 3 That part A of title III of the Public Health Service Act is
- 4 amended by adding after section 310B thereof the following
- 5 new section:

1 "PROJECT GRANTS FOR DEVELOPMENT OF PROGRAMS FOR
2 REHABILITATION OF AGED INPATIENTS OF LONG-TERM
3 HEALTH CARE FACILITIES

4 "SEC. 310C. There is authorized to be appropriated
5 \$5,000,000 for the fiscal year ending June 30, 1972, and
6 \$10,000,000 for each of the next three fiscal years, to enable
7 the Secretary to make grants to any public or nonprofit pri-
8 vate agency, institution, or organization to cover all or any
9 part of the cost of projects for the development or demon-
10 stration of programs designed to rehabilitate aged inpatients
11 of long-term health care facilities or to assist such inpatients
12 to attain self-support or self-care."

92D CONGRESS
2D SESSION

H. R. 13875

IN THE HOUSE OF REPRESENTATIVES

MARCH 16, 1972

Mr. PODELL introduced the following bill; which was referred to the Committee on Interstate and Foreign Commerce

A BILL

To amend the Public Health Service Act to establish the National Institute of Gerontology.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*
3 That title IV of the Public Health Service Act is amended
4 by adding after part G the following new part:

5 “PART H—NATIONAL INSTITUTE OF GERONTOLOGY

6 “DEFINITIONS

7 “SEC. 461. For the purposes of this part—

8 “(1) The term ‘the aged’ refers to all individuals (A)
9 who are citizens or residents of the United States, and (B)
10 who are at least sixty years of age.

1 “(2) The term ‘health problems’ includes physical and
2 mental illnesses as well as problems of normal physical and
3 mental health.

4 “(3) The term ‘Institute’ means the National Institute
5 of Gerontology.

6 “ESTABLISHMENT OF INSTITUTE

7 “SEC. 462. For the purpose of conducting, supporting,
8 and encouraging research, education, and demonstration proj-
9 ects in relation to the health problems and requirements of
10 the aged, there is established in the Public Health Service
11 an institute to be known as the National Institute of Geron-
12 tology.

13 “PROGRAMS

14 “SEC. 463. (a) The Secretary shall, through the In-
15 stitute, carry out the purposes of section 301 with respect
16 to experimental and other research, education, and demon-
17 stration projects related to the special health problems and
18 requirements of the aged.

19 “(b) Not excluding any other research, education, and
20 demonstrations that the Secretary deems necessary, the Sec-
21 retary may, through the Institute, conduct research, educa-
22 tion, and demonstrations related to (1) the diseases of the
23 aged, (2) the nutritional problems and needs of the aged,
24 (3) the special psychological problems associated with the
25 aging process, (4) the common physical fitness needs of

1 the aged, (5) the delivery of health care to the aged, and
2 (6) the special health related requirements in the architec-
3 tural design and building of health care facilities, nursing
4 homes, and living quarters for the aged.

5 “(c) The Secretary shall determine whether the Insti-
6 tute or some other institute established by or under other
7 provisions of this Act shall conduct the activities described
8 in subsections (a) and (b) when both such institutes have
9 functions with respect to the same subject matter.

10 “ADVISORY COUNCIL

11 “SEC. 464. (a) The Secretary shall establish an advisory
12 council to advise, consult with, and make recommendations
13 to him on matters relating to the Institute.

14 “(b) The provisions relating to the composition, terms
15 of office of members, and reappointment of members of ad-
16 visory councils under section 432 (a) shall be applicable to
17 the advisory council established under this section, except
18 that the Secretary may include on such advisory council such
19 additional ex officio members as he deems necessary.

20 “(c) Upon appointment of such advisory council, it
21 shall assume all, or such part as the Secretary may specify,
22 of the duties, functions, and powers of the National Advisory
23 Health Council relating to the research or training projects
24 with which the advisory council established under this part
25 is concerned and such portion as the Secretary may specify

1 of the duties, functions, and powers of any other advisory
2 council established under this Act relating to such projects.

3 "AUTHORIZATION OF APPROPRIATIONS

4 "SEC. 465. For each fiscal year there are authorized to
5 be appropriated \$25,000,000 for (1) fellowships and trainee-
6 ships in the Institute and elsewhere, (2) the establishment of
7 research programs in the Institute and elsewhere, (3) demon-
8 stration project grants, (4) conferences to encourage the
9 development and dissemination of new information, and (5)
10 any other activities that the Secretary deems necessary to
11 fulfill the purposes of this part."

Mr. ROGERS. We are pleased today to welcome to the committee again and to have as a witness for the Department of Health, Education, and Welfare, Dr. Merlin K. DuVal, the Assistant Secretary for Health and Scientific Affairs; Dr. Zapp, from the Office of Legislative Affairs; and Dr. Gerald D. LaVeck, Director of the National Institute of Child Health and Human Development.

We welcome you gentlemen and will be pleased to receive your testimony.

STATEMENT OF DR. MERLIN K. DuVAL, ASSISTANT SECRETARY FOR HEALTH AND SCIENTIFIC AFFAIRS, DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE; ACCOMPANIED BY DR. JOHN S. ZAPP, DEPUTY ASSISTANT SECRETARY FOR LEGISLATION (HEALTH); DR. GERALD D. LaVECK, DIRECTOR, NATIONAL INSTITUTE OF CHILD HEALTH AND HUMAN DEVELOPMENT, NATIONAL INSTITUTES OF HEALTH; AND DR. CHARLES W. LOWE, SCIENTIFIC DIRECTOR, NICHD

Dr. DuVAL. It is a pleasure to be with you this morning and specifically today to present the administration's views on H.R. 12308, and related bills, dealing with the subject of gerontological research and mental health services for the elderly and H.R. 8491, dealing with rehabilitation of the elderly. This committee, and you in particular, Mr. Chairman, should be commended for your interest and activities on behalf of the health of older Americans. The 92d Congress has demonstrated an active concern for the well-being of the elderly through a wide spectrum of proposals to meet their needs for adequate income, housing, transportation, nutrition, and health.

The President shares your concern and commitment to improving the lives of millions of older Americans. Speaking before the White House Conference on Aging last November, he called for "A new national attitude toward aging in this country—one which fully appreciates what our older citizens can do for America."

HEALTH PROBLEMS OF THE AGED

The problems the elderly face are a microcosm of those which face the rest of our citizens. These burdens fall with particular weight on the old, and they are accentuated by our culture's worship of the young. In a competitive society we have too little regard for those who do not produce, and too often a person's economic power becomes the measure of his or her worth.

In recognition of this, the Federal Government and States and localities account for an estimated 68 percent of the aged health care costs. In 1973, the Federal Government alone will spend an estimated \$11.7 billion on health care for the aged. Much is being done, both in research and health services, to improve the health of the elderly. In the area of research, opportunities to increase our understanding of the basic biological processes of human aging, are being explored and the studies of the occurrence and treatment of those diseases and health problems we think of as peculiar to the elderly are underway.

We are attempting to define, conceptually or empirically, the differences between aging processes and diseases. The former may contribute to the development of diseases, and environmental factors may well modify the rate at which aging occurs.

The aging process involves many of the body's structural physiological, and biochemical systems. It affects profoundly the psychological composition and mental well-being of older persons. And the effects of this process in individuals create problems that society must meet and which are very important to the maintenance of the Nation's health. There are a number of research areas currently being explored that promise to yield beneficial results for the aging. These areas include: the social aspects of aging; immunology and aging; aging in women; nutritional and environmental factors in aging; cellular responsiveness, rate-limiting processes, and adaptive mechanisms; and cellular programming and aging.

The elderly in our society are a vulnerable group, subjected to a variety of stresses which increase their risk of mental illness. This situation is directly related to the biological degeneration of old age, and to a complex of personal and environmental factors, including: multiple losses through death and separation resulting in chronic depression; increasing isolation and loneliness; sharply diminished availability of sexual gratification; loss of social status resulting in a sense of uselessness; and diminished income and resultant financial dependency, leading to feelings of worthlessness.

All of these are not, Mr. Chairman, stresses which the elderly must endure, and in many instances they could be alleviated by human concern and societal action.

INSTITUTE OF AGING

I would like first to discuss the proposal for a national institute of aging, then to return to that section of H.R. 12308, dealing with mental health services and the administration's plans for meeting the needs of the aged in that area. H.R. 12308, would create a new institute within the Public Health Service "to conduct and support research on the aging process, preventive measures with respect to the special health problems and requirements of the aged, and research of treatments and cures for the other special health problems and requirements of the aged." The broad array of authorities proposed for this new institute would empower it to research the very complex biological and behavioral process of human aging, and the prevention and cure of those diseases which generally afflict the elderly.

Research, investigations, experiments, demonstration, and studies would be specifically authorized for those purposes. The institute would also be empowered to support, through grants and fellowships, training, and instruction in matters related to the aging process, and the health care needs of the elderly.

I would like to briefly discuss our approach to the creation of a narrowly focused Institute of Aging and outline our reasons for recommending against it.

In regard to the organizational structure proposed by H.R. 12308, we question whether the best way to assure a strengthened research effort in a particular program area is to establish a new national institute with responsibility for that area. We do not think that a separate

institute for gerontological research best serves the research needs in the area of gerontology.

During recent Congresses, there have been enough proponents of this theory to cause the introduction of bills to establish up to half a dozen or more new institutes within the National Institutes of Health. In the current session of Congress, for example, there are proposals for several new institutes. In addition to the one to be created by this bill, new institutes are proposed for marine medicine, for digestive disease, for kidney disease, and for sickle cell anemia.

Nevertheless, experience in the management of biomedical research programs makes it very evident that no mere organizational change—of and by itself—can cause a research area to flourish. The committee recognized this fact in its recent action on digestive diseases, opting for increased program visibility with no substantive organizational change.

The matter of scale is most important, however, for there are significant administrative costs associated with a new institute's structure, and these increased administrative costs would have to be at the expense of other high priority health activities.

To the extent that the proposed Institute of Aging would take over the research and training now encompassed by the National Institute of Child Health and Human Development (NICHD), the bill raises further questions.

In 1961, the White House Conference on Aging recommended that an institute for research on aging within the National Institutes of Health be established. At the same time, there was great interest in the establishment of institutes that would deal with the problems of the biological, medical, and social aspects of fertility, fetal life, and child-development.

The question that those responsible for the organizational structure of the NIH faced was whether the study of lifespan processes should be conducted by one institute or whether there should be a separate institute for each segment of the lifespan. After appropriate consideration, Congress passed legislation permitting the creation of one institute covering the problems of development from the process of fertilization through senescence. Such an institute would be able to serve each of these areas better than a series of institutes each concerned with a segment of human development.

The National Institute of Child Health and Human Development is currently responsible for research and training for research on the biological, medical, and behavioral aspects of aging. This research covers the entire period of the adult years, since aging processes occur throughout the entire period gradually transforming the young person into an elderly one. The NICHD does not stress studies of disease processes. This is because such studies are more properly supported by the disease-oriented institutes of the National Institutes of Health.

With respect to research into disease of the aged, there is little basis for separating this activity from research on the same disease when it afflicts the young or the middle-aged. To do so would cause the almost inevitable result of duplicative work at two or more institutes, merely because a disease, such as cancer, can affect persons at many age levels.

Accordingly, we oppose as undesirable and unnecessary the creation of a separate institute as proposed in H.R. 12308.

MENTAL HEALTH FOR THE ELDERLY

We also oppose the addition of a new Part G, Mental Health of the Aged, to the Community Mental Health Center Act. The services this part would support are already authorized and conducted under existing sections of the Community Mental Health Centers Act. All persons residing in a catchment area, regardless of age or other factors, are eligible for treatment in community mental health facilities, and persons in every age group do avail themselves of these services.

The construction of facilities to provide mental health services for the aged which H.R. 12308 would authorize does not reflect the realities of the situation. One reason why the aged may be reluctant to apply for treatment is their fear of institutionalization. Rather than construction of additional special facilities for the aged, other alternatives, relying heavily on the home environment and where necessary existing comprehensive service programs, should be encouraged.

REHABILITATION AND DE-INSTITUTIONALIZATION

Last summer the President announced a new program to upgrade the Nation's nursing homes. Within the Department, I was named coordinator of this new program. A number of activities are now underway as a result of the President's call for action, and among the most important is a study of long term care being directed by my special assistant for Nursing Home Affairs. This study is considering the best methods and programs for development of viable alternatives to long term care.

One of the bills you are considering, Mr. Chairman, H.R. 8491, addresses this problem specifically and calls for a program within the Public Health Service of grants to develop or demonstrate programs designed to rehabilitate institutionalized patients and assist them in attaining self-care. We do not believe that this legislation is necessary, for in addition to the study now underway in my office which I just described, other efforts are also underway in the Department in this area. Both the Social and Rehabilitation Service and the Health Services and Mental Health Administration are undertaking studies which would generally increase the quality of institutional care as well as studying alternatives to long term institutional care through their research and demonstration authority. We intend to budget \$1,460,000 from fiscal year 1972 funds for studies of alternatives to long term care in HEW: \$835,000 under the Older Americans Act; \$250,000 under title XIX (medicaid); and \$375,000 in HSMHA. In addition, the Older Americans Act, which is administered by the Social and Rehabilitation Service, provides, through its title III programs, many varieties of supportive services which allow older people to remain independent, including recreation, transportation, meals, housing, and health care.

CONCLUSION

For the reasons outlined above, we therefore recommend against enactment of these bills.

Thank you, Mr. Chairman. I would be happy to answer any questions you may have.

Mr. ROGERS. Thank you, Mr. Secretary. Mr. Preyer?

Mr. PREYER. I am sorry to be a little late, Mr. Chairman.

Mr. ROGERS. Would you like to reserve your time?

Mr. PREYER. I would like to reserve my time, although I would like to make one comment. While some of the arguments against an institute made sense, there are certainly some strong arguments for it in order to give it visibility.

An example is the cause of action which was put in the Civil Rights Act of 1965. That cause of action already had existed for years but nobody ever filed any suits under it.

But as soon as that was put into a piece of legislation, suits were filed all over the country. It wasn't really giving any additional rights. So while all of the other facilities may be there now, focusing on something which gives it visibility sometimes makes things happen. Otherwise they don't happen.

I have no further questions right at the moment.

Mr. ROGERS. Dr. Carter?

Mr. CARTER. Thank you, Mr. Chairman. I understand that consideration is being given to establishing a Center for Aging within the National Institutes of Child Health and Human Development, is that true?

Dr. DuVAL. That is true. The plan, if you are not familiar with its details, was actually devised by us to take advantage of the existing machinery to see if we could solve one of the problems that I think Mr. Preyer has very correctly identified, to wit: that the presence of an existing capability doesn't always assure its maximum visibility.

We decided we would take all of the extramural capability of the Institute of Child Health and Human Development and collate it together into a center for aging research and let it, in addition to supervising all extramural programs and giving them a highly visible boost, do the coordinating to the extent our authorities permit of all Federal research on aging. In addition, this center would oversee the development and establishment of a number of university and scientific research institutes elsewhere in the country.

This committee felt a similar approach might be successful with regard to digestive diseases and to cancer, to the extent the two are similar.

Mr. CARTER. This would be within the National Institute of Child Health and Human Development?

Dr. DuVAL. Yes.

Mr. CARTER. Do you think sufficient emphasis is being placed on the science of gerontology and the study of it or not?

Dr. DuVAL. I think we have attempted in the recent years in NIH, particularly, and to some extent in NIMH, to place increasing emphasis on gerontology and research in the field of aging. But I suspect, as we have all come to realize how important this is, that we should perhaps examine its priority rating and upgrade it even more.

This, as you know, requires an enormous amount of wisdom, of the type none of us feels we have.

Ultimately, the resources available to support worthy programs are limited, and the issue is whether this is more important than cancer or sickle cell, as you go down the list. It is a fact that those priorities are constantly being examined.

Mr. CARTER. Actually, all of our institutes in a sense apply to gerontology, and cancer affects elderly people, does it not?

Dr. DuVAL. Yes, life is really one process, culminating in death, as somebody said, and the entire issue is aging.

So if one were to assemble the total Federal investment in aging, as it were, including the diseases to which you have made reference, then the investment would be overwhelming. But if it were specifically dedicated to the aging process, then we don't do as well.

Mr. CARTER. And our studies on heart diseases and stroke also apply particularly, is that correct?

Dr. DuVAL. Yes.

Mr. CARTER. Are you, by any chance, familiar with the Green Thumb program?

Dr. DuVAL. I am not.

Mr. CARTER. That is a program under, I believe, the Department of Labor which employs elderly people, people of 65 and older, throughout the country. As happens, there are two programs in the district I represent. These elderly people do wonderful work. I think perhaps at age 65 many of them retire a little too early.

If we can provide programs at which they can still prove their usefulness, I believe it will be extremely helpful to them. This program has been fantastic in my area. Elderly people have done so many good things for their communities, the construction of libraries and parks and so on.

I think we have to think not only of the aging process, but of keeping these people involved and doing worthwhile things as they go along.

Thank you, Mr. Chairman.

Mr. ROGERS. Mr. Hastings?

Mr. HASTINGS. Thank you, Mr. Chairman. Dr. DuVal, although you oppose the establishment of a separate institute, in H.R. 12308, for the purposes elicited in section 461, research of the aging process, research for preventive measures with respect to special health problems as it applies to the aged, and research and treatment and cures, and so forth, can all of those be accomplished under the existing agency structure?

Dr. DuVAL. Yes, everything can be accomplished. The authority is there to do all of those.

Mr. HASTINGS. Do you think additional resources should be devoted to those purposes within the existing structure?

Dr. DuVAL. I would prefer to respond to that by saying, as I did a few months ago to Dr. Carter, that the issue of additional resources is where the Solomon-type judgment must be made.

I think collectively this committee, the Department of HEW and other interested persons, must examine that issue and decide at what level of investment aging should be placed when viewed alongside of other matters in which we must make an appropriate investment of public resources.

Mr. HASTINGS. Does that mean that things must be looked upon as a matter of priority?

Dr. DuVAL. Yes, absolutely.

Mr. HASTINGS. I am sorry I missed part of your testimony. But did you infer that perhaps many of the diseases that were talked about in relation to the aging are diseases which in fact affect every age level and we should discuss them in relation to all people rather than just the aged?

Dr. DuVAL. We think the progress of biomedical research is to be more productive than if you attack any disease processes in any setting and not to try to set it out as unique to any one set of circumstances or another as, for example, aging.

I think this is the reason NIH does so well in its disease-oriented institutes. This does not mean there is an entity known as aging by itself, not known as a disease any more than pregnancy is a disease. It is a normal phenomenon.

Mr. HASTINGS. I noticed that earlier this morning.

Dr. DuVAL. Under the circumstances, there is an appropriate place for aging itself separate from disease.

Mr. HASTINGS. I guess my real problem with this is whether or not, in our Solomonic judgment, we should be doing more. I guess that is probably why this measure and others were introduced, as you are aware. We are concerned, and it is a question of in what direction should we go.

Your advice is not to go in the direction of a separate institute. My question is, what more can we be doing than we are doing today?

Dr. DuVAL. I would hope that the establishment, for example, of our center for aging research and the extramural part of the National Center for Child Health and Human Development may achieve this objective.

I think we will want and would appreciate the opportunity of examining the priority that agency enjoys. If it appears appropriate—and goodness, it does appear at this time—to have emphasis in that direction, we should reallocate the resources in favor of more research in aging.

We agree with you on the objectives. I think we are hung up at the moment on whether or not one needs a separate institute to get from here to that same objective.

Mr. HASTINGS. I would like to yield to my ageless colleague, Dr. Carter.

Mr. CARTER. This center you speak of within NICHD, what would it do so far as universities, particularly?

Dr. DuVAL. By and large, our effort with respect to universities would have two expressions, although Dr. LaVeck is here and can further embellish on this. We would support a broad panoply of research grants through the extramural programs and through the contracting capability of the new center involving research institutes and involving the scientists on university campuses.

Secondly, we would set up and operate—actually, we have started—but we would expand further the concept of having rather large inter and multidiscipline university research centers established in the United States, campuses that have the capacity to draw together the various disciplines, including the social and behavioral sciences, and the biomedical, as well as treatment capability, so we could treat the entire issue in those centers of the aged and needs of aging in one center.

We have in the recent past operated as many as five of those, with some degree of success.

Mr. CARTER. Is it true that aging research has not been given the same support that child health research has?

Dr. DuVAL. In dollars, that is true. In proportions, it is not true. As a matter of fact, since we started in 1965, the growth in the budget for aging is approximately 270 percent, greatly outstripping the in-

vestment growth in child health. But in dollars, we provide at this time more dollars for child development.

Mr. CARTER. Thank you.

Mr. HASTINGS. Just one more question to shed some light on what happened in the last several years. What has been the increase, if any, in the life span?

Dr. DUVAL. The life span has increased, as you know, by an average of—I think I should give you the actual figures, which I believe I have here, if you will bear with me just a moment. There is an accurate answer to that.

Beginning in 1900, the expectancy was 48.2 years for white and 32.5 for nonwhite. At age 65 that went up to 11.5 for white and 10.4 for nonwhite.

As of 1967 those figures have now changed. For white males, from the earlier figure of 48.2, it is now 67.8. For nonwhite males, 61.1.

The life expectancy at birth for a white male born in 1967 would be 67.8 years. It is a change, as you can see, of almost 20 percent since 1900.

Mr. HASTINGS. What about white female or any female?

Dr. DUVAL. The ratio would be 51.1 up to 75.1.

Mr. HASTINGS. Women's lib should be advised of that.

Mr. ROGERS. Would the gentleman permit a comment at this point. I think it would help if you could break it down in sectors for us. Say, in the last 10 years, what has been the increase of the lifespan, and the 10 years before that, and right on back to 1900.

Dr. DUVAL. I have the figures in the room for 1960 to 1967. But in view of the request going back a little before that, why don't we submit that for the record if the chairman will permit.

(The following tables were received for the record:)

LIFE EXPECTANCY AT BIRTH

Year	Total			White			Nonwhite		
	Both sexes	Men	Women	Both sexes	Men	Women	Both sexes	Men	Women
1900.....	47.3	46.3	48.3	47.6	46.6	48.7	33.0	32.5	33.5
1910.....	50.0	48.4	51.8	50.3	48.6	52.0	35.6	33.8	37.5
1920.....	54.1	53.6	54.6	54.9	54.4	55.6	45.3	45.5	45.2
1930.....	59.7	58.1	61.6	61.4	59.7	63.5	48.1	47.3	49.2
1940.....	62.9	60.8	65.2	64.2	62.1	66.6	53.1	51.5	54.9
1950.....	68.4	65.8	71.5	69.2	66.6	72.4	61.0	59.2	63.2
1960.....	69.7	66.6	73.1	70.6	67.4	74.1	63.6	61.1	66.3
1970.....	70.8	67.1	74.6	71.7	68.1	75.4	64.5	60.5	68.9

Source: Data from National Center for Health Statistics.

LIFE EXPECTANCY AT AGE 50

Year	White		Nonwhite	
	Men	Women	Men	Women
1900-02.....	20.8	21.9	17.3	18.7
1910-11.....	20.4	21.7	16.2	17.6
1919-20.....	22.2	23.1	20.5	19.8
1929-31.....	21.5	23.4	17.9	18.6
1939-41.....	22.0	24.7	19.2	21.0
1949-51.....	22.8	27.8	20.2	22.7
1959-61.....	22.2	28.1	21.3	24.3
1970.....	23.4	29.0	20.9	25.7

Source: Data from National Center for Health Statistics.

LIFE EXPECTANCY AT AGE 65

	White		Nonwhite	
	Men	Women	Men	Women
1900-02.....	11.5	12.2	10.4	11.4
1909-11.....	11.2	12.0	9.7	10.8
1919-21.....	12.2	12.8	12.1	12.4
1929-31.....	11.8	12.8	10.9	12.2
1939-41.....	12.1	13.6	12.2	14.0
1949-51.....	12.8	15.0	12.8	14.5
1959-61.....	13.0	15.9	12.8	15.1
1970.....	13.2	16.8	13.0	15.8

Source: Data from National Center for Health Statistics.

Mr. ROGERS. Give us what it is from 1960.

Dr. DuVAL. In 1960, at birth a white male could expect to live 67.4, and that is going from 67.4 to 67.8 in 7 years. The nonwhite, 61.1 to 61.1, that has not changed.

In female, it has gone from 74.1 to 75.1. The nonwhite, 66.3 to 68.2.

Mr. ROGERS. But from 1900 to 1960?

Dr. DuVAL. From 1900 to 1960 for the white male, it went from 48.2 to 67.4.

Mr. ROGERS. It would appear that we have not been doing much in extending the lifespan within the last 10 years, isn't that correct, statistically?

Mr. CARTER. Will the gentleman yield on that?

Mr. ROGERS. Yes, as soon as the gentleman answers that.

Mr. CARTER. I think you are struggling with the law of diminishing returns.

Mr. ROGERS. I don't know. If you don't want to live past 70, I guess that is true. But I would hope this is the point of the thing that we could set apart.

Mr. CARTER. It is just a fact of life.

Mr. SCHMITZ. Mr. Chairman, I think if we spent enough money we could extend it on and on.

Mr. HASTINGS. Mr. Chairman, I will yield back the balance of my time.

Mr. ROGERS. Doctor, if you could answer the question.

Dr. DuVAL. I think that mathematically, we are approximately on course, Mr. Chairman. If you compute out the change from 1900 to 1967, it does work out, as nearly as I can tell, at about three-tenths of a year per year, and from 1960 to 1967 would be 7, which would be 2.1 years. The average population has gone from 69.7 to 70.5. So we are almost exactly on that straight line.

Mr. ROGERS. From four-tenths?

Dr. DuVAL. The point being, the difference in the total population from 1960 to 1967 has gone from 69.7 to 70.5. That is a little less than 2 years. It would have worked out mathematically at 2.1 years if you were on a flat line.

Mr. ROGERS. I thought you said it was 67.4 to 67.8?

Dr. DuVAL. That was only for white males. We were talking of the total population at large.

As Dr. Carter has pointed out, the curve will begin to flatten out this way as you get to the older age group, and this is the point he correctly observed.

Mr. ROGERS. Why is there a greater increase in lifespan in the black male over the white male?

Dr. DUVAL. In this instance, statistically, interestingly enough, the gain has been in the nonwhite female, according to the chart I have in front of me.

Mr. ROGERS. Is there any reason why there is a particular slowdown then in the white male or black male?

Dr. DUVAL. I will ask Dr. LaVeck if he has any additional information on that.

Dr. LAVECK. The life expectancy is determined in part by the infant mortality rate. I think some of the explanations that you are asking for depend on the progress that has been made in infant mortality, and the differences between blacks and whites, as far as infant mortality is concerned.

The infant mortality rate is now about 80 percent higher for blacks than in whites.

Mr. ROGERS. You are saying we are not having people live longer, but you are saying we have more babies born and living?

Dr. LAVECK. Babies now have a better chance of living to become 67 than they used to have.

Mr. ROGERS. I thought we actually extended the lifespan?

Dr. LAVECK. We have, but it has been largely due to control of diseases of infancy and childhood. I think a more revealing comparison is the life expectancy, for example, of a person at age 50 in 1900 as compared to now. This gives you a better perspective of current progress in prolonging life.

Here we find that since 1900 the life expectancy at that time was about 21 years at age 50. It is now about 26 years. So there has been a relatively small increase in life expectancy for the 50-year-old individual.

Mr. ROGERS. Well, we haven't done too much research in the aging process.

Dr. DUVAL. No. But if I could point out, Mr. Chairman, Dr. LaVeck's point would be that a dollar invested in preventing illness in the child is going to do more to keep people alive than the same dollar invested in the aging. However, that doesn't mean that a dollar invested in the aging is bad.

Mr. ROGERS. That is your assumption. Doctor. I am not sure we have said that. This is the point we are trying to make at these hearings. That we have not done any extensive work in extending that 50-year-old age group span of life.

So I am not sure that is a correct assumption. It may be true, but I don't think we are in a position yet to say that.

Let me ask you this. What about the upturn in mortality of the white population? This is true, isn't it? Isn't there an upturn in mortality there?

Dr. LAVECK. There has been a continuous improvement over the years, with minor fluctuations.

Mr. ROGERS. Well, now, this is the leading component of the upturn in the mortality rate of men in the United States from 1952 to 1967 put out by the U.S. Department of Health, Education, and Welfare. Maybe you would like to look at it and comment on it.

Mr. CARTER. On that very thing, Mr. Chairman, if you would yield?

Mr. ROGERS. Certainly.

Mr. CARTER. I believe in 1960 the age span of the white male was 67.4, is that correct?

Dr. DuVAL. That is correct.

Mr. CARTER. In 1967 it was 67.8, which shows not an upturn in mortality, but an increase in longevity.

Mr. ROGERS. That is not what these figures show. It may be that more babies are living and they are getting their figures that way rather than going at it from the other end.

Mr. CARTER. On the very thing they stated here, at age 50 the life expectancy, as you gave us just now, was how much?

Dr. LAVECK. At the present time for both sexes combined, it is about 26 years. It was 21 years in 1900. For women the number of years has been extended from 22 to 29 years.

Mr. CARTER. Which is an increase of 7 years, is it not?

Dr. LAVECK. Yes.

Mr. ROGERS. Now, after seeing the chart, what is your comment on that?

Dr. LAVECK. Mr. Chairman, I have not had time to read this in detail.

Mr. ROGERS. I think it just charts out the increase right there, doesn't it?

Dr. DuVAL. At a quick glance, Mr. Chairman, it appears to be this is a table setting out the rate of deaths per 100,000 population by age groups related to specific malignant diseases.

Mr. ROGERS. From all causes, isn't it?

Dr. DuVAL. I am not sure I can tell.

Mr. ROGERS. Doesn't it say at the top?

Dr. DuVAL. The breakdown here are all in malignant neoplasms with respiratory—

Mr. ROGERS. I think at the top it says "all", doesn't it?

Dr. DuVAL. That is for the whole chapter.

Mr. ROGERS. Then you don't know whether they are having more deaths for white males and the rate has not increased?

Dr. LAVECK. The rate has not increased.

Mr. ROGERS. Why does this say it has?

Dr. LAVECK. I think for specific diseases it may be true for all periods of time.

Mr. ROGERS. Why don't you look that over and we will come back to it. I don't understand why, in all cases, the death rate is increasing and yet you tell us it is not.

(See Dr. DuVal's answer on p. 51, in hearing.)

Mr. ROGERS. Mr. Schmitz?

Mr. SCHMITZ. Thank you, Mr. Chairman. I have a rather basic question or, perhaps, a comment. I didn't hear Dr. DuVal's testimony. I am sorry. I came late. But gathering the gist of it, you pointed out that the individual illnesses are taken care of in other institutes, and as he commented since I arrived that there is a natural aging process which he compared to pregnancy which is not an illness at all but just something natural.

I would like to ask a very basic question. This is the Interstate and Foreign Commerce Committee and the Public Health and Environment Subcommittee. In case we have forgotten why we are a subcom-

mittee of the Interstate and Foreign Commerce Committee, the Federal Government is not supposed to get into any areas unless it has something to do with interstate commerce.

Communicable diseases at one time, I suppose, were assumed to be a form of interstate commerce, diseases spreading from one State to another, and, therefore, coming under the purview of the Federal Government.

My question is basically this. How are we going to stretch the Constitution to cover such a natural phenomenon as aging? Even pregnancy could be stretched to come under interstate commerce. But how can something as natural as growing old be in any way in interstate commerce? You just don't age crossing the State line.

Now, is that too basic for this subcommittee of Interstate and Foreign Commerce Committee?

Mr. ROGERS. Maybe I could answer it for the gentleman, if he would permit.

Mr. SCHMITZ. Within the Constitution.

Mr. ROGERS. It is all within the Constitution. I think the gentleman would know that the House Rules specifically award jurisdiction over public health to this committee. Now, it may have originally gotten into the public health field through the commerce clause, but as you know, the Public Health Service was established in 1798 under the Constitution.

We have been operating under the Constitution ever since. I am sure the gentleman knows that the commerce clause is interpreted very broadly nowadays by the Supreme Court.

Mr. SCHMITZ. My only comment is that if the Interstate Commerce clause is interpreted so broadly so as to now bring aging under it, it could be extended no further.

Mr. ROGERS. I don't think I agree with the gentleman. I think it will probably be extended much further. I am sure if the gentleman stays around, he will see it extended. That is the way we progress. I am sure the gentleman is not really against progress.

Mr. SCHMITZ. Progress toward what?

Mr. ROGERS. Constitutional government.

Mr. SCHMITZ. I see us progressing toward something else, but I don't want to get into a philosophical argument. Might I just continue this philosophical argument?

Mr. ROGERS. If the gentleman would prefer, he has a little time left.

Mr. SCHMITZ. Where I grew up in the city of Milwaukee, there is a diorama of American Indian buffalo hunts. These Indians used to drive the buffalo over a cliff between two rows of rock piles. There were Indians with blankets waving at the buffalo and Indians on horseback and the buffalo were going over the cliff. That was on the background.

On the forefront was a buffalo who had gotten away from the crowd and they were picking him off with arrows and spears. He was the main subject of the diorama. He was not progressing with the rest. I suppose you could call him a reactionary.

I can just see the other buffalos looking at that guy taking all of the arrows and spears. "Why doesn't he progress with the rest of us?"

So I will take a few arrows here, Mr. Chairman, if you don't mind, I am not elated toward running along toward progress when I see what we are progressing toward.

Mr. ROGERS. We are trying to protect you from arrows and spears.

Mr. SCHMITZ. Please don't.

Mr. ROGERS. Mr. Kyros?

Mr. KYROS. Thank you, Mr. Chairman. Dr. DuVal, on page 3 of your testimony, I notice that you cite one of the problems facing the elderly as increasing isolation and loneliness, and offer retirement, apparently, feelings of worthlessness.

I have seen that myself. I have seen it in my own community in Maine. A lot of the retired people suddenly don't feel wanted by their children who have grown up and gone to other towns. It is not as it was in the old country where everybody stayed together all the time. There is no sense of community participation any more, and other than providing breakfast visits to grandchildren, the elderly don't have anything to do. And, how do we get elderly people to feel worthwhile in those last years of their lives when they are in their 70's and 80's? Contrary to what Mr. Schmitz has suggested, I think people are entitled to have a worthwhile fruitful life, all the way to its end.

It worries me that society is so youth-oriented and the television camera is directed toward this facade of youthfulness.

What can we really do aside from merely talking about our concern for older people?

Mr. SCHMITZ. Will the gentleman yield? I just want to set the record straight that I am not against people having a full and complete life. I just wonder if they can have it only under the purview of the Federal Government.

Dr. DuVAL. I think that none of us has an entirely satisfactory answer to the extremely difficult question that you have posed. But I am prepared to say a few things. To the extent that they are youthful, I would be gratified.

I think the question is, as much as anything else, ethical. I think there is a cultism as you very correctly identified it, that tends to worship youth and that tends to make young families growing up feel they do not have a responsibility to their parents.

There are other countries, as you know, where it is quite different and where the problems of aging are expressed differently in the community.

So I think until we address ourselves to the ethical issues involved, we are always going to have certain manifestations of the type to which you have referred.

But at the same time, I am sure there is a responsibility that the Government, among others, could accept in addressing those questions.

For example, I would suggest, in the matter of aging it would be very proper for us to start showing a little imagination and taking advantage of the fact that there are older citizens who are very useful on the one end of the scale, and there are other citizens who have to be dependent at any age.

They may be mentally retarded. They may be physically or otherwise incapable of doing things for themselves. I have never seen ap-

propriate matings of those two groups so each could be served as it were, by the other to a mutual satisfaction.

I think we have not been imaginative in addressing that type of solution. But many of these questions do lie outside of government. I think that some of these could be provided appropriate stimulation from inside government. I would welcome the opportunity to see our agencies in HEW address themselves to that type of conclusion.

Mr. CARTER. Would the distinguished gentleman yield?

Mr. KYROS. Certainly.

Mr. CARTER. With regard to that very thing, of taking care and assisting these senior citizens, as you will, we all know they have problems and the Federal Government has taken many steps in this direction to assist them and I want to continue to see them receive assistance and live fuller lives.

The Green Thumb organization, which I mentioned just a few minutes ago, was certainly one of these steps. Another, of course, is Meals on Wheels for our elderly people who are not able to get about. I think that has been extremely helpful to improve their nutrition.

And clubs such as the Golden Age Clubs that we have about our libraries throughout our country.

All of these things involve our older people. They tend to help toward a fuller, more complete life.

Thank you.

Mr. KYROS. Doctor, I would like to add to what Dr. Carter has said. I think the Government has done some good things, and an example is the Community Mental Health Center. In my own State, again, I know of a special case where an elderly lady living with an adequate income and well taken care of by her children, but left alone in a house with a nurse lady, became depressed and felt isolated.

And when the doctor from the community mental health center questioned her, she said she felt worthless.

It was not a case of inadequate income and poor health care and food; it was just a case where she absolutely felt worthless. That feeling of worthlessness can really lead to problems in mental health which, frankly, I had never considered.

That bothered me so much that as I looked at old people, whether in Maine or anywhere else, I kept saying, "Does this mean that we must reeducate young and middle-aged people to impress upon them that their parents can't just be put somewhere and given adequate shelter and food and visited once or twice a week?"

That is not enough. It is a terrible problem with which our society is faced, and I don't see any immediate solution.

No further questions, Mr. Chairman.

Mr. ROGERS. Now, let me get down to a few questions, please. On your institution, NICHD, give us a breakdown of the exact money spent for child health, for aging, and for population control.

You could submit these figures for the record.

Dr. DUVAL. It is very easy to read off if you wish, Mr. Chairman. The population research from 1972 to 1973 and NICHD—

Dr. ROGERS. Maybe we could start with 1970. I am not sure what funds you have for population control then. Start with 1970, 1971,

1972, 1973. If you would give us a breakdown of the funds for those years.

Dr. DuVAL. I am sorry. I can't do it except for aging. Dr. LaVeck has it.

Dr. LA VECK. Starting with which year?

Mr. ROGERS. 1970.

Dr. LA VECK. 1970, in round figures: Child health, \$40 million; population, \$18.7 million; aging, \$8.1 million.

1971: Child health, \$46.5 million; population, \$28.3 million; aging \$9.3 million.

1972 estimates: Child health, \$54 million; population, \$39.3 million; aging \$11.2 million.

And the President's budget for 1973: Child health, \$58.5 million; population, \$44 million; aging, 12.6 million.

Aging research has received about 11 percent of the NICHD budget since 1964 when the Institute was first established.

Mr. ROGERS. You keep it at 11 percent?

Dr. LA VECK. We don't keep it at 11 percent, but it happened to work out that way.

Mr. ROGERS. It is still 11 percent of your budget?

Dr. LA VECK. That is right. Child health on the other hand, has gone down from 79 percent to 51 percent of the budget, and population research has increased from 10 percent to 38 percent. So we have made some changes in priority, giving additional priority to population research or family planning at the expense of child health. But aging has stayed at the same level and grown at the same rate as the rest of the NICHD.

Mr. ROGERS. It has not grown but simply stayed at the same percentage level.

Dr. LA VECK. There are additional dollars as well.

Mr. ROGERS. We have had inflation, too, haven't we?

Dr. LA VECK. That is right.

Mr. ROGERS. Now, who has control? Tell us generally your setup there and how the aging efforts are administered. Who controls them? Who makes the decisions? What organizational setup do you have?

Dr. LA VECK. We have in our extramural program a branch called "the Adult Development and Aging Branch."

Mr. ROGERS. You have extramural and intramural?

Dr. LA VECK. That is correct. The branch called the Adult Development and Aging Branch is one of the five branches of the Institute that deals with extramural support.

Mr. ROGERS. It is one of five extramural programs?

Dr. LA VECK. That is right.

Mr. ROGERS. Do they report to one man?

Dr. LA VECK. They report to an associate director who in turn reports to me.

Mr. ROGERS. So that you have an assistant who handles all of your extramural programs?

Dr. LA VECK. Including aging; that is correct.

Mr. ROGERS. What are the others that they handle?

Dr. LAVECK. Population and three different branches in child health. One deals with perinatal biology and infant mortality. Another is growth and development. The third is mental retardation.

Now, in the intramural program, we have the Gerontology Research Center located at Baltimore. That center has four branches and laboratories. We have a director of the center.

Mr. ROGERS. What are the four branches?

Dr. LAVECK. There is the Clinical Physiology Branch, the Laboratory of Behavioral Sciences, a Laboratory of Molecular Aging, and a Laboratory of Cellular and Comparative Physiology.

Mr. ROGERS. Give us the breakdown of the spending on those four activities, please.

Dr. LAVECK. We do not allocate funds in that manner. The total spending is \$2.7 million for the Gerontology Research Center.

Mr. ROGERS. \$2.7 million?

Dr. LAVECK. For 1973.

Mr. ROGERS. What was it for 1972?

Dr. LAVECK. \$2.6 million in 1972.

Mr. ROGERS. What about in 1971?

Dr. LAVECK. \$2.6 million.

Mr. ROGERS. And in 1970?

Dr. LAVECK. \$2.1 million.

Mr. ROGERS. Do you have 1969 there?

Dr. LAVECK. That is also \$2.1 million.

Mr. ROGERS. When was the center formed?

Dr. LAVECK. The center originated from a two-man group started in 1941.

Mr. ROGERS. It is in Baltimore?

Dr. LAVECK. Yes; at the Baltimore City Hospitals. A new building was dedicated in June of 1968.

Mr. ROGERS. How many people are working there?

Dr. LAVECK. There are 115 budgeted positions for the current year.

Mr. ROGERS. Are they all filled?

Dr. LAVECK. I think there are about eight vacancies. Most of these have been spoken for, however. In addition to those, we have many part-time people, visiting scientists and guest workers that bring the total number of people working at the center at any time to between 190 and 200 people.

Mr. ROGERS. Do you pay them?

Dr. LAVECK. The part-time people that are employees of the Institute we do pay. Many of the others are not paid by us.

Mr. ROGERS. In other words, you have 115 full-time people?

Dr. LAVECK. 115 full-time employees.

Mr. ROGERS. How many scientists or Ph.D.'s or master's degree people do you have?

Dr. LAVECK. About 50 percent of the employees are scientists in the Gerontology Research Center.

Mr. ROGERS. I think it might be well if you could give us for the record a breakdown on those personnel. (See p. 50.)

Now, what is the capacity of that center? Do you have all that you should be using, in your professional opinion?

Dr. LAVECK. No. This facility was designed to accommodate at least 300 full-time employees and perhaps 150 regional collaborative scientists.

Mr. ROGERS. So we have the facilities there, but we are not using them?

Dr. LAVECK. That is right.

Mr. ROGERS. Is there any reason why? Is it just funding?

Dr. LAVECK. Personnel ceilings.

Mr. ROGERS. And funding?

Dr. LAVECK. That goes with it.

Mr. ROGERS. Have requests been put in by your Institute to completely utilize this facility?

Dr. LAVECK. Yes.

Mr. ROGERS. And they have not been granted?

Dr. LAVECK. That is correct.

Mr. ROGERS. Why is this, Dr. DuVal?

Dr. DuVAL. The reason we were not able to grant the new employees this last year when we decided to upgrade that activity was because we were faced with taking something better than a 5-percent personnel cut across the programs of the Department, we were immediately put into a position of making a choice between two options.

One was not to fill the new program expanses of which this was a very legitimate addition. The other was to take them out in a reduction of the force that was already employed.

Clearly, we took the former. So we did not expand the program.

Mr. ROGERS. What about before your ceiling went in? You did not do any expanding?

Dr. DuVAL. The ceiling to which I had reference was this last year.

Mr. ROGERS. I am talking about before that. Of course, I guess you were not there.

Dr. DuVAL. That is true. But the Department, I think, started to crank up the program, starting with the move into the buildings in 1968, and has been planning to enlarge.

In the first year, we had 75 new positions. We were not able to put them in because that coincided with the employee cut.

Mr. ROGERS. So you got new positions but you couldn't use them?

Dr. DuVAL. Last year, that is right.

Mr. ROGERS. So there has not been much of crankup since 1968. It has been 21, 21, 26. So you are holding up funds. You have money you are not spending now, have you not?

Dr. LAVECK. We have a small amount of money.

Mr. ROGERS. \$800,000?

Dr. LAVECK. We don't have that much. There is \$400,000 that is still identified for the Gerontology Research Center that was identified with the positions. These funds will be used for contracts to help the center or for the purchase of equipment.

Mr. ROGERS. What is the money going to be used for? How can you use that? That was going to be personnel money, and you are going to use it to buy equipment with?

Dr. LAVECK. No, the \$400,000 were funds associated with the new positions for related costs, such as supplies and equipment. Prefer-

ably we will negotiate one or more contracts. Aged animals could be reared by an outside contractor and be shipped to the center. Aged animals are critical to the success of the program.

Mr. ROGERS. So you think that the best expenditure of the money, rather than getting more scientists working on the problem, is to grow animals?

Dr. LA VECK. I don't believe this is the best solution, no.

Mr. ROGERS. But it is the only alternative you have?

Dr. LA VECK. Yes.

Mr. ROGERS. Can't something be done about that, Dr. DuVal? You are the Assistant Secretary of Health. Don't you think that is the way the money ought to be spent?

Dr. DU VAL. I think that is the position taken by the Department.

Mr. ROGERS. I understand that. I am saying that is not the best way in which the money could be spent. Can't something be done about that?

Dr. DU VAL. If we feel the judgment can be made, we will make it.

Mr. ROGERS. When will you now make it?

Dr. DU VAL. We will know when the President speaks within the next few days.

Mr. ROGERS. We won't know until the President speaks on it?

Dr. DU VAL. I think we all know that, since the President spoke to his White House Conference on Aging, he wanted to do some additional things in the area of aging, and I think we do not know for sure what they will be until he makes his own statement.

Mr. ROGERS. I thought you all made up your recommendations there and you were the ones who would tell where the money ought to be spent. But it is OMB, again?

Dr. DU VAL. I don't think OMB, as far as I know, has influenced it at that moment.

Mr. ROGERS. I would think it has, if they are not letting you spend the money where you think it ought to be spent. I don't think we wish to move in that direction and make a commitment now that might be contradictory to the decision made by the President. We will be clear on this shortly.

Mr. CARTER. Isn't it true at the present time that you are formulating a plan which will be announced when the President approves this?

Dr. DU VAL. That is correct.

Mr. CARTER. Within the near future?

Dr. DU VAL. Yes.

Mr. CARTER. And when that plan is announced by the President, you will work to execute it?

Dr. DU VAL. That is correct.

Mr. ROGERS. As a matter of fact, I think the Congress in the last budget had to up the money for aging, didn't it?

Dr. LA VECK. That is correct.

Mr. ROGERS. Give us that story. What is the budget asked for, and how did you actually get your money?

Dr. LA VECK. In 1972, the increases for the Institute in the President's budget were primarily in population research. However, the increases for population research were greater than the increases for our total budget. This necessitated reductions in other programs within the Institute.

Since child health and population were both identified as initiative areas, aging was reduced to about \$7.2 million.

Congress restored that cut and gave additional funds for a total of \$11.2 million in the 1972 budget.

Mr. ROGERS. What has happened with that money then?

Dr. LAVECK. That money is being spent.

Mr. ROGERS. All of it, except for this withholding?

Dr. LAVECK. That is right. After we subtract \$800,000 for the 75 positions, we will spend \$11.2 million.

Mr. ROGERS. Let me ask your professional opinion: If we really put some money behind a research program, get it organized properly, can't we really find some answers to the problems of aging?

Dr. LAVECK. It is my professional opinion.

Mr. ROGERS. I am not asking for the Department cleared opinion.

Dr. LAVECK. Additional resources would make all the difference. I think there are many opportunities available.

Mr. ROGERS. I would like to ask you—but I won't put you on the spot—whether it would be helpful to have an Institute of Aging. I think I know the answer. What are the most promising areas of research that you are now going into?

Dr. LAVECK. I think one of the promising areas that we are just embarking on is the study of aging in women. I think there are a number of reasons—and some of these were brought out today at the meeting—as to why we are interested in this particular area. Women do live 7 or 8 years longer than men, and we don't really know why.

Women also encounter certain events in their lives that should be studied; namely, what happens when the husband retires, the child leaves the home, other behavioral and social aspects.

We also know that women have a certain softening of the bone that develops after the menopause. Yet, this disease and its treatment—and it is widely treated with a hormone—has really not been adequately studied.

We also would like to study the menopause in greater detail to get a better understanding of the biology of this important event. This is just one of a number of the major initiatives that I think should be launched soon.

Mr. ROGERS. How much money would we need? Have you made any estimate? Have you done any planning on what you think should be done in this area?

Dr. LAVECK. We have done some planning. I am sorry, I don't have those figures with me.

Mr. ROGERS. I am talking about what really ought to be done, not with a budget restraint. Have you done your planning on that idea, or do you do all of your planning under the umbrella of a budget restraint?

Dr. LAVECK. This planning was done with the Office of Science and Technology, and is a program that is not dependent on our projected budget.

Mr. ROGERS. Would you let us have those figures and what your planning is?

Dr. LAVECK. Yes.

(The following information was received for the record:)

OPPORTUNITIES IN AGING RESEARCH
RESEARCH BUDGET INCREMENTS
[In thousands]

	Fiscal year—			Total increment over fiscal year 1972 base
	1973	1974	1975-77 ¹	
Immunology.....	1,600	2,000	1,300	4,900
Cellular programming.....	1,400	2,300	3,300	7,000
Cellular responsiveness and physiological adaptation.....	1,600	2,700	3,300	7,600
Aging in women.....	1,400	2,400	1,300	5,100
Nutrition and environment.....	1,300	2,300	1,400	5,000
Social studies.....	1,600	2,400	3,400	7,400
Total.....	8,900	14,100	14,000	37,000

¹ This amount will be prorated over the 3 fiscal years.

Note: These research budget increments are on a fiscal year 1972 research funding base that will probably approximate \$8,993. Staff support is included in this figure.

Source: Report by NICHD to the Office of Science and Technology, Dec. 9, 1971.

Training budget increments:

Fiscal year:	
1973.....	1,000,000
1974.....	1,000,000
1975-77 ¹	2,000,000
Total increment over fiscal year 1972 base.....	4,000,000

Note: These training budget increments are on a fiscal year 1972 training funding base that will approximate \$2,650.

POSITION INCREMENTS

	Fiscal year—			Total increment over fiscal year 1972 base
	1973	1974	1975-77 ¹	
Immunology.....	13	21	15	49
Cellular programming.....	10	6	15	31
Cellular responsiveness and physiological adaptation.....	16	16	10	42
Aging in women.....	12	11	15	38
Nutrition and environment.....	8	8	15	31
Social studies.....	16	13	20	49
Extramural staff ²	5	5	15	25
Total.....	80	80	105	265

¹ These amounts will be prorated over the 3 fiscal years.

² All the positions above this line are for the Gerontology Research Center. The figures on this line represent positions that will have to be filled within the units that deal with grants and contracts to administer the expanded program.

Mr. ROGERS. What other areas offer promise?

What concerns me is that we are having people reach a certain age and they are having to be put into nursing homes, becoming senile and not being able to care of themselves. The experts I talk to say with a little research we can probably get some answers to this to change this whole pattern of living for the aged. Do you think this is possible?

Dr. LAVECK. I think it is possible.

Mr. ROGERS. Expand on that a little bit for the committee in those areas where you think real research needs to be done.

Dr. LAVECK. Another area is nutrition.

Dr. DUVAL. I think Dr. LaVeck wanted to talk a little bit first about the point you made and then he wants to talk to nutrition.

I think we already have started down this road because we have become sensitive to some of the same problems that you have just addressed yourself to, Mr. Chairman. We are deeply concerned that we understand so little about the settings in which an older person has to

make an accommodation. After all, most of the researchers—and I means this—most of the researchers are younger people and they are not necessarily able to translate their daily personal research experience into the real world. We must learn how to close that gap.

Through the National Institute of Mental Health, for example, we can support some 19 or 20 hospital improvement grants that are changing the physical and social environment conditions in institutionalized settings for the older people in an effort to try to help them feel more comfortable and, if I may use the expression Mr. Kyros used, a little less worthless. This is the area where, from the social and behavioral science viewpoint, we have much to do.

From the area of depression and suicide, it is very serious, and I am glad the Institute of Mental Health is beginning to focus more on that aspect of aging.

Then there is the whole field of nutrition. I didn't mean to take it away from my colleague.

Mr. ROGERS. Let me ask you this before you go into these areas which you think offer real promise. With the mental health problems of aging, we have set up a child mental health program to try to give some emphasis in the mental health programs for children in the Community Mental Health Centers, which this committee has tried to encourage the use of since we provided for their construction.

Now, why do you propose setting up this program for the elderly within the existing context and putting some emphasis on this? All of the experts this committee has ever heard said that the community mental health program is an advisable one because it can treat people in their own setting. You don't have to take them out and institutionalize them.

What I got from your testimony is that this is one of the things you are concerned with, the institutionalization of the aged. If we can help these problems in their own home settings, why shouldn't we do that? I don't understand your testimony in that regard.

Dr. DuVAL. Mr. Chairman, I can well understand the difference in our view in how to approach this. May I say immediately—and I am sure you know this—I have no disagreement with you whatever in this objective. The issue of whether or not your section G is the best way to get there is what is at issue.

I would simply take the viewpoint that to the extent my own profession has faulted, I have faulted, apropos the health care system being fragmented.

We want to set this facility up and treat them, and we set up separate ones. The authority and capacity to reach the same problem group that we are talking about this morning is already in our mental health centers. If we are not doing a job with it, I take that criticism. But we would not set up another one.

Mr. ROGERS. This is within the same setup and not different.

Dr. DuVAL. We have all of the authority we need, to do that right now.

Mr. ROGERS. You must not think you are doing a good job. Dr. Fleming and his group, appointed by the White House, has come out and said you ought to consider expanding the programs of the community mental health centers. This is what we have done in the bill.

Dr. DuVAL. Again, Mr. Chairman, I think you are confirming what I said. If we are not doing all we should do through the existing authority, then I think we must reexamine what we are not doing well.

On the other hand, we do not need additional authority. We can do it now. We have approximately 4 percent of the incoming patients now in community mental health centers who are over the age of 65. We know some are getting there. That statistic tells me already, since the incidence of mental illness in the elderly is higher than it is in the younger, we are not reaching that population.

But increasing the capability of that center to reach them is not necessarily going to bring them in. Whether it is the fear of institutionalization, whether it is lack of confidence in the system, we do not know why they won't come in. But we are not doing an effective job, and we are prepared to say that.

What I do think we ought to do is expand that effort right now in terms of aging through the existing community mental health center authority.

Mr. ROGERS. What we want to do is make sure you are going to do it. Since we gave you that authority previously and you didn't do it, if we put it in the law, we will get something done. That is the approach the committee has taken, which confirms what you have said—that you must do it. I am sure you, yourself, would want to.

We want to assure it, and that is why it is in the law. Since you want to do it, it is difficult to understand why you don't agree with the position of the committee on it.

Now, let us get back to this problem that we are talking about, doctor, as to what are the opportunities for really changing the lives of the elderly in this country with some research and some effort. That is what this committee wants to do.

Dr. LAVECK. I have mentioned aging in women. Another area of considerable importance is nutrition. Most of the work that has been done in this field is research with animals. This research shows that by restricting calories, for example, in certain animals one can prolong life. Work done in our own Gerontology Research Center using smaller animals, called rotifers, has substantiated this. There is a need to know what the effects of diet might be in prolonging life or improving the quality of life in humans.

Mr. ROGERS. Also, do you find it affects their ability within certain age categories, and certain foods?

Dr. LAVECK. This is a possibility. This has not been investigated yet.

Mr. ROGERS. You have not had an opportunity to investigate it yet. What funding are you giving now to nutrition?

Dr. LAVECK. I would estimate less than \$150,000 a year.

Mr. ROGERS. \$150,000 a year?

Dr. LAVECK. That is for extramural research grants and contracts only. We spend about \$500,000 a year in aging nutrition projects at the Gerontology Research Center. Also, projects in which nutrition is only a secondary consideration totaled another \$675,000 last year.

Mr. ROGERS. Do you think it would be advisable, assuming that we do set up an Institute of Aging, that we should have it be an Institute of Aging and Nutrition?

Dr. LAVECK. No, I would not.

Mr. ROGERS. Do you think you could cover nutritional problems sufficiently?

Dr. LAVECK. Yes. Almost every institute has a nutritional element to it now, anyway.

Mr. CARTER. If you would yield on that, Mr. Chairman.

We do have within the United States at the present time 30,000 homemaker health aides who go into the homes to explain nutrition and help the elderly citizens with their choosing of the food. There have been steps made, although they are not within the purview of this particular group of people.

Mr. ROGERS. Is it the Department of Agriculture or Labor?

Mr. CARTER. Agriculture.

Mr. ROGERS. I think those people go out and teach all sorts of people how to use their foods, don't they?

Mr. CARTER. They go into all homes, particularly those of the aging.

Mr. ROGERS. I don't think it is just particularly aging, is it?

Mr. CARTER. And they need more of them.

Mr. ROGERS. What is another?

Dr. LAVECK. Another area would be immunology in aging. We know as an individual ages his immunologic system becomes less effective in combating infectious diseases and cancer, for example. Basic studies are needed to get a better understanding of how immunology relates to aging.

Mr. ROGERS. What are you spending now in immunology?

Dr. LAVECK. I will have to supply this for the record.

Mr. ROGERS. Can you give us an estimate, and maybe you can supply it later.

(The following information was received for the record:)

RESEARCH AND TRAINING ON IMMUNOLOGY AND AGING SUPPORTED BY NICHD AT
TIME OF DR. DU VAL'S TESTIMONY

The Duke Program Project (HD 0668: An Integrated Investigation of Aging and the Aged) supports the work on immunology and aging of Dr. Buckley at \$24,480 for the year.

HD 0534, Immunology and Aging, supports the work of Dr. Walford at \$55,492 for the year.

HD 0668	\$24, 480
HD 0534	55, 492

Total research	79, 972
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HD 0296, Aging, supports the training in immunology and aging carried out by Dr. Makinodan at \$50,000 for the year.

HD 51871, Study Basic to Aging of Immunosurveillance and Cancer, supports the fellowship of Dr. Terman at \$11,283.

HD 0296	\$50, 000
HD 51871	11, 283

Total training	61, 283
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Total research	\$79, 972
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Total training	61, 283
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Total research and training	141, 255
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Dr. Lowe. We are just getting up a program in the aging. At the moment, I would say the dollar expenditure is negligible. Within the year, though, it should come close to half a million dollars.

Mr. ROGERS. Practically nothing now. Hopefully, a half million? Is this budgeted?

Dr. LOWE. Not a line item. But within the whole gerontology research center budget, the dollars are there.

Dr. LAVECK. Mr. Chairman, I am pointing out areas I feel need development because they are not being conducted or supported now.

Mr. ROGERS. I am trying to help you zero in, so we can do something. What else now?

Dr. LAVECK. Cellular programing in aging, including the study of DNA and RNA, must be pursued in a search for the cause of aging.

Mr. ROGERS. Have you had any important breakthroughs here?

Dr. LAVECK. We have had some very interesting findings. Scientists at the Gerontology Research Center have been interested in this area and have described certain defects in DNA and RNA which in turn, might explain why cells fail to function properly as we grow older.

Mr. ROGERS. Could you give us a rundown for the record of the promising points that have been developed in this?

(The following information was received for the record:)

INITIATIVES IN AGING RESEARCH

IMMUNOLOGY AND AGING

The immune system, acting in its role as a primary defense mechanism, is essential for preservation of life. It may also play a role, either passively or actively, in senescence and in ending life. It is known that activity of the immune system reaches a peak during adolescence and then declines in conjunction with involution of the thymus. In animals, this decline is so dramatic that aged individuals retain only one-tenth the immune capabilities of younger ones. The increasing susceptibility with age to infection, cancer, and autoimmune disease may be an expression of the declining function of the immune system which passively leads to aging. Alternatively, it has been proposed that cells become genetically diverse with time. They then become antigenic and stimulate antibody production, producing autoimmune disease with injury to normal cells. The ensuing aging and death would then represent the end result of an autoimmune process and an erroneously active immune system. Spectacular technical advances in immunology and immunochemistry make possible intensified research on the age related changes in the human immune system, and a search for ways of rejuvenating a declining immune mechanism, or of turning off an immune system bent on destroying itself.

CELLULAR PROGRAMING AND AGING

The genetic code, either intrinsically or in its translation, which contains the key to reproduction and life, may also provide answers to the biology of aging. The observation that there is a limited lifespan for each species suggests that the genetic code of any organism carries within it not only a program for on-going life processes, but also for aging and death. Support for theories of pre-programed aging has been provided by tissue culture studies which demonstrate that cells are capable of only a limited number of divisions, after which they age and die, and that cells from young animals can divide more often than those from old ones. The mechanisms for this apparent "turning off" of cell division at a certain point in time is unknown. Research in molecular genetics has shown that in bacteria one portion of the DNA genetic code can turn off another portion. If similar events occur in higher animals, they could constitute the aging or life-limiting mechanism, and identification of factors influencing the process at this most basic of all levels could lead to modification of the aging process.

Translation of the genetic code is another possible source of error inducing aging. DNA replication during cell division, production of messenger RNA by transcription from DNA, and synthesis of protein by translation from messenger RNA are all theoretical sites for errors, the deleterious effects of which could lead to cellular inefficiency, aging, and death. Advances in molecular biology have now provided techniques for investigating each of these steps in the cellular transfer of genetic information. Application of these techniques has already demonstrated that slightly increased concentrations of metal ions such as occurs with aging can induce such errors in both RNA and DNA. Intensified research may well indicate other factors that are involved, and the role of the entire process of information transfer in aging.

CELLULAR RESPONSIVENESS AND PHYSIOLOGICAL ADAPTIVE MECHANISMS

A physiological characteristic of aging is a decrease in response to stimuli at the cellular as well as at the organism level. Old animals require much more time than young ones to synthesize certain enzymes though eventually the quantity produced is not abnormal. As a result, while the older animal can perform a designated metabolic task the response time is prolonged. Many cellular processes and all tissues operate under hormonal control and are inducible by drugs, thus permitting a theoretical therapeutic method of compensating for rate changes due to aging. In addition to rate of enzyme production, the amount of substrate present also influences the final production time. Drugs are available which can increase the amount of substrate in the cell for the enzyme to use, and thereby compensate for the delay in product manufacture due to aging. Lysosomes, essential for maintenance of cellular homeostasis, also appear to become less efficient with age, accumulate lipofuscin pigment, and rupture, injuring the cell and accelerating aging. Techniques which would improve function, modify pigment accumulation, or prevent rupture of lysosomes, might also slow the aging process. Research in all these areas is in early stages, but holds promise not only for understanding but also for modifying cell responsiveness or compensating for the decline in adaptiveness found to accompany aging.

AGING IN WOMEN

In a number of aspects, aging in women differs from that of men. Women generally live seven to eight years longer than men, and while scientists have postulated that the difference is related to additional genetic material on the X chromosome, to a better immune system, or to hormonal effects, this biologic fact of life remains unexplained. Although a male counterpart exists, adjustments women are called upon to make at certain stages in their lives, such as when the children leave home, or the spouse retires or dies, present special problems for the female. Osteoporosis in old age is a physiologic alteration confined primarily to women. A unique event, peculiar to female aging, is the menopause. This phenomenon, initiated unfailingly by an unknown biological clock, indicates cessation of ovulation with accompanying profound psychologic and hormonal changes, and provides a biologic marker for aging. Despite the fact that before menopause women appear relatively protected from age-related degenerative cardiovascular disease and certain other illnesses compared to men, and afterward follow the male incidence pattern, the mechanism producing this effect remains unknown and therefore unexploited. Increased concentration on female aging research is required to establish a scientific base for intervention to the benefit of both sexes.

NUTRITIONAL AND ENVIRONMENTAL FACTORS IN AGING

With stark reality man has recently become aware of his increasing capacity to alter his environment, and of the impact of environmental influences on the quality of life. Though less dramatic than nuclear tests, sonic booms, and mercury levels in fish, interest has reawakened in environmental and nutritional effects on aging. Scientists have long known that reduced environmental temperature markedly increases the lifespan of cold-blooded animals, and that dietary restriction can increase the lifespan of mammals. The governing mechanisms are unknown, but may be related either to altered rates of readout of the

genetic code or slowed metabolism or both. Radiation or exposure to toxic chemicals may damage DNA, thereby producing biochemical impairments leading to aging or cell death. These interactions are under increasing scrutiny as sources of such potential damage multiply. The science of nutrition, having identified dietary factors required for health, is turning increasingly to search for diets designed to modify age-related diseases or that affect the aging process itself. Mounting public concern about the impact of environmental and nutritional factors on life and health mandates further emphasis on aging research in this area.

SOCIAL ASPECTS OF AGING

Aging is in many ways a social as well as a physiological process, though research has tended to emphasize the latter. As the proportion of the elderly in the population increases and family patterns become more nuclear and mobile, both older individuals and social institutions will be forced to adapt. Yet there exists at present no scientific basis on which to plan ways in which the individual can best be prepared for retirement years, or how societal institutions might most beneficially serve the elderly. Research is needed to identify factors in earlier years that contribute to "successful" retirement and aging and lead to relatively independent and involved senior citizenship rather than to dependence and isolation. Institutions such as homes for the aged and retirement communities also require study to determine characteristics that can provide the best environment for the elderly forced into varying degrees of dependence.

Mr. ROGERS. Now, what is the money you are spending on cellular programming?

Dr. LAVECK. We are spending about a million and a half dollars in the extramural program. This has not been neglected as some of the others, but is ripe for expansion.

Mr. ROGERS. What could you adequately use if you had no budget, in your professional judgment?

Dr. LAVECK. I would prefer to submit this for the record.

Mr. ROGERS. Could you give us an overall estimate?

Dr. LAVECK. \$4 million would be a rough estimate over the next 2 years.

While you are on this, Mr. Chairman, if I could make another observation, I know you would want it to surface. We have not found that the scientific community outside has been overwhelmingly excited about research in this area. I would only have the record show that, while we have an interest in trying to stimulate them, the number of proposals, for example, that we received last year that related to aging, was only 103 for the entire Institute. This indicates a paucity of interest relatively speaking.

Mr. ROGERS. Don't you think that is probably geared to the fact they know the funding is so low that it probably wouldn't be approved anyhow?

Dr. LAVECK. I don't think so.

Mr. ROGERS. What are we doing in the training of scientists to work on this?

Dr. LAVECK. This is the key issue the Institute has been concerned with. We have been funding to the extent of about \$2.5 million a year in the support of individuals trained in aging.

Dr. DUVAL. We have 27 programs now operational with over 200 students, and this is exclusive of the training programs operated by the National Institute of Mental Health, where they are spending almost \$3 million in psychiatric and social work, and so forth. So the product output of those training programs recently mounted will, of

course, constitute a cadre of people who will help us to achieve their common objective when they are in place.

Mr. ROGERS. Tell me about this training. How long have you been running this? How many have you trained? What has happened to these people you have trained?

Dr. LAVECK. In 1964, when the Institute was established, we spent about \$300,000 in training. It was very apparent then that we had to make a big push in this area if we were to get more and better research applications.

Since 1967, we have spent well over \$2 million each year for training purposes. About 200 students are in training at any one time. Each trainee is in training for about 3 years. However, since most of our training grants were not started until 1966, it is only in the last few years that very many students have been graduating. There are now 191 individuals who have completed our training program. I would estimate that about 500 people have entered the program since it started.

I would like to submit more exact figures for the record, Mr. Chairman.

Mr. ROGERS. All right.

(The following information was received for the record:)

Annual Support for Research Training in Aging (fiscal years 1964-73)

1964	-----	\$301, 000
1965	-----	567, 000
1966	-----	1, 450, 000
1967	-----	2, 089, 000
1968	-----	2, 197, 000
1969	-----	2, 286, 000
1970	-----	2, 314, 000
1971	-----	2, 232, 000
1972 (estimate)	-----	2, 450, 000
1973 (estimate)	-----	2, 450, 000

Mr. ROGERS. It takes 3 years to go through the training program you want?

Dr. LAVECK. 3 or more years.

Mr. ROGERS. What support do you give them?

Dr. LAVECK. It depends on whether they are predoctoral or postdoctoral candidates. There is a stipend schedule that the NIH follows for all trainees.

Mr. ROGERS. Are you funding other than doctorates in this, Doctor?

Dr. LAVECK. We fund predoctoral students who are working toward their Ph.D. If you mean people working for a lesser degree, generally not.

Mr. ROGERS. You are trying to get just the doctorate group trained?

Dr. LAVECK. We are training those who will pursue careers in research.

Mr. ROGERS. Have these 500 or 600 basically gotten their doctorates?

Dr. LAVECK. No sir. Only 191 have completed their training. Of these 119 received their Ph.D.'s, 54 were postdoctoral students, and 18 were Master's students.

Mr. ROGERS. In what areas? Aging, nutrition?

Dr. LAVECK. There is training in at least 15 different disciplines, including sociology, demography, economics, and psychology in addition to the biological sciences.

Mr. ROGERS. I think it would be well if you would list those, and I would like to have for the record what happened to these people you have trained.

Is there any obligation for them to serve in the field of aging and in the research field of aging and do they have to make any commitment for that?

Dr. LAVECK. They do not have to make a commitment. We know almost all of them go into either teaching or research. I can't say how many go into research exclusively.

Mr. ROGERS. Or how many are teaching in aging problems?

Dr. LAVECK. Most are in teaching or research.

(The following information was received for the record:)

GRADUATES OF NICHD TRAINING PROGRAMS IN AGING

There are 191 individuals who have completed our training programs. Of these 18 received the Master's Degree, 119 received the Ph.D., and 54 were post-doctoral students.

There were 63 Ph.D.'s in psychology and human development and their current activities are as listed below.

Teaching only	8
Research (also some teaching)	38
Other (administration, practice, etc.)	17
Total	63

There were 28 Ph.D.'s in the social sciences, and their current activities are listed below:

Teaching only	6
Research (also some teaching)	14
Other	8
Total	28

There were 28 Ph.D.'s in the biological sciences, and their current activities are listed below:

Teaching only	2
Research (also some teaching)	22
Other	4
Total	28

There are 54 individuals who have completed post-doctoral programs.

There were 10 post-doctoral trainees in sociology, and their current activities are as listed below:

Teaching only	4
Research (also some teaching)	6
Total	10

There are 44 individuals who have completed post-doctoral programs in biological sciences, and their current activities are listed below:

Teaching only	4
Research (also some teaching)	34
Other	6
Total	44

The distribution of graduates by discipline was as follows:

Discipline:	Percent of graduates
Psychology and human development-----	45
Sociology -----	17
Cellular biology-----	12
Physiology -----	8
Biochemistry -----	5
Anatomy -----	3
Architecture -----	2
Social work -----	2
Microbiology -----	1
Anthropology -----	1
Economics -----	1
Public administration-----	1
Zoology -----	1
Anesthesiology -----	1
Pathology -----	1
Endocrinology -----	1

Mr. ROGERS. So we don't know whether we are really putting them to work in the area for which we are training them.

Dr. LAVECK. That is right. Some may go into other fields.

Mr. ROGERS. I think there was some Senate testimony about a man you trained and spent \$60,000 on who couldn't even get a job with you after you trained him.

Dr. LAVECK. He could not get a job with us, that is correct.

Mr. ROGERS. He wanted to, he was trained for that, and you spent \$60,000 on him but there was no place for him to use that talent, is that correct?

Dr. LAVECK. That is correct.

Mr. ROGERS. Is that a very good policy?

Dr. LAVECK. As I said, we did not have positions for him or anyone else.

Mr. ROGERS. In your professional judgment, would you like to have had such a position for him? Could you have used him in your operation?

Dr. LAVECK. I think we could have used him.

Dr. DUVAL. Mr. Chairman, so there would be no misimpression, the point that you developed, the National Institute of Mental Health does train a lot of people who are not doctoral candidates. They are social workers, and so forth. They do not have the doctoral degree. The training program supported by Dr. LaVeck is doctoral and pre-doctoral.

Mr. ROGERS. That is what I understood.

Dr. DUVAL. We also trained many people not with a doctorate degree.

Mr. ROGERS. That is done in another institute and not just the NICHD?

Dr. DUVAL. That is correct.

Mr. ROGERS. Have any plans been made to bring the research center to capacity and proper use?

Dr. LAVECK. We certainly hope over the years to do so.

Mr. ROGERS. I know, but have you got any plans to do it? We all hope over the years, but have you got any plans to bring it to proper use?

Dr. DuVAL. I think we will know a lot more about how long it takes to get it up to potential capability as soon as the President has spoken.

Mr. ROGERS. As soon as OMB clears it. I know. We will go into that later.

What is the representation of the experts on aging on the NICHD Advisory Council?

Dr. LAVECK. Throughout the years we usually have had three members representing aging on the Council, which consists of 17 members, including ex officio members.

This year for the first time we have had only two.

Mr. ROGERS. Who are they?

Dr. LAVECK. Dr. Marjorie Williams, with the Veterans' Administration, and Dean Walter Beatty, from the School of Social Work at Syracuse University.

Mr. ROGERS. Is Dr. Williams just the representative of the Administrator who is not necessarily geared to the problem of aging, but for Veterans?

Dr. LAVECK. She is a scientist, a pathologist and deeply interested in aging. She represents aging at the Advisory Council meetings.

Mr. ROGERS. So that is her purpose in being there.

Dr. LAVECK. That is right.

Mr. ROGERS. So you have two instead of three. Is there any reason why you don't have three?

Dr. DuVAL. We just lost one. His term was up.

Mr. ROGERS. Has he been reappointed?

Dr. DuVAL. We have an appointment, and it is now in the process of being made.

Mr. ROGERS. What percentage is that?

Dr. DuVAL. Twenty-five percent. The group is 12, I am sorry, with the ex officio it goes up to 16.

Mr. ROGERS. So what percentage is that?

Dr. DuVAL. Sixteen.

Mr. ROGERS. Do they act as a committee?

Dr. LAVECK. They do not act as a committee, but I think if people were to visit our council meetings they would see however, all 17 members are deeply interested in aging, as well as population research and child health. I have been amazed to see Council members disregard their discipline as they advise us. Some of the strongest supporters for aging research, for example, are trained in child health.

So this has not presented a problem. We have never had any difficulty in making any priority judgments that would favor aging, because of the makeup of our Council.

Mr. ROGERS. As I understand you have an associate director who handles the aging matters in the Institute.

Dr. LAVECK. We have an associate director who handles intramural research, which includes aging.

Mr. ROGERS. What is the extent of the intramural and extramural funding for aging?

Dr. LAVECK. For which year?

Mr. ROGERS. The way we did it before.

Dr. DUVAL. For intramural it is going from \$2.6 million to \$2.7 million. For extramural it is going from \$4.7 million to \$5.9 million.

Mr. ROGERS. Now, what about 1971 and 1970? This is intramural now.

Dr. LAVECK. In 1971 intramural was \$2.6 million, and for 1970 \$2.1 million.

Mr. ROGERS. Extramural now on those same years.

Dr. LAVECK. The extramural budget is broken down by research grants, contracts and training grants. If you prefer, I will submit this for the record.

Mr. ROGERS. I think it is all right to break it down for us that way.

Dr. LAVECK. 1970 aging research grants, \$3.2 million; training in aging, \$2.3 million; research contracts, \$0.458 million.

Mr. ROGERS. For 1971?

Dr. LAVECK. Aging research grants, \$3.8 million; training, \$2.2 million; research contracts, \$240,000.

Mr. ROGERS. The next year, 1972.

Dr. LAVECK. 1972, for aging research grants, \$4.7 million; aging training grants, \$2.5 million; research contracts, \$900,000.

Mr. ROGERS. And for 1973?

Dr. LAVECK. For aging research grants, \$6 million; training, \$2,450,000; research contracts, \$900,000.

Mr. ROGERS. Now the research that you mentioned there is all extramural. Do you consider your center extramural or intramural?

Dr. LAVECK. The Gerontology Research Center is intramural.

Mr. ROGERS. And that has gone from \$4.7 million to \$5.9 million?

Dr. LAVECK. No, sir. You are quoting figures for our extramural program. That is not associated with the Gerontology Research Center or intramural program.

Mr. ROGERS. What is the intramural then?

Dr. LAVECK. The intramural for 1972 is \$2,643,000.

Mr. ROGERS. I think you gave us those figures, because I broke them down for the Institute. And that is where all of your intramural funds go?

Dr. LAVECK. That is right.

Mr. ROGERS. Now how many people do you have working? I think you said 115 scientists.

Dr. LAVECK. Yes.

Mr. ROGERS. That is the complete effort?

Dr. LAVECK. That is the complete effort in the intramural program. We have eleven extramural staff members, six of whom are scientists.

Mr. ROGERS. What are the others? Secretaries or technicians?

Dr. LAVECK. Secretaries.

Mr. ROGERS. They don't do too much in research, do they?

Dr. LAVECK. No, they do not but they are essential for extramural operations.

Mr. ROGERS. So you have five people there. How many of the 115 are secretaries in the Institute?

Dr. LAVECK. In the intramural program we would have very few secretaries in proportion to the extramural where there is a good deal of paper work that has to be done. I think there are seven secretaries.

Mr. ROGERS. Others are technicians or lab people?

Dr. LAVECK. That is correct, and a few administrative people.

Mr. ROGERS. About how many administrative would you have?

Dr. LAVECK. About six.

Mr. ROGERS. Who makes the decisions as to what research will be done at the Center?

Dr. LAVECK. For the NIH in general, the decisions as to what research is going to be done generally are made by the scientists themselves, as long as the research fits within the general goal of the Institute. We would like to have scientists work on problems that they themselves are interested in.

Mr. ROGERS. This is at your Center as well?

Dr. LAVECK. Yes, sir.

Mr. ROGERS. Could you give us a breakdown as to what the fields are of the scientists in their programing?

Dr. LAVECK. For the record?

Mr. ROGERS. Yes. And how many are working in that particular area.

(The following information was received for the record:)

Categories of personnel at Gerontology Research Center, Mar. 1, 1972

Scientists:

M.D. -----	20
Ph. D. -----	23
M.S. -----	0

Total ----- 43

Nonscientists:

Laboratory technical support -----	43
Animal support (veterinary science) -----	9
Administration and clerical -----	20

72

Total ----- 115

GERONTOLOGY RESEARCH CENTER STAFF BUDGETED POSITIONS, MAR. 1, 1972

Discipline area	Professional	Technical	Other
Physiology -----	7	0	0
Endocrinology -----	2	0	0
Sociology -----	1	0	0
Psychology -----	8	4	0
Immunology -----	4	1	0
Nutrition -----	2	0	0
Biology -----	3	9	0
Chemistry -----	7	12	0
Biochemistry -----	6	0	0
Clinical -----	5	5	0
Veterinary science -----	1	9	0
Technical development -----	1	6	0
Photography -----	1	1	0
Administrative and clerical -----	0	0	20
Total -----	48	47	20
Grand total, budgeted positions -----			115

Mr. ROGERS. Now, were there any other areas of possible breakthroughs?

Dr. LA VECK. I think I covered the major ones.

Mr. ROGERS. The major ones that you feel will help.

Incidentally, while I am reminded, if I could change the thrust of the questioning for a moment, you mentioned this booklet. Have you looked to see if there has been an increase in the death rate since 1960?

Dr. DU VAL. Yes. It is apparent from a relatively fast glance at this book, the point of the chapter to which you had reference that there has been a flattening out of the mortality in men in their 50's. Then in the 1960's it started up generally by age group.

The reason that the mortality rate in men is increasing, depending on the age bracket, which is true in virtually all age brackets, is because of motor vehicle deaths, malignancies, disease of the lungs, liver disease and suicide, that the growth rate past childhood, the opportunity to live to 65 or 69, is not increasing, because the age bracket mortality rate has increased from the last 10 or 12 years from disease and trauma.

Mr. ROGERS. So it is increasing?

Dr. DU VAL. Yes.

Mr. ROGERS. This is what we ought to be addressing ourselves to, I presume?

Dr. LA VECK. We presume we are through the other National Institutes of Health. These are all diseases and traumas.

Mr. ROGERS. We are not very successful, then.

Dr. DU VAL. I think that illustrates, as well as anything else could, something that I know you have shared a concern with us about, and that must be one that one must be careful about as to the element of overpromises. You can make a tremendous research in effort in these areas and not make as much headway as measured by the mortality rates as one would hope. I don't think that means we should not point out the effort.

Mr. ROGERS. Don't you think one of the reasons we are having a lot of this change in statistics is the fact that we really don't evaluate many of our health programs on the most important factors, whether we are really saving someone's life or not, or looking at the death rates?

In hospital utilization, we are saying this hospital is 75 or 80 percent and that shows what kind of a job that hospital is doing. We have not really addressed ourselves to the problem of looking at what happens to the guy when he goes in the hospital and comes out.

Dr. DU VAL. I submit that may be absolutely valid, but at the same time there is this rather precipitously rapid movement of society and new things are added to our daily lives. By the time you have an answer to one thing which is going to impact on the mortality table, you have introduced something such as the motorcycle, which then undoes it.

So I don't think it is a clear one-and-one-makes-two proposition. That would get the point I would want to make.

Mr. ROGERS. Except I am not sure that the motorcycle or automobile has been varying that much. It has been a pretty steady percentage of deaths within the last few years.

Dr. DuVAL. This is not true. It is increasing, and in fact the number 1 cause——

Mr. ROGERS. I say percentagewise.

Dr. DuVAL. It depends on the age group. That is the point of these tables.

Mr. ROGERS. But I thought you said it went through all of the age groups.

Dr. DuVAL. It does. May I remind the chairman that the President's Health Message to Congress, delivered a week ago, does call for a brand-new investment in the health information system in order to get up to the surface the kinds of facts to which you have just made reference.

Mr. ROGERS. Does Dr. Shock make the decisions on any interamural research? I thought you kind of directed intramural research and let your extramural kind of go helter-skelter.

Dr. DuVAL. By and large targeted research, or directed research, are conducted through contracts, for the most part. That is true of all of the National Institutes of Health. There is some targeting in the extramural programs to the extent that scientific review committees may weight their application reviews, based on what currently are the best interests of society. But there is generally little of that in the extramural program.

There is some targeting in the intramural program. But, as Dr. LaVeck has said, for the most part the ingenuity and the capacity of the individual scientist pretty much determines what goes in on the intramural program.

Mr. ROGERS. Right now you are not doing anything in immunology?

Dr. DuVAL. I think if you were to say we are not doing as much in immunology, specifically in the intramural program in Baltimore, that would be correct, but the amount of applicability that is going on in the Institute of General and Medical Sciences is very great.

Mr. ROGERS. I can understand that. We are doing immunology in cancer and other things. But this is for aging. We have a center for it. I understand that is your solution, to have a center. Wasn't that in your testimony, to have a center?

Dr. DuVAL. That is correct.

Mr. ROGERS. We have already got a center.

Dr. DuVAL. The center, of course, is an extramural program. The center you are talking about is intramural.

Mr. ROGERS. You are just going to put on extramural?

Dr. DuVAL. We are going to draw it together and do a better job extramurally, as well as what is going on in the NIH and other agencies, NAC, and VA.

There is a lot of research going on that relates definitely to aging. I do not think we do an adequate job in correlating and coordinating what other departments are doing.

Mr. ROGERS. That is what we want to give you the authority to do. You know you can't do it without some authority of law to center these things in. You have been in government long enough now to

know that you can't just say everybody come over and tell us what you are doing and we will kind of help you.

Dr. Jaffe started out that way, but he has changed his mind, I think, as well.

I would say, Mr. Secretary, that you are too sophisticated a man in government and the scientific field to really believe that.

Dr. DuVAL. Dr. Jaffe enjoys a superb relationship with these other departments.

Mr. ROGERS. That is not a sufficient relationship in government to get action.

But I think maybe after the President makes his speech you can come back and tell us that you think this is not such a bad idea, since it has been recommended three times in the report of this White House Conference on Aging. I would hope that would be so.

Now let me ask you this: Do Bureau heads in Baltimore report to Dr. Shock or someone else?

Dr. LAVECK. The branch chiefs report to the Scientific Director, who is Dr. Charles Lowe. All branch chiefs report to the scientific director whether in Baltimore or Bethesda.

Mr. ROGERS. What branch chiefs do you have out in Baltimore?

Dr. LAVECK. I mentioned the four branches and laboratories.

Mr. ROGERS. So they don't go to the head of your center?

Dr. LAVECK. Dr. Shock has other responsibilities for example, he is responsible for the regional aspects of the center. We have guest scientists from universities and hospitals and Dr. Shock is in charge of scientific management of this collaborative program.

Other responsibilities are to review what the branch chiefs are doing, work with them on day-to-day operations, and make comments on the budget. In fact his opinion is sought on research and planning.

So Dr. Shock does have input as to budgetary needs, positions, and planning for the center. But Dr. Lowe has final authority.

Mr. ROGERS. You are running a center, but the man who is in charge of the center is not really running the branches operating at the center?

Dr. LAVECK. That is correct.

Mr. ROGERS. Is that a good administrative setup? It doesn't sound logical to me.

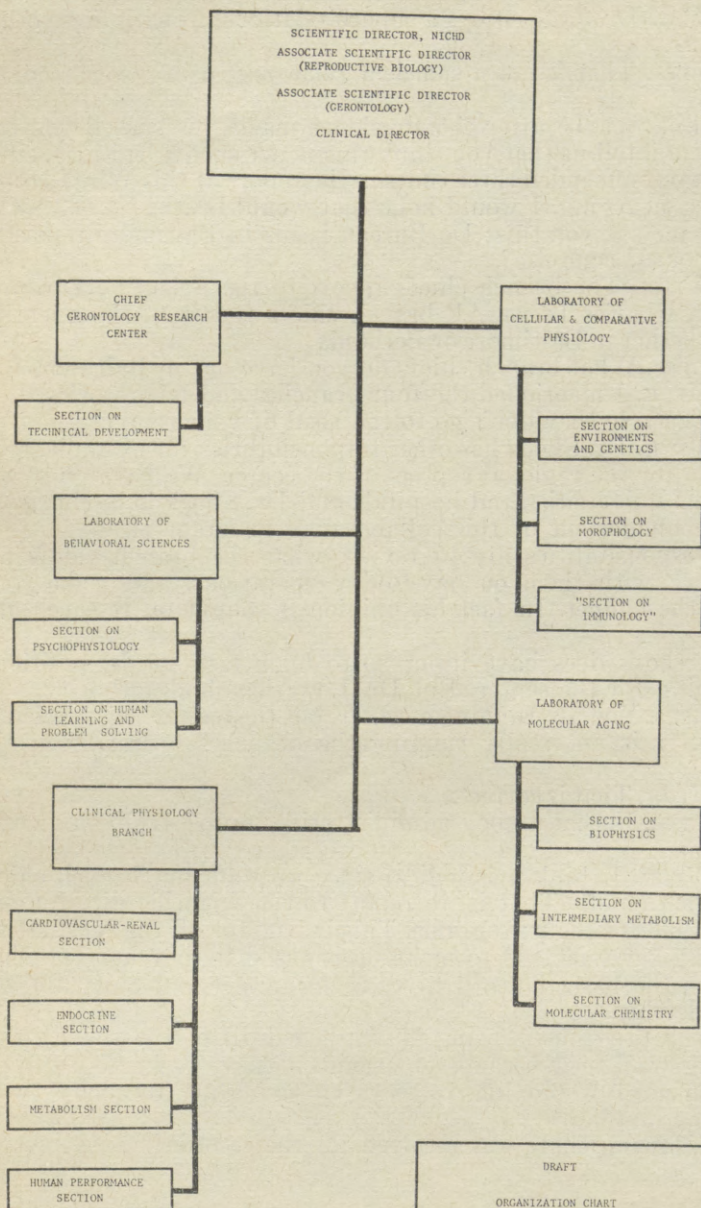
Dr. LAVECK. I think it is logical since we want our branch chiefs to be branch chiefs. That is, to report to the scientific director and be responsible for their programs. This is true for all the NIH. It requires these key scientists to make decisions that they have not had to make in the past. Thus, it gives them more opportunity for scientific leadership.

I feel our program is being strengthened all of the time, rather than being weakened because of organization.

Mr. ROGERS. I would like to see a chart of line authority there. That seems unusual.

(The following chart was received for the record:)

Gerontology Research Center
portion of
Office of the Scientific Director, NICHD
Organization Chart



DRAFT
ORGANIZATION CHART
OFFICE OF THE SCIENTIFIC DIRECTOR, NICHD

January 1, 1972

Dr. DuVAL. I think many professional institutions are set up that way, Mr. Chairman. As you know, all responsibilities, for example, operate that way. In the hospital that receives the service, the staff don't report to the hospital administrator.

Mr. ROGERS. That is not the exact same thing as a research center when you are trying to coordinate research. I would think it is somewhat different, isn't it?

Dr. DuVAL. No, sir. I would constitute it the opposite way. I would say that the scientific endeavor would have its own administrative structure which would be independent of the administration of the Institute in terms of the support services.

Mr. ROGERS. I thought the very purpose of scientific research, this whole Institute was scientific research.

Dr. DuVAL. It is, but it does have multiple units, some of which interrelate, and some which do not.

Mr. ROGERS. It is all on aging, isn't it?

Dr. DuVAL. Yes, but there are administrative functions which go along with this, such as the support of animal quarters, the overseeing of 25 or 30 beds in the Baltimore City Hospital.

There are multiple things taking place up there that require different structures to take care of them. I would only submit that the traditional administrative setup to which you earlier made reference is not always applicable in the scientific setting.

Mr. ROGERS. The dean of the university doesn't have all of his department heads reporting to the president of the university, does he?

Dr. DuVAL. He may not have them reporting to him, either. It depends on the structure in that university, and how it was set up.

Mr. ROGERS. I don't think he would have much of a school if he didn't have some control over what went on in the school, would he?

Dr. DuVAL. Yes; if you assign him all of the academic functions in the school, the academic departments would report to him. It would be, for example, the library. Animal centers would not report to the dean of medicine, for example.

Mr. ROGERS. Maybe not the dean of medicine, but the dean of the medical college.

Dr. DuVAL. It is the same thing. I used the two names interchangeably.

Mr. ROGERS. You mean the dean of the medical college would have no control over the use of the library or anything like that?

Dr. DuVAL. He might or might not, depending on the setup. The library might also serve equally the college of nursing and that dean would have coequal status with the dean of medicine in determining how the library would be used.

The same would be true for dentistry and pharmacy.

Mr. ROGERS. But this is all aging, and it is not to be nursing or medicine or dentistry. This is for aging research. You are telling me that man should not be over all of you?

Dr. DuVAL. I think our differences are semantic only. You would say it is all aging, and I would say in the medical center it is for all health professions, too. But that doesn't mean when you get down to operating it should not be split out. There are certain administrative advantages to splitting out certain things.

Mr. ROGERS. So you are saying that the heads of research centers really ought not to be concerned with research but simply with administration? Is that what you are telling me?

Dr. DuVAL. No. I hope I didn't tell you that, Mr. Chairman.

Mr. ROGERS. That is what I get from this. You say all of the heads of research don't report to the head of your research center. They go to some guy up here at the institute. Now I can't conceive of you putting a man in charge of a research center and then giving him no say-so about the research, but just putting him there to fix the animals or give them some food or whatever it may be.

Is this the setup?

Dr. DuVAL. I think, Mr. Chairman, that the men who are the unit directors, in effect, are responsible for more than one chief. They are line reporting scientifically or academically to the science director on the campus of the National Institutes of Health. In all institutions that has become the custom because it seems to work best. For example, all of the academic institutions may in fact bypass the president and report to a provost of the university for a particular purpose.

Mr. ROGERS. Bypass the dean?

Dr. DuVAL. Yes. Or the dean may report to the provost.

Mr. ROGERS. I would think the dean might, yes. But I would be shocked if the dean doesn't have any say-so in his school.

Dr. DuVAL. The dean by custom was an academic position and not administrative. He was always the faculty member which was asked to run the school that year.

Mr. ROGERS. But he does not now?

Dr. DuVAL. He is increasingly doing both, and a few other things.

Mr. ROGERS. There is no point going on in that.

Dr. DuVAL. And serving in Washington.

Mr. ROGERS. I am amazed that the head doesn't have more input as to what is going on.

Now, what are the present plans of the administration for implementing the recommendations of the White House Conference on Aging with respect to research and physical and mental health care?

Dr. DuVAL. Those would be articulated within the next few days.

Mr. ROGERS. You are not permitted to say?

Dr. DuVAL. We are not. We regret this. I think you know we made an effort to see if your own schedule would permit us to come a little bit later so we could include that in the testimony.

Mr. ROGERS. What other activities need to be covered in our program for the aged? Can you think of any we are not presently planning?

Dr. LaVECK. I think we include most of the important areas in aging or have plans to do so. Of course, things change with time. What may be low priority now might be a major effort in a short time.

Mr. ROGERS. How many on your staff are devoting their full-time to the problems of the aging, would you say?

Dr. LaVECK. Approximately 130 people.

Mr. ROGERS. That is counting the ones out at the Center?

Dr. LaVECK. That is right.

Mr. ROGERS. And 15 more?

Dr. LaVECK. That is a conservative estimate. It may be much higher.

Mr. ROGERS. And you might put this out for the record.

(The following information was received for the record:)

PERSONNEL INVOLVED IN AGING RESEARCH, FISCAL YEAR 1972 ESTIMATE—NATIONAL INSTITUTE OF CHILD HEALTH AND HUMAN DEVELOPMENT

Note: Employees directly involved in aging research, 134—Employees at the Gerontology Research Center, 115; professional, 50; clerical/wage board, 22; technical, 43; other personnel involved in aging research activities in the Institute, 10.

	Professional	Clerical/ wage board	Technical	Total
Adult Development and aging branch.....	6	5	-----	11
Gerontology Research Center (IR).....	50	22	43	115
Grants and contract Management.....	6	2	-----	8
Total.....	62	29	43	134

Mr. ROGERS. Who does the planning for the programs for the aging?

Dr. LAVECK. The planning is generally carried out within the Institute by the Associate Directors of the Institute, including the Scientific Director, the Director of extramural programs and myself. These plans are then presented to Dr. Marston at the NIH for his review. Then they go to the Department. This is the usual procedure.

Mr. ROGERS. Do you have any one particularly assigned to do programming for the aged?

Dr. LAVECK. To do planning for the aged? We have a very small planning group but they have not been taking part in long-range planning for aging.

I should mention, however, that our Council is deeply involved in planning and it was the Council's decision to develop aging research centers at universities.

Mr. ROGERS. I understand that, but I am saying within the Agency itself what capability and personnel are actually devoting their full time to the planning for the aged?

Dr. LAVECK. Other than the senior members of the staff, we have no major planning unit.

Mr. ROGERS. Is there any current plan in existence for the aging?

Dr. LAVECK. Yes, there is. There is the plan that I referred to earlier that we developed with the Office of Science and Technology. It lays out for a period of several years the major areas that should be exploited in the field of aging.

Mr. ROGERS. Along with funding?

Dr. LAVECK. Along with funding.

Mr. ROGERS. Dr. Duval, who does planning for the Department in the aging?

Dr. DUVAL. I don't think I can add to the answer given to you by Dr. LaVeck. We, by and large, draw our advice as to what should constitute the advice that is translated into planning from three sources. He has already mentioned his advisory council. There is the National Advisory Health Council that is advisory to the Secretary and me with regard to health matters.

The third, of course, is the will of Congress. As one detects areas where we have not caught up to the times and where there is the important thrust to put emphasis, we try to translate that through the intramural and contracting programs into an appropriate plan.

I might add the Administration on Aging, as you know, and the special consultants at the White House, the White House Conference on Aging, have themselves independently generated ideas that we think are very worthwhile and would be of use.

Mr. ROGERS. I wondered who was really setting forth the prescribed plan. We have asked for a 5-year plan on the attack on cancer. We don't have such a plan for the aging, I presume.

Dr. DuVAL. That is correct. We don't have such a plan on that for aging.

Mr. ROGERS. Any being contemplated?

Dr. DuVAL. Not as far as I know, in the sense you are using the term. In your relationship to the cancer effort, I would say there is not a plan.

Mr. ROGERS. Should not there be if we are really going to make progress? Shouldn't we set forth certain goals and accomplishments to try to reach?

Dr. DuVAL. I understand that such a plan might be worthwhile. I wouldn't wish to say I don't agree with you. I would only say, in terms of the general objectives for which we are pursuing the efforts we plan to pursue, that we are in fact carrying out a plan, even if it doesn't appear to be as specific, for example, as the one in cancer.

If, for example, we intend to move heavily to get at the health problem through community health centers, and so forth, if we are going to expand further the intramural effort and I am anticipating and am hopeful that we will—if we can target our research and contracting effort, if we can expand the number of scientists through our own training programs to do basic research on aging, then I would submit that we are, in effect, carrying out a rational plan for attacking the problems of aging.

Mr. ROGERS. I understand your thinking, but I don't think it is in the context of a real plan. I would think it would be helpful to have set forth a substantial effort in planning to know what we are doing, what we want to do, what percentage of effort we ought to be thinking about in one area or at least emphasize the priorities given to certain areas. I would think just coming up with everybody's suggestion may be nice. It may allow questions to be answered in some manner to say we are doing something.

But I don't think it is real planning, nor does it show a very determined effort to get on top of the problems of the aging, it seems to me.

Dr. LAVECK. I would like to emphasize the plan we developed with the Office of Science and Technology, because this involved bringing in experts in the field of aging who worked with our staff and the Office of Science and Technology. It is, in my opinion, an excellent plan that would cover the next 5 years.

Mr. ROGERS. Now, as I recall, Dr. David is not a man in the health field at all, is he?

Dr. LAVECK. That is right.

Mr. ROGERS. So I don't know how good his planning would be. It may be fine. I don't undercut him.

Dr. DuVAL. I think, Mr. Chairman, that since you have singled out that point, Dr. David's opportunity to serve the interests of science in a voice to the President embraces many fields. He has his own staff assistants in the health area who work with us and other interested parties to do the planning. I would construe this as valid.

Mr. ROGERS. If we could have a list of who his health experts are in his office, I think that would be helpful. I am not aware of too many.

Also I think they took some of his duties away in the health field and gave them to a Mr. Magruder.

Dr. DuVAL. I don't think so. I think I answered that too quickly. I am not sure I know the answer to that.

Mr. Magruder was invited in to provide leadership to one big effort in the technology area.

Mr. ROGERS. I understand that. I understand there has now been a further assignment of duties to him.

Dr. DuVAL. This may be right.

Mr. ROGERS. I think it would be helpful if we would have that.
(The following memorandum was received for the record:)

EXECUTIVE OFFICE OF THE PRESIDENT,
OFFICE OF SCIENCE AND TECHNOLOGY,
Washington, D.C., April 21, 1972.

To: John Zapp, Deputy Assistant Secretary for Legislation (Health), HEW.

From: Leonard Laster, Assistant Director for Human Resources, OST.

Subject: Request for Information on OST Health Activities by Congressman Paul Rogers, Chairman, Subcommittee on Public Health and Environment, Committee on Interstate and Foreign Commerce, House of Representatives.

Dr. Edward E. David, Jr., the President's Science Adviser, serves concurrently as Director of the Office of Science and Technology and Chairman of the President's Science Advisory Committee. The OST is served by a physician as Assistant Director for Human Resources. His responsibilities include research and development related to delivery of health services, biomedical research, environmental health, health effects of regulatory diseases, occupational health, and narcotics. The staff of the Human Resources Group has two additional physicians who work with the Assistant Director.

The OST also has a roster of experts who serve as health consultants and who provide advice primarily by participating in panel studies of specific areas. There are 48 such consultants working on such panels as: Health Services R. & D., Biomedical Research, Research Manpower, and Chemicals and Health.

The membership of the President's Science Advisory Committee includes one physician and two biomedical scientists. They participate in the work of the entire committee and also work with the OST consultants on the panels noted above.

As Assistant Director for Human Resources of OST, I know of no health-related duties that were removed from my area of responsibility and assigned elsewhere. If anything, our responsibilities in the health field have increased during the past two years.

The involvement of this office in the consideration of aging research developed in the following manner. In preparation for the White House Conference on Aging, Dr. David asked that I undertake to ascertain what the scientific opportunities were for significant additional research in the field of aging. After consultation with Drs. DuVal, Marston and LaVeck, I worked with Dr. Charles Lowe, Scientific Director of the National Institute for Child Health and Human Development, and his staff to delineate the areas in which there seem to be important additional research opportunities. After Dr. Lowe's group identified seven research areas of potential value, this office and Dr. Lowe's office brought in groups of three consultants for each area. In each group one of the three consultants was primarily concerned with aging research and the other two were experts in the particular research area under consideration (for example, immunology). Each group of consultants spent an entire day reviewing the proposal for us and participated in a revision of the initial draft. Upon completion of that effort, the entire paper was presented to the President's Science Advisory Committee. The Committee endorsed the concepts and validity of these proposals and they are now under consideration by Dr. DuVal and his staff for implementation.

Mr. ROGERS. Thank you for being here. We hope that before the hearings are completed you will be able to come back and be able to

Speak with the sanction of the President and OMB as to what really your plans, may be.

This committee understands the position, but we cannot continually wait on some message that may or may not come on certain dates. I am sure you understand that. You have been kind to be here understanding our position as well. So we are grateful to you. We will appreciate it if you will submit for the record the information we have asked for.

The committee will continue its hearing tomorrow at 10 o'clock on this same subject.

(Whereupon, at 12:15 p.m. the subcommittee adjourned to reconvene at 10 a.m., Wednesday, March 15, 1972.)

NATIONAL INSTITUTE OF AGING

WEDNESDAY, MARCH 15, 1972

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON PUBLIC HEALTH AND ENVIRONMENT,
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D.C.

The subcommittee met at 10 a.m., pursuant to notice, in room 2218, Rayburn House Office Building, Hon. Paul G. Rogers (chairman) presiding.

Mr. ROGERS. The subcommittee will come to order, please.

We are continuing hearings on the establishment of a National Institute of Gerontology, a National Institute of Aging, and rehabilitation programs for elderly patients.

Our first witness today is the Honorable Louise Day Hicks of Massachusetts. Welcome, Mrs. Hicks. I understand you have a statement you wish to present to the committee.

STATEMENT OF HON. LOUISE DAY HICKS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MASSACHUSETTS

Mrs. HICKS. Mr. Chairman and members of the committee, I am pleased to have this opportunity to discuss with you the merits that I feel are contained in my proposal, H.R. 8491. This bill would authorize a total of \$15 million over the next 3 years for covering all or part of the costs of projects designed to rehabilitate elderly patients residing in long-term care facilities.

When we discuss the number of older people residing in nursing homes or related extended care facilities, we are speaking about a large and growing population. There are an estimated 1 million people 65 years of age and over currently living in these facilities of which 900,000 living in nursing homes. During the past decade the number of nursing homes in this country more than doubled, increasing from 9,582 to 22,993, and the number of nursing home beds more than tripled, increasing from 331,000 to 1,099,412. Moreover, according to the American Nursing Home Association, the period of greatest growth may be within the next 3 to 5 years.

It is widely recognized that most long-term care facilities do not offer their patients the kind of physical, mental, social, and other supportive services necessary to maintain or restore health. Although there are some long-term care facilities that do provide competent care to their residents, these are the exception rather than the norm.

Individuals testifying at recent Senate and House hearings cited many examples of irresponsible care in these facilities. For instance,

patients with artificial limbs and other prosthetic devices may never learn to use them properly. Persons in need of certain medical treatment essential for improving their particular physical condition such as whirlpool baths, massages, exercise programs, and varying other treatments frequently do not have access to them.

It is also not uncommon for patients who are partially disabled to lay listlessly in their beds or sit in chairs placed at their bedside hour after hour because they have nothing better to do. Individuals who may be more mobile might spend most of their time in a central lounge staring vacantly at the television set or in the dining room waiting to be served because no one is inspiring them to develop their interests and talents. Days, months, and years characterized by this kind of monotony and boredom readily drains the spirit and vitality from individuals and causes them to withdraw into a state of hopeless isolation.

Furthermore, patients who could leave a long-term care facilities and return to their homes if given the proper attention often find, instead, that their conditions deteriorate due to the poor treatment. Others who must remain in these facilities for a lifetime because of their personal needs could actually become more self-reliant if they were introduced to community social services and community activities for which they qualify.

In essence, residents of long-term care facilities have been paying a terrible price because neither the Federal Government, the State and local governments nor the private sector have met their needs. Mr. Chairman, my bill would help us remedy this matter. It is my hope that the provisions contained in this proposal would enable us to both understand the concept of rehabilitation more completely and develop rehabilitation programs that would ultimately improve conditions in long-term care facilities throughout the country.

Toward these ends my bill provides for awarding funds to public and nonprofit private agencies or organizations who wish to develop innovative programs or demonstration projects involving rehabilitation procedures. The sponsors of these projects would have the latitude to tailor their programs to the specific needs of the patients for whom the projects are intended. These sponsors, most likely, would provide for a broad range of services and activities and include the expertise of any number of professionals such as physical therapists, speech therapists, audiologists, medical social workers, recreation leaders, counselors, and other relevant personnel. Through these professionals, patients would be offered comprehensive medical treatment, appropriate social services and recreational activities that are rewarding and meaningful. At the same time, they would be able to return to an existence where they could function as productive individuals. And as important, they would feel for the first time in a long time that life for them has a purpose.

Mr. Chairman, the time has clearly come when we must improve conditions for our citizens who reside in long-term care facilities. I ask that you think of the elderly patient who longs to live with comfort, and with security, and with hope; and in doing this you fully support the provisions contained in my bill.

Mr. ROGERS. Thank you, Mrs. Hicks, for a very thoughtful statement. The committee appreciates your concern in the problems of the aged.

Mrs. HICKS. Thank you, Mr. Chairman, for affording me the opportunity to present my views this morning.

Mr. ROGERS. Next we shall hear from our colleague from the State of Nebraska, the Honorable Charles Thone.

Please be seated, Mr. Thone, and proceed as you see fit.

STATEMENT OF HON. CHARLES THONE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEBRASKA

Mr. THONE. Mr. Chairman and members of the subcommittee, this opportunity to express my interest in amending the Public Health Service Act to provide for the establishment of a National Institute of Gerontology is very much appreciated.

Many of us in Congress have recognized the need to create a better life for all Americans and one of the groups lagging behind in my estimation is the Nation's elderly population. I introduced H.R. 6405 with the thought in mind that this is one step that is very vitally needed to proceed with this assistance. This bill would insure necessary funding, specifically directed in adequate amounts, to studying the problem of aging. Providing for an institute to meet the responsibilities for more research and training in the field of mental health of the elderly and to conduct research and training in biomedical and social behavior aspects of aging is necessary now.

The recent White House Conference on Aging provided an insight into the many problems facing the elderly. To cope with these problems it is vital that certain research be accomplished. Many billions of dollars have been spent over the last few years for service to the aged, in health and welfare, but determining how much and whether various requirements have been serviced is difficult to determine. It is certainly unfair to the aged and to the taxpayer if we do not have research and training programs to tell us whether what we are doing is right.

At the present time there are many programs concerned with these problems, but these programs do not have focal point. Several departments within the Health Services and Mental Health Administration and elsewhere in HEW are concerned with the biology of aging, but I'm afraid that we have made little progress in understanding this problem. In the competition for funds within the various departments, aging research has taken a back seat, consequently, my desire to have a National Institute for Gerontology which would only concern itself with these urgent problems as well as correlate previous findings.

An effective commitment to biological, psychological, and sociological research on the problems of aging can be made if the aims of my bill, H.R. 6405, are implemented, and I strongly urge the subcommittee to recommend its passage.

Mr. ROGERS. Thank you, Mr. Thone, for taking time from your busy schedule to present your views on this important legislation.

Mr. THONE. Thank you, Mr. Chairman, it has been my pleasure.

Mr. ROGERS. Our next witness today is Dr. Kalidas Nandy, Department of Anatomy, Emory University, Atlanta, Ga.

Dr. Nandy, the committee welcomes you and will be pleased to receive your testimony. We are grateful for your presence here today.

STATEMENT OF DR. KALIDAS NANDY, ASSOCIATE PROFESSOR OF ANATOMY, EMORY UNIVERSITY, ATLANTA, GA.

DR. NANDY. Mr. Chairman and distinguished members of the committee, I appreciate this opportunity to present my viewpoints on the needs to establish a separate national institute of aging within the National Institutes of Health.

In the previous hearings before the Special Committee on Aging, the 90th session of the Congress in 1967, there was a detailed discussion on the status of basic research in aging and its retarded rate of progress due to a number of factors, including lack of proper funding. The need for a separate institute of aging and a separate study section of aging and development was also discussed. The above need is felt all the more today than ever before.

I have given in the written testimony a number of functions that a separate national institute of aging can serve and are not being served by the present form of administration. Some of these, I would like to repeat here: There has been not much attempt to promote better awareness of aging among the scientific community.

Although Dr. Leroy Duncan the chief of the aging branch has tried to broaden the scope of research in aging, NICHD has made little effort to integrate and coordinate the various specializations in the area of aging research and to take leadership in the field.

Finally, it is my experience in the last few years that there has been little representation of aging research in the study sections, those who judge the research proposals in aging, and it has been a frustrating experience of all of us that aging has not received the attention it deserves. The result is research grant in aging did not receive proper priorities.

Mr. Chairman, I have two questions I'd like to raise here. No. 1: What is the purpose of our aging research? The people working in the area are familiar with this problem. The main purpose, I think, is to understand cellular, subcellular, and even molecular changes underlying the visible changes brought about by aging.

In my written testimony I have listed a number of things that are better understood: Damage to the genes which is reflected on RNA and protein synthesis of the body; also the changes in collagen, which is also reflected in the changes in skin and other organs.

I would like to draw your attention to a particular aspect of research which has attracted attention of the biologists for more than one century: the accumulation of a kind of degradation product known as lipofuscin. I myself and several others are involved in this work.

MR. ROGERS. What is that called?

DR. NANDY. Lipofuscin.

MR. ROGERS. Lipofuscin. Thank you.

DR. NANDY. This is a kind of pigment which has a brownish color. It is found within the cells. It starts in humans at about 10 to 15 years of age, in mice between 2 to 3 months of age. It gradually builds up. I

have not seen any old mice which do not have this pigment in older age; that means after 10 months or so.

We do not know precisely where it comes from, but we do know that it is consistent and well correlated with aging. The functional significance to the cell is also not clearly understood.

Another aspect of aging is the immune disturbances associated with aging. We have seen antibodies in the blood of old mice and these react with the nerve cells in the brain when they are allowed to come into contact. These are never found in mice less than 6 months old and are consistently found in mice 10 to 12 months or better.

Mr. ROGERS. What would that compare to in man—the 10 to 12 months?

Dr. NANDY. Ten months is the end of reproductive life in mice. So I would say about 50 years of man.

Mr. ROGERS. That is when you begin to see this?

Dr. NANDY. Right. Between 10 and 12 months, it starts forming and increases the concentration in blood as a function of age. We do not know exactly how these antibodies destroy nerve cells. In the brain, there is a special protective mechanism called blood-brain barrier. This barrier saves the brain from many injurious substances circulating in the blood.

Normally these antibodies are separated from the cells of the brain, the nerve cells, by this barrier. We thought that if we can break this barrier or inject the antibodies directly into the brain, we could study its effects on the nerve cells. Our observation is that a large number of cells—nerve cells—around the area of injection were damaged.

We also studied the question of whether such antibodies are produced as a result of the repeated infection that a person gets throughout his life, or if this is the result of stimulation of the immune system by his own tissues. We used some germ-free mice in this study. These mice had been brought up in a germ-free condition for three generations and presumably had not been exposed to any bacteria at all. The mice showed antibodies against nerve cells in almost the same percentage as the control mice which were brought up under normal conditions. We therefore tend to think that the antigen, the one that induces the defense system to produce antibodies, is possibly in the animal's own tissue—in this case, nerve cells—rather than outside microbial agents.

I would like to emphasize that this is a promising area of research and may have far-reaching effects. For example, we know that vascular stroke in the brain is rather common in older people. As a result of stroke, there is a breakdown of the blood-brain barrier. Whether the damage in the brain is due to the interruption of the blood supply or due to the antibodies that can migrate through its broken down barrier, has not been evaluated. Blood-brain barrier may be damaged by a number of factors, like high fever, infections, vascular stroke, and injury to the head; and this kind of repeated injury, which may not be of a very severe degree, can cause damage to the brain by repeated destruction of cells. We also know that the nerve cells do not divide after birth, so we have the same number of cells. We do not gain any more cells than we are born with. On the contrary, we lose a large number of cells as we grow older.

Some work has been done in this area. It has been said that as much as 10,000 nerve cells may be lost per day from 30 to 80 years of age. We have about 14 billion cells to start with, so even if we lose some we can still carry on mental functions. How far these functions can be maintained with the loss at that rate to 80 years of age remains to be determined. This is another area that should be investigated.

No. 2: I would now like to discuss a subject which is of interest not only to gerontologists, but also the lay people who are not involved in research on aging. The question is: To what extent can age changes be slowed or delayed?

There has been considerable interest in this area recently. Some drugs have been studied by scientists to see whether these have any effect on some of the age changes. We are currently working with a drug called centrophenoxine. This drug is manufactured by a company in England. It has no permit by FDA to be used in this country, but it is available in the open market in Europe.

The drug first attracted our attention when we read articles in European magazines indicating that it had been effective in treating senile symptoms. We were interested to study any concomitant structural changes associated with improvement of mental functions.

We studied the effect of the drug on one parameter which is found consistently in aged animals; namely, accumulations of lipofuscin pigment in the nerve cells.

Our study showed that this drug, when administered to guinea pigs for 12 weeks or more intramuscularly at doses of 80 milligrams per kilogram of body weight, reduced the pigment by almost 25 percent. This observation has been also corroborated by some German scientists, who used rats as the experimental animals.

Further work should be pursued in this area. Whether this drug improves the functions of the nerve cells in the brain remains to be evaluated. We know at least that the drug has been beneficial in removing the lipofuscin pigment.

There are other similar drugs being studied. Some of the antioxidants have been tried. Antioxidants are supposed to capture free radicals, which have been shown to produce damage similar to aging. Dr. Herman has been working with butylated hydroxytoluene, which is a drug that can capture such free radicals.

In conclusion, I would like to say that we need to make a broad-based and systematic attack on aging rather than pinhole studies done so far. With the present level of funding, it has been extremely difficult to expand our programs. My grant has not been renewed. So I am carrying on with a small amount of leftover money. I have some interesting leads, but I have no money to pursue them. This is the condition of frustration that is existing in the minds of the people who are engaged in aging research.

(Dr. Nandy's prepared statement follows:)

STATEMENT OF DR. KALIDAS NANDY, ASSOCIATE PROFESSOR OF ANATOMY,
EMORY UNIVERSITY, ATLANTA, GA.

Mr. Chairman and distinguished members of the committee, I appreciate this opportunity to present my viewpoints on the needs to establish a separate National Institute of Aging within the National Institutes of Health.

In the previous hearings before the special committee on aging, the 90th session of the Congress in 1967, there was a detailed discussion on the status of basic research in aging and its retarded rate of progress due to a number of factors including lack of proper funding. The need for a separate Institute of Aging and a separate study section of aging and development was also discussed. The above need is felt all the more today than ever before.

In order to encourage research in aging for a better understanding of the mechanism underlying this complicated process, I have the following recommendations:

(1) To establish a separate Institute of Aging with the National Institutes of Health,

(2) To create a separate study section for evaluation of research proposals submitted in this area, and

(3) To provide sufficient funds needed for proper support of research, training and bring about greater awareness of aging research in the scientific community. A separate Institute of Aging may have the following functions:

(1) To survey periodically the research works in aging and related areas and to understand the need for research in certain areas.

(2) To promote greater awareness of aging research among the scientific communities.

(3) To expand the existing and encourage newer training programs for students interested in aging research.

(4) To attract scientists with skills from other branches of science.

(5) To show competent investigators in aging research a promising career.

(6) To take leadership and direct researchers towards the areas where more work is needed.

(7) To integrate and coordinate the various specializations in this area of research.

(8) To provide sufficient funds for good programs; funding at the present level is too low, and frustrations for lack of support is bound to have impact on the practice in this area.

(9) To establish more regional centers for aging research and offer courses for graduate and postdoctoral training.

(10) To establish separate study section for aging and development, or to include more investigators interested in aging in various study sections.

Mr. Rogers, I would now like to draw your attention particularly toward biological aging research as it stands now. I will address particularly to the following questions.

Q. 1. What are the cellular, subcellular, and even molecular changes underlying the visible changes brought about by aging?

The principal theories underlying molecular and cellular changes in aging tissues may be summarized under four headings:

(a) Genetic damage: This includes mutation and other changes in DNA and this is reflected on RNA and protein synthesis.

(b) Cross-linkage of collagen leading to loss of elasticity, shrinkage, embrittlement of collagen with consequent changes in skin and other organs.

(c) Accumulation of degradation products known as lipofuscin pigment particularly in the cells which do not divide during postnatal life, such as nerve cells, heart muscle, etc. We know that this pigment formation appears to be a continuous process starting as early as two months in mice and about 15 years in man and thereafter increases progressively with age.

Although knowledge on the composition, physical and chemical properties are plentiful, little is known about the origin and functional significance. This certainly appears to be a promising area of research.

(d) The autoimmune theory of aging (proposed by Sir F. Burnet, 1959) offers the possibility of understanding certain age changes which were not clear earlier. Dr. Walford (1962) showed further evidence along this line and was able to produce aging changes in young animals which were anatomically fused with old ones for a certain period.

In recent study in our laboratory it has been shown that antibodies against neurons are present in the blood of old mice and not of young and a barrier mechanism, possibly blood-brain barrier, separates such antibodies from the nerve cells in the brain. Although the relative increase of these antibodies with age and their properties have been studied its precise origin and role in neuronal

degenerative in aging is not clearly understood. This also appears as a promising area to be investigated in the near future.

Q. 2. To what extent can these changes be slowed or delayed?

Both scientists and lay people are equally interested in this problem. There are few drugs that need to be evaluated for this purpose. A drug called centrophenoxine is being studied in our and a number of other laboratories. It has been shown that this drug can reduce the rate of formation of lipofuscin in the nerve cells. The functional effects of the drugs on nerve cells is still not known.

According to the Census Bureau of the United States nearly 19 million people will be 65 years or over by 1975. Everybody has a right to enjoy health and a healthy mind as far as modern science can give them support. Educated persons with their life-long experience are valuable resources in our society and should contribute their skill to society as long as possible.

Considering the ultimate impact on the future of the society, an investment something like hundred million dollars for such a cause through an Institute of Aging cannot be considered excessive. This will be in line with the budget of other institutes such as Cancer, Heart, and Mental Health.

MR. ROGERS. Thank you very much, Doctor, for your statement, also for coming here to tell the committee of the very interesting theories and the work that you have been doing. It does sound encouraging. It seems to me that they do need quick exploration if we really are serious about doing something about the aging process. Mr. Carter.

MR. CARTER. Thank you, Mr. Chairman. You notice there is an increased deposition of lipofuscin as a person grows older or as an animal grows older and that is a degradation product, you think?

DR. NANDY. That is what I think at the present time.

MR. CARTER. You also made mention of antibodies against neurons; that is, these antibodies attack the nerve cells.

DR. NANDY. If they are allowed to come in contact. Normally there is a barrier which separates the two.

MR. CARTER. That causes the aging process?

DR. NANDY. I can only answer on certain aspects. Loss of nerve cells is a consistent change in the brain of aging animals. There are the two most consistent changes found in the brain of aging animals. One is lipofuscin deposition and the other is the loss of nerve cells.

MR. CARTER. There are present also these antibodies against neurons as a person ages?

DR. NANDY. The animals I am using are mice. I have never seen any of the mice less than 6 months having such antibodies. They are consistently present in 12 to 15 months or older mice.

MR. CARTER. The centrophenoxine which you described, the medicine which you described, does reduce the deposition of lipofuscin, is that correct?

DR. NANDY. Yes, sir.

MR. CARTER. This drug was developed in England, is that correct?

DR. NANDY. This is now manufactured by Lloyd Anphar Ltd. Originally the drug was discovered by Drs. Thuillier and Rumpf. Let me say a few words if I may.

MR. CARTER. Yes, sir.

DR. NANDY. This drug has two constituents. The important constituent is paracholorophenoxy-acetic acid, whose composition is similar to a plant growth hormone called auxin. Being a botanist, Dr. Thuillier bumped into the chemical and he found increased synthesis of protein within the leaves of the plant when coated with this drug. The drug is nontoxic to my animals.

Mr. CARTER. This has been thoroughly researched?

Dr. NANDY. This is as far as we know now. It reduces the rate of formation of the lipofuscin pigment. Whether it improves the function of the cells has not been studied yet.

Mr. CARTER. Do you know whether there is any improvement in brain power?

Dr. NANDY. We have done a preliminary study on the learning and memory of the mice. We used three groups—a young group, an old group, and an old group treated with centrophenoxine. There is some improvement in learning and memory of the mice which have been treated with centrophenoxine for 4 months or more. This experiment will be repeated. We have to use a larger number of animals. This work is not ready to be published.

Mr. CARTER. I certainly think there would be a larger market for centrophenoxine than there is for vitamin C and vitamin E today.

Dr. NANDY. Vitamin E is an antioxidant. So it has the same role of preventing peroxidation of lipids which might be harmful to the body. I know personally a number of people take vitamin E regularly. I think it might do some good.

Mr. CARTER. You think it might?

Dr. NANDY. Yes, sir, I do.

Mr. CARTER. Thank you for a very good statement.

Mr. ROGERS. Mr. Hastings.

Mr. HASTINGS. I also want to join my colleague in thanking you for your testimony. I am sure it will be very beneficial to us when we consider the legislation before us. I have no questions, Mr. Chairman.

Mr. ROGERS. It is my understanding you said that your support has been terminated by the Institute.

Dr. NANDY. My grant has not been renewed.

Mr. ROGERS. What has been that support?

Dr. NANDY. I was having a research grant supported by NICHD for 3 years. When I submitted a renewal application—I wish I had brought that report, which is a critique that the study section sent to us by the Institute. Except the last sentence, which said that “Your application could not be approved,” the entire letter, two-page letter, indicates appreciation of the previous work that we have done, “but the statistical handling of data that we expect to see is not satisfactory.” That is the end of the letter. I wish they wrote me a letter indicating how they want me to handle the data before turning the application down.

This problem would not have arisen, I think, if there had been some people who are interested in aging, who understand what kind of problems are involved to make that kind of future forecasting about how this data can be handled. We have a lot of other problems than many of the other sciences where they can foresee some of the data that may be available. This is a kind of experience that I have recently gone through, and I think others have gone through similar experiences as well.

Mr. ROGERS. This is surprising to me, because the testimony by the Department yesterday was that they didn’t feel there were enough scientists to do the work in this field. Here they are not even funding

those who really want to do work and have had some background that they previously funded.

Dr. NANDY. This comment I was talking about is by the study section. When the study section approves it, then it goes to the Council. They might not have received the application already approved.

Mr. ROGERS. I think it would be interesting for the committee to have a copy of your application and the response from the study section for the record.

Dr. NANDY. I will be glad to submit it.

(The grant application and response to Dr. Nandy from Dr. Gibson, Health Scientific Administrator, Adult Development and Aging Branch, National Institute of Child Health and Human Development, may be found in the committee's files.)

Mr. ROGERS. What you are telling us, I think, is that it is possible to do something, you believe, about the aging process if we do a sufficient amount of research and that your research already is encouraging in this line with the work you have done with animals.

Dr. NANDY. Yes, sir.

Mr. ROGERS. Is this basically what you are saying?

Dr. NANDY. Yes, sir.

Mr. ROGERS. What are the major advantages that you think can come out of your research if you could capsule that for us? Suppose your theory does prove out—and I realize that this is a projection—but from what you have found so far, it would then be possible to delay the aging process and to make one's life more productive during the aging process?

Dr. NANDY. Yes, sir.

Mr. ROGERS. Could you expand on that for us so that the committee can understand that in simple terms?

Dr. NANDY. I will be glad to. We believe that the lifespan is genetically determined. In other words, the number of people over a hundred years of age has not increased a bit in the last hundred years.

Mr. ROGERS. Give me that again?

Dr. NANDY. The number of people who have lived more than 100 years at this time and also a hundred years ago has not changed. In other words, the number is the same in both cases. That means that the lifespan is more or less fixed genetically for each species. The mean lifespan has gone up substantially in the last 20 years. The mean lifespan at present is about 70 years in this country.

According to the Bureau of Census of the United States, we will have about 19 million people over 65 by the year 1975. Two-thirds of them will be over 75 by that time.

Mr. ROGERS. By 1975?

Dr. NANDY. Yes, sir.

Mr. ROGERS. 19 million—

Dr. NANDY. Will be over 65. If these people who will be attaining that age will become physical and mental invalids, they will be tremendous burdens on society. At the same time, if we can keep them physically and mentally fit so that they can remain as productive members of the society, I think they will have a lot to contribute with

their lifelong experience. So here we are talking about adding life to years and not adding years to life.

Mr. ROGERS. In other words, I think what you are saying there is, for instance, there is a problem of senility in old age; if we can reduce that closer to the time of death so that the person is alert, doesn't have to be placed in a nursing home, can take care of himself, this would be a great economic saving for the Nation as well as saving in life usage by individuals.

Dr. NANDY. The present aim of aging research is to give them a more productive life until the end of their days. That day will come, we all know, and it is going to come in some form or other, be it cancer, heart disease or stroke. We would at least try to keep them healthy, both physically and mentally, as long as we can.

If a person is in good physical and mental condition he can serve as a useful member of society.

Mr. ROGERS. How long have you been in research work on aging?

Dr. NANDY. Six years.

Mr. ROGERS. Do you have any questions, Mr. Kyros?

Mr. KYROS. I have one question. Why do some people age and keep all their mental faculties almost to the very end, until something like cancer or stroke kills them? These persons can be late in age but are not senile, while others age shortly after 60 or 65 and seem to lose all their mental faculties and are not alert and fruitfully alive toward the end? Why is there a difference? Is there any reason?

Dr. NANDY. I don't know the answer to that, but I think heredity plays an important role in this. We know that long life runs in families, so also good health and good mental faculties. We can gauge the structural changes which are concomitant with the aging process and these proceed faster in some people than in others. The main thing might be heredity on which we have no control.

Mr. KYROS. Ethically should we attempt, through drugs, to change those structural forms called cross-linkage of collagen? Why should we not let people age normally?

Dr. NANDY. We don't know what normal aging is. For example, 20 years ago, people used to have a mean lifespan of about 60 years. Now this is about 70 years. At the age of 70 we see more healthy people now than we saw 20 years ago. What is normal aging now may not be normal aging 20 years from today. We may see more healthy people over 80 years in the future than today.

All of us have an experience with drugs. When we have a headache we take drugs. If a drug is nontoxic and is helpful, I see no reason why we should not take them to keep ourselves fit. We take exercise and do a lot of things to stay fit. Why not take drugs to stay healthy in body and mind?

Mr. KYROS (presiding). Are there further questions?

Thank you very much for your testimony, Doctor.

Dr. NANDY. Thank you, Mr. Chairman.

Mr. KYROS. Our next witness is Dr. Ewald W. Busse, J. P. Gibbons professor of psychiatry and chairman, Department of Psychiatry, Duke University Medical Center. Dr. Busse is also president of the American Psychiatric Association.

**STATEMENT OF DR. EWALD W. BUSSE, PRESIDENT, AMERICAN
PSYCHIATRIC ASSOCIATION**

Dr. BUSSE. Mr. Chairman and gentlemen, I wish to present my observations and opinions that I believe are relevant to H.R. 12308 and H.R. 3336. These remarks are based upon over 20 years of experience and interest in the human aging process and the health of the aged. I have had the good fortune to participate in a number of research projects related to the physical health and psychosocial adjustment of elderly people. I am the responsible investigator for two interdisciplinary longitudinal investigations.

Mr. KYROS. Interdisciplinary longitudinal investigations?

Dr. BUSSE. Yes, sir. Would you like me to explain that? The first longitudinal study was initiated at Duke University in the fall of 1954, and the second was initiated in 1967. Both of these research efforts have received substantial financial support from various sources, including the National Institutes of Health, private foundations and contributors, and the university. Both studies are currently partially supported by funds derived from the National Institute of Child Health and Human Development. Over the years, I have also had the opportunity to serve in various capacities in relationship to the National Institutes of Health. For example, I have served as chairman of the Training Review Committee on Aging of the National Institute of Child Health and Human Development, and I have been a member of the advisory council of that institute. I believe that I am reasonably familiar with the responsibilities and activities of several of the institutes that compose the National Institutes of Health.

Although the success of the NIH's is evident to all, I believe we are also aware that deficiencies do exist, and one deficiency is the periodic inertia in responding to the health research, training, and service needs of a rapidly changing society. In my opinion greatest progress is made when the mission of a Government agency or organization is clearly defined and the personnel concerned with that undertaking understand the objectives and are committed to fulfilling the mission. Therefore, it is my opinion that the time has arrived for the creation of a National Institute of Aging. Over the years, this effort has been countered by numerous attempts to provide other mechanisms for meeting the health needs of our elderly citizens, but none has proved to be successful. I believe that the time has come for the creation of an institute that will devote its efforts to research, training, and services directly concerned with the health and happiness of our expanding number of elderly citizens.

I am particularly pleased that under section 461 of H.R. 12308, it is made clear that the responsibilities of this proposed National Institute of Aging will be directly concerned with research of the aging process, with special health problems and requirements of our aged, and with prevention. Prevention and early detection are particularly relevant to the area of mental illness, where, in my opinion, our effectiveness rapidly diminishes for restoration to normal functioning as the duration of the illness increases. Prevention and early detection are of utmost importance.

I would also like to comment on part G of H.R. 12308, and I would like to suggest the possibility that those institutions qualifying for

construction funds or for financial support be broadened. I feel consideration should be given to the model that was utilized in the Mental Retardation Facilities and Community Mental Health Centers Act of 1963. I believe that the alternatives presented in that particular legislation permitted the flexibility which I think is critical to meeting not only the research needs but the training needs that are relevant to the problems of the aged. Many training institutions lack model facilities in which to conduct training programs, and this aspect of needed facilities would certainly be resolved by making this particular section of the bill more flexible. Thank you very much.

Mr. KYROS. Thank you, Dr. Busse. Mr. Springer.

Mr. SPRINGER. Mr. Chairman, I thank you. I have long been a supporter of the establishment of a National Institute for the Aging. I have introduced a bill in each one of the last 5 years in support of the legislation. I am delighted that the Subcommittee on Health has seen fit to take it up and have these hearings and move this matter along.

The thing that has surprised me over these years in talking with various authorities over the country is how little we really know about the process of aging itself. I was under the impression that we had all those answers and all we had to do was proceed with some money. I find that a great deal of research needs to be done. I do support the legislation, Mr. Chairman.

I would ask unanimous consent after this gentleman's testimony I may insert my own statement in the record at that point. (See p. 74.)

Mr. KYROS. Certainly.

I would like to add, Mr. Springer, that for a man in his sixties you are living proof of the fact that some people don't age at all. Of course, having engaged with me in an athletic endeavor that anyone of your age would normally do, I would say you have not grown old at all.

Mr. SPRINGER. May I say to my distinguished colleague that the result was only the lack of experience on his part. When he is as old as I am, I am sure he will far surpass whatever I was able to do on that particular day with some luck.

Mr. KYROS. Thank you very much.

Mr. HASTINGS. Mr. Chairman, may I add that almost everybody beats you.

Mr. KYROS. That is very kind.

Mr. CARTER?

Mr. CARTER. No questions, Mr. Chairman, except I agree with Mr. Hastings. I remember he and I were on the winning end.

Mr. KYROS. Mr. Hastings.

Mr. HASTINGS. I have no questions.

Mr. KYROS. Dr. Busse, you feel that consideration should be given to the model that was utilized in the Mental Retardation Facilities and Community Mental Health Centers Construction Act of 1953, in part G, namely, how to go ahead with a definite program for mental health for the aging. Can you tell us in greater detail what you meant by "Consideration should be given to the model"?

Dr. BUSSE. My primary objective was to make certain that those institutions that are responsible for training of health personnel—and obviously this rests in universities and other types of learning institutions—have an opportunity to participate in the availability of construction funds.

One of our biggest problems in a university is to have model facilities where we can take students to show them how good care really should be delivered. I was not ignoring the possibility of support for research which was possible under the mental retardation legislation that I referred to, and there were a number of levels, including research-oriented facilities attached to universities. There were others, that had to go through the State for planning. But it gave considerable flexibility to the whole approach, so that the entire spectrum of health care delivery services as well as research opportunities had an opportunity to participate at an effective level.

Mr. KYROS. In other words, you do agree with the so-called Rogers bill, H.R. 12308, in establishing health centers to provide for mental health for the aged? You just want some part to be used for purposes of instruction?

Dr. BUSSE. Yes. As I read the act, I thought it was confining itself to community health centers. You gentlemen are obviously so well aware of all of the problems that go on, but one of the problems is the definition of what is a community health center? In our own setting, we have to frequently decide between a program and a center. Sometimes the programs are even more effective when they elect to call themselves centers.

So, as a matter of definition, I would hope any legislation would not restrict it so that those effective groups could not participate.

Mr. KYROS. Do I understand from your testimony also that you generally favor the principle of establishing a National Institute for Aging?

Dr. BUSSE. I strongly favor the establishment of a National Institute for Aging.

Mr. KYROS. Doctor, thank you very much.

Dr. BUSSE. Thank you, sir.

(Congressman William L. Springer's prepared statement follows:)

STATEMENT OF HON. WILLIAM L. SPRINGER, A REPRESENTATIVE IN CONGRESS
FROM THE STATE OF ILLINOIS

H.R. 3336—NATIONAL INSTITUTE OF GERONTOLOGY

Mr. Chairman and my distinguished colleagues on the Public Health and Environment Subcommittee:

I want to express to the Subcommittee my deep appreciation for the opportunity to present my statement to you today on a subject which is of great personal interest to me and to millions of other American citizens. The social, psychological, economic, medical and physiological problems of the aging are indeed complex and present a challenge which we can not ignore.

We hear a lot these days about the problems of our young people * * * of our urban poor * * * of our minorities. But not so much attention is paid to the problems of another large group of citizens. In fact there seems to be a conspiracy of silence about the problems of our old people.

The contributions of our senior citizens can't always be measured in the gross national product. Yet life goes on after 65 for an increasing number of people. There are an estimated 20 million of them now and their number will grow with the further development of life-saving medical technology. We must do a better job in meeting the needs of these older people and in giving them a greater opportunity to contribute to society.

It is unfortunate for the Nation that we are not supporting research into the causes of human aging and into the problems that accompany the aging process at a level equal to the importance of the problem. This feeling was shared by the

1971 White House Conference on Aging as evidenced by its recommendations. One important recommendation of the Conference was that a National Institute of Gerontology be established immediately to support and conduct research and training in the bio-medical and social-behavioral aspects of aging.

As you know, Mr. Chairman, I have introduced a bill, H.R. 3336, which would amend Title IV of the Public Health Service Act so as to provide for the establishment of a National Institute of Gerontology. This bill also provides for the establishment of an Advisory Council to advise and make recommendations to the Secretary of Health, Education and Welfare on matters relating to the Institute.

The functions of the Institute under my bill would be to conduct research, investigations, experiments, demonstrations and studies related to the diseases of the aged and more broadly to provide a coordinated and concerted effort to discover the answers and solutions to the special health problems and requirements of the aged.

The White House Conference also found that there was a need for additional trained personnel in the field of gerontology and recommended that efforts be made to encourage persons to enter the field. My bill gives to the Secretary the authority to provide training and instruction and to establish traineeships and fellowships, in the Institute and elsewhere, in matters relating to study and investigation of the diseases and the special health problems and requirements of the aged.

I know that you, Mr. Chairman, as well as the rest of my colleagues on the Subcommittee share my concern that we have too long ignored the problems of the aged. I urge the Subcommittee to take prompt action on the legislation to establish a National Institute of Gerontology so that we might move ahead to combat the serious problems that affect millions of our senior American citizens.

Mr. KYROS. Our next witness this morning will be Dr. Bernard Strehler, professor of biology, University of Southern California, Los Angeles, Calif. Dr. Strehler, the committee welcomes you.

STATEMENT OF BERNARD STREHLER, Ph. D., PROFESSOR OF BIOLOGY, UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES

Mr. STREHLER. Mr. Chairman and committee members, I hope that the overnight ride on the plane won't reduce my lucidity or my voice too greatly.

I shall not read my prepared testimony, if you do not mind. Rather, I will summarize some portions of it.

Mr. KYROS. Without objection, we will make your testimony part of the record (see p. 85). You may proceed to summarize it.

Mr. STREHLER. I am extremely happy that this committee is at this time considering a bill to establish a National Institute for Gerontology because I think that this will close the ring—it will make possible the kind of intensive effort in the field of aging which has been lacking for the last 15 years at least.

In 1956, 16 years ago, I joined the National Institutes of Health, gerontology branch, in Baltimore, as chief of a section on cellular biology with the hope that the center would reveal many of the basic sources of the aging process.

There was great hope at that time that under the leadership of Dr. Nathan Shock, the dean of gerontologists, a world-renowned authority, we could get at the basic causes of aging and at least determine to what extent this process could be controlled during the lifetime of those now living.

At that time, I was 30 years old, and I thought that if we had a breakthrough in the next 10 years or so, that I might even benefit from this. In the last 17 years there is no question but that we have made progress, and much of this progress, Mr. Chairman, is due to advances that have been made in other areas of science under other sponsorship than in gerontology.

Particularly important in this is the understanding which we now have of how cells function—the DNA revolution, you might call it—the understanding that all of the instructions which specify each of our various cell types are written down in coded form in a string of DNA that is about a yard long even though packed into a cell which is about a thousandths of a millimeter in diameter. We now know that this large amount of instructions not only lies there; we also now know how that information is decoded. I shall not review that area.

Mr. KYROS. You mean each person born has a set of coded instructions, like a program?

Mr. STREHLER. That is right. Fifty percent of the instructions that made you, Mr. Chairman, were derived from your mother—a random half of your mother's instructions—and the other 50 percent was a random half of your father's instructions. Obviously you got an "X" and "Y" chromosome.

Mr. KYROS. Does that program affect longevity and everything else that happens to you in your life?

Mr. STREHLER. Yes. Many harmful genes, defective genes, will produce early death. There is a limit, as was pointed out by Dr. Nandy, to the length of life that we can expect to attain; that is, that members of our species can attain. About 117 or 118 years appears to be the longest really valid record. Claims of 150 years or so that sometimes emanate from the Caucasus are probably not valid.

At any rate, we also know that this information is copied every time a cell divides. Perhaps a hundred thousand messages—about the length of a written paragraph—are copied every time a cell divides. We have about a trillion cells in our body, each of which, unless there has been a mistake in copying, contains precisely the same information that was originally present in that single fertilized egg cell.

Now, during the process of development, what happens is that different portions of the instructions are read much as though one went into a complete library and took out only certain volumes from the shelf and then used the selected instructions at that time, and then at some later time took out other instructions for use.

As a result, each cell type, as we develop, goes through a series of manufacturing processes which leads it into the next stage. But because our ancestors evolved under conditions of economic competition there is great advantage to turn off certain of these instructions to suppress or "switch off" the ability to read certain of these instructions as we approach maturity otherwise we would continue to make materials that weren't needed and that are of no benefit in perpetuating the species.

I think it is the consensus now that the information required to continue to live indefinitely is present within each of the cells we contain but that after maturity we no longer know how to use some of this information. Our cells have either forgotten how to use their in-

structions or have deliberately, it would appear, switched off the ability to read the information needed to live indefinitely.

Mr. KYROS. How can you make that statement scientifically? You have just said that cells are programed, or have information in them, that we can live indefinitely, yet you have also said it is a fact that none of us will live beyond 117?

Mr. STREHLER. It is because we lose the ability to read those instructions. But the instructions on how to make the things that would be required to live indefinitely are there.

Mr. KYROS. How can you read those instructions? I still don't understand that.

Mr. STREHLER. The instructions actually are read by making a chemical "Xerox copy"—called messenger RNA—which is then sent into a special chemical translating machine—called a ribosome. Amino acids, the constituents of proteins, are assembled one by one to make a string—actually thousands of different kinds of strings. It is these assembled chains which carry out the actual mechanical activities of the body.

Now, as we mature we lose the ability to make certain of these proteins in some of our cells; for example, in our brains, we lose the ability to make those proteins which are required for this kind of cell to divide.

Therefore, we have about as many brain cells when we are born as we will have when we are mature. But other cells, such as intestinal cells or skin cells or blood cells go right on dividing throughout our entire life.

The DNA present in the nuclei of all body cells is identical in its information content. So it is the cellular environment in which a given nucleus exists that limits what is expressed. Now, any machine such as an automobile, a Mercedes or a good Volkswagen or a good Buick, can be kept "young" indefinitely if you replace each of its parts as rapidly as these parts wear out.

We have the blueprints for making the parts that will wear out but we do not have the instructions on how to use those blueprints. This is what I meant, Mr. Chairman, when I said that we have the information but not the capacity to read that information.

Now, I will not touch on my own research particularly but I wanted to establish a particular point. This is that the reason we age is because we turn off certain manufacturing abilities. It is not that we have lost the instructions; we turn them off.

One of the key problems in the study of aging is to understand the controls that turn off the expression of different genes at different times in the life cycle.

As far as I know, there is no NIH-sponsored research, at least under the National Institute of Child Health and Human Development, aging section, which deals very directly with this question.

I have made an analysis of the types of aging research which are supported by NICHD—according to the reports that were submitted during the Senate hearings in June—and I could supply that to you if it were of use. I don't think it would serve a purpose to go through it at this time, in detail.

Now, I understand that in the June hearing the Legislative Assistant Secretary from HEW indicated that the bill to establish a National

Institute of Gerontology was being opposed by the administration on the grounds that the field was not yet ready for exploitation or that there were not sufficient talented persons already interested in it or enough promising leads that could be followed profitably.

I believe that that estimate, Mr. Chairman, is based upon a somewhat antiquated analysis of the status of the field and probably is not shared by members of the scientific community who are well-aware of what is going on in this field. I dare say, if you were able to obtain opinions from NIH scientists—the leaders in this field—who of course would not oppose the position taken—if it is still the position taken—that they would substantiate quite strongly that there is a need to expand the efforts and that there are many good scientists and ideas around that can be supported.

There are two particularly strong reasons that an institute is needed. One is that the present center in Baltimore which was built for \$8 million and dedicated in 1968, was designed for a staff of around 300 scientists. It presently is staffed by about 121 persons—the last I heard—which is slightly less than it had in 1968 at the time that the building was dedicated.

This is primarily the result of the fact that the decisions about personnel increases in that center are in competition with other very worthwhile programs in NICHD having to do with all kinds of problems of childbirth, of diseases of children and now more recently, of contraception.

Although as I have indicated in my introduction, that development is related to aging, and that the events in development gradually lead to the process of aging it would seem that individuals who are dedicated to contraceptive programs, are not necessarily going to be highly enthusiastic about pushing aging research programs.

As a consequence there has actually been a reduction in support—when you take the increased costs of conducting research which has gone up perhaps 40 percent during this interim period.

The same can be said—this is a second reason—for extramural support is through grants and contracts. If one takes a conservative figure, i.e., the NIH figure, of about 1961 to 1964, the level of support was somewhere between \$7 million and \$15 million for research.

But this in the meantime has been subdivided, at least in part, into training programs and the present level is \$7 million. The actual figure for research on the origin—these are rather liberal figures supported through NICHD is \$6.2 million—this is not to say there are not things very relevant to gerontology done by other institutes. This amount of money will support about 100 scientific professional staff modestly, fewer than even are present in NICHD, gerontology branch, itself.

With the squeeze which has occurred because of the Vietnam war and other expenses, the squeeze on scientific funds in general gerontology has been the bottom of whatever was being squeezed and if any funds for expansion were available there was not an advocacy within the NICHD at the upper levels.

On the other hand there is advocacy—for aging research—at the levels of people who have charge of the aging program but not at the upper levels.

In consequence, all sorts of good possibilities have been passed by. I realize, Mr. Chairman, that in making these statements that I might be appearing to bite the hand that is feeding me—would feed me, perhaps—since I have several grants before NIH right now, and I am not funded by NIH for research grants although I indirectly get some training grant funds.

I might say I admire generally what NIH has done in the research area. I think it is unfortunate that they have not taken the universal problem that affects every human being to heart as they have heart, arthritis, stroke, mental disease and so forth, all of which are to some extent, I believe, caused by the changes that occur during the aging process.

It is for this reason, Mr. Chairman, that I hope that you and this committee will find some way—we are more optimistic now in gerontology than we have been in many years—that this long-awaited thing will happen because it has been called for by all of the professional organizations.

It was unanimously called for by the members of the research and demonstration committee of the White House Conference which included physicians, various lay people and a good smattering of scientists from all over the country in the various disciplines.

We were unanimous in that. I was a subsection chairman so I know how difficult some of these decisions were to derive. But in the President's excellent message at the close of that conference in which he promised a large increase in an AOA budget and a variety of other benefits which seemed quite reasonable he omitted any mention of the importance of research. This strikes me as a little strange because research is an investment in the future and this administration certainly believes in the wisdom of investment, investment in being able to produce a better product, to deliver better things in the future.

Of course, I am not a medical doctor, although I did flunk out of Hopkins Medical School and have some experience with medicine, but I believe this as a biologist, that we are furnishing some of the basic framework for improved medical care.

One might ask what are the chief areas in which this might occur. Of course, the most important area in my opinion has to do with the ability of the brain to function properly because there is no point in having a healthy heart, strong muscles, good kidney and liver and no arthritis, if you are senile and can't enjoy it.

There is not much point in having a good brain if you are full of aches and pains either. But I think most of the agony of the aging process has to do with the unpleasant deterioration in mental function, the agony both for the subject and for his relatives and those who may care for him.

Therefore, such studies as those being carried on at Albert Einstein University by Dr. Robert Terry on the origin of Alzheimer's disease—which produces a condition called senile dementia—is particularly significant.

Alzheimer's disease is due to formation of spotty areas in the cerebral cortex where cells die and little knots or tangles, of neurofibrils occur there. These neurofibrils appear to be different in their electronic microscopic appearance from normal neurofibrils—which are straight. These changed fibrils have a spiral shape to them.

The interesting thing about these—which may in interest some other members of Congress—is that mongolism, a disease which is due to an extra dose of one particular chromosome, as you may know, human chromosomes, number 21, and which results in mental deficiency, occurs about 200 times more frequently in mothers over 40 years of age than in mothers under 20—well, actually under 25.

We don't know why this is. Why should mothers over 40 produce an increased number of mongoloids. There is a good problem in cytology, the study of cells and the process of meiosis.

Mongoloids when they reach age 40, according to reports I heard at a recent conference, accumulate these Alzheimer-like defects, at an early age. By age 40 or 45, they have large numbers of such lesions. Dr. Terry can supply details of this.

Mr. HASTINGS. May I ask a question at this point. I have to leave shortly. There are a couple of things I would like comments on. Yesterday Dr. DuVal commented on two things. First, he stated that problems that the elderly face are a microcosm of those that face the rest of our citizens, meaning all age groups.

Secondly, he said with respect to researching the disease of the aging, there is little basis for separating this research when the same disease afflicts the young or the middle aged.

Could I have comments on that statement?

Mr. STREHLER. That it is a microcosm of all other diseases is not quite correct because the disease profile in the aged is quite considerably different from what it is in the young or even in the middle-aged.

Disease at any age is bad. It happens that the disease incidence in the aged goes up exponentially as does the death rate. It doubles every 8 years.

Mr. HASTINGS. Then you don't agree with that statement by Dr. DuVal?

Mr. STREHLER. I don't see how I could.

Mr. HASTINGS. He seems to suggest that there are diseases that afflict the aged.

Mr. STREHLER. At least they become much more important in the aged.

Mr. HASTINGS. There are special diseases in the aged that don't affect any other age?

Mr. STREHLER. A special process that leads to accentuation of the diseases that might occur at some rate among younger persons?

Mr. HASTINGS. Observation in the research in the disease of the aged where he uses the same theory. You would disagree with that too?

Mr. STREHLER. I think it is a matter of keeping your eye on the ball, partly. If you are interested in a particular disease rather than the process that lays the groundwork for the disease, you ask different questions.

Mr. HASTINGS. This seems to be his justification for keeping the research in NICHD.

Mr. STREHLER. If the research were adequately funded I would think there would be nothing wrong with keeping it in the NICHD. But the actual history has been that it has not been funded adequately. It is really being funded now at about 50 percent of what it was 15 years ago.

Mr. HASTINGS. You say our main interest should be more funding?

Mr. STREHLER. I say that I don't think that one can get that kind of really coordinated, intelligent, efficient planning for research in this area and execution and funding of it if there is divided responsibility, particularly if this is a minor responsibility of a split institute.

Mr. HASTINGS. Which it is today.

Mr. STREHLER. Which it is today, I think the record shows.

Mr. HASTINGS. Thank you, Mr. Chairman.

Mr. KYROS. Have you completed your statement, Doctor?

Mr. STREHLER. I am a little hypomanic from traveling all night. If you will pardon me, I will try to see where I was. I think that I should point out that there are numerous questions which are not presently being attacked at all by NICHD.

I might refer to the list which is included in my proposed testimony. I think each of these questions is interesting. On page 3, is this genetic material—we are talking about—damaged in specific ways by removing little very specific portions of it? Are old tissue cells able to decode the information in all of the messages?

Is it a matter of copying the right information or translating it into working parts? Do cells produce substances which act as selective inhibitors of DNA transcription? There is a theory which Alexis Carrel advanced some 40 years ago—and had some evidence on—that cells produce their own poisons, things that limit their ability to grow further.

I think that he may well have been on the right track, that the turning off of genes is due to the automatic production of self-poisoning substances that limit the continued function of the system.

What defects in immune cells prevent their responses from being as vigorous in the face of challenge by infection in aging humans as in young ones? Now, a current theory of the origin of cancer, is that aged individuals—in whom cancer is hundreds of times more prominent than it is at younger ages—lose the ability to recognize these aberrant cells, perhaps aberrant in the kind of cell membranes they have, membranes perhaps coded for by a carcinogenic—cancer-producing—virus.

In the younger individual apparently we may produce cancer-type cells quite frequently and reject them; but as we get older our ability to recognize and kill off these aberrant cells decreases. At least it has been shown to decrease in experimental animals.

This lack of surveillance, lack of ability to recognize and react to these harmful, or potentially harmful, and I might say natural, things—cancer occurs universally, you could almost call it natural—is decreased and the cancer can grow where earlier it could not.

Mr. CARTER. May I ask a question, Mr. Chairman?

Right there in the record, within the cell, in the DNA, is there an element which causes the production of cancer cells in some cases?

Mr. STREHLER. One theory, Mr. Carter, is—in the leukemia cancers—that there is an RNA virus which is carried in an inactive form after it has been transmitted into DNA—reverse copying. This material, transformed by reverse copying is incorporated into the host cells' DNA as a sort of molecular parasite.

Now, if the host cell incorporates this foreign genetic material and is able to keep it suppressed, a cancer will not develop. If cells should

express this virus and produce abnormal antigens—abnormal surface materials—they will be killed by the host's defenses.

Again, when the surveillance mechanism fails this viral agent can express itself just like an ordinary gene. It does appear quite certain that certain cancers are transmitted by viruses—you know the old mammary cancer story, and several other kinds.

Mr. CARTER. But not part of the DNA code?

Mr. STREHLER. I beg your pardon?

Mr. CARTER. Not part of the DNA code?

Mr. STREHLER. They are probably not part of the DNA that all humans inherit. But they may be inherited if they stay in the mother's egg cell. Perhaps she incorporated them from an infectious virus.

Mr. CARTER. Why is it that there is such an increasing percentage of cancer of the prostate as the person grows older until at the age of 90 almost all people if they live that old have signs of cancer cells there?

Mr. STREHLER. In a few years, sir, I may look into that more diligently than I have so far. I don't have an answer to that.

Mr. CARTER. That is correct?

Mr. STREHLER. That is quite correct. It is almost the universal disease. It starts out with a hypertrophy that apparently is not yet malignant and then becomes malignant. Perhaps there are several steps required to produce malignancy.

There are so many questions one can ask. Each of them I think is capable of being exploited for a reasonable discussion.

For example, why is exercise less effective in building the muscles of older men than of younger ones?

Mr. KYROS. I didn't know it was.

Mr. STREHLER. It is.

You can show that if you give the same exercise regimen, if you give a muscle-building regimen to a 30-year-old man his muscles will grow to perhaps 60 percent greater volume and strength. But if you do the same thing for the average 65-year-old man, it may go up 10 percent.

One of the things that happens, of course, is that androgen, the male hormones that are produced by the testes, are reduced because of some atrophy of the cells that produce that hormone there. Perhaps pituitary changes? Who knows?

Is it because of the androgen or is it because of an intrinsic change of the muscles? Is the muscle turning itself off somehow?

Similarly, with respect to menopause, which certainly is something that is of interest even to middle aged people, frequently. It is known that egg cells die regularly by a process called atresia in the ovary. We start with 30 egg cells—that is we don't, gentlemen, but women do—with 20,000 egg cells in each ovary. Most of them never can reach maturity.

Is it loss of these potential cells that eventually leads to the hormonal changes that produce menopause and all of its complex, sometimes serious, symptoms, or what is it?

Mr. CARTER. Those cells, I believe, you referred to are some of the most expectant cells and the most often disappointed cells in the body.

Mr. STREHLER. That is right. Only a few, at most 15, of those 20,000 cells ever have a chance to see the light of day.

I think in view of the population explosion that that is probably not such a bad idea. It may be that the most vigorous cells are selected.

Another question which has not been looked at: That is the most vigorous ones—eggs—may be the ones that are released first from the ovary.

Another basic question is what chemical signals lead to the regeneration of lost parts in experimental animals and in humans?

There is, again, a suggestion of something that is reminiscent of Carrel's work on autoinhibitors. It is known that skin, for instance, produces a substance which can be extracted, a protein fairly heat labile, heat unstable protein, which will inhibit the division of skin cells. As a matter of fact, such a substance, called a chalone has been used to slow down the growth of basal cell carcinomas—skin cancers. If you make and inject antibodies to these materials, then normal skin cells will divide more rapidly.

The question is: Are chalones, this type of substance which acts as inhibitors, the things that prevent our arms from continuing to regrow if we lose them, but which in the case of salamanders which can grow whole new limbs or connect eyes which have been removed, that is, connect them back to the brain so they will actually work. Are such regenerative processes under the control of these chemicals?

There is nothing on regeneration being supported as far as I know by the NICHD aging branch although regeneration, you can see, is logically a very central part of this whole problem of maintenance of vigor during aging.

If we could regenerate the parts that are lost, the cells that become nonfunctional due to aging pigment accumulation such as Dr. Nandy mentioned, or that are killed off by autoantibodies—as some of his other studies suggest—we would be in a position to repair and replace these parts.

Mr. SCHMITZ. Mr. Chairman, could I ask a question at this point?

Mr. KYROS. You can't wait until the gentleman finishes?

Mr. SCHMITZ. It fits in right here.

Mr. STREHLER. I don't really mind, but you must tell me when you want me to quit.

Mr. SCHMITZ. I would like him to comment at this point on vitamin E, if he has done any studies on that.

Mr. STREHLER. I have not done any studies on vitamin E. If you are asking should one take vitamin E, I take vitamin E. The reason I do is that it is harmless and possibly helpful.

Now, it does not appear to lengthen the life of rats very much but rats may age in different parts than humans. It is known that vitamin E deficiency results in an accelerated accumulation of these age pigments that Dr. Nandy mentioned.

Mr. KYROS. Collagen?

Mr. STREHLER. No, lipofuscin. These are insoluble granules, brightly fluorescent, and beautiful to look at under a fluorescent microscope.

This pigment is increased in amount under vitamin E deficiency. It occurs in the uteri of rats—in the uterine muscle—where it ordinarily does not occur at all. I think vitamin E is something I would take but not because it has been proven that an increased amount of it over what is just needed to avoid obvious deficiency is helpful.

Mr. KYROS. You mean you take 40 or 100 milligrams daily?

Mr. STREHLER. If somebody here can tell me how many milligrams it is, I have them here with me. I think it is about 200 units. (I don't have any interest in any vitamin E company.)

Mr. KYROS. You said it does not do any harm but you think it might help. How? In regard to the aging process?

Mr. STREHLER. The basic thing that vitamin E does, or perhaps one of the most important things that vitamin E does, is to prevent our insides from turning into varnish. You know, linseed oil, which is in paint or varnish, will automatically form a solid sheet when the oxygen in the air comes in contact with it. This occurs through a "chain reaction" process—like in a nuclear reactor almost—except that it does not multiply. The first oxygen molecule that attacks an unsaturated fatty acid—which by the way, we are told is good if we wish to avoid arteriosclerosis—the first oxygen molecule that attacks this unsaturated fat produces what is called a radical, two radicals in fact. These radicals can go on and attack another fatty acid molecule much more readily than oxygen itself could.

What the vitamin E does is step in and grab that radical so that the chain cannot be propagated. It does not prevent initiation of these reactions but it prevents the propagation of them.

Mr. KYROS. Doctor, there have been articles about this recently in newspapers, stating that there has been nothing conclusive proven about the use of vitamin E. Is that a fact?

Mr. STREHLER. As far as I know, sir, I may not know the literature—I try to keep up with as—

Mr. CARTER. If the distinguished Chairman will yield on that, of course, that is quite true that there have been a series of articles to the effect that it is not effective. However, there are physicians who have written books on the effects of vitamin E, some Canadian physicians, one which has been out in the past few months, I believe, and they have a series of cases in reference to the use of vitamin E in the prevention of angina. I have talked to some of the people who have used it who had had serious heart attacks and have been relieved of angina symptoms. However, I am not going to say that I have proof of it.

There is a difference of opinion in the medical field.

Mr. STREHLER. I do not deny that there may be an effect. The difficulty is that I understand that there is a placebo effect with respect to angina that amounts to some 70 percent or so.

Mr. CARTER. That is quite a good placebo if it has that effect.

Mr. STREHLER. Well, you are more experienced than I am, Doctor.

Mr. KYROS. To return to aging for the moment, as I understand it, you favor the bill which is before the committee, H.R. 12308, to form a National Institute of Aging.

Mr. STREHLER. I think if we are going to move forward in this field that it is absolutely essential even in the present fiscal crunch that we are in. It will do the needed job.

Mr. KYROS. You may recall that recently the Congress passed what we think is landmark cancer legislation. Of course you just explained that among other things, cancer is a part of the disease profile of the aged. It is not really correct, therefore to say that no one has done anything for the aged since cancer research will benefit the aged.

Mr. STREHLER. Absolutely, sir. I believe I indicated earlier that I felt that many of the byproducts of other very, very excellent and

needed research by NIH will clarify some of the questions on aging but in my opinion this research will not clarify many other processes. Perhaps some that are key to a whole variety of these categorical diseases.

Mr. KYROS. Your testimony is certainly detailed and the specificity with which you point out the areas where we could do research on the aged confirms my own belief in the value of such an institute.

Mr. CARTER. Mr. Chairman, I am glad you are convinced. I have always felt that I wanted to support more funding for this particular area. I am certainly going to do it.

I yield the balance of my time.

Mr. KYROS. Mr. Preyer?

Mr. PREYER. I have no questions, but I find your testimony very interesting and fascinating.

Thank you very much.

Mr. KYROS. Mr. Schmitz?

Mr. SCHMITZ. No further questions.

Mr. STREHLER. Might I just conclude by saying that as detailed in my written testimony, all of the major research organizations, all of the scientists that I know that have either direct interest or tangential interest in the process, plus the Association for the Advancement of Aging Research, the Gerontological Society, the National Council of Senior Citizens and the American Association of Retired Persons, and National Retired Teachers Association, which represent something like, I think, 6 million or 6½ million voters—at least on paper, I know that the active membership of the latter two organizations is 3½ million and those organizations, by the way, have, out of pure voluntary contributions, set up the Ethel Percy Andrews Gerontological Center at my university which I think might be another aim that the committee might encourage an institute, if it is established. That is to look into, and to set up many such centers regionally or perhaps even in each State. Perhaps in one university in each State, emphasizing not just biological research or purely biomedical research but psychological and social research in an interdisciplinary way.

I will conclude with that.

(Mr. Strehler's prepared statement follows:)

STATEMENT OF BERNARD L. STREHLER,¹ PROFESSOR OF BIOLOGY, UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES

Mr. Chairman, as testified during hearings recently held in California by Senator Cranston, I believe the Bill to Establish a National Institute of Gerontology (together with companion legislation to establish an Aging Research Commission) constitutes a major opportunity to improve the quality of life of all Americans—those now approaching the last third of their lives (as I am) and those who will do so in the next four or five decades; for, this legislation will make possible, and even assure (if it is vigorously and imaginatively ad-

¹ Ph. D. 1950, the Johns Hopkins University (under W. D. McElroy, Director of the National Science Foundation); Director of Biology Training and Research on Aging at the University of Southern California, Gerontology Center; Author of ca. 100 research publications, mostly on the molecular biology of the aging process and a text "Time, Cells, and Aging," Academic Press, 1962; Executive Chairman of the Association for the Advancement of Aging Research; Chairman of the Board, Southern California Aging Association (a branch of AGE—American Aging Association—a lay-scientific foundation devoted to the sponsorship of research in this area); Editor of "Advances in Gerontological Research," Academic Press, New York; Editor-in-Chief of "Mechanisms of Ageing and Development," Elsevier Publishing Company (1972); Vice Chairman, California White House Conference Task force on Research and Demonstration.

ministered) that we will uncover the information needed to modify many, but probably not all, of the effects of the aging process in the lifetime of those now present in this room.

These benefits in terms of extended physical and mental health in the middle and later years of life, will, by contrast to many highly expensive programs aimed at limited segments of the population, benefit all. Moreover, this research can be carried out at miniscule cost—equal to the cost of sending 3 first class letters per year per person or less than the cost of one pack of cigarettes per person per year. Is there one thinking person young or old, rich or poor, who would refuse to spend this amount to untangle the mystery of his own human aging and thereby reveal the extent to which it can be controlled perhaps in his lifetime . . . but certainly in the lifetime of his children?

The answer seems obvious.

It is for this reason that the consistent history or resistance to legislation to create the needed administrative, research and funding base within HEW, most recently as expressed by Mr. Stephen Kurzmann, Assistant Secretary for Legislation (HEW) in the June 1971 Senate hearings on these bills.

Mr. Kurzmann then said. "... The irreducible need is for a substantial body of interested and competent research investigators, plus enough research leads, or promising ideas within the field to challenge the researchers to productive endeavors. Only if these preconditions are met can one say that a particular research area is ripe for the injection of major new resources."¹

Mr. Chairman, the important question is what needs to be done and how it can best be done, rather than the degree of rightness or error in past positions all of us have taken during this and previous administrations. It is my fervent hope that a stance more favorable to this legislation will be taken by the administration during these hearings, for nothing is more uncomfortable than appearing to bite the hand that might feed one—although I presently possess no NIH Research support.

Probably the most convincing evidence on the need for an institute of gerontology is the great number of specific questions in the aging areas which are presently not being posed—primarily because funds are not available to support such research. A list of 25 such questions (all of them quite basic to an understanding of aging and its effects on our physical or mental well being) is attached; only those designated by an asterisk are presently supported at any level by NIH grants.

*Question 1: Is the genetic material DNA damaged in very selective ways (e.g., by removing certain key segments) during aging?

Question 2: Are old tissue cells able to decode the genetic messages required to maintain function or

Question 3: Are old tissues unable to copy (transcribe) the needed messages from the master DNA library each cell contains?

Question 4: Do cells produce substances which act as selective inhibitions of DNA transcription or

Question 5: Of message translation during aging?

Question 6: How do "chalones" prevent cell division and are they present in increased amounts during tissue and clonal aging?

Question 7: What defects in immune cells prevent their response from being as vigorous in the face of challenge by infection in aging humans?

Question 8: Why are our brain cells unable to replenish themselves?

*Question 9: To what extent do multiple records of memories protect us against loss of memory (as a result of cell loss)?

Question 10: What is the cellular or tissue basis of the decreased ability of the pancreas to liberate insulin in aged animals and of the decreased glucose tolerance (characteristic of "adult onset" diabetes) in the aged?

¹ Aside from the rhetorical vagueness of some of these terms (e.g., "substantial," "interested," "competent," "promising ideas," "productive endeavors"—all essentially subjective value judgments) these ideas seem to indicate a lack of familiarity with the research frontiers in this area. Perhaps the unanimous recommendations of the White House Conference as regards the need to establish a National Institute of Gerontology as the number 1 priority in the research area will lead to a modification of this administration's view. Certainly a change is warranted on the basis of Secretary Richardson's statement of Thursday, May 6, 1971 which reads in part (pg. 252 June Senate Hearings on S-887 and S-1925) "giving particular weight to those recommendations which emerge from the White House Conference on Aging next November." (This statement was introduced into the record as the only substantive testimony on the Research on Aging Act by Mr. Kurzmann.)

*Question 11: Why is exercise less effective in building the muscles of older men than of younger ones?

Question 12: Are decreases in the levels of androgens (male hormones) sufficient to account for the muscular atrophy of aging?

*Question 13: What level of exercise (including sexual activity) is commensurate with good health; effects on blood pressure; cholesterol levels etc.?

*Question 14: By what cellular mechanisms do androgens promote arteriosclerosis?

Question 15: What are the causes of atresia (loss of immature eggs) during the aging of the ovary; and is this a prime factor in the onset of menopause?

*Question 16: Does sustained use of "the pill" delay menopause and the onset of arteriosclerotic diseases and by what mechanism?

Question 17: How can an individual choose the diet most suited to his individual long-term health?

Question 18: What chemical signals lead to regeneration of lost parts in experimental animals (liver regeneration, tail regeneration, etc.)?

Question 19: How is cell death programmed genetically during development?

Question 20: Does the enzyme and mitochondrial (energy supply) complement of connections between nerves (called synapses) change with age and thereby produce the decreased learning rate observed?

Question 21: What changes in the brain cells reduce the frequency of the alpha rhythm during aging?

*Question 22: Is a decreased state of alertness during aging due to loss of ability to produce adequate amounts of neuro-transmitter substances?

Question 23: What is the reason that aged mothers are hundreds of times more likely to produce Mongoloid children than younger mothers are (meiotic errors (?) or selection for abnormal eggs(?))?

Question 24: Is the loss of ability to produce antibodies to foreign substances during aging the chief reason that cancer is primarily a disease of the elderly?

Question 25: What is the origin of the altered neurofibrils found in the neurofibrillar tangles of victims of "senile dementia" (Alzheimer's disease)?

Mr. Chairman, we do have some evidence bearing on most of these representative questions, and research on a few of them is being supported at adequate levels by NIH or other Governmental agencies. But the vast majority is not being studied at all under HEW sponsorship or at extremely low levels and usually without regard to the direct relevance of this research to the aging process.

It is in order to answer these questions and scores of others of equal importance during the coming decades that a focal point for a new imaginative attack is needed. The focal point that can carry out this role (and that should be charged with the formulation of a detailed research plan to avoid duplication, waste and to design an attack on the most basic questions in all areas of gerontology) is the proposed National Institute of Gerontology, the subject of these hearings.

There are convincing reasons to believe that this bill, if enacted by Congress and implemented by a sympathetic administration, will add years, perhaps decades, of additional health in the middle years to all who attain this age during the last quarter of this twentieth century. Equally important, they will provide the knowledge needed in the social and psychological science areas to permit a more effective use of the still-too-limited funds available to improve the quality of living of those in the last third of their lives. Our sensitivity to and action for the needs of the aging is a true measure of the degree to which we have adopted the higher ideals of our civilization.

Despite the dark cloud which present Federal inaction in this area casts over us, this is a time of considerable optimism in that branch of science called Gerontology, the study of the origins and effects of the aging process. The reason for this bright outlook stems from the nearly miraculous progress biological science has made in the last 15 years, particularly that contributed by our own countrymen largely under Federal research sponsorship.

This revolution in biology consists of the discovery of the essential nature of life and how it is specified in the master material called DNA. Each of us, as well as all other living things, is written down in a coded library consisting of very long chains of just four relatively simple substances, called nucleotides. It is the arrangement of these four genetic elements in long chains that determines what we can be: a moth, a mouse or a man. It was just 10 years ago that the essential nature of the code was deduced, and just five years ago that the final details were worked out and confirmed experimentally.

During this last decade we have also made astounding progress in understanding how these coded blueprints are converted into the working parts of our bodies and the cells which make it up. We are now rapidly developing a knowledge of how each kind of body cell makes use of only that part of the DNA-library (present as a complete library, in each body cell) which is needed to provide its special structure and function.

This last area of research, which is closely related to the means through which an adult human develops from a single cell (the fertilized egg) also opens the door to the understanding and, probably, eventual control of the physical process of aging. For once we understand how different parts of the DNA (called genes) are switched on and off in different parts of the life cycle, we will have the basic information required to develop means to slow down, and probably reverse many or all of the effects of aging in the individual human.

Ten years ago, I was pessimistic that such a breakthrough in biomedicine could occur in my lifetime, for at that time the machinery controlling cell specialization just seemed too complex to interfere with in practical terms. But with the realization that even very old cells still contain the information in their DNA to generate replacement parts of all kinds and in view of the fact that the control points are remarkably simple compared to what was previously believed likely, the present optimistic projections appear well justified.

It is for the above reasons, Mr. Chairman, that I believe the time is ripe to establish the governmental research base that will bring these potentialities to realization in our lifetimes. *The question is not whether future generations will benefit from such inevitable biological advances; rather, it is whether this generation, yours and mine, will benefit by action now that will move forward the date of the inevitable.*

THE SURPRISING INADEQUACY OF PRESENT FEDERAL EFFORTS OF AGING

The basic reason, Mr. Chairman, that passage of these bills, or an appropriate syntheses of the two, is crucial to the realization of the above possibilities is that this is without doubt the most neglected of all biomedical areas—despite the fact that the aging process is a key, though indirect, cause of most human misery in this country and the dominant source of expenditures for medical care.

The past era of neglect stemmed from three main causes. The first is the fact that ours has been a youth oriented culture that tried to hide from itself the fact that we all eventually age. Age carries with it certain benefits such as the potential wisdom that can derive from a full lifetime of experience. But who in his right mind looks forward to the aches and pains, wrinkled skin or mental deficiencies that affect so many older relatives and friends? It is because men try to shield themselves from unpleasant realities that the process of aging, unlike specific diseases (heart, lung, arthritis, cancer) which grow in aged bodies and cells, has been so largely ignored.

The second reason for neglect was the widespread, but mistaken belief, even among leaders in medicine, that nothing could be done about aging. If nothing could be done about it obviously it would have been a waste of time and money to try to understand it.

The third, and really most crucial reason for this neglect is that no governmental agency has been charged with primary responsibility to move the field forward on all fronts. Instead, with a few exceptions, there has been a consistently negative influence as reflected most recently in testimony on this pending legislation by the very agency, HEW, which logically should have been at the forefront in supporting research in this area. There are a few possibly hopeful signs that this administrative opposition is changing, for example, the President's Advisor on Aging, Dr. Arthur Flemming, has stated on numerous occasions that the recommendations of the recent White House Conference on Aging will be implemented without delay. Among these recommendations, Mr. Chairman, was a unanimous one by the broadly representative members of the *Research and Demonstration section that the number one priority is the creation of a National Institute of Gerontology*. To quote from this document:

"that a National Institute of Gerontology be established immediately to support and conduct research and training in the biomedical and social-behavioral aspects of aging. The Institute should include study sections with equitable representation of the various areas involved in aging research and training." (page 78)

The training committee recommended:

"we urge the creation of an adequately funded National Institute of Gerontology for training and research. A substantial portion of the funds allocated to it should be earmarked for training. (page 84)

The physical and mental health section recommended:

"specific attention should be given to increasing the funds available for basic research and for operational research with a strong suggestion that a gerontological institute be established within the National Institutes of Health to provide the essential coordination of training and research activities." (page 11)

The report of the special concerns section on aging and aged blacks:

"it is recommended that the establishment of a National Institute of Gerontology be supported. . . ." (page 93)

No reference was permitted under White House Conference rules, to any specific legislation, but it is obvious to all that your bill will create precisely what was unanimously called for by the public's representatives at the White House Conference. The President's excellent speech at the close of the conference pledged action during this year on a number of important recommendations. We all applaud this commitment. Notable by its absence in his speech, however, was any mention of research or a National Institute. This very likely does not reflect a negative view by the President; rather, it suggests that he has not been fully apprised of the explicit recommendations of the delegates, which without doubt, reflect the opinions of the great majority of Americans aware of the needs and possibilities.

For the above reason, Mr. Chairman, you would serve us all if you were to find a means personally, to take up the matter with the President at an early date. For the President could (as he did in the case of cancer research) immediately insure that the present neglect of aging as a biomedical challenge would end. The comments submitted to the senate committee by Dr. Paul Dudley White, quoted below, are particularly compelling. It is to be hoped that they have been made available to the President:

" . . . I am writing strongly to support your Bill to create an Institute of Gerontology, which is a problem not adequately covered by any of the Health Institutes in operation today." (Page 106, June Hearings, Subcommittee on Aging.)

A Critique of Opposition to This Legislation

Mr. Chairman, about 17 years ago I decided to change my field of research from a successful career in photobiology to an attack on one of the then great biological mysteries, aging. I cannot truly say that I regret this move. But, Mr. Chairman, the path, like all new ventures, has been strewn with handicaps and disappointments—in large part directly related to inadequate governmental advocacy of research in this area.

In 1961, the White House Conference unanimously called for the establishment of a National Institute of Gerontology. This recommendation has never been acted on. Instead, the functions which the Institute was to perform were made a minor part of the responsibility of the Institute of Child Health and Human Development, established at about that time. This administrative arrangement, as the record of funding clearly indicates¹ has all but buried Gerontology as an active research area. This is, of course, quite understandable—predictable beforehand, in fact. For it is natural that an Institute whose primary goal is a totally justifiable (better understanding of problems in pediatrics, gynecology, and more recently, birth control) *will not automatically emphasize research at the opposite end of the life span*, particularly in times when allocations for biomedical research in general, were being reduced. The effect has been most unfortunate, to state it mildly. Within the NIH itself, the Gerontology Center in Baltimore (under the eminent dean of Gerontologists, Dr. Nathan Shock) located since 1968 in a new building constructed at a cost of \$8,000,000 houses about 50% of its projected staff; fewer NIH scientists are actively conducting research in this structure now than were on the staff before the building was completed.

¹ Testimony of Nelson H. Cruikshank in Hearings before the Subcommittee on Aging, June 1, 1971:

"here is the amount allocated to the aging program from the Institute's budget for recent fiscal years: 1967, \$7.3 million; 1968, \$8 million; 1969, \$7.7 million; 1970, \$8.1 million; 1971, \$8.8 million; and 1972, \$7.2 million." (page 35)

Equally important, research funding in universities and other non-public research institutes, has actually diminished since 1961, although very commendable support of several gerontology training programs (as also called for in the 1961 White House Conference) has been established by NIH in the meantime. In absolute dollars, the level of funding is down by 10% or more. In real dollars taking inflation in equipment supply and labor costs into account, the support of research has been reduced by about 50% (assuming an average 5% inflation rate).¹

The shortage of funds allocated to Aging Research is a direct result of the fact that the responsibility for this activity, was delegated to an Institute with other, worthwhile but usually financially competitive goals whose administrators and advisory governors (Council) are, with few exceptions, committed to research on clinical problems of infants and children.

The absence of strong advocacy for aging research at the policy making level (the intermediate level administrators in the aging section, NICHD, are diligent advocates of the field) has had another disastrous effect. This is that no review body (Aging Study Section) has been set up within NIH (despite its unanimous recommendation by the 1961 White House Conference) that is specifically competent to judge research grant applications in the field. Instead of being judged by peers (scientists broadly aware of and empathetic to efforts in the field) the review bodies (except for large multi-personnel proposals, called program projects) are made up of persons with great expertise in specialized areas, but usually with little concern for the overall problems in aging research. A particularly unfortunate feature of this review system is that an anonymous jury of scientists, who are not, as a rule broadly informed in the area can reject a research proposal. Such a rejection is without appeal as is usual in all other pseudo-judicial proceedings under our system. Even misinformation that the peer-jury has, cannot be corrected or be a basis for review once the decision has been made.

This inequity in an otherwise well-intentioned and well-structured system should be corrected not only as it applies to gerontological research, but to other areas of biomedicine. It is almost inevitable, men being what they are, that approval and funds will flow to those who are best known to the jury. What are the chances of an obscure stranger or new researcher in this area? Pretty slim.

It is obvious that the channelling of the needed funds into this research requires two things: (1) the supportive administrative framework an *Institute* will provide including (2) a *new review and funding mechanism* (a commission study section) specifically designed to establish goals and evaluate proposals critically and fairly within the context of established scientific facts.

What is Needed?

Mr. Chairman, the picture which has been presented is bright as regards possibilities, but unpromising for the years ahead unless the Congress, hopefully with the support of the Administration, corrects the gross inadequacies that restrict a full attack on aging as a research goal. For this reason, I applaud the fact that you have introduced the present legislation and are developing the background needed, through these hearings, to bring the opportunity they represent to the attention of the public, to the President and to your colleagues in Congress.

Therefore, and on behalf of the Association for the Advancement of Aging Research (of which I am Executive Chairman) and as Chairman of the Los Angeles Chapter of the American Aging Association (AGE) and speaking as a past member of the Public Policy Committee of the Gerontological Society, I recommend favorable action on the bill now before you.

As pointed out in previous hearings, this bill is complementary in its approach to a proposed amendment to the Older Americans Act. Although I participated in drafting the Senate version of that amendment (S-1925) it is my belief that of the two, your bill will more effectively meet the need. This opinion is based on the fact that an Institute, properly established and vigorously administered, will

¹ In all fairness, it must be pointed out that much of the excellent research NIH sponsors, intramurally and extramurally, including the breakthrough on DNA function, will provide benefits to the field of aging research. But it is unrealistic to expect that an answer to this puzzle will suddenly fall into view as an accidental by-product of other meritorious studies. There are processes unique to the declining phase of life and *the efficient way to understand them is to study them*. It is true that a knowledge of what happens in an automobile assembly line is of some use if your automobile fails; but, the repair of your auto demands that the mechanic know which parts fail, and why, before he can put it back into running condition again.

logically carry out the basic purposes of S-1925. However, I strongly concur with the testimony of Mr. Cruickshank of the National Council of Senior Citizens before your committee in June 1971 that the establishment of a body like the commission proposed in S-1925 within a newly established Institute of Gerontology is very desirable. Therefore, I join him in recommending that the two bills may well be combined, provided this meets with the approval of their respective sponsors, and that this doubly strengthened bill to establish an Institute of Gerontology be acted on during the present year, as called for (1) by the *White House Conference*, (2) by *AGE*, (3) by the *National Council for Senior Citizens*, (4) by the *Gerontological Society*, (5) by the *Association for the Advancement of Aging Research* and (6) by the *American Association of Retired Persons* and the *National Retired Teachers Association*. The combined members of the above associations are more than 6 million persons and the scientific organizations include, as members, the leaders in research on all aspects of this problem.

There is one final question I would like to raise. This deals with the location of the Institute within the Administrative structure of the Government. Three possibilities exist: (1) A separate administrative structure logically somewhere within HEW; (2) an Institute within NIH or (3) an institute within a strong AOA.

Senator Church has announced that he will introduce legislation reorganizing, coordinating and strengthening the existing structures dealing with problems of the aging. If this results in an AOA which is suited to fund and administer the needed broad program of research in the various aspects of gerontology (biomedicine, psychology and psychiatry and the social sciences) this may well be the most logical locale for this Institute. There is, in fact, considerable merit in terms of coordinated responsibility and funding to the possibility that the Institute will be a part of an enlarged AOA. On the other hand, the excellent history of achievement of NIH in many basic and categorized areas of biomedicine suggests that this also would be a very suitable location for the Institute. The basic question to be resolved, it would seem, is whether the same creative dedication applied by NIH administration in other areas will be applied to a new Institute. If it is a stepchild Institute, the situation though infinitely better than the present would be far from ideal.

Summary

Mr. Chairman, the above details the reasons that lie behind the widespread support for the legislation you have introduced as well as in companion bill S-1925. I respectfully ask that these bills in toto or in such combination as you and your colleagues deem wise and hopefully with the President's concurrence, be enacted into law during this session of Congress.

Not only will such action be responsive in an election year to the recommendations of all organizations (including the White House Conference) which have considered the substance embodied in these bills; equally important, it will give the many able scientists in this and closely related fields, the tools and resources needed to do the job properly, economically and at an early time. The results will include that understanding which is needed to extend the healthful middle years of life, a possibility most of us rejected a decade ago. Beyond that—who knows?

Thank you.

Mr. KYROS. I have read recently a statement that the use of alcohol, even in moderate amounts, accelerates and promotes aging. Is there any truth to that statement?

Mr. STREHLER. The only study that I know of in this area is an ancient one by Raymond Pearl that I lean on to support my own drinking habits. He showed that the longevity of the teetotalers was substantially less than that of moderate drinkers, but that the lowest longevity group, of course, was the heavy drinkers. How you define a moderate drinker, of course, is a question that might be different for different people. I do know that the longevity of religious groups such as the Seventh Day Adventists who are total abstainers from cigarettes and from alcohol as a rule is greater than that of the population at large.

But one can't say absolutely that this is a cause and effect relationship because there may be other genetic differences in such groups.

Mr. KYROS. Thank you, Doctor, for most enlightening testimony.

Our final witness this morning is Virginia Stone, director of the department of graduate studies, Duke University School of Nursing, on behalf of the American Nurses' Association.

Dr. Stone, we welcome you to the committee.

STATEMENT OF VIRGINIA STONE, Ph. D., CHAIRMAN, EXECUTIVE COMMITTEE, DIVISION OF GERIATRIC NURSING PRACTICE, AMERICAN NURSES' ASSOCIATION, INC.

Miss STONE. Thank you.

Mr. PREYER. Mr. Chairman, if you will yield, I would like personally to welcome Dr. Stone, who is a director of the graduate school of nursing at Duke University. I have known at firsthand all of the fine work she has done in North Carolina. She brings an outstanding record of accomplishment and has an outstanding reputation here.

Miss STONE. I would like to address my comments to the concept discussed in the text of bills being considered here today. I shall add some of my own comments to the testimony.

The American Nurses' Association feels that there is great need in the area of gerontology for research on the aging process and demonstration projects related to the diseases and special health problems and needs of the aging. Because of the rapidly increasing number of elderly citizens, this type of resource must be given a high priority and funding for that purpose needs to be great enough to support a large scale effort.

H.R. 12308 and the accompanying similar bills being considered by the subcommittee do deal with the need to step up the research activities dealing with the aging process, and to increase the numbers of health personnel with specialized preparation in gerontology by establishing traineeships and fellowships. The American Nurses' Association believes that some of the types of research needed are in the areas of genetics, nutrition, physiology, endocrinology, psychiatry, cultural influences, all as they relate to the aging process, as well as research on common health concerns of the aged, such as incontinence, disorientation and the use of multiple drugs. We feel it is extremely important, also for the above specific research to be closely tied in with research already being carried out in other areas, such as cancer, heart disease and so on. Research is also needed regarding patterns of delivery of health care to the aged.

One question being asked more and more frequently is how to increase this Nation's supply of health manpower—and today, at these hearings, we are focusing our attention on the segment of health manpower working in the field of gerontology.

One of the recent changes in the area of nursing education has been a trend toward a broader preparation in the community aspects of health care. The decade of the sixties has been marked by expansion

of nursing education. Opportunities for the nursing student to be educated in a collegiate program have increased. With the increase of associate degree and baccalaureate degree programs in nursing, there has been a steady movement toward broadening the education of nurses through better preparation in physical and social sciences and for the care of people in all health settings including the home.

I believe the members of this subcommittee would be interested in the current trend in graduate education in nursing—to add to the knowledge you have already gained from your work on the Nurse Training Act of 1971. We find that, along with the increasing use of clinical specialists and nurses functioning in expanded roles, that, as of October 1970, 4,765 nurses were enrolled in master's programs in 73 colleges and universities.¹ Also, in 1970, the number of employed registered nurses with a master's degree or above was 19,200, which includes an estimated 700 registered nurses with doctoral degrees.²

There is a need to interest additional number of nurses in the field of gerontology. Several recent studies on student attitudes toward geriatric nursing have shown it to be the least positive area of interest on the part of nurses. The studies also sought to assess the extent of the problem faced by educators in stimulating students interest in working with the aged, what these students' stereotypes were about the aged; and to study attitudes of medical students toward the geriatric patient.

One approach being attempted by nursing education programs is to provide a course on normal growth and development throughout the lifespan, before the student has had any clinical experience, which might create a more positive attitude toward the care of the older patient.³ If a health profession student could use his or her information in gerontology to make his or her experiences with the aged more effective and successful then one might expect more positive preference for the aged group and a corresponding increase of interest in providing for their care.⁴

As I have indicated, graduate education in nursing is on the increase. As you are well aware, the traineeship program of the Nurse Training Act of 1971 is the main source of financial assistance to graduate students in nursing. Further financial assistance and support provided through the traineeships and fellowships provided for in these bills would be a great asset to health profession graduate students, including nurses, in enabling them to pursue their graduate studies, especially in the area of gerontology.

I would like to bring to your attention that the previous testimony indicated a great deal of research, but we are interested in the application of this research and the meaning of research to nursing practice, itself. For example, through such exploration these students are finding ways to reverse this disorientation status of some elderly people and some of you have shown your concern about the state of disorientation or senility, if you wish to call it that.

¹ Facts About Nursing, American Nurses' Association, 1970-71, p. 104.

² Ibid, p. 10.

³ Students' Attitudes Toward Geriatric Nursing, Laurie Gunter, Nursing Outlook, July 1971, p. 466.

⁴ Ibid, p. 469.

One very good example is that when the older person has a drop in blood pressure he can become disoriented. Therefore, we in this graduate program are looking at all nursing intervention that could influence a drop in blood pressure and therefore could contribute to the state of disorientation.

If we can recognize these things, then we can prevent some disorientation in older people.

The American Nurses' Association has a set of standards of geriatric nursing practice which were developed from the premise that theories of the aging process and knowledge covering the aged must be inherent in the standards if their application is to improve the care of the aged. I ask that these ANA standards of geriatric nursing practice be inserted in the record of these hearings.

The American Nurses' Association recommends that the composition of the National Advisory Council on Aging, if one is created, be multidisciplinary, and that qualified nurse researchers in fields relating to gerontology such as physiology, biology, biochemistry, sociology, et cetera, be appointed to the Council.

H.R. 8491 authorizes grants for projects to develop or demonstrate programs designed to rehabilitate elderly patients of long-term health care facilities or to assist such patients in attaining self-care. We are all aware of the problems regarding the lack of adequate care today in the long-term health care facilities in this country, and one area that has been sadly neglected is that of rehabilitation. These project grants would allow for many options to set up demonstration programs on an interdisciplinary basis, utilizing collectively the capabilities and knowledge of physical therapists, nutritionists, occupational therapists, speech therapists, social workers, physicians, and nurses.

I would like to remind you that incontinence, disorientation, inability to ambulate, and difficulties in communication are the most prevalent conditions affecting the need for institutionalization. All of these conditions are amenable to concentrated rehabilitative therapy. I believe that such rehabilitation therapy could reduce the need for long-term care in institutions.

With such interdisciplinary teamwork, new knowledge would emerge from such projects as described in H.R. 8591, which could then be effectively applied to preventive health programs and to the rehabilitation of the elderly. An effective rehabilitation program should help the elderly patient know himself as he is, and help him to learn and apply new techniques and substitutive processes, when and where applicable. Society must be taught to accept the elderly and to make them feel accepted by family and associates, as an individual who can work, play, and live in emotional and spiritual harmony with his fellow human beings.¹ There is no value in prolonging the lifespan if that added life cannot be satisfying.

This was well recognized by the delegates to the recent White House Conference on Aging. They felt there was a need to provide training for those working with the elderly in order for the elderly to receive

¹ Guidelines for the Practice of Nursing on the Rehabilitation Team, American Nurses' Association, 1965.

better care. It was stated in the Conference and I quote, "Innovative and experimental efforts in training must be encouraged."

This ends my testimony. I thank you. It is a privilege to share my thoughts with you.

Mr. KYROS. Thank you very much, Dr. Stone, for a fine statement. I have just one or two questions. You are recommending here that nurses be appointed to the Advisory Council on Aging.

Miss STONE. Yes.

Mr. KYROS. Have nurses been appointed to other advisory councils of NIH?

Miss STONE. Yes, NIH. They are on some of them.

Mr. KYROS. How about student nurses under the Health Manpower and the Nurses Training Act?

Miss STONE. There are three students on there—the Advisory Council of the Nurse Training Act of 1971.

Mr. KYROS. In accordance with your request and without objection, we will make the American Nurses' Association standards of geriatric nursing practice a part of the record at this point.

(The information referred to follows:)

STANDARDS FOR PRACTICE

AMERICAN NURSES' ASSOCIATION, GERIATRICS DIVISION

Several theories of the aging process and considerable knowledge concerning the aged have been developed over the past 30 years. Derived from nursing, from the natural, behavioral and applied sciences, and from the humanities, they offer a broad base from which the nurse may choose alternate courses of action in the care of older persons.

The standards of geriatric nursing practice that follow were developed from the premise that theories of the aging process and knowledge covering the aged must be inherent in the standards if their application is to improve the care of the aged. To carry out these standards in the practice of geriatric nursing, the nurse must acquire, develop, test and selectively use the theories and knowledge available.

Standard No. 1

The nurse observes and interprets minimal as well as gross signs and symptoms associated with both normal aging and pathologic changes and institutes appropriate nursing measures.

Rationale: In older persons, pathology may be ignored because their symptoms may be ascribed to the normal aging process. Older persons do not attend to and are frequently not able to express or recognize the importance of symptoms. They have lived with some symptoms, such as pain, for a long time and have adapted to it so that they either ignore or exaggerate the symptom.

Sensory and cognitive changes are often slowly progressive and may be ignored until the adaptive response of the aged may interfere with functions or health, such as a personality change due to progressive loss of hearing.

Example: Confusion may be caused by medication, dehydration, or excessive fatigue. Mild confusion may be the first indication of pneumonia.

Standard No. 2

The nurse differentiates between pathologic social behavior and the usual life style of each aged individual.

Rationale: In all human beings, there is a continuum of behavior which is within the range of normal. It is difficult to discriminate between that which is normal and that which can be dangerous to the individual or others, such as the right of the person for privacy and its extreme, which is withdrawal, and a person's right to independence and its extreme, which may be pathologic.

In older persons, these conditions are frequently precipitated by change in environment (admission to an institution, giving up a house for an apartment) which places extra demands on them.

The nurse uses fine judgment to identify that which is pathology and that which is usual life style. The nurse finds out what the individual's life style has been before she can determine what is deviant social behavior.

Example: The nurse provides for a healthy outlet of normal sexual drives within the individual's life style and environmental settings, such as opportunities for heterosexual social activities.

Standard No. 3

The nurse demonstrates an appreciation of the heritage, values, and wisdom of older persons.

Rationale: The nurse has some understanding and appreciation of the social and historic settings in which older people have developed, and how these factors may affect their behavior and values. This enables her to respect the older person as an individual and provides for enrichment of the nurse's life.

Such an appreciation also provides ways in which the nurse can point out how the present generation has built on their foundation, thus helping to keep older persons in the present.

Example: The nurse accepts the older person's desire to cling to a particular item, such as a piece of jewelry or a photograph.

Standard No. 4

The nurse supports and promotes normal physiologic functioning of the older person.

Rationale: The nurse helps the older person to experience a higher level of wellness and seeks to prevent iatrogenic diseases.

Example: The nurse makes use of selected foods, fluids, exercise, and habit training instead of cathartics, enemata, and other artificial means for bowel regulation.

Standard No. 5

The nurse protects aged persons from injury, infection, and excessive stress and supports them through the multiplicity of stressful experiences to which they are subjected.

Rationale: Aged persons have a decreased margin of compensatory reserve and, therefore, are more vulnerable to secondary problems as a result of stressful experiences.

Example: Because the older person frequently has a variety of chronic illnesses, an acute episode will often exacerbate a chronic illness. When pneumonia occurs, the older individual frequently develops cardiac decompensation or his diabetes becomes unregulated. The nurse must recognize early symptoms or even the potential for decompensation and provide for preventive rest and dependence.

Standard No. 6

The nurse employs a variety of methods to promote effective communication and social interaction of aged persons with individuals, family, and other groups.

Rationale: Communication is essential to mental health and social well-being. Older persons need all kinds and a higher intensity of sensory stimulation. They frequently experience barriers to communication, such as language difference, aphasia, deafness, edentulousness, or sensory loss.

Example: The nurse uses clocks, calendars, newspapers and reading materials, thermometers, and holiday decorations to assist in the orientation and stimulation of older persons to time and events.

Standard No. 7

The nurse together with the older person designs, changes, or adapts the physical and psychosocial environment to meet the older person's needs within the limitations imposed by the situation.

Rationale: The health of the older person is greatly influenced by his environment; the nurse uses this environment as a therapeutic tool. The older person's environment may be monotonous because his mobility is reduced. The nurse, therefore, provides for variety in his environment. Those older persons who have increasing dependence still have a need for maintaining a degree of mastery of their physical and psychosocial environment.

Example: The nurse teaches the family to avoid many sudden changes in the environment. Often the most simple change in furniture is upsetting.

Standard No. 8

The nurse assists older persons to obtain and utilize devices which help them attain a higher level of functioning and ensures that these devices are kept in good working order by the appropriate persons or agencies.

Rationale: Devices are essential supportive measures to facilitate functioning. An inoperable or defective device is potentially dangerous. To help older persons be more independent, the nurse teaches them to secure, to use, and to maintain their devices.

Older persons have a proportionately greater need for one or more assistive devices to facilitate functioning; therefore, the nurse needs to be well informed about resources for obtaining and maintaining these devices.

Example: If a hearing aid is required, the nurse considers the problem of cost and, if necessary, contacts a community agency. When a hearing aid is fitted for the older person, the nurse assists him in his adjustment to it by recognizing fatigue and the time it takes to get used to it.

Standard No. 9

The nurse seeks to resolve her conflicting attitudes regarding aging, death, and dependency so that she can assist older persons, and their relatives, to maintain life with dignity and comfort until death ensues.

Rationale: If the nurse does not recognize and seek to resolve conflicts regarding aging, death, and dependency, functioning can be impaired and personal satisfaction not be achieved from her work. These conflicts are resolved to enable the nurse to enlarge her capacity to express empathy and compassion.

Dying and death are common emotional and stressful experiences. Preparation for death is an imminent developmental task of old age. The older person is more frequently exposed to dying and death. The nurse needs to assist older persons, personnel, relatives, and other persons who are experiencing dying, death, and bereavement to express their feelings, thoughts, and rituals.

Rituals provide a socially acceptable way of coping with emotion; therefore, the nurse enables the older person to participate in rituals meaningful to him.

Example: The nurse recognizes that many of her own attitudes concerning death and dying are learned from the culture of the society in which she lives.

Mr. KYROS. Dr. Carter.

Mr. CARTER. Thank you, Mr. Chairman.

Miss Stone, I have one question. I appreciate what you have to say. You have made a fine presentation. What kind of preparation or background should the nurse researchers have whom you have recommended be appointed to the National Advisory Council on Aging?

Miss STONE. I think the individual should have knowledge of the research process itself. We have around 700 nurses with doctoral degrees which would indicate we have a pool of individuals who have research knowledge. I think also the individual needs to have knowledge in the area of gerontology so that she can properly look at the situation from the gerontological point of view, as well as the research point of view. I would think she would be one involved in gerontological nursing itself.

Mr. CARTER. Very fine. Thank you, Mr. Chairman.

Mr. KYROS. Mr. Preyer.

Mr. PREYER. Thank you. Dr. Stone, you are speaking for the American Nurses' Association?

Miss STONE. Yes. I am.

Mr. PREYER. I think your testimony carries a lot of weight. You have come down strong for the bill H.R. 8491. The administration has not been very enthusiastic, from yesterday's testimony on the subject. You can always find some pretty good reasons to be against anything.

It seemed to me their reasons opposing it are sort of that type with-

out really considering why one would want to be for it. Your testimony and Dr. Strehler's testimony ahead of you come down strong on the affirmative side. His testimony was more on the need in the research area. You balance that out by emphasizing the manpower area.

It seems to me you both point up the fact that dealing with the aged is not just the difference in degree, but in many ways it is a difference in kind. Dr. Strehler says that the aged person is not just a microcosm of all the other diseases. You point out that your nurses should specialize in the field of gerontology and you also emphasize that you have a set of standards of practice in that particular area.

So, I gather that what Dr. Strehler says on the research side you are saying on the manpower side: that the problems of aging are not, as the administration's position yesterday seemed to indicate, just more of the same and maybe a fortiori or more of the same, but that they are different and require differences in approach.

Miss STONE. That is correct. If I may take a moment, I would like to take even the simple procedure of bathing as an example. There are skin changes which have been alluded to here today. I have also said something about a drop in blood pressure. We know that old people cannot tolerate heat at the same rate that others can and just the simple procedure of making the bath water too hot or as hot as you might make it for some other age groups may be enough to produce a drop in blood pressure in the older person.

Therefore, the individual who is caring for the older person has to have a background of knowledge in order to be able to know how to do something, modify even the bath in relation to the care of the aged.

Mr. PREYER. That is the best news I have heard since these hearings began, Mr. Chairman. I still like my water hot.

Miss STONE. I hope you won't be disoriented in old age.

Mr. PREYER. I think it would be of great interest to the committee to have that set of standards of geriatric nursing practice go into the record. Mr. Chairman, I assume you don't object to putting those standards in the record.

Mr. KYROS. I have already ordered that they be included, without objection.

Mr. PREYER. I want to thank Dr. Stone and say that we hope you will visit our committee often and give us the benefit of your testimony and your learning in this field. Thank you very much.

Mr. KYROS. Thank you very much, Dr. Stone.

This concludes the hearing today. The committee will adjourn until 10 o'clock tomorrow morning, to then continue the hearings on the National Institute of Aging.

(Whereupon, at 12 noon, the subcommittee adjourned to reconvene at 10 a.m., Thursday, March 16, 1972.)

NATIONAL INSTITUTE OF AGING

THURSDAY, MARCH 16, 1972

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON HEALTH AND ENVIRONMENT,
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D.C.

The subcommittee met at 10 a.m., pursuant to notice, in room 2218, Rayburn House Office Building, Hon. Paul G. Rogers (chairman) presiding.

Mr. ROGERS. The subcommittee will come to order. We are meeting today to continue hearings on the establishment of a National Institute of Gerontology, a National Institute of Aging, and rehabilitation programs for elderly patients.

Our first witness today is Dr. T. Samorajski, director of the laboratory of neurochemistry, department of mental hygiene and corrections, State of Ohio, and assistant professor of experimental neuropathology, Case Western Reserve University, Cleveland, Ohio. We are very happy to have you here, Doctor.

The House goes into session today at 11 o'clock, so, if you and the other witnesses could submit your statements for the record, and condense them and bring out the salient points, we would appreciate it. Please proceed.

**STATEMENT OF DR. T. SAMORAJSKI, DIRECTOR, LABORATORY OF
NEUROCHEMISTRY, DEPARTMENT OF MENTAL HYGIENE AND
CORRECTION, STATE OF OHIO; AND ASSISTANT PROFESSOR OF
EXPERIMENTAL NEUROPATHOLOGY, CASE WESTERN RESERVE
UNIVERSITY**

Dr. SAMORAJSKI. Thank you, Congressman Rogers. I would like to submit my statement for the record and to touch upon the most important points.

(Dr. Samorajski's prepared statement follows:)

STATEMENT OF T. SAMORAJSKI, DIRECTOR, LABORATORY OF NEUROCHEMISTRY, DEPARTMENT OF MENTAL HYGIENE AND CORRECTION, STATE OF OHIO; AND ASSISTANT PROFESSOR OF EXPERIMENTAL NEUROPATHOLOGY, CASE WESTERN RESERVE UNIVERSITY, CLEVELAND, OHIO

The topic of human aging includes vast and complex principles and practical social issues that are of vital importance not only to science but also to each individual and to society. There are a number of scientists with different interests and skills that are conducting basic and applied research on human aging. In view of this diversity and complexity, the aims of this report are to present some current views that are shared by many scientists concerning the great urgency

of social support to insure future progress in the field of Gerontology. The 3 main issues that confront gerontology as a socially responsive scientific enterprise can be stated most briefly as follows:

A. Discover basic principles of human aging that may also serve as useful guides for the solution of personal and social problems.

B. Justify the support requested and received from the public for basic and applied research on human aging.

C. Outline the needs expressed by many scientists for a separate Institute of Aging responsible for coordinated planning of research and for the allocation of scientific manpower and resources.

Although scientists from different disciplines may not agree about all details of implementation, there is considerable agreement concerning fundamental social and scientific objectives. These can be listed as specific points under each of the 3 main issues.

A. Basic principles of human aging

1. Universality of aging. All scientists agree that aging represents one of the most universal and inevitable problems of man. To date, aging represents one of the major unsolved scientific enigmas or riddles. With advancing age, memory dims, the senses become less acute, motor skills decrease, the hair turns gray, the skin wrinkles, bones become brittle and vigor and vitality decline and ebb away with age. What specific changes in molecules, cells and the body occur during aging? What causes these changes? Can these changes be modified or significantly delayed?

2. Definitions of aging. Two of the most prominent long term changes of aging include the progressive decline in many body functions and the increasing probability of death. Since these two features occur in everyone, aging has been defined by scientists as a "universal, progressive, intrinsic and deleterious decline which occurs with the passage of time after reproductive maturity".

3. Increasing size of the aging population in the U.S.A. The increasing scientific and medical knowledge on the causes of many diseases and their prevention or control have resulted in a continuously increasing proportion of people over 60 years of age. In the U.S., the number of people 60 years old and over will have increased from 5 million in 1900 to 35 million by 1980. This increasing number generates many as yet unsolved psychological, social, economic, political and medical problems.

4. Role of heredity, nutrition, physical fitness and social factors in aging. Although the "maximum" life span of man is determined by heredity, such factors as nutrition, physical fitness, occupation, social roles, population density, climate and many other controllable factors can influence the rate of aging and the psychological and physical fitness during senescence.

5. Personal and social consequences of aging. Depending upon many factors that remain to be discovered, individuals can age "gracefully" or pose many problems to themselves, the family and to society. As yet, little is known about personal and social factors that result in normal aging and fulfillment of personal goals in some individuals, and in frustration, maladjustment and increasing withdrawal and social isolation in others.

6. Aging and the onset, incidence, and distribution of different types of diseases. At the present time, most scientists do not consider aging to be a disease but an orderly extension of an overall developmental life span program. But many older individuals must ultimately face the prospects of death due to complications produced by many diseases that have only minor consequences for younger members of the population. This had led some members of society to believe that aging represents the 100 percent fatal disease that ultimately overtakes everyone.

B. Justification of support requested from society for basic and applied research on aging

1. Scientific progress on causes of aging. How much do scientists know about the causes of aging? Quite frankly, so far, relative to early growth and development, very little. The sources of knowledge on aging are still mostly common sense, intuition, and a great deal of speculation. Scientific research on the causes of human aging is still in a very primitive state.

2. Improvement in life span and in mental and physical health of senior citizens due to scientific progress. Despite the great advancements made in recent years by science and medicine in the reduction of infant mortality and the

diseases of youth and middle age, relatively little has been done for the population 60 years or greater. In 1900, people 65 years of age could expect to live, on the average about 12 more years. Now in 1972, they can expect to live another 14 years, a very modest increase of only 2 years. This figure represents not only the complexity of the human aging problem, but also a lack of effort on the part of the scientific community and the need for a new initiative if major changes are to be achieved in facilitating man's effort to add "life to years and years to life".

3. Urgent need for life span studies of human aging. Due to the long life span of man, there has been a separation of aging from development in scientific research. Development in man takes many years and requires public education as preparation for a productive and useful life. Due to lack of information, there are at the present time no comparable training, public education or counselling programs to help individuals adjust to retirement and other aspects of aging. Public opinions, attitudes and many laws are based on tradition, convenience, economy and other untested assumptions rather than on substantiated principles of aging.

4. Individual and social responsibility for support of research on aging. At the present time, support for life span longitudinal studies of man is urgently needed since development and aging are only two different aspects of the total life span of man. Many of the changes that occur with advancing age have their causes in antecedent conditions that occurred much earlier in life.

C. Role of a separate Institute of Aging in the future progress of gerontology

1. Gerontology as a social and biological science. As an interdisciplinary science, gerontology includes biology, biochemistry, physiology, psychology, sociology and ecology. Basic research in these areas is focused on fundamental principles of human aging. Applied research deals with the application of these principles to the solution of personal and social problems of senior citizens. Both types of research need urgent support since they are major sources of more reliable knowledge about aging.

2. Scope of personal, social, medical and geriatric problems of senior citizens in the U.S. Numerous surveys conducted in various cities around the country have indicated the disturbing fact that the services for older persons are fragmented into many conflicting or overlapping agencies and institutions. Most researchers agree that there should be in each community and level of government a more unified and coordinated approach to the problems of senior citizens. But the assignment of priorities requires a better understanding of the needs and problems of older persons.

3. Diversity of basic and applied research on human aging. Today, studies of aging are being conducted in some universities, medical schools, hospitals, government laboratories and some research institutions across the country. However, while many of these basic research studies on nutrition, cell metabolism, biochemistry, physiology, psychology all touch on some aspects of aging, they do not directly attack the questions of the fundamental causes of aging and their modification or improvement based on scientific knowledge. This could best be accomplished through a separate Institute of Aging with responsibility for the coordinated planning of research and the allocation of resources to fundamental problems of aging that may be ignored for various reasons by many scientists.

4. Advantages to society and science of coordinated planning within a National Institute of Aging. Gradually, the public is recognizing the importance of the problems of aging. With increasing public interest, more support may be allocated to research on human aging and more of the nation's scientists will take up the research challenge. A separate Institute of Aging can provide the leadership for the great scientific and social challenges that must be met in the field of Gerontology. By its very existence, identity, and visibility it can help focus social and scientific problems and their most effective solutions.

5. Public attitudes, interest and support. Until recently, the public and most scientists considered problems of aging as a pursuit of the mystic elixir or fountain of perpetual youth. In the past decade, interest and support have changed. Research on cancer and on aging have not only become acceptable but vital since they appear as inevitable consequences in a population with increasing proportions of older individuals.

6. Scientific attitudes, interest and support for a separate Institute of Aging. In contrast to many scientific problems in other areas, the study of human aging

is much more complex since it represents the summation of long term psychological, physiological, biochemical and morphological changes which are subject to considerable environmental and social modification. A separate Institute of Aging can participate in the identification of major problem areas that make many investigations in a particular area particularly difficult or challenging. All scientists agree that the application of the highest professional and scientific talents and major resources are required for the solution of problems in human aging and that the commitment of these talents and resources would ultimately be fully justified by the future progress.

7. *Summary.* There are many theories about the causes of human aging. They focus either on genetic or environmental factors as determinants of aging. Scientists are currently studying the effects of genetics, radiation, nutrition, hormones, exercise and many other factors on the aging process. Scientists working on these problems agree that the establishment of a National Institute of Aging can provide the critical momentum for the stepped-up attack on the important personal and social problems of human aging. Such an institute can lead not only in providing understanding of the causes of aging but also help solve consequences of aging which now constitute one of the most important public health problems in modern societies.

Mr. ROGERS. First of all, Doctor, how are you funded?

Dr. SAMORAJSKI. Mostly, by funds from the department of mental hygiene and correction, State of Ohio. In addition, I had a grant from NINDS for the past several years which has terminated.

Mr. ROGERS. Have you applied for a continuance or renewal of the grant?

Dr. SAMORAJSKI. Not yet, because the probability of obtaining a grant from NIH appears remote and unlikely at the present time.

However, we are preparing a proposal for submission. I am particularly pleased to say that we receive significant support from the department of mental hygiene and correction, State of Ohio, for research on aging, mental health, and related problems affecting our people.

Mr. ROGERS. Thank you. I just wanted to clear that up. Please proceed.

Dr. SAMORAJSKI. The research group which I direct has been concerned with the problems of aging from the point of view of neurochemical and neuropathologic changes that may be associated with senescence in both animals and human subjects. We would like to present some information concerning the state of the art in terms of past accomplishments and the possible application of these results to future possibilities in aging research.

To date, aging represents one of the major unsolved scientific enigmas. Of prime concern is why do nerve cells die in the human brain with aging at the rate of about 50,000 neurons per day? Cell death in the brain is presumed to account for such behavioral changes as loss of memory, slower reflexes, decreased conduction velocity, and possibly other parameters of response important for survival. What specific changes in molecules, cells, and the brain occur during aging?

While we do not have the complete answer to this important question, we have been able to make a number of significant observations which may be of interest for postulating future courses of action.

First, cell death in the brain is primarily a human phenomenon. It is less obvious in lower mammalian forms and may not occur at all in the brains of rodents, which are most frequently used as the subjects of choice for gerontologic research because of their relatively short lifespan.

Second, regional specificity is a characteristic of cell loss in the human brain. The frontal cortex, and superior temporal gyrus manifest the most significant losses—approaching 7 percent by the seventh decade of life—whereas the brain stem demonstrates little or no loss with aging.

Mr. ROGERS. Are there areas of the brain that do not demonstrate cell loss and what do these areas control?

Dr. SAMORAJSKI. Yes, the brain stem shows little cell loss. This region controls respiration, heart rate, and other autonomic phenomena.

Cell loss in the human brain seems to start out as a peripheral process, first involving terminal axons and dendrites with a subsequent "dying back" to the cell body. This process is particularly obvious in the human brain of aged subjects because of the characteristic formation of neurofibrillary tangles and plaques.

We have concluded also that cell death in the brain does not appear to be directly related to vascular pathology.

Mr. CARTER. Isn't vascular pathology a characteristic finding in the brain of all senescent subjects?

Dr. SAMORAJSKI. No.

Mr. CARTER. Not even in cases of arteriosclerosis and atherosclerosis?

Dr. SAMORAJSKI. Yes and no. I have seen cases of arteriosclerosis without cell death and cases of cell death without arteriosclerosis.

Mr. CARTER. But it is true that in the case of those diseases vascular pathology is involved?

Dr. SAMORAJSKI. Yes, but a relationship between vascular pathology, and cell death has not been established. The rate of cell death may be more significantly affected by traumatic injury irradiation, or drugs, such as chlorpromazine, which is consumed by a large proportion of our patient population.

Mr. CARTER. Is that the same as Thorazine?

Dr. SAMORAJSKI. Yes.

Mr. CARTER. And isn't it known to cause jaundice and extrapyramidal symptoms such as those of Parkinson's disease?

Dr. SAMORAJSKI. Yes, but sometimes that is the price you pay to accomplish the treatment.

Mr. CARTER. I guess we have a tendency to forget that.

Dr. SAMORAJSKI. Other drugs such as haloperidol and other tranquilizers are used in great abundance and I want to emphasize that we don't know the effects of psychotropic drugs, barbiturates, alcohol, or similar agents on the aging process. These agents primarily affect the central nervous system and, as such, probably have a profound effect on brain chemistry.

We do not know what neurochemical changes, if any, can be correlated with senescence and certain diseases affecting primarily the aged, such as Alzheimer's and whether the neurochemical changes of senescence can be manipulated experimentally or clinically with subsequent alterations in mortality and lifespan. We have analyzed various brain constituents in animal subjects to see if they can be manipulated quantitatively by prophylactic measures such as diet and exercise, or accelerated by irradiation or ingestion of drugs, alcohol, various narcotics, and toxic agents.

Mr. ROGERS. Have you done research on the effects of massive doses of vitamin E or C that we have all been hearing about?

Dr. SAMORAJSKI. We have some information but no conclusive studies have been made.

Mr. CARTER. What about the relevance of fatty acids in the diet?

Dr. SAMORAJSKI. We have done experiments in mice exposed to polyunsaturated fatty acid-deficient diets and the myelin membranes of the experimental animals were chemically different from those of control animals, and found to be faulty and more easily challenged by antigens and viruses.

In summary, a great deal of work remains to be done concerning the causes of aging and especially on the subject of cell death. Scientists are currently studying the effects of genetics, radiation, nutrition, hormones, exercise, and many other factors on the aging process. Scientists agree that the establishment of a National Institute of Aging can provide the critical momentum for the stepped-up attack on the important personal and social problems of human aging.

Mr. ROGERS. Do you think resources are available in terms of scientific talent, should the financial resources become available to make advances in this area?

Dr. SAMORAJSKI. Yes, the neurobiology research area is advancing rapidly and sufficient scientific talent is available for extended research. In my opinion, we are on the threshold of a significant breakthrough in this very important field of aging research.

Mr. ROGERS. How much do you think should be allocated to this institute?

Dr. SAMORAJSKI. Frankly, I don't know.

Mr. ROGERS. Well, will you put down your thoughts on that and let us know?

Dr. SAMORAJSKI. Yes.

(The following information was received for the record:)

FUNDING NECESSARY FOR THE ESTABLISHMENT OF A NATIONAL INSTITUTE OF AGING

It seems to me that \$23 million would be the absolute minimum; \$28-30 million would provide for a moderately comfortable start and \$50-75 million would adequately provide for the establishment of a National Institute of Aging. Such an institute could lead not only in providing understanding of the causes of aging but also help solve some consequences of aging which now constitute one of the most important public health problems in modern societies. By its very existence, identity, and visibility it can help focus social and scientific problems and their most effective solutions.

Mr. ROGERS. Dr. Carter?

Mr. CARTER. No further questions.

Mr. ROGERS. Dr. Roy?

Mr. ROY. No questions.

Mr. ROGERS. Mr. Hastings?

Mr. HASTINGS. No questions.

Mr. ROGERS. Thank you, Dr. Samorajski. Your presentation has been most helpful to this committee and we thank you for coming.

Dr. SAMORAJSKI. Thank you.

Mr. ROGERS. Our next witness is Mr. William R. Hutton, executive director, National Council of Senior Citizens.

It is good to see you again on behalf of your fine organization.

**STATEMENT OF WILLIAM R. HUTTON, EXECUTIVE DIRECTOR,
NATIONAL COUNCIL OF SENIOR CITIZENS**

Mr. HUTTON. Thank you, Mr. Chairman. My name is William R. Hutton. I am executive director of the 3,000,000-member National Council of Senior Citizens.

Our membership is heartily in accord with the purpose of H.R. 12308, sponsored by the chairman and nine cosponsors—eight of them subcommittee members—to promote establishment of a National Institute of Aging.

We believe that this Institute could help to promote a better life for the aged in this country. We do not know why some people remain vigorous into their 80's while others fade away at 65. It does seem that those who are the most active remain the most vibrant. Many people seem to lose interest in living or cease to have hope in the future, and simply sit back and do nothing. Our 3,000 clubs have tried to get these people interested in life and to renew their interest and vigor. As I have visited these clubs all over the country, including your own State of Florida, Mr. Chairman, I see the difference between those who have aged rapidly and those who have not.

I have seen people in nursing homes who allow themselves to be tranquilized into inactivity rather than participate in life, and rapidly fade away, when they could be active members of society. Our aged people are an untapped resource, as some of our programs have proven, that is being ignored for the most part.

Mr. CARTER. That reminds me of our hearings into pharmaceutical companies in relation to necessary and unnecessary drugs. I think a definite distinction must be made.

Mr. HUTTON. Yes; I was happy to read in the paper that Mrs. Nixon was quoted as saying that she is not a "pill taker." It is important that we do not become a nation of pill takers. In many cases, these tranquilizing drugs are not really necessary and only give the aged an opportunity to withdraw from life, rather than standing on their own two feet.

In many nursing homes that I have visited, I have heard the patients time and time again say that the nurses are too busy for them. They are given the tranquilizers to make them easier to handle.

We are not advocating unlimited longevity. We realize that much of this research that we support will not benefit those of us who are now senior citizens but, rather, we are working for the benefit of our children and grandchildren. We want to help create a better life for those who are aged rather than prolonging life indefinitely.

As the distinguished chairman and other subcommittee members are aware, what federally sponsored research is presently conducted into the causes of aging in humans is supervised by the Institute of Child Health and Human Development of the National Institutes of Health.

The other night (Friday, March 10, 1972), Dr. Mortimer Lipsett, Associate Scientific Director, Institute of Child Health and Human Development, spoke over radio station WGMS, Washington, D.C., on activities of his agency.

Reports I have received on that broadcast are that not once during the broadcast did he as much as mention research into the causes of aging in humans. This may have been an oversight.

It could, however, have been an indication of the low priority given research into the process of aging in humans within the National Institutes of Health.

In any case, I am here to urge that this important aspect of biological research be given a far higher priority than it is now accorded by the Federal Government's scientific establishment.

As you can well appreciate, nothing is of more immediate concern to the membership of the National Council of Senior Citizens than the establishment, as proposed under H.R. 12308, of a National Institute of Aging to support research into the process of aging, research into special health problems and requirements of the aged, and research seeking methods of treatment and cure of health problems of the aged.

A National Institute of Aging, sought under H.R. 12308, would undoubtedly be one of the finest things the Federal Government could sponsor. It should have been established long ago.

Dr. Marot Sinex, chairman of the department of biochemistry, Boston University School of Medicine, points out that a single breakthrough, such as the delay of senile dementia, might save more than a billion dollars a year, not to mention the great boon this would be to the elderly by guaranteeing them greater self-reliance and better health.

According to Dr. Sinex, who is a former president of the American Gerontological Society, hardly a start has been made in the area of research that could provide some answers to the ancient question why some individuals retain physical and mental vigor long after 80 while others are old and enfeebled at 50.

Appropriations for research into the causes of aging have been slashed. Amounts allocated to aging research by the Institute of Child Health and Human Development were: Fiscal 1967, \$7.3 million; fiscal 1968, \$8 million; fiscal 1969, \$7.7 million; fiscal 1970, \$8.1 million; fiscal 1971, \$8.8 million; and fiscal 1972, \$7.2 million.

You will see that the sum allocated to aging research for fiscal 1972 is nearly one-fifth less than for the previous year.

It is important to note that this very substantial cutback was in the face of rapid price inflation and a significant increase in the elderly population.

Between 1960 and 1970, the number aged 65 and older increased at a much faster rate than the under-65 population—a rise of 21.1 percent for the aged as against 12.5 percent for others.

Of the population over 65, the oldest group grew at a much faster rate than the younger elderly—over the decade the increase in those who had passed their 75th birthday was 37.1 percent, almost three times the increase of 13.1 percent for those aged 65.

Older women, who had already greatly outnumbered the men aged 65 or over, increased at an even faster rate than men—a rise of 28.6 percent for the women in contrast to 12.1 percent for the men. As a result, the population 65 and older now includes 139 women for every 100 men, a marked increase from a decade earlier when the ratio was

121 to 100, and from two decades ago when the ratio was only 112 to 100.

It is unfortunate for the Nation—for this is a matter of vital concern to all Americans who are old or who will someday become old—that we are not supporting research into the causes of human aging at the level equal to the importance of the problem.

This is the strong feeling of the 3-million-member National Council of Senior Citizens but it is shared by many other older Americans as evidenced by the recommendation of the 1971 White House Conference on Aging urging:

1. That a National Institute of Gerontology be established immediately to support and conduct research and training in the biomedical and social-behavioral aspects of aging. The Institute should include study sections with equitable representation of the various areas involved in aging research and training.

2. That the President propose and that the Congress create a position within the executive branch with sufficient support and authority to develop and coordinate, at all levels of the Government, programs for the aged, including research and demonstration programs, and to oversee their translation into action.

3. That a major increase in Federal funds for research, research training, and demonstration be appropriated and allocated. Appropriation of general revenues for programs in the interest of older persons should contain additional funds amounting on the average to no less than 3.5 percent of such expenditures, these additional funds to be allocated for research, demonstration, and evaluation. Federal support for research and training in separate departments or schools within universities and separate research agencies should be continued and multi-disciplinary and multi-institutional programs should be fostered, and

4. That funds for research, training for research, and demonstrations should be allocated in the aggregate in such a manner that the above activities relevant to aging and the aged in racial and ethnic minority groups be funded in an amount not less than their proportion of the total population. Attention should be given to the recruitment and training of minority-group students to become competent researchers in gerontology. Minority groups would include but not be limited to the following: Blacks, Spanish-language Americans, American Indians, and Asian-Americans.

If I may say so, Mr. Chairman, I think you and the cosponsors of H.R. 12308 are in very good company indeed when you seek establishment of a National Institute of Aging. You have the backing on one hand of experts like Dr. Sinex, whom I have mentioned, and also of older Americans generally—as shown by high priority given the establishment of a National Institute of Aging by the “grass roots” representatives who attended the recent White House Conference on Aging.

It is pleasing to note, too, that you, Mr. Chairman, and other cosponsors of H.R. 12308, recognize the incongruity of placing research into the causes of aging in humans in an organization like the Institute of Child Health and Human Development.

One consequence of this is to put the need for research into the causes of aging in humans in competition with youth programs for Federal research dollars and scientific manpower.

What a program like that sought under H.R. 12308 can mean in the years ahead may be seen from the forecast by population experts that today's elderly population—now 20 million men and women age 65 and over—is likely to increase 50 percent to 30 million over age 65 by the year 2000.

The National Council of Senior Citizens strongly supports H.R. 12308 and highly commends you, Mr. Chairman, and the measure's other cosponsors, including the eight other members of this subcommittee, for seeking to meet the urgent need for a National Institute of Aging.

Thank you.

Mr. ROGERS. Thank you, Mr. Hutton. Dr. Carter.

Mr. CARTER. I just want to say that I am going to support this legislation and vote for it and to thank Mr. Hutton for his fine presentation.

Mr. ROGERS. Dr. Roy.

Mr. ROY. I, too, commend the gentleman on his statement and thank him for appearing here today.

Mr. ROGERS. Mr. Hastings.

Mr. HASTINGS. I would like to say that I think the National Council of Senior Citizens is lucky to have such an able and articulate spokesman to represent them.

Mr. ROGERS. Mr. Symington.

Mr. SYMINGTON. I would like to say that I, too, have seen these instances of the disparity between the health and vigor of some of our senior citizens in their 80's and the lack of that same health and vigor in much younger senior citizens. It is apparent that there is work to be done in this area and I think Mr. Hutton's presentation will be of help to this committee.

Mr. ROGERS. I think that except for one exception, perhaps, I can say that we on this committee are in favor of this legislation and will support it. Thank you, Mr. Hutton, again for your remarks today. I am sure they will be of help to the committee.

Mr. HUTTON. Thank you, Mr. Chairman and members of the committee.

Mr. ROGERS. Our next witness is Dr. Denham Harman from the American Aging Association. We are happy to have you with us this morning.

STATEMENT OF DR. DENHAM HARMAN, PRESIDENT OF THE AMERICAN AGING ASSOCIATION (AGE)

Dr. HARMAN. Thank you, Mr. Chairman. Mr. Chairman and gentlemen, my name is Denham Harman. I am president of the American Aging Association (AGE), professor of medicine and biochemistry at the University of Nebraska College of Medicine, and chief of the Nebraska geriatric service at Douglas County Hospital in Omaha, Nebr.

I welcome the opportunity to speak in support of the establishment of a new National Institute of Health, the National Institute of Gerontology.

The establishment of this new Institute is long overdue. In the United States, life expectancy at birth—average lifespan—increased, largely through improved medical care, nutrition, and public health facilities, from 45 years in 1900 to a plateau value of 70 years in 1955. (See fig. 1.) This 25-year increase in average lifespan is mainly due to decreases in mortality rates of the younger members of the population.

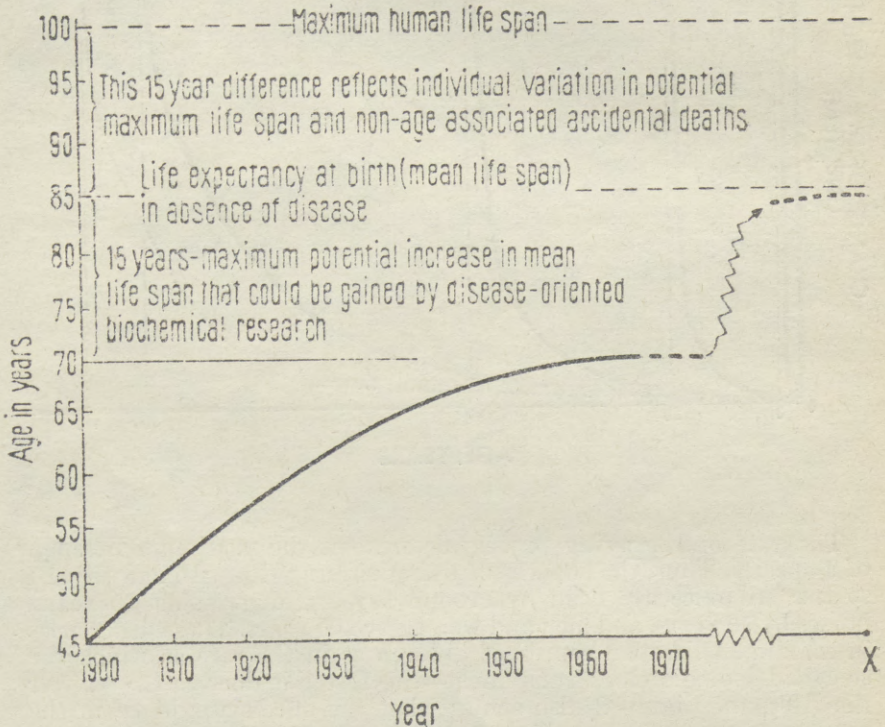


FIGURE 1.—Average life expectancy at birth in the United States since 1900.

Considering that the average lifespan has remained essentially constant at around 70 years for the past 17 years, the rate of increase in the future is likely to be low. Further, in terms of average life expectancy, the most that can be achieved by continued disease-oriented biomedical research is about 10 to 15 years. Thus, if cancer were "conquered" the average life expectancy would increase by 2.5 years, while if cardiovascular diseases were eliminated as causes of death the corresponding figure would be 10.5 years.

Since we are near the practical limit of our ability to increase the average lifespan through conventional means, it is now time to seriously consider trying to slow the aging process, the only untried approach to increasing meaningful years of healthy human life.

Aging is a basic biologic process that goes on continuously in every individual from conception until death. Aging is a prime example of built-in obsolescence, for it plays a useful role—possibly a necessary

one—in evolution by insuring the removal of old organisms from competition with the young for available space, and nutrients after they have fulfilled their biologic role of providing offspring.

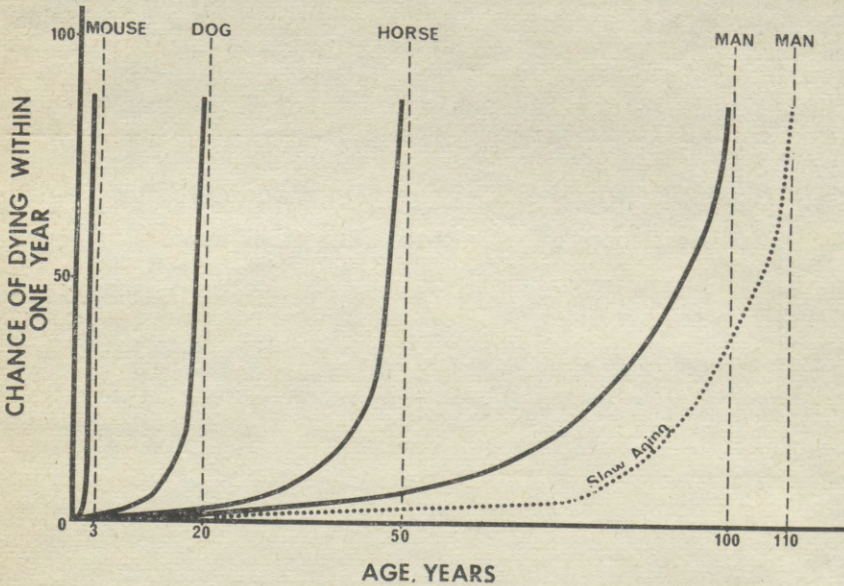


FIGURE 2

The rate of the aging process determines the maximum lifespan of a species. Thus, the chances of dying rise rapidly with age (fig. 2) so that all mice are dead by around 3 years, dogs about 20 years, horses by 50 years, and men and women by 100 years. These differences in maximum lifespan represent differences in the rate at which the so-called biologic clock runs down—the faster it does so the shorter the lifespan. Figure 2 also shows what the effects would be in the chances of dying for man if the "clock" were slowed so that the maximum lifespan was increased to 110 years. The ever-increasing chance of dying with advancing age reflects the progressive accumulation of degradative changes, specific diseases and otherwise, throughout the body.

Although each of us dies of a specific event, such as a heart attack or stroke or cancer, the rate at which these diseases develop and run their course to the terminal event is largely determined by the rate of the aging process.

Thus, since dogs die of the same spectrum of diseases as does man, the rate of progression of these diseases is about five times as fast for the lifespan of a dog or about one-fifth that of man.

By slowing the aging process we will put off in time heart attacks, cancer, and the other events that kill us. Through slower aging, a man in the future at age 60 may have the health and vitality of the average 45- to 50-year-old today.

The conviction that slower aging is a feasible possibility has been growing steadily over the past 15 to 20 years due to the gradual accu-

mulation of knowledge of the effects of age on biological systems and of reasonable hypotheses to account for such changes. Besides shifting the average life expectancy to higher values, inhibition of the aging process will also increase the natural human maximum lifespan.

It is a very reasonable possibility that pursuit of the leads we already have regarding the nature of the aging process will result in significant increases in average life expectancy with concomitant increases in the years of useful healthy life.

For example, the average lifespan of a number of strains of mice can be significantly increased by the addition of one of a number of relatively common chemicals called antioxidants to the daily diet. In some cases these increases in average lifespan have been as much as 25 to 45 percent and it may be that this could be done in human beings as well. With adequate funding it is almost certain that pursuit of the research leads we already have in aging, not to mention new ones, will result in practical means of significantly increasing the health lifespan in the next decade or so, while it is equally certain that continuation of our present disease-oriented biomedical research will not.

The other major area of biomedical aging research is concerned with the problems of the aged, the end result of the aging process. As a consequence of the increase in life expectancy prior to 1955 the percentage of individuals 65 years of age and over has about doubled since 1900 so that today about 10 percent are in the older age group, a percentage that will be maintained for the foreseeable future. The problems of the aged are not more important today than in the past, they are simply more visible because of the larger number of people and the fact that this group requires a disproportionately large share of the economic and medical resources of society.

The major problem of the aged is the maintenance of function capability, both mental and physical, to a maximum practical extent so as to make life worth living for as long as possible. This is a complex medical, social-psychological problem. The younger members of our society should be concerned with this problem, if for no other reason than enlightened self-interest, for in due time most of them will join the ranks of the aged.

Few of us are like the one-horse shay, so well built in all our parts that we will last for 100 years and a day and then, figuratively, suddenly collapse into dust. More of us will approach this ideal as we continue to apply to prevention and treatment our growing knowledge of aging and disease processes. A problem of particular concern in the elderly is senility, a condition in which in essence the brain ages faster than the body as a whole.

Here, as in the aging process itself, there are research leads that may result in delaying the onset of senility. For example, amyloid, a fibrous protein, is a conspicuous component of the senile plaques present in the brains of senile individuals. Amyloid formation is inhibited in mice by adding antioxidants to the diet. Could these same compounds do likewise in humans and thus delay the onset of senility?

Further, it has been demonstrated recently that treatment with hyperbaric oxygen has a beneficial effect in senile individuals.

Establishment of the National Institute of Gerontology will focus attention on aging. Since we do not know the causes of aging, the Institute should not, as some have suggested, try to influence the direction

of aging research in the scientific community as a whole. I would hope that the new Institute will say, in essence, to the scientific community:

1. Aging is an important problem for the following reasons;
2. This is what we know about it; and
3. Funds will be made available to carry out any reasonable biomedical aging research project.

Money for biomedical aging research is now at a very low ebb. For example, I am evaluating the effect of dietary fat on the lifespan, relative intelligence, and cancer incidence, in rats. This project is funded by the Department of Agriculture and will be finished within a year. At that time my research efforts which are already at low level will come to a halt unless I can again get research grant funds from NIH.

In addition to funding unsolicited biomedical aging research applications, an important function of the new Institute should be to actively expand current and future research results that show promise of leading to practical means of increasing the healthy human lifespan. Attention should also be given to the important problem of measuring the effectiveness of proposed antiaging measures in man.

This Institute, like the other National Institutes of Health, such as the Heart and Lung Institute, should confine its efforts to biomedical research, and in particular to the long-term goal of finding practical means of slowing the aging process and of improving our ability to maintain the functional capabilities of the aged so as to enable people to live longer better.

In summary: Aging is a major biological process. It is this process that now nullifies our efforts to increase meaningful years of healthy human life. The proposed Institute of Gerontology should significantly increase our knowledge of aging which in turn quite likely would result in practical means of increasing our years of healthy life and aid in making the declining years of life happier and more worth while.

Thank you.

Mr. ROGERS. Thank you, Dr. Harman. Dr. Carter.

Mr. CARTER. Would you tell me what antioxidants you used in your experiments?

Dr. HARMAN. We used BHT —butylated hydroxytoluene—and 2-MEA—2-mercaptolthylamine. We used the same type of preservative that retards rancidity in butter and that you often find added in small amounts to lard.

Mr. CARTER. Thank you.

Mr. ROGERS. Dr. Roy.

Mr. ROY. No questions.

Mr. ROGERS. Mr. Hastings.

Mr. HASTINGS. No questions.

Mr. ROGERS. Thank you, Dr. Harman. Your statement will be most helpful to the committee. We appreciate your appearing here today.

It is now 11 o'clock and we must go to the House. It will take only a short time to decide whether the legislation we are interested in will be dealt with. We will hope to return at 11:30 to hear all of our other witnesses. Please remain so that we can hear all of you.

The subcommittee stands in recess until 11:30.

(Whereupon, the subcommittee recessed until 11:30 a.m.)

Mr. ROGERS. The subcommittee will come to order, please. We will continue with our hearings on a National Institute of Aging and other

bills and programs proposed for the elderly. Our next witness is Dr. Edward J. Lorenze, medical director, Burke Rehabilitation Center, White Plains, N.Y.

Dr. Lorenze, we welcome you to the committee. If you would emphasize the major points of your statement you think are most important, we will make your prepared statement a part of the record following your summary.

**STATEMENT OF DR. EDWARD J. LORENZE, MEDICAL DIRECTOR,
BURKE REHABILITATION CENTER**

Dr. LORENZE. I will not review all of the medical demographic and sociological data that deals with the ills and misfortunes that can befall these people nor will I stress the importance of continuing basic and clinical research in the area of the aging process, both from a biomedical point of view and from sociological-behavioral point of view.

I have a point which is quite succinct, and I would like to develop a few things of my own activity and some of the processes that we have been involved with and which lead me to the conclusion in the support of this particular bill on a National Institute for the Aging.

It is a most necessary and too long delayed step. The medical director of the Burke Rehabilitation Center, which is the rehabilitation hospital affiliated with the Cornell Medical Center in New York, I serve as a faculty member at the medical school.

I am a member of the Aging Research and Training Committee of the National Institute of Child Health and Human Development, and a member of the Committee on Aging of the American Medical Association.

I am a past president of the New York Society of Physical Medicine and Rehabilitation, and of the Section of Physical Medicine and Rehabilitation of the Westchester County Academy of Medicine.

I have been involved in the practice of rehabilitation medicine for 22 years at Burke at the medical hospital, and as a consultant in a variety of community hospitals. Through that I have had considerable experience with the problems of the severely disabled of which the elderly make up the most significant part.

Therefore, my clinical activities have been largely engaged in this field in dealing with that segment of the elderly who are the most unfortunate from the physical and medical point of view, but recognizing the fact that they are not the picture before the total group of the elderly.

Many of them being relatively well and independent in their living and life arrangements.

The second activity out of which my appearance stems is the seminars of the American Geriatrics Society which were held in 1967, 1968, and 1969, where distinguished people, scientists, government people, teachers, clinicians, met to discuss over these 3 years and to distinguish the health care needs of the aging, medical education in geriatrics and social policy issues and health care of the aging. These seminars are also consistent with what I know to be informed opinions of which, I am sure, this committee is well aware of.

The second activity out of which my opinion arises was the White House Conference on Aging of 1971 which in brief developed and recommended two activities which I think are pertinent to the legislation under consideration.

No. 1, the identification of the fact that all the people simply fall between catharsis of health care, many of their needs not being met for a variety of reasons. Therefore, the necessity for the development of an organized system of the delivery of a comprehensive health care system.

The second recommendation of the White House Conference on Aging is the one pertinent specifically to the activity, the creation of a National Institute of Aging, which would be involved with both the medical aspect and sociological aspect of aging, pointing out the necessity for a marked increase in research and training activities in these areas.

The conclusion that I have arrived at, developing out of my personal experience, and out of the various seminars and conferences, is the fact that we require this National Institute of Aging, No. 1, for the expansion of research activity and research activity can be expanded in many important and significant areas.

My particular concern, however, is not alone with that point. My concern is with the other factor which is pointed out, that physicians in general share the attitude of the general public and hence are not alone in a tendency to look with some apathy upon the aging process in the elderly, and to turn from them particularly when they are not responsive to their medical skills.

In that, we will never have a comprehensive and satisfactory health delivery system in this country until we have physicians to man such programs and to man them in an interested and positive fashion, and with an appropriate attitude toward what can be done for the elderly and for the disabled.

The parallel is clear in all other national institutes, in the development of the National Institutes of Cardiovascular Disease and Neurology or any of the others, there is a partnership out of which stems, through the basic clinical research, support for the departments or divisions of major medical schools which provide the stimulation, the focus, the development of the interest and concern of medical students and young physicians in training, which lead them to follow the pattern of their peers and teachers.

This is something that we do not have at the present time in the area of chronic illness, and with chronic illness I would include aging. We have few models out of which the young physicians can develop an interest and a concern for this point of view; there are few university centers of medical excellence where they can have the opportunity of emulating eminent teachers, teachers who are involved in basic and clinical research, training, and in clinical practice, in order to serve as models.

Therefore, the point that I am making in my testimony is that, aside from the importance of the research per se to be carried out necessarily in the field of aging, there is the corollary of that which follows all other areas of medical specialization and training and service.

That is, the model of the medical center of the university in which you have both research, training, and delivery. We are not going to develop, by piecemeal training programs, the kind of physician leadership which is essential if we are ultimately to meet the health care needs of our aging people.

I think that in the present organization of aging activities within the National Institute of Child Health and Human Development that the amount of funding is small, the amount of staff is small, that the staff, although strongly motivated, is limited in the opportunity to activate and develop programs of this kind.

I would feel that in order to mount this kind of program in our medical schools, where the medical students can see the models of clinical and research excellence that he can emulate, that we require a separate National Institute of Aging, with the appropriate funding, leadership, motivation, sense of mission, and a strong correlation between the research activities and the clinical application of these which is parallel in all of our other medical school programs.

Thank you, Mr. Chairman.

(Dr. Lorenze's prepared statement follows:)

STATEMENT OF DR. EDWARD J. LORENZE, MEDICAL DIRECTOR, BURKE
REHABILITATION CENTER

Mr. Chairman and members of the subcommittee, I am Dr. Edward J. Lorenze, Medical Director of the Burke Rehabilitation Center in White Plains, New York, which is the Rehabilitation Hospital affiliated with the New York Hospital-Cornell Medical Center. I am currently Associate Professor of Clinical Medicine at Cornell University Medical College, a Member of the Aging Research and Training Committee of the National Institute of Child Health and Human Development, and am a Member of the Committee on Aging of the American Medical Association. I am a past President and Past Chairman of the Board of the American Geriatrics Society, which is a national organization of between 8,000 and 9,000 physicians who are concerned with the health problems of the aging. I served as Chairman of the Technical Committee on Health and Mental Health of the White House Conference on Aging in 1971 and, as Co-Chairman of the Health Section of the White House Conference on Aging—1971.

I have served as Past President of the New York Society of Physical Medicine and Rehabilitation and of the Section of Physical Medicine and Rehabilitation of the Westchester County Academy of Medicine, and as a Member of the Geriatrics Committee of the American Academy of Physical Medicine and Rehabilitation, and as Chairman of the Committee on Physical Medicine and Rehabilitation of the New York State Medical Society, and as a member of the Committee on Aging and Nursing Homes of the New York State Medical Society.

I also served as Secretary of the 8th International Congress of Gerontology held in Washington, D.C. held in 1969 and am currently the Secretary of the International Association of Gerontology and a member of the American Executive Committee and of the American Clinical Research Committee for the 9th International Congress of Gerontology to be held in Kiev, Russia, in June of 1972.

INPUT FROM CLINICAL EXPERIENCE

I am a Diplomate of the American Board of Physical Medicine and Rehabilitation and a specialist in Rehabilitation Medicine with particular interest and concern for geriatrics.

I have been involved in Clinical Medicine in the field of Rehabilitation Medicine for 22 years at The Burke Rehabilitation Center, the New York Hospital—Cornell Medical Center, and as Consultant to many community hospitals. This has brought me in close contact with the clinical problems of the disabled and the chronically ill, and perforce, since the aging make up the vast majority of such individuals, with the problems of gerontology and geriatric medicine.

Our Rehabilitation Hospital deals with the problems of chronic illness and disability primarily of those of age 55 onwards, with a great predominance in the sixth and seventh and increasingly eighth decade of life. Our concern runs across the board of organ systems and etiologies, including cardiovascular disease, neuromuscular-skeletal disease, mental disease and, of course, carries with it the sociological, environmental and economic problems which form the basic matrix for all people, whether well or sick.

INPUT FROM SEMINARS OF THE AMERICAN GERIATRICS SOCIETY

During the years in which I was primarily responsible for the program of the American Geriatrics Society, we initiated three Seminars held in 1967, 1968 and 1969, which were entitled "Distinguishing the Health Care Needs of the Aging", "Medical Education in Geriatrics" and "Social Policy Issues in Health Care of the Aging". These Seminars brought together a large number of persons with significant input into the problems of improving the health care of our chronically ill and aging population. A great wealth of information pertaining to the health care needs of the elderly and suggestions for the improvement of the delivery system and access to the delivery system were generated. The participants in these seminars included highly respected and capable scientists, educators, clinicians, health administrators, Government representatives from the Department of Health Education and Welfare, as well as representatives of the Congress and Executive Branch.

In his conclusions, Doctor George G. Reader, Professor of Medicine at Cornell University Medical College, noted that the final Seminar stressed:

The role of economics and poor environment; loneliness; lack of meaningful activity; lack of easily accessible health facilities; reluctance on the part of the public and the medical and health professions to take up the challenge of providing a dignified, satisfying life for the elderly; the problems of the older people in wending their way through the legal, medical and social complexities they cannot handle alone; despite the advances of Medicare, the fact that large numbers of elderly people are not receiving the benefits because they—for various reasons—do not have access to the health delivery system; the necessity of developing a model prototype for the provision of health care to the elderly; the need for an attitudinal change on the part of our people in regard to our older citizens and aging requires a nationwide catharsis and a new look at the great potentials of an individual as he goes into the fabulous later years of life.

INPUT FROM THE WHITE HOUSE CONFERENCE ON AGING—1971

(a) Summary of Background

A recognition of the fact that, while many health services are provided to the older segment of population, obvious gaps and deficiencies exist.

The identification of these gaps and inconsistencies will be a major concern. It should be recognized that a coordinated system of comprehensive health services is the objective, not independent and fragmented services without provision for continuity of care.

The goal of comprehensive health services is difficult to achieve without a coordinated system for a variety of reasons, including ignorance of one's needs, financial or geographical considerations which limit access to services which are available, lack of facilities and personnel to deliver the services. The quality of care provided will also be dependent upon the supply of manpower and the ever improving results of research. We should be aware that the product the delivery system brings to us must be a continually improving one. The medical care of 1900 is not the medical care of 1970 and the medical care of 1970 will not be the care of 1980. The necessity for continued research to improve the product is self-evident. We might be all able to get along with the 1930 automobile, but no one would accept the quality of medical care of 1930, which was then available to the most privileged in our society.

The elderly, despite gains in the area of Federal programs for payment of health services, continue to require special attention to their needs because of their particular social and economic vulnerability, as well as the fact that in the older age group the incidence of disease, disability and need for health care services of all kinds is so great. We must examine the special needs within this

group of those who are impoverished and those who, because of racial and ethnic origin, have been particularly isolated from the main stream of the existing Health Care Delivery System. The rural and urban ghetto areas, particularly, have had limited resources in terms of facilities and personnel needs to meet their health care requirements. The distribution of these services must be reconsidered and new and innovative ways must be developed to provide for them. The role of regional health facility planning and, indeed, health personnel distribution must be developed and expanded on a national basis, if the goal of comprehensive health care is to be achieved. This must include provisions for health education and preventive services, diagnostic and therapeutic services, rehabilitative services and programs for long term care with alternate methods to institutional care.

Consideration must be given to the fact that, while the achievement of these services for the elderly is our immediate and primary concern, in a larger sense we recognize that such a program must be available to all of our people, whatever the age. It is not conceivable that a system of this kind can be developed for the elderly to the neglect of other age groups. Our network of facilities, including physicians' offices, health care centers, clinics, hospitals, rehabilitation centers, long term care facilities and home care programs, must all be of high quality in providing both for the old and the young. It would be difficult to conceive that separate facilities, such as general hospitals, would be developed only for the elderly, but should continue to provide for all age groups. However, it may be some time until such a system becomes an actuality and the aged might well be considered a trial group for which this type of comprehensive health care program could be worked out and would provide the experimental basis on which developments for the other segments of the population would come about.

A variety of "National" health care plans have been suggested. These have primarily dealt with the financing of such care for our population. Probably nothing that could be considered a truly satisfactory comprehensive health care system has been outlined, nor have the details been spelled out. It may well be that it will be a considerable time before a comprehensive program for a National Health Plan will be developed. In our deliberations, we must stress the nature of the program that we would like to see developed. We should take care that our recommendations do not work adversely to the interest of the elderly or that gains which have already been made are lost. The attitudes toward the deficiencies in Medicare and Medicaid should be reviewed in the light of expanding the legislation and financing and not provide the opportunity for cutbacks and limitation.

We must remember that in this country we do have a system of delivery of health care services which, although failing to meet all of the needs of all of the people all of the time, has nevertheless provided tremendously effective service to a large population. It is the imperfections in this system which we are stressing, but one would have difficulty in finding examples of countries which have provided a quality of care on the scale which we have achieved. We want improvement, but we should not be ashamed or apologetic of the achievements to date.

There are many states in this country where the provisions under Medicaid have been quite broad for the elderly. The question to be examined is why there are inequalities in the level of services provided across the nation, and would bring us to ask why the quality of care and extent of services covered should not be national in scope and not vary from state to state? It would appear only right that the minimal standards of care acceptable should be national in scope and provision. Likewise, regional planning for health facilities and services should have a similar national scope as should the regulations and supervision of these services, so that the amount and quality would not vary from one area of the country to another.

Another matter to be considered is whether access to comprehensive health services should be a matter of right to all elderly people, regardless of ability to pay. A major criticism of the Medicaid program, even in the states in which a broad spectrum of services are available, is the fact that it is not a right available to all elderly persons, but is based on a means test. The Medicare Program and the services provided by it are a matter of right and not limited by economic need. These are financial and philosophical questions which will require considerable thought before satisfactory solutions are determined. One would have

to consider whether health care, like public education is a basic ingredient to the continuation of a successful free society such as we have developed.

I would particularly stress that we not lose sight of the problems in mental health. There are many who feel that lip service is given to this area, but that it is frequently overlooked. It is clear that our concern is with the total health needs of the individual and that the physical and mental aspects cannot be separated in our research, training and delivery programs, just as they cannot be separated in the individual human being.

(b) Recommendations of White House Conference on Aging, 1971

1. A coordinated delivery system of comprehensive health services must be developed to ensure continuity of both short and long term care for the aged.

2. It was recommended that a gerontological institute be established within the NIH to provide expanded research and training activities in the biomedical and socio-behavioral aspects of the aging process.

CONCLUSIONS AND RECOMMENDATIONS

A separate Institute on Aging within the NIH is essential if we are to develop the physicians necessary to deal with the health problems (prevention and health maintenance to long-term care) of an aging population.

It must have the size to provide the level of funding on a line item basis, an adequacy of staffing, inspired leadership, visibility, and above all, vision and commitment to the task.

Funding, adequate size of staff and visibility are not currently available. Leadership and commitment can not adequately express itself or initiate and mount the kinds of action necessary except in an independent institute.

Such an institute would have a Council devoted to this major and significant area of human life with responsibility for evaluating the major questions to be explored and determined priorities of far reaching consequence to our entire society, for example, "the desirability of extending biological life span without concern for the quality of life."

Such an institute which could support multiple basic and clinical research activities as well as training in medical schools are essential to serve as models so that medical students will perceive and be attracted to this field. They form their attitudes from their observation of their teachers engaged in research, training and clinical practice in a variety of medical fields and follow in their footsteps. If we are to develop leaders and through them the needed physician manpower to meet clinical needs, we must provide medical schools with the opportunity of developing such models in gerontology and geriatrics.

There is inadequate support and development of research programs geared to the needs of clinical medicine and related to the research interests of clinicians. The linkage between research and practice is not developed as in other medical fields in conjunction with NIH support.

If an independent institute of aging were in a position to stimulate and fund Divisions or Departments of Gerontology and Geriatrics in a number of medical schools on sound research, we would be in a position to attract an appropriate proportion of our best academic medical talent, mount training programs on the medical student, resident post-graduate level, develop model program of health care delivery and attract practicing physicians to these needed areas of health care delivery.

These are the models we have in medicine in other fields such as cardiology and neurology which have largely developed under the influence of the NIH system. I only ask that we extend this eminently successful mechanism to the field of aging.

Mr. ROGERS. Thank you, Dr. Lorenze, for your testimony. It is very helpful. I wonder if you have given any thought to approximate funding, as to what it should be?

Dr. LORENZE. I am sure, Mr. Chairman, that you and the members of the committee are more familiar with this than I am. My experience with it is as a member of the research and training of the National Institute of Child Health and Human Development gives me some indication.

The funds there are meager. I think at the present time they are in the neighborhood of \$11 or \$12 million, and they are not necessarily earmarked for this particular purpose. I would think that something, perhaps in the nature of five times or more would be in the order of magnitude to meet what I am talking about, the basic divisions or departments of gerontology and geriatrics in a significant number of medical schools throughout this country, so that we can get this attitudinal change, and eventually develop physicians who will be able to participate more fully in the delivery of this type of service.

Mr. ROGERS. Do you think that you will have sufficient people to do research once we begin to put some funding into the program?

Dr. LORENZE. I do indeed. I think that my own observations on this matter is that from the point of view of clinical departments of medical schools, the approach to the aging branch of the National Institute of Child Health and Human Development has been minimal.

I think that this is part because you have to go through as much, if not more, effort to develop a research program grant in an institute for which funding is likely not to turn up, as for one in which it can.

Mr. ROGERS. I understand that you feel that it is wise to provide for mental health programs for the aging?

Dr. LORENZE. An active program for mental health, for instance, in the community mental health centers to have actual programs there geared to and directed toward the aging is essential.

I would never separate medical and physical health. We are dealing with the holistic approach to an individual, particularly in geriatrics and gerontology, and these two go hand in hand.

So, the programs of research and service are both required.

Mr. ROGERS. Thank you very much. Dr. Carter?

Mr. CARTER. Nothing.

Mr. ROGERS. Dr. Roy?

Mr. ROY. Dr. Lorenze, I want to thank you for your statement. The inferences that you have put on this service aspect within the medical schools is extremely important.

I think that we are all aware of the fact that there are small groups of people only doing some teaching and some research without actually treating patients within the medical schools.

There is not likely to be a great deal of interest in the faculty members and others, we hear this type of story again and again. We are interested to see, and our medical schools are anxious to establish a three-legged stool of all these elements of research, teaching and service.

Too often, I think, the medical schools have neglected to serve this aspect within given departments such as the physical medicine departments on the aging.

So, I am quite interested in our proposal that we need health departments of geriatrics where young people can be attracted into this field of service.

Mr. ROGERS. Thank you very much, Dr. Lorenze.

Our next witness is Dr. Warren Peterson, director of the Institute for Community Studies, Midwest Council for Social Research in Aging, Kansas City, Mo.

Dr. Peterson, the committee welcomes you and we will be pleased to receive your statement, which will be made a part of the record. If you will highlight the major features of it, it will be helpful to the committee.

STATEMENT OF WARREN A. PETERSON, Ph. D., DIRECTOR, MID-WEST COUNCIL FOR SOCIAL RESEARCH IN AGING, KANSAS CITY, MO.

Mr. PETERSON. Our group consists of social scientists engaged in research in aging from Oklahoma to Minnesota and from Illinois to Colorado, and we unanimously endorse a national institute of aging.

It is very important that the national institute support inter- and multi-disciplinary research on the aging process. That is, the total process of aging, social, psychological, economic as well as biological, medical, and physiological. Specifically, the wording in the Senate bill 887 specifies medical, social, and behavioral research. We favor that kind of wording.

It has been clear for some time that physical and mental health are affected by social tension. An illustration of that, of course, is that when servicemen suffer nervous breakdowns under combat conditions, that is when it is felt most clearly.

It is also clear that the development of children is affected by the health and viability of their family and their community. The research that is being developed certainly indicates that the same thing applies to people in the process of aging.

The health care needs of middle aged and older people include health maintenance, rehabilitation, chronic illness, multiple illness, terminal illness, and all of these matters are distinctly interdisciplinary problems and are affected by the total living environment.

We have this problem which was mentioned earlier this morning on retirement and loss of activity. We have a little research that shows that some men either want to retire for the sake of their health, mental health, and general happiness; and others who are killed by retirement or wither away after retirement. We need to know more about how this takes place, and what we can do to prevent it.

Again, it is a problem of interdisciplinary research where we need physiological measures correlated with socialized activities, and we need the research on this over time.

What I am saying here is that there is a total feedback from social situation to psychological and physiological effects as well as a reverse of that. Physical breakdown effecting psychological problems, effecting or bringing about social withdrawal.

Another area, just to highlight these, which is beginning to open in gerontology is that nursing homes are total institutions. When someone goes to a nursing home their life is there in that place, their total daily life.

We know where there are cases of homes where the physical care, the health care is adequate and to a degree the physical requirements are met. Yet, people are miserable in those places. This is a matter of administration, social organization, the kind of morale, atmosphere and activities that are developed with the patients.

This needs to be worked on. It certainly affects the feedback to the mental health and the physical health of the patients, the people.

We have come a long way in the last 25 years on the general problem of the adaptability and educability of older persons. This is a matter of adulthood, middle age and aging. I think that the break through has been something like this, that the GI's who returned to college after World War II helped break the illusion that kids could only learn under the age of 21.

We are also beginning to correct the illusion that psychologists have developed along for a long time, intelligence reaches a peak at the age of 18 and then declined. That is kind of a complicated issue, and I will not go into it in detail here. We have cases of a few people who have creativity in their late years, we want to find out more about this and see if it can be expanded.

One of the things that sociologists have particularly done from the beginning of the word gerontology. They have taken a prime role in defining the nature and dimensions and future proportions of the problem.

They have tried to alert society of the fact that these problems were accumulating and needed to be met. We can cite references from 25 years ago, where predictions were made about this state of affairs that we are now in, and nobody took any action.

At any rate, we now need to address ourselves to what aging is likely to look like in the year 2000. This is on all fronts, from demographic projections to projections of health care and needs as the older population increases.

I would just like to mention something about the age of retirement. When you see signs and have some predictions from economists and others that the age of retirement is to be further reduced—it is down to 60 or 55—this means that we may be reaching a situation where the people will spend 25 years getting ready for work, 25 or 30 years at work, and then 25 or 30 years out of work after retirement.

Because of this, we need to push our social gerontologists on meaningful activities and this is not an easy problem. This is the particular case where we need to study successful aging and not just private cases.

One of the things that I did last year was to get students to go to a fair that is held annually in Kansas City, and we found people in late middle age, who took up their art 6 or 7 years ago, have taken to it and it is the kind of a thing that is going to carry them on after they retire from regular work. Everybody is not adaptable to that sort of thing.

We have studies of stamp collectors which show that it is a very nice preparation for aging, because you dabble in this through your adult years, and by the time you retire you are able to wheel and deal, it could become a full-time occupation, as well as an investment.

It is these kinds of things that we need to seek out in order to make life more meaningful after retirement.

Finally, I would like to mention one thing that some of us feel is quite important and quite relevant and does require a little bit of money. That is, we feel that there is need for a good national survey of how the adult public views aging for themselves and whether now they are planning for it, and the outlook that they see.

We think that such survey should be repeated every five years to keep tabs on the American public's view, views of this process. The reason we feel is that the majority of people up to age 50 just do not want to think about it at all.

We feel that there is considerable misinformation involved in the public's thinking. So, this is another thing that we feel is quite important indeed.

RESEARCH AS A STIMULUS TO ACTION

I would like to conclude by briefly amplifying on what Dr. Lorenze said about the need of research bases to train people to get out there and do clinical work. In the case of our field, social research, it is equally applicable.

What we have tried to do in the Midwest Council for Research on Aging is to get a small number of social scientists in our region, who are interested in aging, to enter into research efforts.

As we encourage their research efforts, we also find that they are training students. We also find that they work on State Commissions for the Aging, and on many more problems not in the field. So, you do have a significant, applied, practical effect from research support on aging.

(Mr. Peterson's prepared statement follows:)

STATEMENT OF WARREN A. PETERSON, Ph. D., SENIOR SCIENTIST, INSTITUTE FOR COMMUNITY STUDIES; DIRECTOR, MIDWEST COUNCIL FOR SOCIAL RESEARCH IN AGING; RESEARCH PROFESSOR, DEPARTMENT OF SOCIOLOGY AND SCHOOL OF MEDICINE, UNIVERSITY OF MISSOURI, KANSAS CITY

Gentlemen, I am pleased to have the opportunity to testify before this committee. As you well know, the organization and realistic financing of an Institute on Gerontology was recommended by the 1961 White House Conference on Aging. During the past year I have been in many situations where the matter has been discussed and recommended with renewed vigor.

Mr. Chairman, let me place in the record resolutions passed in April last year at the Annual Meeting of the Midwest Council for Social Research on Aging. Note that it calls for the establishment of a National Institute to support research and training on the *total process* of aging—*social, psychological, and economic* aspects as well as biological, medical and physiological processes.

H.R. 12308 does not make it clear that research on the aging process by social sciences will be supported, although the bill is addressed to the health and the mental health of the older population in a comprehensive way.

Let me point up some of the reasons that social scientists have been applying themselves to problems of aging and the aging population.

Social and Social Psychological Aspects of Health Problems

It has been clear for some time that physical and mental health are affected by social tensions. Some servicemen suffer nervous break downs under combat conditions, for example. The development of children is affected by the health and viability of his family and community.

The same thing applies to people in the process of aging. The health care needs of middle aged and older persons included health maintenance, rehabilitation, chronic illness, multiple chronic illness, and terminal illness—which is often long term. All of these are affected by the living environment. A man may have a heart attack, in part, because of problems at work or problems with his wife. If he wants to recover and wants to prevent a re-occurrence, then his living environment needs to be changed and this is not easy.

Retirement and Loss of Activities

Research by social gerontologists shows that some men need and want to retire for the sake of their health, mental health, and general happiness; others,

as we say, are killed by retirement or wither away in retirement. Interdisciplinary research is required on this problem. There is a subtle feedback from social situations to psychological effects to physiological effects—in some cases.

The Social Health of Institutions

When it becomes necessary for older people to go to nursing homes or similar facilities, their total daily life is there. There are cases of homes which provide good health care and good food but the patients or residents are miserably unhappy. A number of social gerontologists are addressing themselves to this problem. It is not a simple one.

The Educability and Adaptability of Older Persons

We have come a long way in the last 25 years from the time when it was believed that only children and young people could be educated. The G.I.'s who returned to college after W.W. II helped break that barrier. One of our students did a study of officers who return to college after retirement from the armed services and find they are doing very well indeed. Robert J. Havighurst and others recently have been doing a little research on late life careers. We know that a few people blossom out in a creative fashion in late years. We don't know what the possibilities are here. We are beginning to find out that social isolation and disengagement are very unhealthy, and that people who stay active are likely to remain healthy and vice versa.

What I've tried to do here is to give a very few illustrations of the kinds of things social gerontologists are beginning to do—things which have a significant impact on the health and well-being of older persons. Other areas should be mentioned.

The Future

Sociologists who became interested in aging 30 or 40 years ago began to define and predict the nature and dimensions of the problem. They tried to alert the society to the fact that a larger portion of the population would live to advanced age, economic problems, world increase, and health problems would compound. Now, we need to address ourselves to the problems of aging in the year 2000.

The Age of Retirement

One aspect of this is the possibility that the age of retirement will be pushed back to 60 or 55 in order to accommodate a younger labor force. If this happens—or has to happen—then we need to work hard on expanding horizons for meaningful activities—and this is not easy.

We've been doing a little research on people from Kansas City and St. Louis who retire early in the Missouri Ozarks; and on stamp collectors and other creative hobbyists whose interests carry on after formal retirement from work. *We view it very important to study successful aging as well as problem aging.*

A number of us, under the auspices of the Gerontological Society have been defining research goals for the future. The Section which I chaired recommended a *national survey of how the American public views aging for themselves*. There is a lot of misinformation and a whole lot of avoidance. Everybody concerned with aging, including Congressmen, needs this information. Such surveys should be repeated every five years, in order that we can trace changes and adjustments to a situation which is really new in history—a major portion of the population living into advanced life.

Let me conclude by saying that we are very pleased that this Committee has an interest in the possibility of establishing a National Institute on Aging. Research and training in aging is extremely important.

RECOMMENDATIONS FOR MORE EFFECTIVE RESEARCH AND POLICY MAKING IN AGING

The following were passed unanimously at the Annual Meeting of the Midwest Council for Social Research in Aging held at the Hotel Radisson, Minneapolis, Minnesota, April 29, 1971.

Whereas:

The population 65 and over constitutes 10% of the population, 17% of the voting population, and over 20% of the poor.

During the last decade, the number 65-74 increased 14.8%, the number 75 and over, 42.5%, and the number of institutionalized aged, 62.6%.

There is an apparent increase in the segregation of older persons from the rest of the population, in uselessness and deprivation among the aging, and in "ageism" as a form of intergroup prejudice.

The United States, together with other nations who have been able to apply advanced medicine, is confronted with major adjustments to the effects of longer life for a larger and larger proportion of the population.

The opportunities as well as the problems of aging affect the entire population. In addition to efforts to ameliorate the conditions of the socially and economically deprived aged, the situation requires major research, education, and policy making efforts to insure that longer biological life is complemented with a longer and fuller social psychological life for the American population.

Therefore, we recommend:

First: That the Administration on Aging, in accordance with law and the intent of Congress, be reconstituted as a separate administration within the Department of Health, Education, and Welfare; and that it be accorded the status and the appropriations needed for the continuing development and coordination of national policies to insure fuller, as well as longer, life for the American population.

Second: That a *National Institute of Adult Development and Aging* be established for the purpose of conducting, supporting, and coordinating research and training on the total process of aging—social, psychological, and economic aspects of aging as well as biological, medical, and psychological processes.

The Midwest Council for Social Research in Aging is an association of social scientists concerned with more effective research, training, and policy making in the field. Membership is from the states of Colorado, Illinois, Iowa, Kansas, Minnesota, Missouri, North Dakota, Oklahoma, South Dakota, and Wisconsin.

Mr. ROGERS. Thank you very much, Dr. Peterson, for your testimony. We appreciate your being here and your helpful suggestions to the committee.

Dr. Carter?

Mr. CARTER. Thank you, Mr. Chairman; I notice that you mention that people are killed by retirement and sometimes it works the other way. I must agree with that.

These people are engaged in other activities. Activity is very important when you speak of social isolation, and this happens sometime when people retire, and it should not occur.

Along the same lines, when retirement at age 55 or 60, which you state, will cause great problems throughout our country. If we are going to attempt to do something like this, we should plan for it. We should probably strengthen ourselves for a shock, because we may lose a lot of knowledge and expertise if this comes about.

Thank you.

Mr. ROGERS. Dr. Roy?

Mr. ROY. Thank you, Mr. Chairman, I would like to join you in some of that research, especially when the bass are biting. I have no questions, thank you very much.

Mr. ROGERS. Thank you very much, Dr. Peterson.

Our next witness is Mr. William R. Ewald, Jr. Mr. Ewald, we welcome you and we will be pleased to receive your testimony.

STATEMENT OF WILLIAM R. EWALD, JR., DEVELOPMENT CONSULTANT, WASHINGTON, D.C.

Mr. EWALD. I have four pieces of information which I have just one copy of. I will give them to the reporter when I am through. I will just pick out some highlights to be quick.

I should explain just a little about the context in which I will try to speak. I am a city and regional planner with 25 years of experience. In the last 10 years, I have been primarily investigating the long-

range consequences of this great time of change we are entering, something I think the Congress, the President, and the corporations of the country are able to address because they work in the discipline of the short term.

This is evidenced in one way by the difficulty that we have had with the proposal of the 1961 White House Conference for a Gerontological Institute. We are still talking about it in 1971. I think that the real problem has been that despite the need, it has been difficult up until now for a politician to enhance his career by putting his time and energy into an Institute concerned with aging.

But now we have grown from six to 20 million people over 65. And it is not only the elderly that are concerned, but their middle aged "children" who have the ultimate burden of their parents' medical and retirement expenses, the way their parents live, and how they don't live.

I am speaking as a social researcher and investigator; as a planner concerned with older people. In so doing it is necessary to attempt to understand the long as well as short term relationship of everything in society at once. This is perhaps the great difficulty and reason we are not facing problems such as aging. They are complex, difficult and the reward for attending them is too uncertain, or often counter to short-term gains for the decision makers.

We break societal problems out of the total real life circumstance. Then we find the constituency for each problem. If a constituency is not to be found, no program is mounted. There is this problem concerning psychological difficulty, as Karl Jaspers said when the atomic bomb went off, "we don't want it to be true," that each one of us is responsible for the fate of mankind. Psychologically, confrontation of the problem of aging is too much of a burden, "the truth is not enough."

People just don't like to think about painful subjects. The future is a painful subject, and beyond the two-year span of time that most people live in, aging is a painful subject. This brings about a lack of attention.

The first point which I am addressing today is an extract from the book "Creating the Human Environment" in the first part of the American Institute of Architects Report published in 1970.

In this investigation, I was trying to look for major future changes that are the most likely in society, whether they can be sustained or managed by existing processes or if there are possibilities that we need to attend to which are not being given adequate attention—because they really don't pay off soon enough for the people who are in the position of making rules and decisions.

If we are thinking about a human environment in a time of extraordinary change, which some of us that have looked at it believe is equivalent to the industrial and agricultural revolutions, we have to question every existing process and institution for their adequacy. We have been managing what I used to call an "epoch" as if it was a time of "business as usual." Among the great potential of this epoch is healthy, longer links. Research in aging is one of the system breaks that I have tried to identify, among many others. There is the genuine possibility of really healthy old age and an extended life span. These are two separate things.

The "One Hoss Shay" effect has been mentioned. I think that this is the way that everybody would prefer to go, all at once. I think that the possibilities of having people living to the age of 80 with the vigor of a 45- or 50-year-old is right there in front of us, if we really want to invest the research effort to really go to it.

I am saying this just from looking at the contrast with what could be done and what is being done, as an innocent investigator with no particular axe to grind. It is an exercise that requires trusting your mind rather than waiting for the expert. You can allow yourself to think on almost anything if you trust your mind.

The amount that is spent on aging is pitiful. That is the only way to describe it, in terms of the aging process disease, or if we think of elderly as humans, in terms of the social disasters we permit.

Yet, we are talking about the phenomenon of the whole life cycle that all of us go through—but which we can't bear to think about, apparently. Nobody gets elected or paid fast enough, well enough to tend it up until now.

I think that looking at all the possibilities for all sorts of system breaks, the potential for a healthy old age; not how to live healthy longer, but a prolonged, comfortable existence, and then later on the extended life span, after, let us say, the year 2000.

My studies in "Creating the Human Environment" were looking at 1985 and 2000. These are genuine possibilities and there is a little bit gleaned on this in terms of making it happen, not to pass this kind of bill and wait for a researcher to come in a situation where the dice are loaded against him to begin with, in terms of getting a real hearing.

In contrast to the appeal there is in research on children in the present NIH organization, but in the circumstance where you not only receive proposals through an institution, but there is structured research where you seek research in the areas that need work.

I have found there is a Dr. Olin at the Presbyterian Hospital in Chicago who had an interdisciplinary research into the aging process and his Federal funds were cut off. One of the statements one hears continually is that there are not enough researchers in the aging process. Just through a simple investigation like this you can find reputable research potential in aging that is not being funded.

I refer to the book, "Creating the Human Environment," and I will put part of that into the record (exhibit I).

The second point I'd like to make is in regard to some correspondence that I had with Secretary Finch back in 1969 just when he came into office. I had known him casually as a friend before then. Having gone through background investigations for the AIA study "Creating the Human Environment," I wrote to tell him that it seemed to me it would be wise if he did not try to defend the anemic funding of aging research. This originated some correspondence which I asked him to make available for the public records and which I will now provide (exhibit II).

The general statement that I want to extract from that correspondence is in the June 1969 letter, which talks about the amount of research being done, and includes the apology that the funding of aging appears small. Mr. Finch refers to the lack of interest among scientists. They made only 103 out of 8,603 proposals received by NICHD—

this is back in 1969. Also, he refers to the adequate focus on basic biology of aging in the academic community.

What is really being said in these letters is that there really is not much more that can be done right now. That seems to be the gist of the correspondence.

The third point I would like to make is —

Mr. ROGERS. May I interrupt, the figure that he gave you for 1969 was 103 applications?

Mr. EWALD. Yes.

Mr. ROGERS. That is exactly the same figure as I recall and Dr. Roy recalls which they gave the committee as of the present time. So they are saying 103 in 1969 and 103 now, it seems to be a magic figure. I don't know, it is very interesting. It seems that they keep it as 103, I would say.

Mr. EWALD. It is possible that politically there is not enough of a payoff until now in aging. I am looking at our society in general, when I make a statement like that.

The third point is in a paper for the Center for the Study of Democratic Institutions, "Healthy, Longer Lives—What Might it Mean?" (exhibit III). In this I quoted Dr. Shock's statement that until we get a clear concept of what the role of the aged should be in society—which he said he did not know, he was not interested in extending life.

He has a program over in Baltimore which is one-third to 50 percent staffed, in a partially empty building built for training the people who are supposed to be doing the gerontological research that many say we don't have enough people to do. There are not enough people interested in this, he is under funded, he pays the people. This raises the basic point: it may be that looking at longer life as a health problem misses the point. That may be a part of it, but maybe really the whole purpose of life is what starts to come into this question, and where the interdisciplinary organization of an aging institute becomes mandatory.

In the Federal Government at this time, operating in response to constituents, or however the money finally gets into a pot, it will require real stimulative efforts to enter into holistic research—or research into many other basic issues. This calls for processes ongoing; institutions that actually package interdisciplinary study, actually encourage and direct it.

We will have to employ many different specialists. For instance, people who seem to live 5 years longer if they live in the country: Why? It appears that the deaf look younger. Is that because they have avoided understanding the complexity of the life they are in, or because the noise of our society is turned off?

It would seem the time that we are getting into now—the epoch—we will have more leisure, not only because we are going to live longer but also because we are talking about the 4-day workweek, and from 40 hours to 32 hours work for many more very quickly. Maybe we could look at the elderly experimenters and pioneers into this leisure epoch rather than as just big social or health problems; pioneers to the way of life that we are all going to be aiming to, but which they are already into. They could be looked upon as leading the way for us all. Also, in some of the old there is wisdom to be sought out and

used. Living out a life is one of the few ways that men and women become wise. We have older people with capacities that can help bring about understanding of what a healthy, longer life means and what life itself means to the whole society. Maybe it is the older people who are going to lead the way with the assistance of an Aging Institute.

So, aging becomes an opportunity and a contribution to be looked after, rather than merely welfare and/or health problems. Sixty-two percent of the Federal health care budget—spent on people 65 or over—may thus become something else. But who can back off and look 20 to 50 years ahead today. Politicians are going to be reelected on the issues of the present one of the next 3 to 5 years. That is a practical problem. We are at a state now in this society, where the practical people seem to be destroying it under the guise of being practical.

I think this would be an acceptable general statement for those who have been able, somehow or other, like myself, take time to look at what is really going on. Those operating in decisionmaking capacities seldom have this opportunity. When you are in an operating situation all the time, you don't see that with all good intentions, the existing institutions seem to be unable to handle what is facing them.

Maybe, the most destructive kind of thing is the normalizing of this time of such great change, when what we have to do is to invent the institution and the process to deal with it.

I would say that with regard to aging, that we are talking not just about the services that are needed, and not about health only, but the real meaning of life and the whole cycle of life, and that the people in the kind of aging institute we are discussing today must be more than "biomedical" in their concerns (see exhibit II).

The final thing is the White House Conference on Aging in 1971. I had misgivings about taking part in it. But I did on the Committees on Planning (exhibit IV).

It may be that there is one major conclusion for the White House Conference of 1971, which one would be more meaningful than just the 2 to 3 year outlook it seemed to express. That might be that we support the programs now that were proposed in the 1961 White House Conference. An Aging Institute was proposed in 1961.

In looking just at social inventions, it seems that it takes 15 to 17 years for social inventions to mature. We are at a time now, when I don't believe we have 15 or 17 years for certain basic ideas to mature. And we don't have the processes that acknowledge the technology or the question of the changes in value of people's expectations, if we do admit we are going to have to accelerate present decision making.

Maybe 10 years is enough to mature the aging institute idea, and the aging institute ought now to be mounted, in the context of the times we are into—an epoch. The idea that existing institutions are able to handle what is happening now should be the first thing open for question.

What we need, are Congressmen who are in office for 4 years, not 2 years, as President Eisenhower proposed. We need a lot of other changes, but it is basically very difficult to operate effectively in managing change simply by adding a few dollars here and there to existing programs such as aging research under the constraints of short term pressures.

One must admit that it is 20, 30, 50 years responsibilities we are dealing with and if you are talking in those terms, we must talk in terms of institutions. The answer is not just adding a little bit to what there is now.

(Exhibits I through IV, referred to, follow :)

EXHIBIT I

EXTRACT FROM "CREATING THE HUMAN ENVIRONMENT"

(A report of the American Institute of Architects by Gerald M. McCue, William R. Ewald, Jr., and The Midwest Research Institute)

HEALTHY OLD AGE AND EXTENDED LIFE SPAN

If by the end of this century people commonly live to be 80 with the vigor of 45 to 50 year old, *that* would be a surprise.

Thirty years ago life expectancy was 70 (to the year 2010). As it is now, a baby born in 1970 can be expected to live 76 years (to the year 2046). Some experts are willing to add another 5 to 7 years to the life expectancy of a baby born before 2000 (others only 3 or 4 years)—but these extensions do not speak of the human concern for added *healthy* years. Until as late as the early 1950's, lengthened life expectancy was still primarily due to the cut in death rates at birth and in early childhood. There is still some gain to be made there, particularly with the blacks. But as Rene Dubos has said, "A large part of the increased life expectancy in the older age groups represents merely prolongation of survival through complex and costly medical procedures, rather than healthy years gained from the onslaught of disease. It corresponds to what has been called medicated survival."

There are several good reasons for expecting the surprise of healthy old age.

(1) The causes of death are concentrated, 52 percent in cardiovascular-renal diseases and 16 percent in malignancies. Discoveries related to these—whether in regard to cells, pollution, stress, or diet—would have dramatic effects in health immediately and in population totals within ten years.

(2) There seem to be several promising research potentials deserving support which, if adequately funded, might well produce major results in five to ten years.

(3) Current research efforts into aging could not be more minimal. There is now no sustained, comprehensive long-range effort. Modest new federal expenditures could have major import.

(4) Politically, retirees are becoming a new force. Growth in number of people over 65 is striking (as is their steadily improving education). In 1970 people over 65 will total 20 million. In 1900 there were 3 million, by 1930 that had doubled. By the year 2000 there will be at least 28 million. By the year 2000 instead of having a grade school education, over 50 percent will have been to college.

(5) Transplants.

(6) Right now 30 percent of the people over 65 are below the poverty line (\$3000). Their median income is \$3645 versus a 1970 U.S. median of \$9000. With creeping inflation and fixed pension incomes, this situation, without public intervention, will not improve. The poverty line in 1985 may well be \$5000. The burden of lifetime's heaviest medical expense for these and other old families will fall on their largely middle class children. This gives this "minority" problem a majority political vote.

(7) The earlier, healthier, and better educated people are when they are retired (all three can be anticipated), the more vigorous they can be expected to be in working as a group to improve their health, their roleless status in society, and their standard of living.

The issues listed above should work to change political priorities in the direction indicated by the White House Conference on Aging in 1960 (and by current Senate Bill S. 870 and the campaign statements of President Nixon). If they do, it can be anticipated that the institutions and funding needed to utilize existing breakthroughs and to find new ones will be in operation by the early 1970's, with results for application before 1980. And healthy life to 80 conceivably could be commonplace by the year 2000.

Man's life span is considered 90 to 100 years today. It is not very likely there will be change enough in that by the year 2000 to be relevant to those reading this. But extending healthy life to 100 years, 200 years, or more, is a system break to look for after the year 2000. It would take at least a generation to attempt to assimilate what this will mean to the individual. It is worth considering now because of the tremendous impact it would have; the whole purpose and style of life would back up to decisions to be made in this century.

Nobel Laureate Linus Pauling has said:

"Death is unnatural . . . theoretically, man is quite immortal. His body tissues replace themselves. He is a self-repairing machine. And yet, he gets old and dies, and the reasons for this are still a mystery. When once a real understanding of the physiological activity of chemical substances is obtained, medical progress will be swift. The medical research man will be a molecular architect. He will be able to draw the atomic blueprints for promising pharmacological compounds. Chemists may then synthesize them and biologists test them. He will be able to analyse and interpret the structure of enzymes, tissues and viruses to learn the mechanisms of disease, and then the way of combating diseases. When this time comes—and it is coming—medicine will indeed have become an exact science."

Many other scientists agree. Others like Rene Dubos are concerned especially with the environmental impacts on the health of man.

Robert W. Prehoda's book, *Extended Youth*, begins an exploration of what may be feasible. Figure I-6 is reproduced from it. If all major illnesses (including heart disease, stroke, and cancer) were eliminated, the human life span would be extended into the grey area of Envelope One. Control of the aging process itself would extend life into Envelope Two to 200 years old or more! Then at last we would have the thirty years it make take, with accelerated education facilities, to transcend the constraints in the multidisciplinary approach and create the holistic approach. Other questions arise. How many marriages if one lives 100 to 200 years? (In Christ's time 30 to 50 years was normal.) Just the two Margaret Mead is already advocating? Or communal marriages?

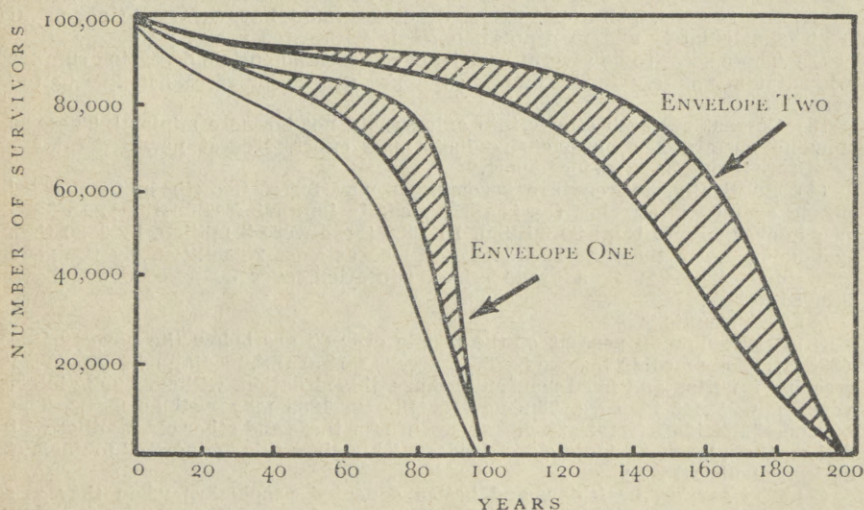


FIGURE I-6. *Extended Life—200 Years+?*

The study of body protein and DNA has gone too far to dismiss the surprise of greatly extended life. After 2000, just when we may have gained control of the world birth rate at the 7 to 9 billion level, we may have invented a century-long problem of another way to the double population by greatly extending the life span. It is not too soon to think and prepare for this. On our way to a life span of 100 to 200 years, we will no doubt pass through a period of prejudice termed "ageism" similar to present-day "racism." All the old bodies around in a youth-cult age possibly will be resented. Furthermore, old people asserting their

rights in "unreasonable" ways will probably create as much social dissension as the black has in the world of today.

* * * * *

HEALTH

Surprises should be sought and expected in four underfunded areas concerning health:

(1) virtual elimination of the two big killers (68 percent of all deaths), cardiovascular-renal diseases and malignancy—initially a greater R&D effort;

(2) a reduction of deaths caused by poverty, especially Negro infants under one year—a greater application effort;

(3) the realization of healthy old age—initially a greater R&D effort;

(4) adoption as federal policy of a more comprehensive research and preventative approach to health concerned with the whole man, his total environment, and the meaning of a "good day" for him in it—R&D and application.

It is necessary to look at a cause of death table (Table I-13) to be convinced that research efforts concentrated here would make startling differences both in the rate at which people die and subsequently in the increased number of healthier old people in the environment. It has been estimated that ten healthier years would be added to life if there were "total" cures in the basic two causes of death—cardiovascular-renal diseases and malignancy. Recognizing the great mysteries and the great varieties of these diseases but anticipating that much greater research efforts than at present will be made on a world-coordinated basis, we would look for the "surprise" of real breakthroughs in adding substantially to both the length and health of people's lives.

TABLE I-13.—RATE AND CAUSES OF DEATH

Cause of death	Deaths (thousands) 1965	Deaths per 100,000 population 1965 estimate
Tuberculosis, all forms.....	8	4.1
Malignant neoplasms.....	296	152.9
Diabetes mellitus.....	33	17.1
Major cardiovascular-renal diseases.....	1,000	515.9
Pneumonia.....	59	30.6
Ulcer of stomach and duodenum.....	11	5.4
Cirrhosis of liver.....	24	12.5
Infections of kidney.....	10	4.9
Accidents.....	107	55.2
Suicide.....	23	11.6
Homicide.....	10	5.3
All causes.....	1,825	941.6

One has to be over 65 before he again reaches the same chance of death as in the period from childbirth to his first year. The U.S. death rate for infants (under 1 year) in 1966 was 23 per 1000 population. For the black in poverty, the infant death rate is double that. The death rate of the black poor at all ages is nearly double. It is also high for all the poor. In fact, it is now being estimated that by concentrating on improving the health of the poor through better housing and nutrition, the total U.S. death rate would be reduced from the present 9.6 per 1000 to 7.3 per 1000—the synthesis of the best experience elsewhere in the world.

When people understand these facts about other humans, the surprise expected is that the needed funds will be voted. This is a matter for direct public stimulus.

Expecting the surprise of healthy old age has been discussed elsewhere (page 48). Anticipated breakthroughs in the causes of cardiovascular-renal diseases and malignancies are the foundation for such cheerful hopes. But a look at the pitiful resources presently being put into gerontological research today is enough to convince one that we have every reason to expect improvement there.

Not more than \$14 million per year in federal money is going into the research on aging. It is as if no one is seriously interested. Yet we are all going to be old and we know we would all like to be healthy when we are! This may be another evidence of the phenomena of our time of living exclusively in the here and now.

Or it may simply be an example of very poor administration and neglect—a dramatization of the “impossibility” of directing aging research in the diffuse Department of Health, Education, and Welfare (HEW). It seems the old and sick, unlike the poor or the student, haven’t had their riot yet. Supposedly, they are part of the National Institutes of Health under Child Care and Human Development. But there they are allotted only 10 per cent of the NICHD’s budget, only a tiny fraction of the federal government’s \$1 billion plus for medical research.

There are a number of approaches to living longer and healthier. One is not to live in the city. A study by Hardin Jones shows people in rural areas live five years longer than those who don’t. In biochemistry one emphasis is in understanding and mastering the regenerative power of cells in the human body. An approach through another sort of research is worth noting also. Dr. John Olwin at Presbyterian-St. Luke’s Hospital in Chicago is among those who are studying the aging effect on the circulatory system of salt water fish as they swim up fresh water rivers to spawn. Apparently steelhead trout and salmon pass tracer metal elements through their gills and age very quickly. The salmon die “of old age,” but the steelhead trout swim back to salt water and recover their youth! Dr. Olwin’s multidisciplinary team studying these effects and relating them to tracer elements clogging the human circulatory systems has been disbanded due to federal budget cuts. He estimates it may take five years to reassemble his effort but that for \$500,000 a year for five years, he would be able to add significant useful knowledge to the search for healthy old age.

It has been said that the doctor-patient relationship has contributed only a negligible part of the drop in U.S. death rate from 17 to 11 per 1000 in the first thirty-five years of this century. Most of the credit is given to the public health authorities. “The cleanup of water supplies, sewage disposal, food inspection, the installation of indoor plumbing and other master urban technology . . . a wide range of professional capacities were responsible.” In 1900, 25 percent of the total death rate was attributable to diarrhea and pneumonia in infants. Antibiotics and other victories from 1935–1955 dropped the rate from 11 to 9.6. It is the degenerative diseases associated with the aging of organisms that are the causes now, i.e., cardiovascular-renal and malignancy.

The total man is the next direction and concern for “Optimum Environment with Man as the Measure.” To conceive such an approach means first to acknowledge that knowledge concerning man in his environment is at a low level and that there is no comprehensive scientific approach planned to reduce the human costs of this ignorance.

The subject is enormous, complex, abstract but as real as a cough or a heart beat. The public already knows that they want and will pay for fresh air and fresh water. The human environment begins with fresh air and fresh water but doesn’t end with them. After discovering the means for the various disciplines concerned with creating the future environment and the interested public to work together to assess this situation, there are some surprises to expect. The first surprise would be medicine and public health, combined with architects-planners-engineers, leading the way to a great comprehensive new program not only for prevention of the bad societal conditions, but for the creation of the good ones. The second surprise, as leisure increases and as the percentage of educated people grows, would be to observe the evolution of societal attitudes until, after the year 2000, their primary concern becomes the creation of the future human environment.

EXHIBIT II

WASHINGTON, D.C., March 6, 1969.

HON. ROBERT FINCH,
Secretary, U.S. Department of Health, Education, and Welfare,
Washington, D.C.

DEAR BOB: Shouldn’t this be a first priority effort within HEW?

Cordially,

WILLIAM R. EWALD, JR.

Enclosure: S. 870.*

*Not printed.

THE SECRETARY OF HEALTH, EDUCATION, AND WELFARE,
Washington, D.C., April 14, 1969.

Mr. WILLIAM R. EWALD, Jr.,
Development Consultant,
Washington, D.C.

DEAR BILL: I share your concern for the priority that the Department of Health, Education, and Welfare places on biological research for the aging. This Department will carefully review the provisions of S. 870 as those provisions relate to the scope of the present program conducted within the National Institute for Child Health and Human Development.

Recently, I have talked with some of the nation's experts on aging in an effort to evaluate the effectiveness of current gerontological research undertaken by the NICHD. Let me share with you some facts describing the dimensions of the aging program supported by the NICHD, and let you decide for yourself whether that data represents the priority effort which you believe is needed.

The National Institute of Child Health and Human Development focuses its efforts into five program areas ranging from prenatal development to senescence. The legislation establishing NICHD requires that the study of the aging process be interrelated with the study of the entire human development process.

In fiscal year 1969 approximately 12% of NICHD's budget is to be expended on research and training related to the study of aging. This represents an increase of nearly \$1 million over the 1968 fiscal year budget. In fiscal year 1968 research and training related to aging broke down as follows:

Research grants	\$3,549,331
Training grants, fellowships and research career development awards	2,177,491
Research contracts	48,241
NICHD Adult Development and Aging Information Center	41,160
Direct extramural operations and conferences	139,577
Direct research (Gerontology Research Center)	1,742,179

Total	7,697,979
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Sincerely,

ROBERT H. FINCH,
Secretary.

* * *

WASHINGTON, D.C., April 18, 1969.

HON. ROBERT H. FINCH,
Secretary,
Department of Health, Education, and Welfare,
Washington, D.C.

DEAR BOB: I appreciate receiving the reply of April 14 concerning aging. As to the adequacy of priority demonstrated by the current expenditures through the National Institute of Child Care and Human Development, as far as I can determine the effort is insignificant for this nation. I have the temerity to make this sort of statement only because of my recent investigations to locate weaknesses and opportunities in current national efforts. I'm looking for the place where by applying minimal but adequate efforts, breakthroughs could be predicted. One of them seems clearly to be in regard to healthy old age—and extended life span. The \$7.7 million that is now being spent by NICCHD can hardly be classified as adequate.

One way to look at it is from the top down (1968):

R. & D. Federal Expenditures

[In millions]

Total	\$17,000
HEW	1,184.0
NICCHD	69.3
NICCHD study of aging or related	7.7

\$7.7=.45% of all R&D, 11% of NICCHD budget and approximately 4¢/U.S. citizen per year.

The other way is from the bottom up (1969).

Talking with gerontologists, biologists, life insurance companies and foundations around the United States in recent months has left me with the distinct impression:

(1) only \$1-2 million in federal money per year actually goes into solid research, both geriatric and gerontological;

(2) 2-4 years is the typical period for sustaining a research project—if "results" aren't assured before then, the project is not even authorized (Dr. Shock's work is an exception);

(3) We are only 5-10 years away from both applying and developing several major breakthroughs that would help to develop a healthier old age, but these must be funded with that 5-10 year time-frame in mind;

(4) something like \$25,000,000 annually in *research*, building in 3-4 years to \$75,000,000 is more the order of magnitude needed than the present \$7.7 million;

(5) multidisciplinary research for reasons given above is not favored.

A third way to look at this is to count the political costs of defending an insupportably small program inherited from another administration that has been castigated as mislocated in NICHD to begin with, and in violation to a mandate given by a White House Conference on Aging in 1960. This affects so many old people and their families (and *us*) yet to boost the budget and reorganize the effort to get it started would be relatively inexpensive.

I appreciate the chance to carry this correspondence further.

Keep up the good work. We need ten more like you.

Cordially,

BILL

WILLIAM R. EWALD, Jr.,

* * *

THE SECRETARY OF HEALTH, EDUCATION, AND WELFARE,

Washington, D.C., June 2, 1969.

Mr. WILLIAM R. EWALD, Jr.,
Development Consultant,
Washington, D.C.

DEAR BILL: I am answering your letter in some detail since the questions you raised are complex. There are, of course, medical, psychological, and social problems, involved in aging, but since your concern is for biological research. I will limit myself to that aspect of the problem.

I agree that the amount of research being done on the biology of aging appears to be small. The proximate reason for this is lack of interest among scientists in conducting such research. Last year only 103 of the 8,623 research proposals submitted to NIH were relevant enough to aging to be assigned to the Adult Development and Aging Branch, NICHD. In that same year NICHD received a total of 992 research grant proposals.

Because the funds in NICHD's appropriation for research grants are not earmarked for specific areas, the growth of each research program within NICHD depends on how its proposals fare in competition with all others considered by the Institute. Successful competition depends on the number of grant proposals submitted and their relative scientific merit.

All the programs in NICHD—including that on aging—have grown. However, aging has grown only in proportion to the total grant program of NICHD and still receives, as it did when the Institute was established in 1963, only ten percent of NICHD's research funds.

I believe the evidence is clear that not enough scientists have been interested in aging research to advance it at a faster pace. If you have a different impression, I believe it is because you have been talking to a highly articulate but very small minority of scientists who are deeply committed to aging research. We consider that the underdeveloped state of research on aging places a special responsibility on NIH and NICHD to stimulate and support such research.

Research and training programs of NICHD are designed to meet the problems of very little aging research and too little scientific involvement. NICHD's Advisory Council is concerned that aging research be vigorously developed. Its members have made useful recommendations with regard to administrative arrangements for facilitating the development of aging research. As a result of one such recommendation, core grants for support of comprehensive centers for aging research will be established.

An adequate academic focus on the basic biology of aging does not exist. This summer NICHD is beginning an annual course on the basic biology of aging under

contract with outstanding universities. The establishment of this summer course will advance research in this area by: 1) interesting scientists (faculty and students) in aging as an area for research; 2) serving as a model for much needed university graduate and advanced undergraduate courses in the biology of aging; and 3) providing an opportunity to crystallize concepts and strategies regarding the advance of knowledge in the biology of aging.

Discrete programs created to study biological aging must be based on current concepts and technology. In several very promising research areas, NICHD is supporting conferences, contracts, and development of resources for the most rapid and extensive conduct of research possible. These areas include fibroblasts as aging models, DNA changes with age, and the biology of lower life forms.

In addition to the Adult Development and Aging Branch there are two other units in NICHD making major contributions to aging research. One is the Scientific Information Branch which abstracts articles in the world's literature bearing on aging and publishes them in the Adult Development and Aging Abstract Journal. The abstracts are stored on tape which can be searched by computer techniques, permitting rapid retrieval of specified types of information. The second unit is the Gerontology Research Center in Baltimore, which is a direct research operation of NICHD in aging. This unit, housed in a new 7.5 million dollar Federal building, will when expanded to full strength be the major aging research facility in the United States and possibly in the world.

I believe aging research can flourish best in an organization whose primary concern is health. NIH takes a great interest in aging processes, since these and disease processes are the two factors that impair health. There also is scientific logic for supporting aging research within NICHD, which was conceived as an Institute to support studies on the life processes from conception through senescence. Biological events in early life greatly influence the course of the middle years and late adult life.

The major threat to health as seen by both the citizens and physicians of this country has been disease. In response to this, NIH has since 1946 greatly expanded its research on disease processes. Now, however, biological aging is coming to be considered a great threat to health.

And, certainly medical science will not be complete until those processes are understood. I believe that such a program of research can be developed more rapidly in NICHD than in a new structure that would have to be organized from scratch and go through the usual shakedown period.

In closing, let me briefly comment on the five points you raised in your letter:

I do not know how much money goes for what you call "solid" research. If all Federal agencies and both biological and psychological research are included, the figure is about \$14 million. If in geriatric research you include research on the diseases of old age, the figure would be a great deal larger.

Projects now are authorized whose payoff may be many years in the future. Each authorization is usually for no more than five years, but projects may be renewed at the end of each five-year period. If they are being competently managed, they are renewed. Projects can be funded with a 5-10 year time-frame in mind.

Multidisciplinary research is encouraged by NICHD. A special mechanism, the program project research grant, exists to facilitate multidisciplinary research. It is a vital element in investigations of complex aging processes.

I appreciate your thoughts on what is the proper magnitude of funds needed to support research on aging. They will be useful in our current forward planning where, among other things, we are taking a new look at all research in the health area.

Sincerely,

ROBERT H. FINCH,
Secretary.

* * *

WASHINGTON, D.C. June 4, 1969.

HON. ROBERT H. FINCH,
Secretary of Health, Education, and Welfare,
Washington, D.C.

DEAR BOB: The letter I wrote you April 18 began a most interesting exchange. Aging is not my field, but as a development consultant concerned with the future of this society, it came into view as one of the most neglected of the federal government's human responsibilities. However small the field of researchers in ger-

ontology it appears the federal government has had a number of decades to correct that.

However, the needed research is funded—it should be. I suggested a phased increase because I agree it doesn't appear gerontology is bursting with scientists. But an articulate competent minority is enough to begin with isn't it? I don't see that they are burdened with funds.

I brought SB 870 in because it appeared that some in Congress were preparing to take action based on their estimate of the situation in NIH. I have no judgment as to whether NICHD could administer research in gerontology with spirit and effect. It appeared to me that they hadn't to date and probably wouldn't unless spurred into it by the interest of your office.

If you believe that our correspondence on gerontological research can appropriately be released, I would like your permission to do so. I won't do so otherwise. I've had phone calls from around the country in recent weeks. There seem to be serious people encouraged that NIH may develop a new emphasis on gerontology. They might profit by this exchange.

I have been told there is an international meeting on gerontology here in Washington this August. Perhaps programs can be clarified by then beyond a departmental defensive position which cannot be considered adequate to the need.

Sincerely,

WILLIAM R. EWALD, Jr.

THE SECRETARY OF HEALTH, EDUCATION, AND WELFARE,
Washington, D.C., September 9, 1969.

Mr. WILLIAM R. EWALD, Jr.,
Development Consultant,
Washington, D.C.

DEAR BILL: I am pleased that you found our correspondence concerning gerontology of interest. You are most welcome to make use of the letters of June 2 and April 14 publicly if it would be helpful.

With best regards,

Sincerely,

ROBERT H. FINCH,
Secretary.

EXHIBIT III

HEALTHY, LONGER LIVES—WHAT MIGHT IT MEAN?

(By William R. Ewald, Jr., Development Consultant, Washington, D.C., and Visiting Fellow, Center for the Study of Democratic Institutions—A Background Paper for the Center's Life-Span Conference, April 13–17, 1970)

50 MILLION OVER AGE 55

It can be stated now, as a "fact," that there will be 50 million people over 55 in the United States by the year 2000. (1) That was the entire population of the U.S. in 1880. It's almost the population of France, Italy or Great Britain today. Fifty-five seems an age not too young to pick when considering the subject of aging. That's retirement age for some now, probably it will be for many more in the next twenty years. Retirement at 60–62 is already becoming commonplace. Besides 55 is "ancient" for the young who draw their generation line below 30, and the fifties have been referred to as "the youth of old age". In any case, 55 is an age above which retirement is in mind, or ought to be, according to some psychologists and behavioral scientists. But even if we limit ourselves to age 65 and over we can't escape the meaning, especially the political meaning, there is in the large number of people involved.

In 1900 there were three million people aged 65 or more in the United States. The average life expected at birth was 47 years. In the first 35 years of this century the control of disease cut the death rate from 17 per 10,000 to 11. Eighty percent of that drop is credited not to the medical profession, but to public health authorities, the early day human ecologists): "The clean up of water supplies, sewage disposal, food inspection, the installation of indoor plumbing and other

master urban technology . . . a wide range of professional capacities was responsible." From 1935-1955 the death rate was cut from 11 to 9.6 (it's 9.4 now), due primarily to the medical professional and the application of antibiotics. (2) Thus has the work of two-thirds of a century increased the average life span 21 years, to 70, and aggregated a total of 20 million people age 65 or over, without adding greatly to health or length of life past age 65. (3)

Similarly, continuing current research and development of disease controls is expected to add another 5-7 years to the average life span by the year 2000 without conquering the major degenerative diseases (cardiovascular-renal and malignancies). The total population of age 65 or more by then is expected to reach 28 million (60% of whom will be women, a significant increase from the 50-50 situation of 1930).

As Rene DuBos has said "A large part of the increased life expectancy in the older age groups represents merely prolongation of survival through complex and costly medical procedures, rather than healthy years gained from the onslaught of disease. It corresponds to what has been called medicated survival" (4) which doesn't represent an adequate human response to a human need now felt by so many. This is the driving reason that a system break in controlling aging can now be planned for.

HEALTHY OLD AGE

Not just keeping "alive" but "living" with the vigor of a 55 year old (or younger) to age 80 or 90 is a surprise to look for by the end of this century. There are good reasons for expecting the surprise of healthy old age—at least seven. 1) The causes of death at all ages are concentrated, 52% in cardiovascular-renal diseases and 16% in malignancies. Discoveries related to these—whether in regard to cells, pollution, stress, or diet—would have dramatic effects in health immediately; in population totals within 10 years. 2) There seem to be several promising research potentials deserving support which, if adequately funded, might well produce major results in 5-10 years. 3) Current research efforts into aging could hardly be more minimal; it's not as if we were at the end of a major effort, the major effort hasn't begun. 4) Politically, retirees are becoming a new force. Growth in the number of people over 65 is most striking—300,000 per year now and more each year, living longer—and by the year 2000 instead of having a grade school education, over 50% will have been to college, ten times the present number.

5) Transplants.

6) Right now 30% of the people over 65 are below the poverty line (\$3,000). Their median income is \$3,645 versus a 1970 U.S. median of \$9,000. With creeping inflation and fixed pension incomes, this situation, without public intervention, will not improve the poverty line in 1985 may well be \$5,000. The burden of lifetime's heaviest medical expense for these and other old families will fall on their largely middle class "children." This may give this "minority" problem a majority political vote.

7) The earlier, healthier and better educated people are when they are retired (all three can be anticipated), the more vigorous they can be expected to be in working as a group to improve their health, their roleless status in society and their standard of living. (5)

THE JOINT BETWEEN THE PAST AND THE FUTURE

This paper is proceeding on a theory of design that special care must go into the joint—where planes, concepts, materials, uses meet—if a design is to prove workable. In the case of aging the joint is the present, where past experience meets the future.

The attitude towards aging in the past is well exemplified by the White House Conference which dealt with four basic areas: 1) health, 2) income, 3) housing and living arrangements, and 4) leisure time. There was also a directive to spur gerontological research at that time that did not in itself produce any startling results. The basic reason given is that there has been so little scientific interest in aging per se. Secretary Finch points out "the major threat to health as seen by both the citizens and physicians of this country has been disease. . . . I agree that the amount of research being done on the biology of aging appears to be small. The proximate reason for this is lack of interest among scientists in conducting such research. Last year only 103 of the 8,623 research proposals submitted to NIH were relevant enough to aging to be assigned to the Adult Devel-

opment and Aging Branch. NICHD. In that same year NICHD received a total of 992 research grant proposals. Now, however, biological aging is coming to be considered a great threat to health . . . [but] . . . an adequate academic focus on the basic biology of aging does not exist." (6)

An additional reason for NICHD putting only \$7.7 million of its \$69.3 million into the area of gerontology might be that gerontological researchers on the appropriate research selection committees of NIH are so under represented that there is small opportunity for them to influence the direction of research. This is not to say that the priority in NICHD is misplaced in training more professionals in aging research or in the Gerontological Research Center in Baltimore. But the latter is over half empty, the former is short of funds and there are gerontological research teams whose work has been disbanded for lack of funds.

The total field of biological and psychological aspects of aging supported by Federal research funds goes beyond the National Institute of Child Health and Human Development (NICHD) to include work at The National Institute of Mental Health (NIMH), The Atomic Energy Commission (AEC) and the Veterans Administration.

Piecing together reports of "Developments in Aging" from 1966-1968:

Federal Research on Aging

[In millions]

NICHD (intra and extramural)-----	\$5.6
NIMH -----	2.0
AEC (primarily the effects of radiation on longevity)-----	5.3
VA (biological, psychological and disease process)-----	1.9

It should be emphasized that much of this money is spent on the study of disease process and the effects of irradiation rather than aging itself. In addition, the part of the \$15 million which is directly concerned with aging processes has to cover both biological and psychological aspects of aging. It is apparent that a very small fraction of the more than one billion dollars that the Federal government puts into medical research (of a total \$17 billion for Federal R&D) goes into the study of aging.

THE POLITICS OF AGING—PHASE I

A breakthrough for aging between 1970-2000—both in healthy old age and a longer life span—was one of the major potentials for system breaks this investigator's office identified in a 1968-69 client study. (7) An awareness of the conditions of old age and the millions more people involved which past successes in disease control have brought us, together with a comprehension of the lowly present state of the art, is now bringing forth Senate Bill (S870) proposing a comprehensive 5 year program through a new Federal research commission on aging; and in 1971 another White House Conference on Aging is planned—this time no doubt with added emphasis on aging research and longevity. Unlike the 1961 conference and previous Senate bills, there are at least five major national organizations of retirees with organized memberships of 10 million to support them.

Assuming the Federal approach to gerontological research were to shift from passively waiting to fund unsolicited proposals to structuring a comprehensive research program on the biological process of aging, it would seem there would be ample political support. Evidence appears to be growing of the relation of the degenerative diseases which cause 68% of all deaths, 85% in those over 65 years of age—to the aging process. Success with new research efforts on the degenerative diseases might simply add more unhealthy old people to the population, further intensifying the demand for more health research, or in anticipation of that, joint research might be undertaken to seek means to delay the chronic as well as the fatal effects of the degenerative diseases and the aging. Either way it would appear that there will be political pressure for research leading to *healthier* longer lives, that there will be more healthy older people, and that in the process new discoveries will lengthen the average life—before the year 2000 to 80 years or more—and more after 2000. This might increase the number of people over 65 already expected in the year 2000 by 10% or more—with 70 year olds feeling like today's 55 year olds. Its impact would grow from there and the prospect of many living to 100 or even lengthening the life span itself by 20-30-100% becomes reasonable for discussion.

THE POLITICS OF AGING—PHASE II

Dr. Nathan W. Shock was quoted July 31, 1966 by the *Los Angeles Times*:

"If I had my way, there would be nothing done to extend longevity until we get a clear conception of what the role of the aged should be in society." (8) But that may not be the choice. At present 62% or \$8.7 billion of all Federal health care funds is used on behalf of the aged. (9) What if the choice is either continuing palliative medical care for unhealthy old age, for tens of millions, or healthy old age *plus* extended life? However better health is achieved—better diet, better environment, new medical advances or removing stress—how can we continue to neglect the human misery of the old unhealthy years including the anguish and expense this means for their grown children? There is much to be learned from everywhere and the guess can be made that it will be i.e. it has been observed that the deaf appear remarkably younger than their hearing counterparts. Has it been determined to what extent this may be due to their living without the daily noise irritation most of us have (and ignore), or what contribution their reduced communication might possibly give in simplifying their comprehension of life's complexities?

Living in the country is said to add five years, at least the average life span there is that much longer. (10) Why? If we really want to know more of what constitutes a human environment we can. We haven't to date, according to the paltry research that has gone into it and the weak thinking that has been applied. Maybe now we will. Political career payoffs, growing markets, more evident human costs, potential professional competence in regard to a better environment may stir us. (11) There are scientists like Rene Dubos, Barry Commoner, Lamont Cole, and Paul Ehrlich who have articulated the health damage our man-made environment is causing and the greater threat it poses in the future—perhaps especially for the old. Perhaps thinking can now proceed beyond a concern for crisis and for avoiding disaster to designing environments whose basic criteria are what contributes to the sense of a "good day"—an environment worth living in and worth being old in. When we think of more old people we think of more couples with their children long since gone and single people living alone. More old people mean more town houses, garden apartments, and high rise apartments. And because the automobile casualty rate for people 60-70 is high, much the same as for 20-30 year-olds (50-250% more than from 30-60), we may begin to recognize the need for mass transit or jitney service. (11) But the sense of community by which people live is equally important. How is that best achieved for the retiree who has been left behind as his children kept moving? And what might "belonging" again contribute to healthy old age? We don't really know and we aren't studying to find out.

Perhaps besides their unhappy driving records the young and the old have much more they share. Perhaps youth today has a latent interest in leisure which is real in the retiree, like it cannot be for the middle aged. Perhaps youth is disenchanted and impatient about the way "the system" fails to perform, and while their parents may presently be locked into "the system," perhaps people the age of their grandparents who are through with their work stint will have demands of their own to make of "the system" now. The young may want change and not care about (or understand) the consequences. The older may demand change and have nothing to lose. It may well be the true conservatives are the middle aged workers deeply committed to the short term perspective of "the system" and believe they have much to lose from change. The potential power of political alignment of the young and the old is revealed in the future population breakdowns (in millions). (12)

	1970	1985	2000
Mainly progressive voters?:			
20 to 24.....	17	1 21	1 21
25 to 34.....	25	41	38
65+.....	20	25	28
Total.....	62	87	87
Mainly conservative voters?: 35 to 65.....	64	74	100

¹ A potential 5,000,000 to 8,000,000 would be added by lowering the voting age to 18.

Thinking in terms of voters, from 1965-1980 the number of those 65 years old or more will grow 27%, those 18-34 will grow 57%, but the age group from 35-64

will grow only 8%. (13) It should be said that this theory of progressive oldsters is something the Washington vote analyst Richard Scammon instantly rejected when questioned by this investigator. He said oldsters would continue to vote conservatively in the future, to protect their pension plans, etc. But with steady inflation, increases in the cost of living and good health, and with new demands for recreation and continuing education, the leadership of a better educated, healthy-for-longer group of retirees, it would seem Scammon's instantaneous rejection was without due reflection and too automatic to be taken seriously. It is true that the old are the heaviest voters (66%) but this may be modified by the young (under 25) who vote the least often of any eligible age group. Scammon's rejection also fails to allow for the shift in attitudes for successive groups of cohorts that has been observed by others.

THE POLITICS OF AGING—PHASE III

If human considerations drive us to providing health for our older years, is that the only consideration involved? How would those healthy, older years be used? In the process we will undoubtedly begin by adding to the present average life span and later on we will probably add to the actual human life span itself—for what special purpose? Perhaps an answer to that is possible. Perhaps the need for wisdom is greater in this epoch time than the need for new knowledge, and wisdom, as far as we now know comes somehow with long years. Perhaps at some time in the future we can see that technology will provide the means for us to shift from a work (scarcity) oriented society to a leisure (abundance) oriented society. That is not likely to be in this century or not until deep into the 21st century, but as it comes, with it will come a major shift in human values. Perhaps only the wise of the old are capable of beginning the experiment with making such a world a creative one. How can children, youth or the harried middle aged make contributions to the development of the leisure society other than to support the concept and enrich it as its basic framework is developed? And then look forward to their future in such an existence?

It may be that the great challenge and opportunity—and *purpose* of added healthy retirement years will be to launch great community experiments into learning what all free time can mean, free time in an abundance that only retirees will have in the near future—but a forerunner for the growing abundance of the free time to come for all in the 21st century. For one thing these experiments may help us to see efficiency is not a human goal, but a means to maximize the use of scarce resources and that even when there are scarcities the "efficient" solution may well not be the human one. Perhaps this will be learned from the clearer recognition in older years that all of importance in human life is not rational. There are also irrational and extrarational aspects of men. There is emotion and spirit; feeling, and insight; extrasensory perception and intuition.

The perspective of the wise and the old may be capable of making contributions to the understanding of the great moral and ethical issues being posed. The human meaning of the impacts of technology and population are avoided by present day decision makers until forced to their attention by crisis. For instance, what are the optimum world populations (for people and other living things)? How are they to be achieved? Over what period of time? The very fact that so many more people may be living so much longer would greatly intensify the necessity to curtail population growth. It's a thought that needs thinking through now. Once that thought is accepted why stop at nine billion people in the world? Why not go back to one billion? How many marriages if one lives to be 150, and has only one child? One trial living together for college? A marriage for the parent period? And then several more after that? Or will families be communes of the same pairs? With greater health, longer years, adequate individual income and even necessary technology positive reasons for living together may become the only acceptable reasons.

This paper is not attempting to claim all who are, or would be old are wise. Or that the new free time will be wisely used. It would like to close by attempting to define the conditions necessary before time can be truly free (for the young, the old, anybody) because acceptance of these principles poses the socio-economic planning that precedes society really setting a purpose for extended life. For free time to be really free it must be

- (1) sought by the individual
- (2) recognized with honor by the society
- (3) accompanied with adequate income
- (4) enjoyed at a high level of wellness.

It would indeed be folly to add years of ill health or even years of health for millions more without meeting at least these four factors. Once such free time is available whatever work is undertaken by retirees is by choice and by definition, therefore, not work—whether paid for or not. It is either leisure or recreation, depending on whether it is creative for the individual or not. It is expected there will be vast quantities of community needs, mutual help and intellectual work that simply won't get done except by retirees. Needed as such work is, some of it would be too expensive to purchase at the wage scales that will exist, especially in the future, and there is a limit to how far services, the growing employment sector, can be automated. The older people will be needed and at the work of their choice.

We come to William James definition. In his "Moral Equivalent of War" (1917) William James may have said it all: "The transition to a pleasure economy may be fatal. If we speak of fear of emancipation from the fear regime we put the whole situation in a single phrase—fear regarding ourselves now taking the place of the ancient fear of the enemy." The great purpose of retirees of long healthy years may be to help us learn how to live with ourselves.

Looking at longer life as a health problem may miss the basic point. We may begin this way with a conscience pricked by the distress of the oldsters. Perhaps dimly we recognize that the vegetable existence that comes to so many more each year may be ourselves in the future. But this is almost impossible for young people to image and it's something middle aged people like to avoid thinking about as they find living in their here and now quite enough of a handful. But assuming society does find ways to contribute additional healthy years at the latter stages of life it has only come closer to the basic issue—what is the purpose of life? If society adds that to its thinking about the aging process, coupled with the anticipated growth in free time as we move into the 21st century, it may see retirees as pioneers we sorely need. What a difference in attitude that would bring from conceiving retirement as a housing, keep busy, grandma sitting effort that we can't afford to give adequate time, attention and money to. Instead we would look on retirees to experiment for the new attitudes and style of leisure life we are all much more likely to move to than to the moon. Like many of the architectural details that are helpful to the old which we can all benefit from (no curbs, deep, waist high window boxes outside apartment windows, higher wash stands and light switches, low rise steps) they can be expected to evolve new ways of life.

We may even learn from such community experiments that the architect-engineer-planner approach to community design will be modified so that while it assures all the needed facilities are present they are combinable in various ways to suit the people most directly concerned, in the ways they choose to use them. In other words, the pioneering retirees may help us learn how to plan for serendipity, changing the rigid way we conceive of community today altogether.

Is that enough of a purpose, Dr. Shock?

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EXHIBIT IV

EXCERPT FROM "DELEGATE WORK BOOK ON PLANNING," 1971 WHITE HOUSE
CONFERENCE ON AGING—NOVEMBER 28—DECEMBER 2

(Recommendations Proposed by the State and Territorial Conferences for
consideration by Delegates to the National Conference on Aging)

PART THREE: TOWARD A NATIONAL POLICY ON PLANNING IN AGING

This part of the *Delegate Work Book* provides a description of planning in aging, a brief discussion of the relationship between the achievement of goals and planning and some of the major questions which you will be discussing in your Section on Planning. The information provided in Part Three will serve as the background for your work in the Section and Subsection on Planning.

Following this introductory background material are the recommendations of State and Territorial White House Conferences on Aging in response to issues concerning Planning raised by the Technical Committee that worked on this topic. These recommendations and accompanying Technical Committee comments, together with the background material, offer a basis for policy deliberation in your Section and Subsection.

THE NEED FOR PLANNING

The Technical Committee on Planning recognizes that many Americans have found their later years to be a time of new opportunity, fulfillment, and growth. It is our belief that if the nation wills it, through sound planning in aging, these qualities can come to characterize the old age of most Americans.

This concept, as it relates to the broader social problems confronting our society, is described by William R. Ewald, Jr., a member of the Technical Committee, in the following terms:

"We may be into a period of heroic change, so rapid, of such a scale, so diverse and so pervasive that it can only be appropriately compared with the agricultural or industrial revolution, though it may transcend them both. Population growth (and concentration) and technology are now changing the meaning of time, distance, geographic area, place, and above all, expectations—interacting on each other and on men in ways that define our time as an epoch. Yet the practical men of our day continue to plan only for operations as learned from the past. They do not seem to sense an urgent need to develop innovative, anticipatory planning for the next five, ten, fifty years. So it is even in planning for aging!

"And though we are now becoming aware of the long-range threat to men in what we are doing to our environment, we do not yet appear to be self-conscious about the long-range effect of this epoch on men's psyche. By holding to the short-term view of things we spare ourselves (for the moment) the anxiety of comprehending what we may be doing to dehumanize ourselves in this epoch.

"We urge in planning for aging that increments of time out to fifty years and more be used. We recognize the limitations as to specifics the farther ahead we attempt to plan. But we see also a threat to our expanding humanness in this epoch if we continue to reach to short-term crisis as our sole basis for planning. If rational programs for immediate solutions, concentrate on sustaining and servicing the aging body and ignore attention and planning that take into account the emotional and spiritual meaning of aging in the shock front of change of the next twenty-thirty years we have entered, we may be reduced to superficialities in our planning and indeed become allies to the forces of dehumanization."

WHAT IS PLANNING IN AGING?

Planning in aging is a process through which society determines the steps to be taken to achieve specified goals and objectives for older persons and those who will one day be elderly. Oriented to the future, it is a means of effecting controlled change in the circumstances of old age. Goal formulation and consideration of options and alternatives together with the costs or trade-offs for each, are essential elements in the process. Thus, successful planning in aging requires knowledge about resources.

Mr. ROGERS. Thank you very much, Mr. Ewald, for some excellent suggestions which will be helpful to the committee.

Mr. EWALD. May I say one other thing on this?

One thing you notice as a consultant when you deal in these various areas, when you read through the Federal programs, reports, and the legislation as they come out. If it comes out over \$1 million, it sounds like a lot of money back home, and typically such readings give the impression that everything has already been thought of and is already being done.

When you read about the aging research programs, for instance the total sum is in millions and the listing of the separate projects goes on page after page. The effect is created that there is very little improvement to be made. It is often very hard to get to the adequacy of existing efforts.

I think that the compilation on the intramural research on the aging and child health is a good example. It is 125 pages, many pages only half printed, in which the amount of money or the amount of time that was spent on each project is not given. If you flip through this compilation, busy people who have a lot of things to do and do not want to read it, would have the impression much was being done. Especially if they are told by the scientists, "Here is the gerontology work, and there isn't much more of interest going on."

This amounts to a kind of propaganda for something that is not happening.

Mr. ROGERS. That is rather true. This committee knows when we talk about the Center, we have a Center on Gerontology but as you say, it is a big empty building where they have few people working in relation to its capacity.

Mr. EWALD. It is happening all over. In areas of human concern where power or money is not the primary gain we have these "protective associations"—institutes doing a minimum amount of work, block full scale efforts, because they provide the opportunity to say "we are already funding that through so and so." The fact that they are funding it in such an inadequate way, in ways totally ineffective, is not too often considered.

Mr. ROY. I think that your last statement is a pretty good summary of yesterday's testimony.

Mr. ROGERS. Thank you so much, Mr. Ewald.

I would like to note the presence of Mrs. Florence Mahoney who has been sitting through all of the hearings, and who has been a driving force in this country for programs to aid in the solution of the problems in aging.

This committee is very much aware of her efforts, and she can claim a great deal of credit for all of this work that is going on in trying to do something about the problems associated with aging.

I don't know whether you would like to say something to the committee or not, Mrs. Mahoney?

Mrs. MAHONEY. I would just like to thank you because I think that the testimony has been very, very important, and to the point.

Mr. ROGERS. Thank you.

This concludes the number of witnesses for today, so the committee stands adjourned.

(The following letters were received for the record:)

ASSOCIATION OF AMERICAN MEDICAL COLLEGES,
Washington, D.C., March 16, 1972

HON. PAUL G. ROGERS,
Chairman, House Public Health and Environment Subcommittee,
U.S. House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN: The Association of American Medical Colleges has noted with interest that your Subcommittee on Public Health and Environment is holding hearings this week on HR 4979 and related bills, to amend the Public Health Service Act to provide for the establishment of a National Institute of Gerontology. Because of its interest in biomedical research and its concern for the well being of all of the American people, the Association would like to comment on the legislation being considered during these hearings. We request that this letter be included as part of the permanent record.

Formed in 1876 to work for reforms in medical colleges, the Association of American Medical Colleges has broadened its activities over the years, so that today it represents the whole complex of persons and institutions charged with the graduate and undergraduate education of physicians. It serves as a national spokesman for all of the 108 operational U.S. medical schools and their students, more than 400 of the major teaching hospitals, and 52 learned academic societies whose members are engaged in medical education and research. The Association is concerned with the education and training of persons in other, related health professions. It is concerned with the conduct of the nation's medical and health care research, with the delivery of health care, and with innovation and experimentation in these fields.

In considering these various pieces of legislation, I would hope that the Subcommittee makes a clear distinction between the problems of understanding and moderating the aging process, which encompass broad scientific questions relating to biology and the life sciences, and the problems of the aged represented by the needs for medical care and other services. These problems are mostly social and economic in character. Obviously there are clear distinctions between these two sets of problems. It is an unfortunate characteristic of many discussions of aging that these distinctions become blurred.

It is our understanding that several of the bills under consideration propose to establish a National Institute of Gerontology. In studying this legislation, the Association has considered the impact such a new Institute might have on public expectations. It should be made clear that the mere establishment of a National Institute of Gerontology does not in any way imply that scientists are on the verge of discovering ways to modify the aging process or to postpone death. The mere creation of a separate research institute does not guarantee that there are competent, interested researchers to staff it, nor does it guarantee that there are promising scientific leads in the field.

In fact, in the field of aging research there is a paucity of valid ideas to pursue. One is up against the inexorable process of biological deterioration which characterizes the mortality of man. This process does present interesting questions to pursue; however, the prospect of a major modification of the aging process lies in the considerably distant future. The basic intractability of the phenomena of aging is partially responsible for the small number of able researchers in the field. Scientists have traditionally shunned the study of problems which offer little opportunity for significant progress. This is reflected in the fact that the long effort of the National Institutes of Health to establish university centers to

study the complex processes of aging have met with little success. In our view, therefore, it is unlikely that the establishment of a new Institute of Gerontology will change in any important way the character and dimension of scientific effort in this field. It will only add to the increased administrative and operating expense of an institute and its apparatus which is both unnecessary and undesirable.

Thus, the Association is not convinced that the scientific opportunities in the field of aging research as such are sufficient to justify creation of a new research institute devoted solely to the biological processes of aging.

The Association feels that the process of aging is a multi-faceted situation consisting of a complex of problems. Much of the research being conducted in the other institutes, for example, heart disease, digestive diseases, arthritis and stroke, is directly related to the problem encountered by older people.

Rather than establish a new Institute, the Association believes the better course would be to build upon the research on aging already being conducted by the National Institute of Child Health and Human Development within the National Institutes of Health. The research programs of this Institute encompass inquiry into the full continuum of the human life process. Aging is a process beginning at birth and ending at death. It is a continuum of human growth, covering the periods of childhood, adolescence, adulthood and old age. It is the expansion of research into the basic process of biological growth, development and degeneration that is the essential pre-requisite to a greater understanding of the aging process. It is such understanding that can provide the means for more effective medical attention and geriatric care.

Recognizing this, the Association strongly suggests, as one approach, the establishment of the Center for Aging Research within the National Institute of Child Health and Human Development. Creation of such an entity might provide the emphasis and force to give new vigor to this field of research and provide a highly visible organizational framework which could be held clearly accountable for a productive program in aging.

The other approach recommended by the Association is to enlarge and strengthen the very successful aging research effort carried on by Dr. Nathan Shock at the Gerontology Research Center at the Baltimore City Hospital. The work of the Center is already a direct intramural activity of the National Institute of Child Health and Human Development.

The Association has studied the idea of a new Institute of Gerontology very thoroughly and has arrived at its decision only after careful consideration of the many issues involved. We would not want our opposition for purely scientific reasons to a new Institute to be construed as opposition to research on aging. The Association vigorously supports an active and greatly expanded program of research and training in the field of human aging. It is our view that the most outstanding deficiency of current research and training related to aging is not organizational; it is budgetary. In fiscal year 1972, the National Institute of Child Health and Human Development spent only \$11 million on aging research and training compared with \$39 million in the population program and \$53 million for child health. Despite the 1971 White House Conference on Aging and the attention it has focused on the needs of the aged, the Administration has requested only a \$1.3-million increase in fiscal year 1973 over last year's budget for aging research, an increase which barely keeps pace with inflation. More could be done if more money were available.

The Association appreciates this opportunity to comment on this legislation. I and the staff of the Association stand ready to provide any further assistance or information you may request.

Sincerely,

JOHN A. D. COOPER, M.D.,
President.

AMERICAN DENTAL ASSOCIATION,
Washington, D.C., March 27, 1972.

Hon. PAUL G. ROGERS,
Chairman, Subcommittee on Public Health and Environment, Committee on
Interstate and Foreign Commerce, U.S. House of Representatives, Wash-
ington, D.C.

DEAR MR. CHAIRMAN: I am writing you, on behalf of the American Dental Association, with respect to H.R. 12308, a bill to establish a National Institute of Aging.

As you know, the prevailing incidence of dental disease among Americans is far higher than it ought to be. This is as true of our 25 million fellow citizens who are 65 years of age or older as it is for those who are of lesser age.

More than half of all elderly Americans have lost all of their teeth. In many additional instances, those who have teeth remaining are badly in need of professional attention. In some cases, the remaining teeth are broken and decayed beyond repair and should be extracted. Extensive disease of the soft tissues of the mouth and of tooth-supporting bone are readily found among many of the elderly. Those wearing dentures frequently do not—often for reasons beyond their control—seek the periodic care that will maintain the dentures in proper condition. The denture itself becomes cracked, chipped, ill-fitting and unsanitary and can itself begin to pose a health problem.

In the long run, the only way to change these facts is to prevent dental disease during childhood and stimulate people to follow more closely a life-long regimen of oral hygiene and regular professional attention. This, the Association believes, should remain the highest national priority with respect to dental matters. In the meantime, of course, everything possible must be done to care for those who have reached old age with their oral health badly debilitated.

The various provisions of H.R. 12308 seem to us to be, in themselves, well-designed to intensify attention—both with respect to basic and applied research—to the health problems of the aged. Whether it is necessary to establish a National Institute of Aging in order to carry out this program, is, we think, more problematical.

A few months ago, the Association was pleased to cooperate under your leadership in the effort to retain the cancer program under the aegis of the National Institutes of Health. A paramount concern leading to our position at that time was opposition to the removal of a significant area of research from the scientific cooperation and interplay possible within the existing NIH research structure. Proliferation of institutes poses, we believe, a potential danger of equal proportions.

Before final action is taken on H.R. 12308, we would hope that intensive consideration could be given to accomplishing the proposal's laudable aims by special funding of existing institutes. The National Institute of Dental Research, as an example, would be in an excellent position, with appropriate funding, to undertake programs relating to the oral health needs of the aged.

The Association appreciates its opportunity to comment on H.R. 12308 and would be grateful if this letter could be made a part of the hearing record.

Sincerely,

CARL A. LAUGHLIN, D.D.S., *President.*

AMERICAN DENTAL HYGIENISTS' ASSOCIATION,
Washington, D.C., March 27, 1972.

Hon. PAUL ROGERS,
Chairman, Subcommittee on Public Health and Environment, Committee on Interstate and Foreign Commerce, U.S. House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN: The American Dental Hygienists' Association is pleased to have this opportunity to comment on H.R. 12308, a bill introduced by yourself and others to establish a National Institute of Aging. The Association is deeply concerned with the problems confronting the elderly citizens of this nation and in particular, those affecting their health and well-being.

The American Dental Hygienists' Association represents the entire dental hygiene profession which comprises approximately 20,000 dental hygienists. As members of the dental health team, dental hygienists are primarily dental health educators for individuals and groups. The primary role of the dental hygienist is in the area of prevention of oral disease.

People over age 65 comprise approximately 10 percent of our total population and this figure is rising continually. During the past three years, there has been an increase of over one million in the number of people over age 65—raising the total number of elderly citizens to approximately 22 million. In addition to an increase in the total number of elderly persons, these persons have increased significantly their per capita expenditures for health care. The aver-

age person over age 65 is spending four times as much money as is an individual under age 65.

When one views the oral health of the elderly, he is immediately depressed by the scene. In addition, it becomes immediately evident that oral health burdens, common to all people, fall with particular weight on the elderly.

If you were to inspect the mouths of 1,000 Americans residing in nursing homes, you would find more than half of them had lost all of their natural teeth. For those who had dentures, it would be unusual to find a full upper or lower denture that was not cracked, broken or chipped. Many of the dentures would be too old for use and often unsanitary. You would find it difficult to understand how these patients use their ill-fitting dentures at all due to looseness, broken teeth or poor condition of their gum tissues. Many patients without dentures would tell you that they had them in their dresser drawer or in their purse, or that they had lost them or thrown them away. Many patients without teeth would say they never had dentures and didn't want them.

Next you would observe that few teeth would need dental fillings. Of course most of the teeth which needed fillings at one time have been extracted. And of those teeth remaining, a large number are in need of extraction either because they are broken or decayed beyond repair or they are very loose from disease of the gums and supporting bone. Oral infection of various types would be common.

In the long run, the only way to change this depressing scene is to prevent dental disease during childhood and follow a lifetime regimen of oral hygiene and regular dental care. Before an adequate attempt can be made at solving oral health problems, more must be known of the aging process and the care and treatment needed by the elderly. H.R. 12308 would make significant strides in this direction.

With respect to those people residing in institutions primarily designed for geriatric residence, preventive and therapeutic dental care should be available. Often the funding of such care is not available or is so limited that the services of a dentist could not be supported. The dental hygienist, however, who is educated and proficient in skills designed to prevent dental disease in all age groups and to recognize disease states which necessitate referral for more extensive care, could function in centers for the elderly.

For example, in the area of prevention, dental hygienists are skilled in the controls which reduce the incidence of dental caries and diseases of the soft tissue and bone which support teeth. Primary among these controls is patient self-care by the proper use of a toothbrush, dental floss and ancillary devices, as taught by the dental hygienist to patients and staff. In the cases where elderly patients are unable to provide self-care, nurses, aides, and other staff may be taught to provide the specific prescribed oral care for patients.

Secondary prevention is also among the skills of the dental hygienist who performs the intraoral procedures of the prophylaxis and often its more sophisticated extensions into root planning and tissue curettage. The preparation of diagnostic aids used by the dentist, such as chartings of conditions of the oral cavity, radiographic surveys, and study casts are included in the skills of the dental hygienist.

In instances where patient needs require more than primary and secondary prevention, the dental hygienist is proficient in identifying the need for therapeutic services offered by the dentist and can make the appropriate referrals.

The Association highly recommends support for inclusion of dental hygienists in the care of the elderly to reduce and hopefully eliminate the discomfort and general debilitation which accompanies dental neglect.

The report of the White House Conference on Aging emphasized the fact that good oral health is an integral part of the health requirements of the elderly. The American Dental Hygienists' Association strongly supports this position and recommends its adoption in all health or health-related programs for the elderly. Without sincere efforts to alleviate oral health problems of the aged, oral health burdens will continue to fall with particular weight on the elder citizens of the United States.

We respectfully request that this letter be made a part of the printed hearing record on H.R. 12308.

Sincerely,

Mrs. IRENE WOODALL,
Chairman, Committee on Legislation.

CITY OF BOSTON,
COMMISSION ON AFFAIRS OF THE ELDERLY,
Boston, Mass., March 13, 1972.

Re H.R. 8491.

Mr. W. E. WILLIAMSON,
Clerk of the Committee,
Rayburn House Office Building,
Washington, D.C.

DEAR MR. WILLIAMSON: Since I will not be able to attend the hearings on House 8491, I would like to take this opportunity to send a written statement to the Committee for its consideration.

According to statistics furnished by the Massachusetts Department of Public Health from a survey of Nursing Homes and related facilities prepared by Dr. David Kinlock, approximately 14% of the patients now in Nursing Homes and related facilities have no medical disability. An additional 2000 or so patients, or approximately 6% have very little medical disability. Yet, these patients presently reside in facilities providing care ranging from skilled nursing care to the care furnished in a rest home. As such, they are occupying beds that might be utilized much more advantageously by patients needing this care but not now receiving any such care or who now must remain in hospitals for lack of beds in nursing homes.

Additionally, an unspecified number of patients now reside in hospitals longer than is medically needed because they either refuse to go to a nursing home or related facility or because there are no nursing home beds available for the patient. These persons occupy beds that are desperately needed by the hospitals for other patients. In an unspecified percent of cases, these persons require little or no medical care, but simply recuperative care.

While the above illustrates the problem in terms of misused physical space and medical resources, there is also a problem of misused financial resources. The problem, simply stated, is that hospital care and/or Nursing Home and related facilities care is extremely costly to the State and Federal Government. The State and Federal Government must now pay for the category of care provided by the facility, not necessarily for the care the patient actually requires. Therefore, as long as a patient resides in a facility providing more care than the patient needs or receives, the government loses money.

The need, therefore, is for a category of care that meets the needs of persons who do not require care in a Nursing Home or related facility but who are not able to live completely independently. I. E., the persons who need not be in Nursing Homes and related facilities, but who are presently there because of the lack of available Home Care services to allow them to live semi-independently elsewhere.

To fill that vacuum, the Home Care program would require the following components, although each person using Home Care might require only some of the components, or all of them.

Homemaking services: Housemaking services provided one to three days a week, which would involve cleaning the persons house/apartment and possibly preparing a meal for the person, doing some small shopping or errands, and providing conversational socialization.

Nutrition Services: Provision of at least one, and possibly two hot meal(s) per day to the individual either delivered individually or eaten in a group setting. The food to be prepared by a qualified nutritional service, and including special diet meals for those needing them. Possibly including some nutrition education to the recipient so as to improve their dietary intake and to make them independently able to prepare nutritious meals.

Personal Services: Provision of personal services to help the individual make the social system operate to his or her advantage without excessive mental anguish or use of energy. This would involve helping persons face daily problems that might otherwise overwhelm them, especially if they are weakened by poor health. E. G., welfare problems, Social Security problems, wills conservatorships, housing problems, disputes about bills or services, shopping needs, transportation, etc. This should include the provision of legal services as a part of the personal service, since legal service is society's foremost advocacy service. Included also should be provision of transportation for the client to enable he or she to return to a more active role in community life, accompanied initially by a Home Care worker for support.

Placement Services: This simply means finding adequate housing for the individual outside the hospital or nursing home if none is immediately available.

Housing: This is both a major and a minor part of any Home Care program, in that a Home Care program can be created with existing housing, and therefore housing is no impediment to initiating the program. But, over the long term, additional housing will certainly be required that more fully reflects of the needs of persons receiving Home Care. E. G., such housing should include common dining and recreation areas, elevator service, closeness of shopping and medical facilities, etc. Obviously this is a complex area of concern and will be left for further exploration later, noting only that creation of this housing may be accomplished by renovation of existing housing or construction of new housing.

Patient Evaluation: This component involves the determination of qualification for Home Care. Uniformity of standards is important here; equally important is efficiency of delivery of services. To accomplish both ends, the patient evaluation could be done in hospitals and nursing homes by the person(s) now qualified to so classify by the simple addition to the Department of Public Health's Discharge form of a new category in Section D. This new category would be, Home Care. Since some persons physically eligible for Home Care services are not in either hospitals or nursing homes, and since part of the purposes of the Home Care program is to keep people out of these facilities unless they truly need them, the Department of Public Health should establish standards for certification of persons for Home Care, not hospitals and nursing homes. As long as uniform standards for Home Care services exist and one Department has control of the certification, this system should be viable. Once the person is classified as eligible for Home Care services, then the services would be reimbursable just as at present for nursing home care.

H.R. 8491 is a first step in that direction. But it is only a first step. Much more than \$10,000,000 will be needed to institute and maintain this massive effort.

As Executive Director of the Boston Commission on Affairs of the Elderly, I wish to go on record in my support of H.R. 8491.

Sincerely,

JOSEPH B. KERRISSEY,
Commissioner.

HERBERT H. LEHMAN COLLEGE
OF THE CITY UNIVERSITY OF NEW YORK
FAMILY AND CONSUMER STUDIES,
Bronx, N.Y., March 14, 1972.

HON HARLEY O. STAGGERS,
*Chairman, Committee on Interstate and Foreign Commerce,
Rayburn House Office Building, Washington, D.C.*

DEAR CONGRESSMAN STAGGERS: The proposals to amend the Public Health Service Act to provide for the establishment of a National Institute for Gerontology are long overdue and I heartily endorse the underlying concept. With more than 20 million of our population 65 years of age or older, we have, except for occasional White House Conferences on Aging, rather successfully avoided coming to grips with the problems posed by this large minority, many of whom fall into the category of "the invisible poor."

I urge that consideration be given to the need for effectively coordinating the work of this new Institute with the specialized services for the aged offered by the Departments of Housing and Urban Development and Health, Education and Welfare. Otherwise, we will have only further fragmented the picture.

I assume that H.R. 8491 would authorize the new Institute to make grants for demonstration programs for health care of aged patients and endorse this concept unreservedly.

Thank you for inviting me to file a statement with your Committee.

Sincerely,

DR. SIDNEY SCHWARTZ,
Assistant Professor.

NEW YORK, N. Y., March 10, 1972

Congressman PAUL ROGERS,
House of Representatives, Washington, D.C.

DEAR CONGRESSMAN ROGERS: Although I was unable to appear at the hearings regarding the Institute on Aging, I wish to be on record of supporting such an Institute. While it must be multi-disciplinary and will have to cooperate with several of the existing NIH Institutes, the creation of such an Institute will doubt-

less provide more funds for the enormously important field of Geriatrics. It will also result in a much stronger national policy and a more concrete program. With our birthrate falling, the percentage of our population over sixty will be progressively increased. So far, the problems of these citizens have not been adequately faced by legislators or the public at large.

My qualifications for this letter include: Past President of the American Heart Association, Past President of the American College of Physicians, Past Member of the National Heart Advisory Council and Present President of the American Geriatrics Society. This letter, however, is written as a private citizen.

Appreciating your sincere efforts in this direction,
I remain,

Sincerely yours,

IRVING S. WRIGHT, M.D.

(Whereupon, at 12:45 p.m., the committee adjourned.)



