DOCUMENT RESUME

ED 212 495 SE 036 244

TITLE Annual Report, July 1980-June 1981. Assembly of Life Sciences, National Research Council.
INSTITUTION National Academy of Sciences - National Research Council, Washington, D.C. Assembly of Life Sciences.
PUB DATE 82
NOTE 130p.

EDRS PRICE MF01/PC06 Plus Postage.
DESCRIPTORS *Biological Sciences; Federal Government; *Medicine; *Organizations (Groups); Policy Formation; *Program Descriptions; *Scientific Research
IDENTIFIERS *Environmental Health; Toxicology

ABSTRACT

Covering the fiscal year beginning July 1, 1980, and ending June 30, 1981, this annual report of the Assembly of Life Sciences (ALS) summarizes the major activities of this group. Information is organized into four sections: (1) The Executive Office; (2) The Division of Biological Sciences; (3) The Division of Medical Sciences; and (4) The Board on Toxicology and Environmental Health Hazards. Each section begins with an organizational chart which shows the structure within the ALS and the Assembly's relationship to the National Academy of Sciences. Activities within sections are mostly listed alphabetically. Committee entries include a summary description, list of members, staff, meeting dates, and summary of accomplishments. A list of ALS reports completed during this year and a list of ALS corresponding societies is provided in the back. (Author/DC)

ANNUAL REPORT
July 1980–June 1981

ASSEMBLY OF LIFE SCIENCES
NATIONAL RESEARCH COUNCIL

NATIONAL ACADEMY PRESS
Washington, D.C. 1982

PREFACE

This annual report of the Assembly of Life Sciences (ALS) covers the fiscal year beginning July 1, 1980, and ending June 30, 1981. Although brief histories of some committees have been given as background for their activities during this reporting period, the lists of meetings, members, and reports and the statements of accomplishments reflect productivity only for the abovementioned period. Activities that have continued beyond June 30, 1981, are identified. All meetings were held in Washington, D.C., unless otherwise shown.

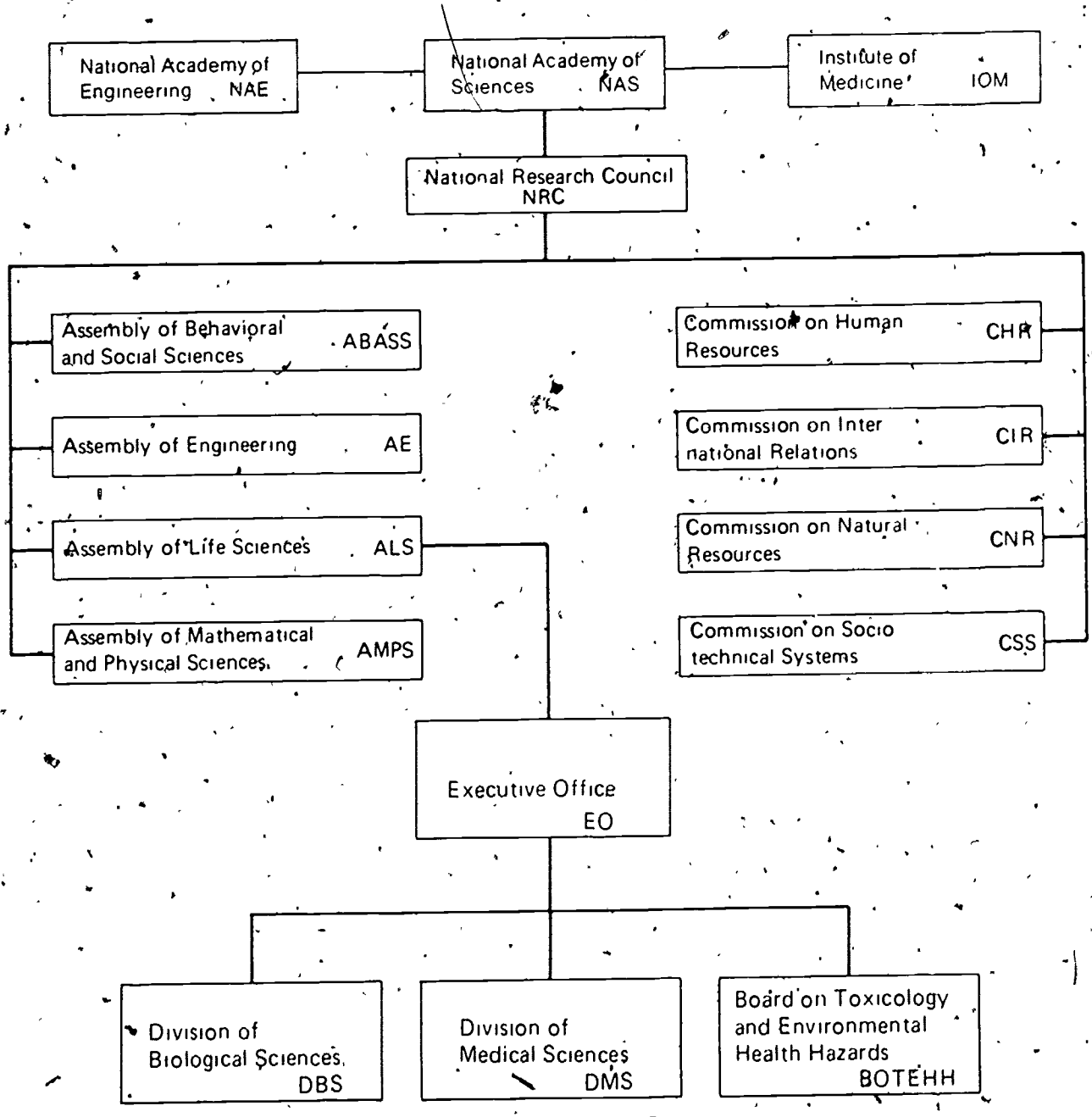
This report has four major sections: on the Executive Office, the Division of Biological Sciences, the Division of Medical Sciences, and the Board on Toxicology and Environmental Health Hazards. The activities in each section are listed alphabetically insofar as possible. Organization charts at the beginning of the several sections show the structure within the [illegible] and the Assembly's relation to the National Academy of Sciences ([illegible]).

For further information on committee membe[illegible], consult the 1981 Directory of the ALS. Details concerning [illegible]ttee deliberations and conclusions can be found in the formal individual committee reports, which are available in most cases from the Assembly office, the National Academy Press, or the National Technical Information Service (NTIS).

A list of all reports completed by ALS committees during the year and a list of the Corresponding Societies of the Assembly are found at the end of this report.

CONTENTS

ASSEMBLY OF LIFE SCIENCES


National Academy of Engineering NAE
National Academy of Sciences NAS
Institute of Medicine IOM
National Research Council NRC
Assembly of Behavioral and Social Sciences ABASS
Assembly of Engineering AE
Assembly of Life Sciences ALS
Assembly of Mathematical and Physical Sciences AMPS
Commission on Human Resources CHR
Commission on International Relations CIR
Commission on Natural Resources CNR
Commission on Socio technical Systems CSS
Executive Office EO
Division of Biological Sciences DBS
Division of Medical Sciences DMS
Board on Toxicology and Environmental Health Hazards BOTEHH

ASSEMBLY OF LIFE SCIENCES

Summary Description: The Assembly of Life Sciences (ALS) is composed of up to 25 members, generally appointed for 3-year terms. Five meetings are held each year. Both biologic expertise and medical expertise are represented in the Assembly. The Assembly establishes policy, reviews and recommends acceptance or rejection of each project proposed by its several elements, develops an Annual Program Plan for presentation to the Governing Board of the National Research Council, and is delegated responsibility on behalf of and subject to the review of the NRC Governing Board for the selection of all ALS committee members, for the conduct of committee studies, and for the scientific validity of committee reports.

Membership (with year that term expires):

Frank W. Putnam, Chairman (1981)
Edward H. Ahrens, Jr. (1981)
David Baltimore, (1981)
*Alexander G. Bearn
Lloyd M. Beidler (1981)
Lawrence Bogorad (1982)
John J. Burns (1981)
Leighton E. Cluff (1982)
John E. Dowling (1982)
Ronald W. Estabrook (1983)
Bernard G. Greenberg (1983)
Howard H. Hiatt (1981)
James G. Hirsch (1983)
Edward H. Kass (1982)
Arthur Kellman (1982)
Alfred G. Knudson, Jr. (1981)
Gene E. Likens (1983)
Beatrice Mintz (1981)
Gordon H. Orians (1982)
Charles H. Rammelkamp (1981)
Peter H. Raven (1982)
Howard A. Schneiderman (1981)
Maxine F. Singer (1982)
Arthur C. Upton (1983)
Gerald N. Wogan (1982)

Ex officio
Frederick C. Robbins (IOM)

Staff:

Councilman Morgan, Executive Director to February 16, 1981

Alvin G. Lazen, Executive Director from February 16, 1981

Cecil M. Read, Administrative Associate

Barbara B. Smith, Staff Associate

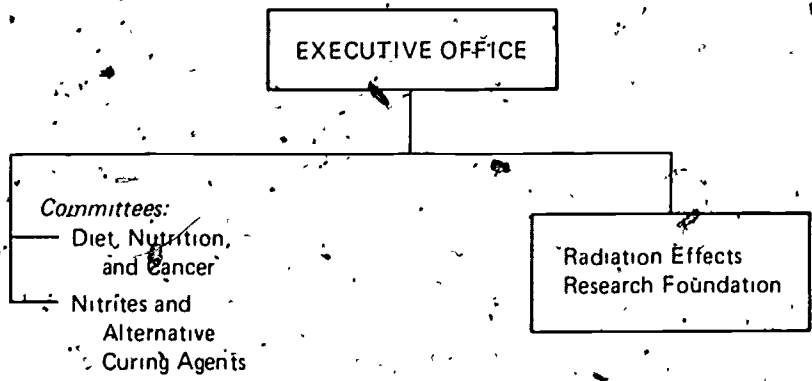
*Resigned September 9, 1980

Meetings:

September 15-16, 1980
November 17, 1980
February 16-17, 1981 (Airlie Conference Center, Airlie, Va.)
April 25, 1981
June 15-16, 1981

EXECUTIVE OFFICE

SPECIAL PROGRAMS


EXECUTIVE OFFICE
Committees:
Diet, Nutrition, and Cancer
Nitrites and Alternative Curing Agents
Radiation Effects Research Foundation

EXECUTIVE OFFICE: SPECIAL PROGRAMS

Although the bulk of the activities of the Assembly of Life Sciences are lodged in either the Division of Biological Sciences, the Division of Medical Sciences, or the Board on Toxicology and Environmental Health Hazards, some programs are directly under the supervision of the Executive Office. Some of these programs involve very large financial support; others deal with subject matter that is primarily neither medical, toxicologic, nor biologic, but bridges two or all three of those disciplines.

COMMITTEE ON DIET, NUTRITION, AND CANCER

Summary Description: A study of the relationship of dietary and nutritional factors to cancer was first approved by the Governing Board on November 6, 1978. After long negotiation, funds were obtained for a 3-year study that began in June 1980.

Research in the last few decades has led to a plethora of confusing assertions about the relationship of diet to cancer. The scientific validity of these concepts has been neither critically examined nor communicated to the public. Therefore, the Committee on Diet, Nutrition, and Cancer was formed in June 1980 to examine and assess the data concerning the relationship of dietary components (nutrients and toxic contaminants) and nutritional factors to the incidence of human cancer. The Committee will also identify and summarize pertinent information that can be communicated to the scientific community and to the public and will prepare a research agenda for the Diet, Nutrition, and Cancer Program of the National Cancer Institute.

Two reports will be submitted to the National Cancer Institute. The first will be issued after the second year of the project and will be an assessment of the available data. The other will point out gaps in research and make recommendations for the future.

Membership:

Clifford Grobstein, Chairman
John Cairns, Vice Chairman
Robert W. Berliner
Selwyn A. Broitman
T. Colin Campbell
Joan D. Gussow
Laurence N. Kolonel
David Kritchevsky
Walter Mertz
Anthony B. Miller

Membership continued:

Michael J. Prival
Thomas J. Slaga
Lee W. Wattenberg

Elizabeth B. Miller, Advisor
Robert A. Neal, Advisor
Takashi Sugimura, Advisor

Staff:

Sushma Palmer, Project Director
Kulbir Bakshi

Leslie Graybill
Frances M. Peter (Editor)

Meetings:

August 20-21, 1980
November 6-7, 1980 (Public Meeting)
February 17-18, 1981
March 9, 1981 (Miniconference)
May 18-19, 1981
May 20-21, 1981 (Workshop)

Accomplishments: At its first meeting, the Committee identified the scope of work, outlined its first report, and made plans for a public meeting, which was held in November 1980. The object of the public meeting was to seek information and opinions from scientists and the public concerning the importance of dietary factors with relation to cancer. In the process of reviewing the literature, the Committee has identified a number of topics on which there are conflicting data, and it organized a miniconference on diet, nutrition, and cancer and a workshop on dietary studies in cancer epidemiology to discuss these topics and to identify the basis for the conflicting findings. Some sections of the first report have been drafted; a final draft is expected to be ready for review in February 1982 and for transmission to the National Cancer Institute in May 1982.

COMMITTEE ON NITRITES AND ALTERNATIVE CURING AGENTS IN FOOD

Summary Description: The Committee was established in September 1980 at the request of the U.S. Department of Agriculture and the Food and Drug Administration.

The objectives of the study are to review and assess all pertinent scientific literature pertaining to the health risks and benefits associated with the presence of nitrates and nitrites in food, to identify gaps in knowledge and recommend future

research on unresolved scientific questions, to review and assess current government-based research pertaining to curing agents and preservatives that are being considered for use in place of nitrites, and to recommend approaches and strategies for future research designed to develop feasible alternatives to nitrite.

The Committee will prepare two reports during an 18-month period.

Membership:

Maclyn McCarty, Chairman
Linda M. B. Bartoshuk
Frances F. Busta
David B. Clayson
David H. Fine
Stanley Goldfarb
Ian Gray
Peter Greenwald
Ross H. Hall
Morris I. Kelsey
Bert N. La Du
Frederick Oehme
Dunwood B. Rowley
John Van Ryzin
Seymour Cohen, Advisor
Philip E. Hartman, Advisor
Peter N. Magee, Advisor
Sidney S. Mirvish, Advisor
Rolf Preussmann, Advisor

Staff:

Sushma Palmer, Project Director
Leslie Graybill
Cathy St. Hilaire
Roy Widdus
Frances M. Peter (Editor)

Meetings:

October 23-25, 1980
January 21-23, 1981 (Public Meeting)
March 12-13, 1981
April 27-29, 1981

Accomplishments: The Committee has made considerable progress toward the completion of the first report, which is due in December 1981, and has outlined the second report, which is to be transmitted in March 1982. In January 1981, the Committee held a public meeting to seek input from scientists and the public on the scope of work for the study and to identify sources of information on substances that are being studied as possible substitutes for nitrite. The Committee plans to hold a week-long session at the NAS Summer Studies Center in Woods Hole to prepare a final draft of its first report.

ADVISORY COMMITTEE ON THE RADIATION EFFECTS RESEARCH FOUNDATION

Summary Description: The Advisory Committee on the Radiation Effects Research Foundation was established in the Assembly of Life Sciences to give program advice and assistance to NAS with respect to the Radiation Effects Research Foundation (RERF). RERF was created on April 1, 1975, as the successor to the programs, personnel, and facilities of the Atomic Bomb Casualty Commission (ABCC). The mission of ABCC, which was organized in 1947 as a field agency of NAS with funding from the Atomic Energy Commission, was to determine the late effects of radiation from the atomic bombs on the surviving populations of Hiroshima and Nagasaki. The RERF is a private, nonprofit foundation, established under Japanese law. It is funded equally by the two nations: by Japan through a subsidy from the Ministry of Health and Welfare, and by the United States through a subcontract from NAS, with funds received from the Department of Energy (DoE). Relatively small amounts of support have also been received through contracts from the National Cancer Institute (NCI) and the National Heart, Lung, and Blood Institute.

RERF is governed by a board of directors, half Japanese and half American. The board receives scientific advice on the RERF program from a scientific council composed of 10 scientists, half of each nationality. The science councillors are formally elected by the board of directors, but the U.S. candidates are nominated by NAS through DoE.

Membership:

Arthur C. Upton, Chairman
Robert E. Anderson
Alexander G. Bearn
Michael Bender
Eugene P. Cronkite
James F. Crow
R. J. Michael Fry
Brian MacMahon
Robert W. Miller
John P. Phair
Donovan J. Thompson

Board of Directors:

Masao Tamaki, Chairman
Tomohiko Hayashi
Raisuke Shirabe
Masuo Takabe
Iwao Yasuda
William J. Schull, Vice-Chairman
Victor Bond
Kelly H. Clifton
James L. Liverman
Councilman Morgan

Science Council:

James F. Crow, Chairman	Ei Matsunaga, Vice Chairman
Alexander G. Bearn	Soichi Iijima
Eugene P. Cronkite	Harue Katsunuma
Robert W. Miller	Toshiyuki Kumatori
Arthur C. Upton	Tsutomu Sugahara

Supervisors:

David Williams — Ken Yanagisawa

Staff:

Seymour Jablon

Meetings:

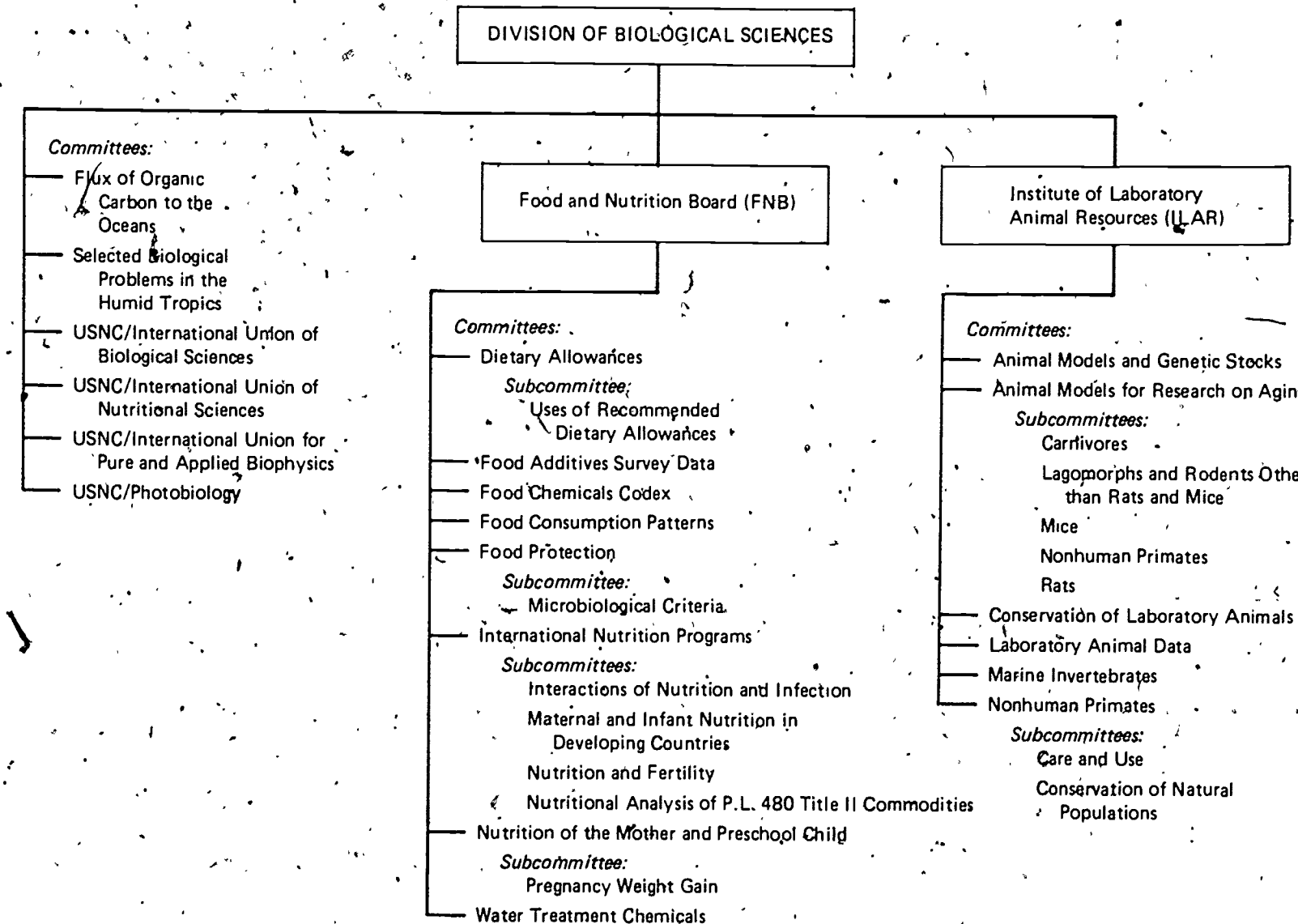
January 24-25, 1981 (Workshop on Cancer Epidemiology at RERF, Maui, Hawaii)
January 27-29, 1981 (Board of Directors, Hiroshima)
March 16-17, 1981 (Workshop on Cancer Detection, Hiroshima)
March 19-21, 1981 (Science Council, Hiroshima)
June 9-11, 1981 (Board of Directors, Hiroshima)

Accomplishments: During the year, publications were prepared for a new analysis of mortality through 1978 in the Life Span Study. A report on mortality in the period 1950-1978 is nearing completion. Cancers continued to occur excessively among the heavily exposed survivors. The biochemical genetics study continued to progress satisfactorily.

A contract has been executed with the NCI concerning funding of cancer studies of particular interest to NCI. A subcontract has been entered into with the RERF to support those activities.

Agreement was reached with the Department of Biostatistics of the University of Washington, Seattle, for a program that would involve the Department in helping to provide biostatistics and epidemiology staff for RERF on rotation and also provide for a two-way exchange of graduate students.

DIVISION OF BIOLOGICAL SCIENCES


DIVISION OF BIOLOGICAL SCIENCES
Committees:
Flux of Organic Carbon to the Oceans
Selected Biological Problems in the Humid Tropics
USNC/International Union of Biological Sciences
USNC/International Union of Nutritional Sciences
USNC/International Union for Pure and Applied Biophysics
USNC/Photobiology
Food and Nutrition Board (FNB)
Committees:
Dietary Allowances
Subcommittee:
Uses of Recommended Dietary Allowances
Food Additives Survey Data
Food Chemicals Codex
Food Consumption Patterns
Food Protection
Subcommittee:
Microbiological Criteria
International Nutrition Programs
Subcommittees:
Interactions of Nutrition and Infection
Maternal and Infant Nutrition in Developing Countries
Nutrition and Fertility
Nutritional Analysis of P.L. 480 Title II Commodities
Nutrition of the Mother and Preschool Child
Subcommittee:
Pregnancy Weight Gain
Water Treatment Chemicals
Institute of Laboratory Animal Resources (ILAR)
Committees:
Animal Models and Genetic Stocks
Animal Models for Research on Aging
Subcommittees:
Carnivores
Lagomorphs and Rodents Other than Rats and Mice
Mice
Nonhuman Primates
Rats
Conservation of Laboratory Animals
Laboratory Animal Data
Marine Invertebrates
Nonhuman Primates
Subcommittees:
Care and Use
Conservation of Natural Populations

DIVISION OF BIOLOGICAL SCIENCES

The Division of Biological Sciences consists of two clusters of committees--one under the Food and Nutrition Board (FNB) and one under the Institute of Laboratory Animal Resources (ILAR)--and a number of individual committees. Of the latter, four are U.S. National Committees affiliated with international nongovernment science organizations. The remainder are free-standing groups formed to address particular tasks; such groups customarily are disbanded when their tasks are completed.

For any given reporting period, most of what has been accomplished in the Division can be described under the titles of formally established committees. There are a few developing activities that have not yet reached committee status, but that must be described if the report itself is to be complete. A developing activity that is strictly in the province of an existing committee is noted in the writeup of that committee.

DEVELOPING ACTIVITIES

APPLICATIONS OF ECOLOGICAL THEORY TO THE PREPARATION AND INTERPRETATION OF ENVIRONMENTAL-IMPACT STATEMENTS

With the 1977 minisymposium on this subject as background, a workshop was held September 22-23, 1979. Participants included persons who espoused several different approaches to ecology and who were experienced in a wide variety of marine, fresh-water, and terrestrial environments. The workshop attendees were Gordon H. Orians (Chairman), F. Herbert Bormann, John Cairns, Robert B. Craig, Paul K. Dayton, Jerry F. Franklin, Carl Jordan, Kenneth H. Mann, Robert May, David Pimentel, David Reichle, Frank Rigler, Daniel S. Simberloff, Donald Strong, and John Vallentyne. Attention was directed particularly toward four approaches to ecological systems with large numbers of potentially interacting species: models of energy flow, of nutrient and materials cycling, of species richness, and of community stability. It was agreed that these approaches could be evaluated best by examining models from the viewpoints of the data needed to test them, the difficulty of obtaining those data, the domain over which a model could be presumed to be applicable, and special precautions to be observed in applying the results. Exploration of these models and of this approach to evaluating them was deemed most likely to be productive if directed toward a particular kind of environmental problem. It was therefore

decided to select the preparation and interpretation of environmental-impact statements as an effective focus.

At this point, a draft proposal was prepared, calling for a committee of experts to oversee and organize the following three tasks:

- Two workshops, one each to explore existing knowledge of the role of species interaction in determining community-level processes and knowledge of interactions between nutrient cycling and energy flow processes.

- Development of models of nutrient and materials cycling, of energy flow, of species richness, and of community stability, with instances of their use and misuse.

- Analysis of already-completed environmental-impact statements, to assess the extent to which they predicted outcomes accurately and ways in which the newer models might have improved on them.

Extensive discussions with the Environmental Protection Agency (EPA) led to the suggestion that NRC apply for a research grant to fund the study, but eventually the application was rejected. Further contact with EPA confirmed its continued interest in the project, but funding remains elusive. The proposal may be resubmitted, but not before the beginning of the federal fiscal year on October 1, 1981, before which EPA has no funds to dispense. Overall prospects for this study may well depend on whether the role of EPA is emphasized or curtailed in the future.

BIOLOGICAL APPROACHES TO ENERGY ALTERNATIVES

The 1979 and 1980 ALS Annual Program Plans summarized a suggestion from NAS President Handler that the Assembly explore the possibility of biological approaches to the question of augmenting energy sources--a proposal that he had received from Albert Lehninger. A sum of $5,000 was made available from Program Initiation Funds in support of a workshop that will examine novel and fundamental approaches, including such possibilities as membrane phenomena and photomechanisms, cellulose degradation as an energy source, and the photochemical splitting of water. Participants were selected from a large list of candidates, invitations were issued, and the workshop was scheduled for September 17-18, 1981, under the chairmanship of Daniel Wang.

BIOTECHNOLOGY

Early in its deliberations, the DBS Advisory Panel identified the rapid emergence of what has come to be called "biotechnology" and the related matter of the interface between government and industry in biological research as matters deserving careful consideration.

A substantial part of the February 1981 Assembly meeting was devoted to a discussion of this topic led by Dr. Howard Schneiderman, with the aid of two guests--Lawrence J. Berlowitz of Clark University and Barry Gruenberg of the U.S. General Accounting Office. Topics addressed included fermentation and other aspects of microbiology, use of immobilized enzymes, and commercialization of genetic engineering. Since that time, owing largely to Dr. Handler's directive, it has been decided to organize one or more (currently four) Academy Forums on various aspects of the issue; a transcript of the ALS discussions has been made available to the Forum office.

CHANGES IN TERRESTRIAL BIOMASS

A workshop proposed in the 1979 Annual Program Plan and carried across to the 1980 Plan looked to the feasibility of assessing the carbon content of the terrestrial biomass with particular reference to the tropics. It was held in abeyance, pending the outcome of the study of organic carbon flux to the oceans. When the report on the latter subject had been completed, the Assembly readdressed the question of the need to look at terrestrial biomass and decided that it was being addressed adequately elsewhere. As a consequence, this item will not be pursued in 1981.

COLOR AS SCIENTIFIC DATA IN BIOLOGY

When the corresponding societies of the Assembly were polled in 1978 for suggestions as to studies that the NRC might undertake or issues with which they were concerned, the Mycological Society of America (MSA) expressed interest in the question of color as scientific data.

Apparently, there has never been a universally accepted standard for reporting or recording color data that would be for color what the metric system is for weights and measures. Various systems have been widely, but not universally, used; many have appreciable shortcomings. Several professional societies have studied this matter, the MSA and the Ecological Society of America (ESA) among them, but further consideration and input from other

disciplines--especially those immediately concerned with color itself --are now required. The needs of the diverse groups that use color data should be assessed, with a view to developing and producing common standards and usage.

A draft proposal for a study was drawn up with the help of Kent McKnight (MSA), Howard Frank (ESA), and Kenneth L. Kelly of the National Bureau of Standards (NBS). Members of the ABASS Committee on Vision have reviewed it and made helpful suggestions concerning both content and sources of funds. Informal discussions with the National Science Foundation and NBS elicited some expression of interest, but no funds. A final approach will be made to the Munsell firm in Baltimore; if that is unavailing, it will be necessary to delete the study from the Assembly program.

CRYOBIOLOGY

For the last 2 years, the Division has striven to find a source of funds, in relatively modest amounts, to support a committee in the general field of cryobiology, but thus far without success. Most recently, the Office of Naval Research (ONR) has promised partial funding, but has not taken final action. Staff changes in the ONR have further slowed the response.

By action of the DBS Advisory Panel, this project will be abandoned, at least for several years, if support is not forthcoming in fiscal year 1982.

EDUCATION AND MANPOWER ISSUES IN BIOLOGY

Since long before the formation of the Assembly, the Division (formerly the Division of Biology and Agriculture) has recognized education and manpower as subjects within its overall responsibility, although there have been intermittent periods of greater or less activity. With the formation of the DBS Advisory Panel a year or so ago, several aspects have received renewed attention; these have been discussed in Panel meetings, and will continue to be examined in the year ahead:

- Subjects in biology that are underdeveloped or that lack adequate support.

- Current status of employment and future manpower needs in biology.

- Measures of productivity in biological research.

GERMPLASM RESOURCES

The Committee on Germplasm Resources was discharged after issuing its report in 1978. The possibility of initiating several related, more narrowly targeted, studies has since been discussed with various government agencies--germplasm of economically important crop plants, the special attributes of natural areas as sanctuaries for germplasm preservation, the peculiar vulnerabilities of specialized research stocks, the germplasm of fish, and the germplasm of marine mammals. Of these, the last has sparked some response from potential funding agencies, but has not been pushed to a final resolution.

Meanwhile, the Office of Technology Assessment and the General Accounting Office completed reports on various aspects of the germplasm of economically important plants and animals in 1981. A 3-day conference at the University of Maryland in March 1980 urged, among other things, that the NRC be asked to assume a central coordinating role in national and international efforts at wise management of microbiological culture collections of special importance to agriculture; the report of that conference, in its final form, was distributed in 1981. Finally, NIH is planning a meeting to examine its interest in germplasm resources, primarily as represented by microorganisms and cell cultures of medical and biomedical importance; the date had not been set at the close of the fiscal year.

As for the Division, Program Initiation funds are being sought for a planning workshop on the preservation of germplasm of native species, with special emphasis on tropical regions. The status of existing collections, the need for future explorations and accessions, and criteria for evaluation of materials will be among the issues on the agenda.

MICROBIAL PATHOGENS AS BIOLOGICAL CONTROL AGENTS

On the strength of early discussions with EPA, a proposal for support of a study in this general field was submitted in fiscal year 1979. There followed a very protracted series of communications between the two institutions, which culminated in a last-minute turndown by EPA, for reasons that have not been satisfactorily determined. In any case, the Assembly decided during the reporting year to terminate its efforts for the time being and to delete this subject from the next Annual Program Plan.

SYSTEMATICS RESOURCES IN ENTOMOLOGY

At the close of fiscal year 1979, efforts to secure funding to develop a detailed plan for a regional systematics services center in entomology were abandoned as too costly to be successfully promoted at that time. A preliminary study of feasibility, so structured as to include an assessment of data compiled by various systematics collections that have received federal support during the last few years, was developed. Proposal for support of the feasibility study was submitted to NSF, which rejected it late in fiscal year 1980.

Examination of the peer reviews disclosed that several were highly favorable and several unfavorable, but that the latter were due almost entirely to a substantial misunderstanding of the way in which the NRC does business, albeit favorable to the objectives of the study. In light of this, a choice had to be made between requesting a reexamination--which is now permitted under NSF operating procedures--and submitting a revised proposal. The latter course, after conversations with NSF staff, seemed the wiser. As a consequence, a revised proposal, spelling out more fully the operating procedures of the NRC, was submitted in the spring of 1981.

COMMITTEE ON FLUX OF ORGANIC CARBON TO THE OCEANS

Summary Description: The global processes involved in the production, consumption, degradation, flux, and storage of organic carbons are not well understood--in particular, the transport of organic carbon to the oceans. A workshop on this subject, held at Woods Hole in September 1980, addressed such questions as:

- Is there major transport of organic carbon from rivers to the oceans?
- Can it be estimated on the basis of existing data?
- Can better data be obtained?
- What is the fate of this carbon once it reaches the oceans?

Membership:

Gene E. Likens, Chairman
Fred T. Mackenzie
Jeffrey E. Richey
James McDell
Karl K. Turekian

Staff:

Veronica I. Pye

Meeting:

September 21-25, 1980 (Woods Hole. Mass.)

Workshop Participants:

Gene E. Likens, Chairman	Carl F. Nordin, Jr.
Egon T. Degens	B. J. O'Brien
Thomas Dunne	Jeffrey E. Richey
John M. Edmond	James Sedell
John I. Hedges	Elliott Spiker
Frederick Mackenzie	Karl K. Turekian
Michel Meybeck	Peter J. Wangersky
Patrick Mulholland	Roland Wollast

Accomplishments:

A consensus was reached at the workshop that the flux of organic carbon by rivers to the oceans has the same order of magnitude as the other fluxes in the global carbon cycle, although it is smaller than that involved in photosynthesis and respiration. The amount of terrigenous material entering the river systems was estimated, and its ultimate fate was elucidated. It was concluded that rivers may play an important role in the global carbon cycle. Recommendations for future feasible studies were made. Flux of Organic Carbon by Rivers to the Oceans was published by the Department of Energy in April 1981. Two thousand free copies have been distributed, and additional copies are available from the National Technical Information Service.

COMMITTEE ON SELECTED BIOLOGICAL PROBLEMS IN THE HUMID TROPICS

Summary Description: The U.S. Agency for International Development (AID), in attempting to comply with recent Congressional mandates to incorporate ecological principles into its bilateral assistance programs, has established a large "Expanded Information Base" project managed by the National Park Service.

The Division, on the basis of its recent study of research priorities, has formed a committee to prepare one of the review papers, tentatively entitled "The Ecology of Development in the Humid Tropics." By this means the Committee seeks to assist the Development Support Bureau of AID in improving the capability of the developing countries to conserve and manage their natural resources and environment. The report will deal with such ecological issues as watershed protection, reforestation, agroforestry, germplasm resources, natural resources surveys, and baseline studies. A series of conceptual and operational recommendations will be made to assist AID in developing an ecological perspective with regard to specific projects.

Membership:

Jay M. Savage, Chairman
Charles Goldman
David P. Janos
Ariel E. Lugo
Peter H. Raven
Pedro A. Sanchez
H. Garrison Wilkes

Staff:

James J. Talbot

Meeting:

February 6-7, 1981.

Accomplishments: Selection of major topics for the report centered about two principal concerns of AID--food and nutrition, and renewable natural resources. Within this framework, three individual topics were selected: a review of basic ecologic characteristics of humid tropical environments as background for understanding the potential impacts of development projects, an outline of the significance and role of natural resource surveys and baseline studies in project planning, and a discussion of selected subjects most likely to be significant in development schemes as they emphasize sound ecological planning.

A final meeting of the Committee is scheduled for late July 1981, after which the completed draft will be reviewed, edited, and released to the sponsor by mid-September.

FOOD AND NUTRITION BOARD

Summary Description: The Food and Nutrition Board (FNB) was formed as the Committee on Foods and Nutrition in what was then the Division of Biology and Agriculture in 1940. It soon became known as the Food and Nutrition Board and has continued by that name. A brief report published in 1965, The Food and Nutrition Board, 1940-1965--Twenty-five Years in Retrospect, summarized the history of the Board and listed its membership and its reports for that period. The Board issues an annual activities report. Although the Board meets periodically to review the activities of its several committees and to plan for the future, most of the discrete studies are conducted by committees appointed for the specific tasks.

Membership:

*Alfred E. Harper, Chairman
*Henry Kamin, Vice Chairman
Roslyn B. Alfin-Slater
Sol H. Chafkin
George G. Graham
Jean-Pierre Habicht
*Richard L. Hall
Gail G. Harrison
Victor Herbert
Ogden C. Johnson
David Kritchevsky
*Robert E. Olson
Willard B. Robinson
*Irwin H. Rosenberg

Staff:

Myrtle L. Brown, Executive Secretary
Judith R. Bale
Durward F. Dodgen (until Feb. 13, 1981)
Milton Fisher (as of Feb. 9, 1981)
Kenneth R. Fulton (until Sept. 19, 1980)
Judit Katona-Apte (as of Feb. 9, 1981)
Robert A. Mathews (as of April 6, 1981)
Robert E. Rehwoldt
Margaret R. Stewart

Meetings:

September 16, 1980 (Executive Committee)
December 8-9, 1980
March 30-31, 1981

*Member of FNB Executive Committee.

Accomplishments: The activities of the FNB are reflected primarily in the accounts of its individual committees. On occasion, the Board undertakes studies on its own initiative. No such studies were pursued during the last year.

In August 1981, the FNB will hold its fourth annual retreat to review its mission and its progress and to make short- and long-term plans. Proposed projects for inclusion in the ALS Annual Program Plan were approved.

COMMITTEE ON DIETARY ALLOWANCES

Summary Description: The Committee on Dietary Allowances, formed in July 1974, is the most recent in a series of committees that have developed eight editions of Recommended Dietary Allowances (RDA), beginning in 1943. RDA are the intakes of nutrients recommended to provide adequate nutrition for virtually all healthy persons in the United States. They are used in planning programs (such as the school-lunch and Women, Infants, and Children programs of the U.S. Department of Agriculture), in food labeling, and in other regulatory programs.

Membership:

Henry Kamin, Chairman	Max K. Horwitt
Philip M. Farrell	Orville A. Levander
Helen A. Guthrie	Hellen Linkswiler
Victor Herbert	James A. Olson
Robert E. Hodges	Peter L. Pellett

Staff:

Judith R. Bale	Myrtle L. Brown

Meetings:

September 17, 1980
March 5-6, 1981

Accomplishments: A workshop was held in March on methods for estimating nutrient requirements.

Subcommittee on Uses of the Recommended Dietary Allowances

Summary Description: The Subcommittee was organized to evaluate current uses of the RDA and to make recommendations on appropriate uses.

Membership:

Patricia B. Swan, Chairman
Ogden C. Johnson
John E. Kinsella
(resigned June 1981)
Kathryn Kolasa
Louise Page
Dorothy J. Pringle

Staff:

Myrtle L. Brown

Meeting:

March 4, 1981

Accomplishments: The Subcommittee met with representatives of government agencies, educational institutions, and industry to review how the RDA are being used and to discuss problems perceived by the agencies.

COMMITTEE ON FOOD ADDITIVES SURVEY DATA--PHASE IV

Summary Description: This project is a continuation of the GRAS List Survey that was initiated as a pilot study in 1969. Phase II was a full-scale survey of the food industry, and Phase III (1977) included food and color additives other than GRAS substances.

Phase IV will include furnishing of updated data to FDA as it enters its cyclic review procedures. A priority item will be to resolve discrepancies between food-additive production and use figures.

Membership:

Lloyd J. Filer, Jr., Chairman
Richard L. Hall, Vice Chairman
Owen R. Fennema
Dee M. Graham
George W. Irving, Jr.
Philip E. Nelson
Arthur T. Schramm

Staff:

Robert E. Rehwoldt

Meetings:

February 3-4, 1981
May 4, 1981

Accomplishments: The Committee has met with FDA to determine a list of priorities for the Phase IV study. The highest priority was given to determination of reasons for differences in food-additive production and use data and to the makings of corrections where feasible.

Methods for addressing the problem are to be developed at the Committee's next meeting. Some resurvey work has been tentatively agreed on.

COMMITTEE ON FOOD CHEMICALS CODEX

Summary Description: The Food Chemicals Codex (FCC) is a compendium of quality and purity standards for chemicals used in food processing or production. The project originated under the auspices of the Food Protection Committee. The responsibility for development and revision of the FCC originally was held by the Committee on Codex Specifications. Concurrently with the appointment of a new membership, the Committee was renamed the Committee on Food Chemicals Codex during fiscal 1980-1981. The most recent edition, FCC III, published in May 1981, contains purity specifications and test procedures for identification and analysis of over 800 substances. The new edition also contains expanded sections on flavors, gas chromatography profiles, and infrared spectra for use in identification tests. Between FCC editions, standards are revised and expanded through publication of supplements. The FDA, by regulatory action, has recognized the Codex specifications as establishing "food grade" quality. The FCC has also been adopted by Great Britain, Canada, New Zealand, and Australia. Codex standards have been adopted widely by the Joint FAO/WHO Expert Committee on Food Additives and by the Food Section of the International Union of Pure and Applied Chemistry.

Membership:

James R. Kirk, Chairman
Samuel Tuthill, Vice Chairman
Frank L. Boyd
Bruce H. Campbell
Jack P. Fletcher
Sol W. Gunner
Thomas Medwick
Fred A. Morecombe
Jessie McGowan Norris
Jane C. Sheridan
Jan Stofberg

Staff:

Durward F. Dodgen (until Feb. 13, 1981)
Robert A. Mathews (as of Apr. 6, 1981)
Robert E. Rehwoldt (acting, Feb. 14-Apr. 5, 1981)

Meeting:

February 10-11, 1981

Accomplishments: The primary accomplishment of the fiscal year has been the publication of FCC III. This new edition has an 8-1/2 x 11-inch format and is over 700 pages long. Of the more than 800 monographs describing food chemicals, 113 are new. Also new to FCC III are expanded provisions applying to specifications, assays, and tests; a separate section on flavors, including gas-liquid chromatography profiles; an expanded section explaining the concept of "good manufacturing practice"; and infrared spectra for use in identifying essential oils, flavors, and other chemicals. Supplements to FCC III will include cumulative indexes. Work has begun on a seminar on safety and regulatory aspects of trace contaminants in food additives, to be cosponsored with FDA in early 1982. Data accumulation has begun, so that specifications and methods for FD&C certified colors can be published in an early supplement to FCC III. Priorities for the first supplement will be decided at a July 22-24, 1981, meeting at Woods Hole.

COMMITTEE ON FOOD CONSUMPTION PATTERNS

Summary Description: The need for a study of changing food consumption patterns was first discussed by the FNB in 1972. After a planning period of several years, the Committee was established in January 1978. The Committee examined the implications of changing food consumption patterns for nutrient intake and the possible impact on the health of the U.S. population and of special population subgroups. The Committee evaluated aggregate, household, and

individual methods for collecting food consumption data and evaluated means of integrating food consumption data with indexes of nutritional status and possibly of health status. After completion of the major study, a panel undertook a brief study of the major methods of measuring factors that affect food selection and an evaluation of the usefulness and related research needs of these methods.

Membership:

Robert Q. Nesheim, Chairman
I. J. Abrams
Doris H. Calloway
Helen A. Guthrie
Timothy M. Hammonds
Gail G. Harrison
Harold B. Houser

Staff:

Margaret R. Stewart

Meeting:

September 29-30, 1980 (Panel, Chicago, ILL.)

Accomplishments: The Committee report was submitted to the contractor in December 1980. It is being processed by the National Academy Press. The Panel on Factors Affecting Food Selection, working with members of the Committee, completed the first draft of its report.

COMMITTEE ON FOOD PROTECTION

Summary Description: At a meeting of the National Health Assembly in Washington in 1948, a resolution was adopted recommending that the Food and Nutrition Board undertake a study of some aspects of food safety. The FNB appointed an ad hoc committee to advise it on actions that should be taken. The Committee on Food Protection was established in 1950 and has been a major activity of the FNB ever since. In its concern with food safety, the Committee has conducted studies on food microbiology, nonnutritive sweeteners, toxicology, food technology, naturally occurring toxicants in foods, radionuclides in foods, specifications of identity and purity of food chemicals, and carcinogenic hazards. Specific tasks are customarily assigned to subcommittees established for that purpose.

Membership:

Paul E. Kifer, Chairman
James R. Kirk, Vice Chairman
Lloyd B. Bullerman
Dean O. Cliver
John C. Kirschman
Richard V. Lechowich
Russell J. Marino
Stata Norton
Don F. Splittstoesser

Staff:

Margaret R. Stewart

Meetings:

October 8-9, 1980 (Task Force)
November 10-11, 1980
March 19-20, 1981 (Atlanta, Ga.)
June 24, 1981 (Task Force, St. Louis, Mo.)

Accomplishments: One of the Committee's subcommittees completed its study, and a second subcommittee was established. A task force of the Committee prepared a proposal for a revision of the 1974 publication, Toxicants Occurring Naturally in Foods. A second task force initiated preparation of a proposal for a study on critical issues in food safety. The Committee assigned priorities to other proposed studies and will proceed with development of proposals for issues of greatest concern.

Subcommittee on Microbiological Criteria

Summary Description: The issue of microbiological criteria for foods and food ingredients was the topic of a 1977 workshop of the Subcommittee on Food Specifications. A proposal for the current study was prepared in 1978, and the study commenced in September 1980.

The Subcommittee is studying principles for the consideration and application of microbiological criteria, both mandatory and advisory, for food and food ingredients. The objective of the study is to recommend a unified, coordinated approach to the feasibility and use of microbiological criteria for those products.

Membership:

Carl Vanderzant, Chairman	Edwin M. Foster
Don F. Splittstoesser, Vice Chairman	James J. Jezeski
David H. Ashton	Richard V. Lechowich
Frank L. Bryan	Joseph C. Olson, Jr.
David L. Collins-Thompson	John H. Silliker

Staff:

Robert E. Rehwoldt — Margaret R. Stewart

Meetings:

October 21, 1980 (Executive Committee)
December 1-2, 1980
February 25-27, 1981
June 4-6, 1981 (Atlanta, Ga.)

Accomplishments: The Subcommittee developed an outline and time frame for the study. It then met with representatives of the study's four funding agencies to discuss their views of and needs for microbiological criteria. The Subcommittee also met with representatives of the Centers for Disease Control, with representatives of industry and public-health groups, and with the Industry Study Panel. Members have undertaken preparation of detailed outlines for each of the chapters in the study report.

COMMITTEE ON INTERNATIONAL NUTRITION PROGRAMS

Summary Description: The Committee on International Nutrition Programs (CINP) was established to provide scientific and technical studies on topics of international nutrition. Since May 1, 1970, the Committee has acted as an adviser to the Office of Nutrition, Agency for International Development (AID). In this capacity, it has identified nutritional problems in developing countries, outlined programs or approaches for preventing or lessening malnutrition, developed state-of-the-art papers, and reviewed research and program proposals. In October 1980, the Committee began a study for the Office of Food for Peace, AID, on analysis of commodities sent to developing countries in its Title II program.

Studies of CINP task forces are described below:

- Management of Diarrheal Diseases at the Community Level: This report describes advantages and problems of different systems of delivery of oral rehydration therapy to patients in developing countries.

- Nutrition Surveillance: A manuscript is being reviewed by the Committee. It describes three types of surveillance systems: monitoring and long-term changes in nutritional indicators for planning purposes, evaluation of specific programs with a nutritional objective, and provision of early warning and intervention to prevent epidemic inadequacies in food consumption.

- Nutritional Component of a Primary-Health-Care Delivery System: A manuscript is being reviewed by the Committee. It discusses the introduction of nutrition activities into community health programs. It considers the responsibilities of the health worker and the additional training and the research necessary to improve the performance of the health worker.

- Simplified Dietary Methods: A manuscript is being prepared on the rapid assessment of dietary intakes for particular purposes.

Membership:

Abraham Horwitz, Chairman
George H. Beaton
Frederick L. Dunn
Sandra L. Huffman
John Michael Lane
Robert Northrup
Noel Solomons
Fernando E. Viteri
Carol I. Waslien

Staff:

Judith R. Bale

Meetings:

December 1-2, 1980
April 21-22, 1981
June 12, 1981 (Nutrition Surveillance Task Force)

Accomplishments: Reports of Committee meetings were transmitted to AID. A report, Management of the Diarrheal Diseases, was published in July 1981.

Subcommittee on Interactions of Nutrition and Infection

Summary Description: The Subcommittee was established in 1971 to give special attention to the implications of interaction between nutrition and infection. There have been several international workshops, the proceedings of which have been published.

Membership:

Gerald T. Keusch, Chairman	Irwin H. Rosenberg
Michael C. Latham	Noel W. Solomons
Louis H. Miller	Kenneth S. Warren

Staff:

Judith R. Bale

Meeting:

September 27-October 31, 1980 (Bellagio, Italy)

Accomplishments: A workshop on the interaction of nutrition and parasitic diseases was held in September 1980. The papers presented are being reviewed for publication in Reviews of Infectious Diseases.

Subcommittee on Maternal and Infant Nutrition in Developing Countries

Summary Description: The Subcommittee was appointed in response to the increased interest in and requirement for scientific evaluation of maternal and infant nutrition in developing countries.

Membership:

Fernando E. Viteri, Chairman	J. K. Harfouche
Mehari Gebre-Medhin	Richard L. Naeye
Jean-Pierre Habicht	Gretel H. Pelto

Staff:

Judith R. Bale

Meetings: None

Subcommittee on Nutrition and Fertility

Summary Description: The Subcommittee was established in 1971 to undertake studies on the relationship of nutrition and fertility.

Membership:

Sandra L. Huffman, Chairman
Gretchen G. Berggren
John Bongaarts
John B. Josimovich
Jane A. Menken
Carl E. Taylor

Staff:

Judith R. Bale

Meeting:

August 26-27, 1980

Accomplishments: The Subcommittee is organizing an international workshop on current knowledge and policy implications of breast-feeding and fertility regulation. This will be sponsored with the World Health Organization and held in Geneva, Switzerland, on February 17-24, 1982.

Subcommittee on Nutritional Analysis of P.L. 480 Title II Commodities

Summary Description: The Subcommittee was appointed to prepare a report that will assist the Office of Food for Peace, AID, in selecting appropriate commodities for its Title II program. A revision of the current Commodities Reference Guide and recommendations for future research will also be parts of the report.

Membership:

Abraham Horwitz, Chairman
George H. Beaton
David L. Franklin
George G. Graham
William J. Hoover
Shlomo Reutlinger
Alberto Valdes

Staff:

Judith R. Bale
Milton Fisher
Judit Katona-Apte

Meetings:

April 14-15, 1981
June 17-18, 1981

Accomplishments: The report will include a historical review of legislative and operational aspects of the program, an analysis of determinants of commodity selection, a nutritional cost-effectiveness analysis of the commodities, and recommendations for future research.

COMMITTEE ON NUTRITION OF THE MOTHER AND PRESCHOOL CHILD

Summary Description: The Committee, formed in August 1974, resulted from restructuring and expansion of an earlier Committee on Maternal Nutrition. The Committee serves as an advisory resource for the Bureau of Community Health Services, Department of Health and Human Services; thus, its activities are directed toward improvement of nutritional aspects of maternity care and of the nutrition of infants and preschool children.

Membership:

Roy M. Pitkin, Chairman
W. Ann Reynolds, Vice Chairman
Lindsay H. Allen
Virginia A. Beal
Jo Anne Brasel
Preston V. Dilts, Jr.
John L. Duhring
Frank Falkner
George R. Kerr

Staff:

Myrtle L. Brown

Meetings:

November 10, 1980
March 25, 1981
June 2-3, 1981

Accomplishments: The Committee completed a project, "Nutrition Services in Perinatal Care." The resulting report is being distributed by the supporting organizations, the Bureau of Community Health Services and the National Foundation--March of Dimes, and to a limited extent through the office of the Food and Nutrition Board.

A symposium on alternative dietary practices and nutritional abuses in pregnancy was held June 2-3, 1981. The symposium addressed nutritional aspects of substance abuse and alternative dietary patterns during pregnancy in the mother and fetus. A report, including the papers presented and a summary of discussion, will be published.

Subcommittee on Pregnancy Weight Gain

Summary Description: The Subcommittee, formed in March 1981, was organized to provide guidance to the Centers for Disease Control in evaluating analysis of data on pregnancy weight gain consistent with normal pregnancy outcome. The data of the Collaborative Perinatal Study of the National Institute of Neurological and Communicative Disorders and Stroke provide the base for this study. Programing and computer analysis of the data were done by the Center for Human Growth and Development of the University of Michigan. The Subcommittee will make recommendations for the appropriate use of these data in early identification of women at risk for abnormal weight gain and possible unfavorable pregnancy outcome.

Membership:

Roy M. Pitkin, Chairman
Lindsay B. Allen
Steven G. Gabbe
Stuart C. Hartz
William Oh
Edward Quilligan
Robert B. Reed
David Rush

Staff:

Myrtle L. Brown

Meeting:

May 11, 1981 (Chicago, Ill.)

Accomplishments: The Subcommittee reviewed initial data analyses and recommended major changes in use of the data. The study period was extended to permit review of the completed data analysis.

COMMITTEE ON WATER TREATMENT CHEMICALS.

Summary Description: The Committee on Water Treatment Chemicals is charged with the responsibility of reviewing the chemicals that are used to produce potable water and providing recommendations for specifications of purity, limits for known impurities, and analytical procedures for evaluating the recommendations. The study is funded by the Environmental Protection Agency. The results will be published in a form similar to that of the Food Chemicals Codex so that the Agency may use them for reference and advice on regulatory matters.

Membership:

William H. Glaze, Chairman
Robert S. Bryant
Charles A. Buescher
Arnold E. Greenberg
John H. Mahon
Nina F. McClelland
J. Carrell Morris
Ronald C. Shank
R. Rhodes Trussell

Staff:

Robert E. Renwoldt

Meetings:

August 18-19, 1980
January 15-16, 1981 (Atlanta, Ga.)
May 28-29, 1981

Accomplishments: The Committee has decided on the form for the Water Treatment Chemicals Codex: the Codex will consist of a series of monographs, and each monograph will describe a water treatment chemical, recommend impurities limits for contaminants that may be in the chemical, and describe new analytic methods or refer to existing methods.

In the process of recommending impurity limits, the Committee has developed and adopted a method for estimating toxicity.

INSTITUTE OF LABORATORY ANIMAL RESOURCES

Summary Description: The Institute of Laboratory Animal Resources (ILAR) was formed in 1952 as an element of what was then the Division of Biology and Agriculture. ILAR serves as a national and international resource for compiling and disseminating information on characteristics and sources of laboratory animals, planning and conducting conferences and symposia, surveying existing and required facilities and resources, and promoting high-quality, humane care of laboratory animals in the United States. Since its inception, ILAR has been recognized by various government agencies, private biomedical research institutions, pharmaceutical companies, and educational institutions as a key advisory group in the laboratory animal field. A framework for government and institutional animal-welfare policies has been provided through reports prepared by ILAR committees.

During the last year, ILAR programs were planned and reviewed by a Chairman and Council. Within the Council, there was a smaller Executive Committee, charged with more detailed supervisory responsibility. The Council and the Executive Committee each met once in 1981. In addition to active study committees, ILAR supports a substantial staff activity.

Membership:

Council

*Nicholas G. Bottiglieri, Chairman
James W. Atz
*Emerson L. Besch
Philip B. Carter
W. Jean Dodds
Robert P. Hanson
Hyram Kitchen
*Franklin M. Loew
Richard J. Montali
*W. Anne Reynolds
Clifford R. Roberts
Adrianne E. Rogers
*Walter E. Stumpf
William T. Watson

Staff:

Earl W. Grogan, Executive Secretary
Andrea L. Cohen
Dorothy D. Greenhouse

Meetings:

January 12-13, 1981 (Council)
June 9, 1981 (Executive Committee)

Accomplishments: During the meetings of the Council and Executive Committee, ILAR budgetary requirements and proposed and current committee activities were discussed. Other matters reviewed included the status of ILAR publications, development or revision of guideline documents, sponsorship of symposia and workshops, current and pending legislation affecting laboratory animal resources, nominations to ILAR committees for fiscal year 1982, and status of ILAR information services.

An important element in ILAR's effort to serve as a coordinating group for the development and distribution of guidelines and information pertaining to laboratory animals and their care and use is the publication by the staff of a quarterly journal, ILAR News, which has a worldwide circulation of more than 3,800 copies, including 850 addressees in 65 foreign countries. A typical issue contains news of future and past local, national, and international meetings (including programs); general news; ILAR and NAS-NRC news; announcements of books available; technical notes; articles of interest; notices of availability of special or unusual animals, organs, and tissues; requests for special animal models; proposed and established

*Member of ILAR Executive Committee.

federal regulations affecting animal welfare, import, and transport; references on animal models for biomedical research; lists of ILAR reference materials available; and other information of interest to a variety of persons and organizations involved with laboratory animals. Additionally, committee reports are often included in ILAR News and also distributed as reprints.

A substantial part of staff effort goes into the Animal Models and Genetic Stocks Information Exchange Program. The ILAR staff, with assistance from the Committee on Animal Models and Genetic Stocks, has established a broad data base and continues to collect information on the location of unique animal colonies and on the availability of animals from those colonies. This information is made available to interested persons by direct response to specific inquiries. Since the program's inception in July 1969, the staff has received and responded to thousands of inquiries from scientists in the United States and abroad. During calendar year 1980, the staff documented responses to 614 inquiries, categorized as follows:

- Sources of animals--251 questions. ILAR provided names and addresses of sources of supply or investigator colonies of genetically characterized animal stocks, strains, and mutants, including uncommonly used animals.

- Appropriate animal models--56 questions. ILAR provided key references describing various animal models, mutants, or genetic stocks; names and addresses of scientific experts on animal model topics; and sources of available models.

- Other topics related to the laboratory animal field--307 questions. These questions concerned animal husbandry and facilities, biological and genetic data, breeding and marketing of animals, career opportunities in the laboratory animal sciences, and education and training of personnel. ILAR suggested names and addresses of scientific experts on maintenance of laboratory species and training of laboratory animal scientists, in addition to providing copies of ILAR publications and references to other appropriate literature containing the information requested.

In addition, 9,427 copies of ILAR publications were distributed in 1980 by ILAR and the National Academy Press.

Staff and committee members contribute to the information exchange program by sharing information gained through their professional activities and their attendance at, and participation

in, scientific meetings. To alert scientists to the needs and uses for animal models, an exhibit entitled "Animal Models of Human Disease," cosponsored by ILAR and the Registry of Comparative Pathology, Armed Forces Institute of Pathology, is displayed by the staff at various scientific meetings. In 1980, the exhibit was displayed at the September meeting of the National Capital Area Branch, American Association for Laboratory Animal Science, and at the national annual meeting of the American Association for Laboratory Animal Science in October.

A Supplement to Animals for Research - A Directory of Sources, Tenth Edition, was prepared as an insert for ILAR News. The Supplement provides animal listings from 17 new companies and updates information published in the 1979 tenth edition. Used in conjunction with the tenth edition, this Supplement provides up-to-date information on sources for purchase of a wide variety of animals for laboratory use.

A Task Force on Ectromelia (mouse pox) was convened June 29, 1981, on the recommendation of the ILAR Executive Committee and in response to indications of federal agency interest in support of an ILAR study of this disease, which has infected some research mouse colonies. The Task Force defined the problem and recommended development of an ILAR program. Its report will be used as the basis for developing a proposal to seek the necessary funding.

COMMITTEE ON ANIMAL MODELS AND GENETIC STOCKS

Summary Description: The Committee was appointed in July 1969 in response to recommendations by the Genetics Society of America and the National Institutes of Health for the establishment of a central location in which to collect, update, and disseminate information on animal models and genetic stocks that are useful in biomedical research.

Committee members provide scientific expertise for various ILAR programs by:

- Providing advice on topics for programs, symposia, and workshops.

- Recommending editorial policy guidance and providing materials regarding animal models and genetic stocks for the ILAR News.

- Evaluating new and emerging developments in biomedical and laboratory animal science that are relevant to ILAR's information service program.

- Recommending policies for operation of the Animal Models and Genetic Stocks Information Exchange Program.

- Providing material for response to inquiries received by ILAR as part of the Information Exchange Program.

- Assisting in identifying colonies of animal stocks, strains, and mutants held in research institutions but not available commercially.

Membership:

William H. Stone, Chairman
Gustavo D. Aguirre
Linda K. Collins Cork
Thomas J. Gill, III
Clement L. Markert
Susumu Ohno

Staff:

Dorothy D. Greenhouse

Meetings:

November 7, 1980
March 16-17, 1981

Accomplishments: The Committee gave high priority to updating the exhibit "Animal Models of Human Disease.

The Committee discussed ideas for new panels for the four-panel exhibit and made plans to update the exhibit on a regular basis. The first of the new panels, on Crohn's disease, is under construction. Topics for future ILAR-sponsored workshops or symposia were also discussed, and four subjects of general interest were identified: germplasm techniques, choosing an animal model for toxicological research, neuropathology, and X-linked diseases. Committee members were assigned the task of preparing an outline for each subject for the fall 1981 meeting. The Committee recommended to the ILAR Executive Committee that an editorial board for ILAR News be organized to support and assist the ILAR staff in preparing this quarterly journal. The traditional biennial meeting with the Registry of Comparative Pathology, at which projects of joint interest are considered, was tentatively planned for fall 1981.

COMMITTEE ON ANIMAL MODELS FOR RESEARCH ON AGING

Summary Description: The Committee was established on September 30, 1977, in response to a request from the National Institute on Aging (NIA), to assemble and review data on the relevance and appropriateness of selected small vertebrates as animal models for research on aging. A steering committee and five subcommittees were formed to conduct the study.

Membership:

Bennett J. Cohen, Chairman
Richard C. Adelman
Douglas M. Bowden
Carel F. Hollander
Leah M. Lowenstein
Takashi Makinodan
Roger McClellan
Henryk M. Wisniewski

Subcommittee on Carnivores:

Roger McClellan, Chairman
Henry J. Baker
Robert W. Bull
Charles C. Capen
Harold W. Casey
Webster S. S. Jee
Joe L. Mauderly
Robert Lee Pyle

Subcommittee on Lagomorphs and Rodents other than Rats and Mice:

Carel F. Hollander, Chairman
Joseph D. Burek
Richard R. Fox
Alan L. Kraus
George A. Sacher (deceased)
Albert L. Vincent

Subcommittee on Mice:

Takashi Makinodan, Chairman
Harold H. Draper
James R. Florini
David Harrison
Howard J. Hoffman
J. Michael Holland
C. K. Hsu
Richard L. Sprott

Subcommittee on Nonhuman Primates:

Douglas M. Bowden, Chairman
Irwin S. Bernstein
Thomas B. Clarkson
Donna Cohen
Andrew G. Hendrickx
Robert W. Prichard
Peter S. Rodman
William H. Stone
Henryk M. Wisniewski

Subcommittee on Rats:

Richard C. Adelman, Chairman
Mirian R. Anver
Merrill F. Elias
Philip W. Landfield
Edward J. Masoro
Joseph Meites
Jay Roberts

Staff:

Dorothy D. Greenhouse

Meetings: None

Accomplishments: The members of the Committee and its five subcommittees analyzed uses of selected mammalian models in the study of human aging, evaluated the appropriateness of the models, developed criteria for selection of models, and prepared recommendations to the NIA for maximizing the availability and minimizing the cost of aged animals. The 587-page report, Mammalian Models for Research on Aging, was published in February 1981. The Committee was dismissed in April 1980.

COMMITTEE ON CONSERVATION OF LABORATORY ANIMALS

Summary Description: As an outcome of the 1975 symposium on the future of animals, cells, models, and systems in research, development, education, and testing, the ILAR Executive Committee determined that it would be advisable to establish a small, continuing committee charged with remaining alert to present and emerging alternatives to the use of live animals in biomedical research and to ways in which animals might be used more conservatively. This was in response to increasing shortages of some types of animals and to other issues raised at the symposium. The Committee was asked to report to the Executive Committee about once a year to convey its assessment of activities that have an impact on conservation of laboratory animals and are relevant to current and potential ILAR programs.

Membership:

Carol M. Newton, Chairman
Murray Eden
Roger H. Kennett
Franklin M. Loew
Herbert S. Rosenkranz

Staff:

Earl W. Grogan

Meetings: None

Accomplishments: Although no meetings of the Committee were held, the staff officer, chairman, and two members attended under individual auspices the February 18-20, 1981, conference entitled "Trends in Bioassay Methodology: In Vivo, In Vitro, and Mathematical Approaches," convened by the National Institutes of Health in Washington, D.C. A summary report of the meeting was provided to the ILAR Executive Committee.

COMMITTEE ON LABORATORY ANIMAL DATA

Summary Description: At the request of the National Library of Medicine (NLM), the Committee made a yearly evaluation of the reliability, scientific worth, and usefulness of the NLM's Laboratory Animal Data Bank (LADB), which was being developed under contract with Battelle Columbus Laboratories, Columbus, Ohio.

Membership:

Donald A. B. Lindberg, Chairman	James G. Fox
Norman H. Altman	Robert O. Jacoby
Edwin J. Andrews	Richard T. Johnson

Staff:

Earl W. Grogan

Meeting:

February 2-3, 1981

Accomplishments: At the request of NLM, the 1980 meeting was postponed until February 1981, to allow more time for public testing of the LADB. At its February meeting, the final one for the Committee, the members drafted a last program review for the NLM. The completed, unpublished report, The Laboratory Animal Data Bank, A Program Review, was delivered to the NLM in May 1981.

COMMITTEE ON MARINE INVERTEBRATES

Summary Description: The Committee was established in 1976 in response to the recommendation of a task force that met in January of that year. The recommendation was based on a recognition of the special attributes of marine invertebrates that make them appropriate model systems in biomedical research. The Committee gave special attention to the use of marine invertebrates in laboratories far from natural marine waters in preparing its report, Laboratory Animal Management: Marine Invertebrates. Recognizing the large number of special management techniques being developed in different laboratories for rearing invertebrates through all stages of their life cycles, the Committee invited several colleagues to contribute individual chapters on laboratory management of selected phyla and compiled an extensive bibliography of primary references.

Membership:

Ralph T. Hinegardner, Chairman	Robert K. Josephson
James W. Atz	Norman A. Meinkoth
Rimmon C. Fay	John W. Miller
Milton Fingerman	Mary E. Rice

Staff:

Earl W. Grogan	Veronica I. Pye

Meetings: None

Accomplishments: The Committee report, a 382-page document entitled Laboratory Animal Management: Marine Invertebrates, was published in June 1981.

COMMITTEE ON NONHUMAN PRIMATES

Summary Description: The Committee was organized in March 1970 as the Committee on Conservation of Nonhuman Primates, in response to requests from the National Institutes of Health and the U.S. Department of Defense for an examination of the effects of habitat change on wild populations of primates and the needs for domestic breeding programs to ensure the continued availability of nonhuman primates for biomedical programs. The Committee is

asked to keep abreast of data on scientific use of primates, as well as breeding and management programs.

The Subcommittee on Care and Use had the task of preparing an update of the 1973 ILAR publication, Standards and Guidelines for the Breeding, Care and Management of Animals: Nonhuman Primates.

The Subcommittee on Conservation of Natural Populations was charged with preparing a report on techniques for conducting field surveys of natural primate populations.

Membership:

Norman H. Altman, Chairman
Benjamin G. Brackett
Robert W. Goy
Bernadette M. Marriott
Albert E. New
John W. Senner

Subcommittee on Care and Use:

Patrick J. Manning, Chairman
Francis C. Cadigan, Jr.
Edward I. Goldsmith
Kenneth C. Hayes
Bernard F. Trum
James H. Vickers
Robert A. Whitney, Jr.

Subcommittee on Conservation of Natural Populations:

John F. Eisenberg, Chairman
Wolfgang P. J. Dittus
Theodore H. Fleming
Kenneth Green
Thomas Struhsaker
Richard W. Thorington, Jr.

Staff:

Dorothy D. Greenhouse (Committee and Subcommittee on Care and Use)
Earl W. Grogan (Subcommittee on Conservation of Natural Populations)

Meetings: None

Accomplishments: The report of the Subcommittee on Care and Use, Laboratory Animal Management: Nonhuman Primates, was published as a special report in ILAR News. The Subcommittee had been dismissed previously.

The report of the Subcommittee on Conservation of Natural Populations, Techniques for the Study of Primate Population Ecology, is in press and is expected to be published in late 1981.

U.S. NATIONAL COMMITTEES

U.S. NATIONAL COMMITTEE FOR THE INTERNATIONAL UNION OF BIOLOGICAL SCIENCES (USNC/IUBS)

Summary Description: The Committee was organized in the early 1920s in the interests of U.S. participation in nongovernment biological activities and to ensure effective U.S. involvement in IUBS programs. It advises the NAS on matters pertaining to IUBS, nominates delegates to IUBS General Assemblies, provides information and guidance for delegates to the General Assemblies and other international activities of importance to the biological sciences, and performs other duties generally expected of national committees of adhering countries under IUBS statutes. It is composed of 15 members, about half of whom represent the botanical and half the zoological sciences.

Membership:

Otto Solbrig, Chairman
Harlan P. Banks, Vice Chairman
Frank B. Golley, Secretary
Perry L. Adkisson
Louise E. Anderson
Robert H. Burris
Philip Gerhardt
Aubrey Gorbman
Jerry Hirsch
Virgil Johnson
Nancy Milburn
John A. Moore
Oliver E. Nelson, Jr.
Keith R. Porter

Ex officio
Edward S. Ayensu

Staff:

Samuel B. McKee

Meeting:

December 12, 1980

Accomplishments: Recommendations of the Ad Hoc Committee of Review were considered; these recommendations propose a new structure for IUBS such that sections are grouped in divisions that reflect the trends of modern biology. A new structure, it is hoped, will improve communication between the governing bodies of IUBS and its sections; the latter are, for the most part, autonomous international nongovernment organizations.

An ad hoc subcommittee drafted a report describing and proposing a "Decade of the Tropics," whose central thrust would be to promote international cooperation among biologists working in tropical areas. The USNC/IUBS decided to support the concept of such a Decade and recommended that it be considered by the IUBS Council for action by the XXI General Assembly, to be held in Ottawa in August 1982.

As the fiscal year drew to a close, it became apparent that the fiscal constraints imposed by initial reductions in funds for the USNCs from the National Science Foundation would not be quickly resolved. In light of this, all appointments to the Committee were extended for a year, in place of the usual rotation of members.

U.S. NATIONAL COMMITTEE FOR THE INTERNATIONAL UNION OF NUTRITIONAL SCIENCES (USNC/IUNS)

Summary Description: The Committee was established in 1957 as a focal point for interaction between the U.S. scientific community and IUNS. It performs functions typical of USNCs in advising the NAS on matters related to U.S. participation in IUNS, nominating delegates to international meetings sponsored by IUNS, and directing attention to nutrition research that requires international cooperation. Its nine members are nominated by the American Institute of Nutrition and the American Society of Clinical Nutrition.

Membership:

George K. Davis, Chairman
James A. Olson, Vice Chairman
Harry Broquist, Secretary
George G. Graham
Helen A. Guthrie
Kenneth A. Harshberger
Ruth L. Pike
Harold H. Sandstead
Willard Visek

Ex officio
Max Milner
Nevin S. Scrimshaw

Staff:

Samuel B. McKee

Meeting:

September 13, 1980

Accomplishments: The Committee and staff provided assistance to the organizers of the plenary sessions of the XII International Congress on Nutrition, to be held August 16-21, 1981, in San Diego. In preparation for the General Assembly--held coincidentally with the Congress--the USNC/IUNS reviewed in detail a proposal for extensive changes in the statutes and by-laws of IUNS. These changes include the creation of additional officer posts and increased responsibility for committee chairmen; detailed comments were forwarded to the Secretary General. The USNC also encouraged IUNS to develop a world directory of nutritionists.

As in the case of the USNC/IUBS, the terms of all members were extended for a year, pending resolution of uncertainties about funding for meetings and for international dues.

U.S. NATIONAL COMMITTEE FOR THE INTERNATIONAL UNION FOR PURE AND APPLIED BIOPHYSICS (USNC/IUPAB)

Summary Description: The Committee was organized in 1962 to serve as a focal point for interaction between the U.S. scientific community and IUPAB. It performs functions typical of USNCs and maintains close contact with a number of scientific societies, particularly the Biophysical Society. Three of its eight members are nominated by the Biophysical Society, and three are nominated by other professional societies; two are members-at-large.

Membership:

Andrew G. Szent-Gyorgyi, Chairman.
Josef Eisinger, Vice Chairman
Helen Eberle
Robert S. Eisenberg
George Eisenman
Berton C. Pressman
Alexander Rich
Richard Tsien

Ex officio
Britton Chance
Lee D. Peachey
Frederic M. Richards

Staff:

Samuel B. McKee

Meeting:

February 22-23, 1981 (In connection with annual meeting of Biophysical Society, Denver, Colo.)

Accomplishments: Preparations were made to foster U.S. participation in the VII International Biophysics Congress and General Assembly of the IUPAB, to be held August 23-29, 1981, in Mexico City. A travel-grants program was planned, and criteria proposed for selection among applicants. Logistical support for the grants program was provided to the Biophysical Society by the Committee staff.

In preparation for the General Assembly, the USNC nominated delegates for appointment by the NAS, agreed that a proposed dues increase was justifiable, suggested candidates for membership on the IUPAB Council, and reviewed proposed changes in the IUPAB statutes. It also considered alternative methods of U.S. participation, should the NAS funding situation prove unresolvable. The terms of all members were extended for a year, as was done for the USNC/IUBS and the USNC/IUNS.

U.S. NATIONAL COMMITTEE FOR PHOTOBIOLOGY (USNC/PHOTOBIOLOGY)

Summary Description: A Committee on Photobiology was formed in the early 1950s to promote photobiology as a scientific discipline and to serve as a focus of interaction with the Comite Internationale de Photobiologie (CIP), a commission of the International Union of Biological Sciences. CIP, renamed the Association Internationale de Photobiologie (AIP) in 1976, has sponsored a long series of international photobiology congresses at 4-year intervals. The Committee on Photobiology was reformed in 1972 as a USNC for Photobiology after taking a leading role in the establishment of the American Society for Photobiology, which is concerned primarily with photobiology as a science. It performs the usual functions of USNCs by providing liaison between U.S. scientists and international activities in its field. It is composed of 12 members, who are nominated by the Committee and a number of professional biological societies.

Membership:

Leonard I. Grossweiner, Chairman
Josef Eisinger
John H. Epstein
R. J. M. Fry
Andre T. Jagendorf
Irene E. Kochevar
Aaron Lewis
David S. Nachtwey
John A. Parrish
Claud S. Rupert
Joseph W. Sausville
David H. Sliney
Myron L. Wolbarsht

Ex officio
Frederick Urbach

Staff:

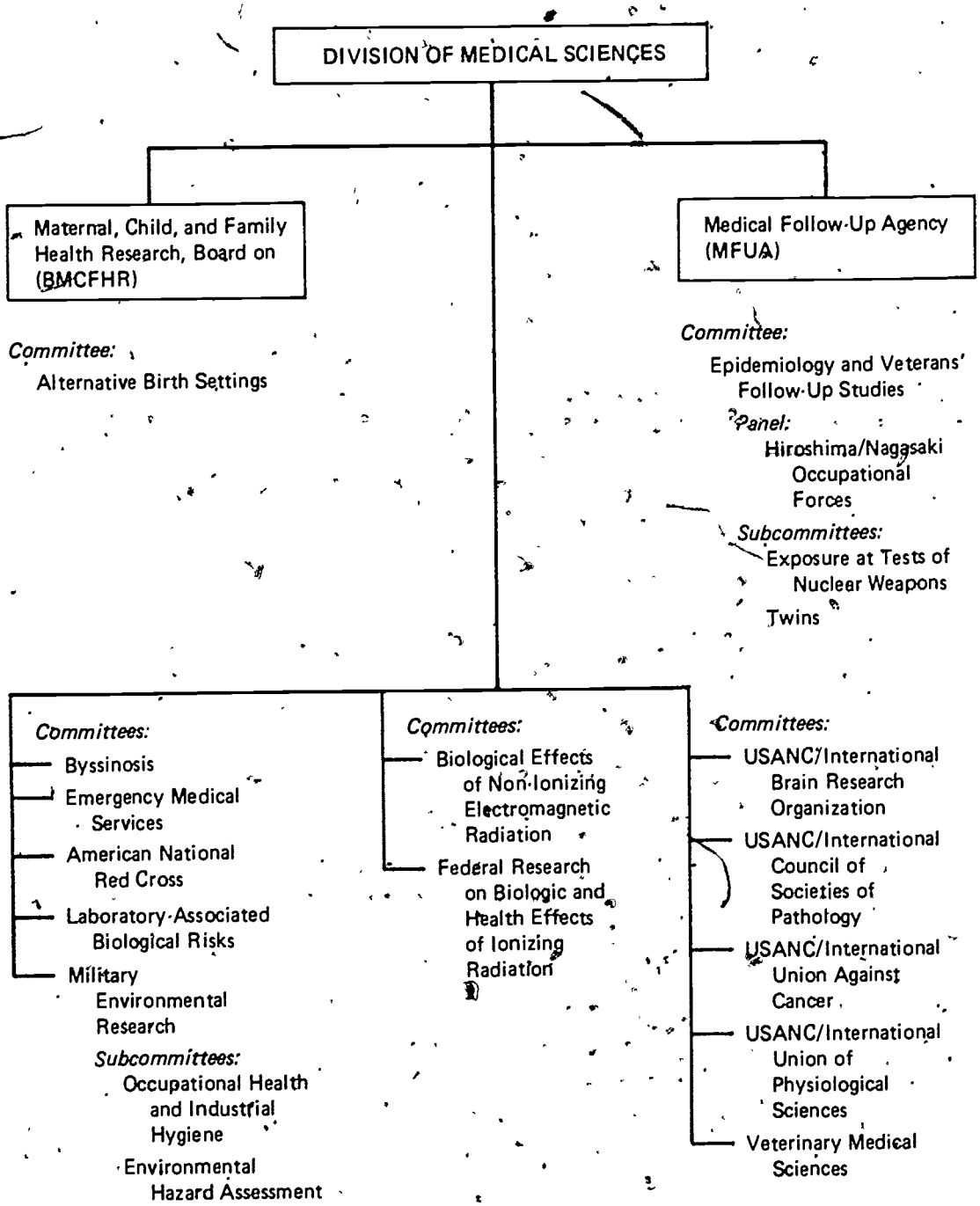
Samuel B. McKee

Meetings: None

Accomplishments: As noted in the Annual Report for fiscal year 1980, the Committee, response to the findings of an NRC staff study of USNC constitutions, examined its role in promoting photobiology domestically and in fostering international communication. It was thereby recognized that the formation of the American Society for Photobiology substantially fulfilled some aspects of the USNC's role; the Committee therefore recommended that the NAS accept the offer of the Society to assume membership in the International Association for Photobiology and that it consider forming a new "committee on photobiology" to concern itself with the health of that discipline in the United States and elsewhere.

Because of funding shortages noted above, it became impossible to hold a final meeting of the USNC/Photobiology to lay initial plans for what might be a new and differently oriented group. The Committee was therefore formally discharged as of June 30, 1981.

DIVISION OF MEDICAL SCIENCES


DIVISION OF MEDICAL SCIENCES
Maternal, Child, and Family Health Research, Board on (BMCFHR)
Committee:
Alternative Birth Settings
Medical Follow-Up Agency (MFUA)
Committee:
Epidemiology and Veterans' Follow-Up Studies
Panel:
Hiroshima/Nagasaki Occupational Forces
Subcommittees:
Exposure at Tests of Nuclear Weapons
Twins
Committees:
Byssinosis
Emergency Medical Services
American National Red Cross
Laboratory-Associated Biological Risks
Military Environmental Research
Subcommittees:
Occupational Health and Industrial Hygiene
Environmental Hazard Assessment
Committees:
Biological Effects of Non-Ionizing Electromagnetic Radiation
Federal Research on Biologic and Health Effects of Ionizing Radiation
Committees:
USANC/International Brain Research Organization
USANC/International Council of Societies of Pathology
USANC/International Union Against Cancer
USANC/International Union of Physiological Sciences
Veterinary Medical Sciences

DIVISION OF MEDICAL SCIENCES

DEVELOPING ACTIVITIES

The Division of Medical Sciences (DMS) has had an important addition in its scientific administrative structure by the formal creation of the DMS Advisory Panel. Chaired by the Chairman of the Division, it is composed of members of the Assembly of Life Sciences whose professional interests find expression in the activities of the Division. Through this mechanism, a broad advisory system has been formed that permits close monitoring of the Division's programs and serves as a continuing focus for the discussion of major medical scientific problems and initiatives.

The Division has pursued a number of programs during the last fiscal year that are described here. In addition, a variety of subjects in a developmental stage deserve special attention:

- As a result of national concern about energy resources, a program to study the health and ecologic impact of several proposed synthetic-fuel technologies is being developed with the U.S. Department of Energy.

- The Division has a long-standing interest in the disabling nature of chronic disease and the enormous physical, emotional, and financial burden that chronic disability imposes on our society. To address this problem, a study of research aimed at the amelioration and prevention of dependence due to chronic disabilities is being developed with several federal agencies.

- A research program is being developed in the field of forensic medicine, with the ultimate aim of providing superior scientific information to the justice system.

- Research on the biomechanics of trauma, once almost exclusively the province of scientists and engineers concerned with automobile safety, is the subject of a program in which the wide interests of the medical research community will be engaged. The dynamics of trauma will be examined, and the information applied to diagnosis, treatment, and prevention.

- Concerns have been expressed by the DMS Advisory Panel about the breadth and continuity of important and unique research studies in the Armed Services Medical Research and Development commands. In

an effort to ensure that all scientific resources required are available to the services in these efforts, a research advisory program is being developed to bring the academic medical scientific community into a closer relationship with the services' research laboratories.

- The problem of the identification of populations at uniquely high risk of disease related to exposure to noxious environments is a continuing interest that has immediate impact on industrial employment. A program to study the means of identifying and protecting high-risk groups is under development;

- Because several states have enacted compulsory maternal testing for toxoplasmosis, questions have arisen regarding the significance of the results with respect to patient management. A study of the current information on this infection will define the extent of our knowledge and indicate what data are needed for decisions on therapy.

- Recent calculations of the dosimetry of the atomic bombs exploded at Hiroshima and Nagasaki have cast doubt on the dose distribution and quality that were used as the basis for dose-response calculations related to ionizing radiation. A program of recalculation of the risk estimates based on the best possible revised dose estimates is under development.

A subject under continuing discussion by the DMS Advisory Panel has been the matter of the education of medical students and medical scientists. Premedical education and basic-science education in medical schools require thorough re-examination. Of special concern has been an apparent decrease in graduates whose careers will be oriented toward medical scientific research and education. The educational issues will be examined by the Division in cooperation with the Institute of Medicine.

COMMITTEE ON THE BIOLOGICAL EFFECTS OF NONIONIZING ELECTROMAGNETIC RADIATION

Summary Description: The Committee was established in December 1978 to review the report of the Panel on the Extent of Radiation from the [U.S. Air Force's] PAVE PAWS Radar System and to plan a study of the effects of nonionizing radiation. The Panel's report, Analysis of the Exposure Levels and Potential Biologic Effects of the PAVE PAWS Radar System, was completed in April 1979 and was reviewed by the Committee on behalf of the Assembly.

The Committee later developed a proposal to provide a comprehensive appraisal of the world literature on the biologic effects of exposure to radiofrequency waves (3 kilohertz to 300 gigahertz); the appraisal would be used by federal regulatory agencies to develop and promulgate exposure standards. It is intended that this study provide a best estimate of the state of knowledge of potential health effects, so that future federal guidelines can encompass the duration and extent of exposure of various populations of chronically and acutely exposed persons, both in the workplace and elsewhere, and performance standards for various electronic products that emit radiofrequency waves. It is intended not to address regulatory decisions or to recommend specific standards for human exposure, but rather to examine and evaluate the scientific aspects of the information on which regulatory decisions may be based.

Membership:

Richard B. Setlow, Chairman
Ernest N. Albert
Donald L. McRee
William J. Thaler

Staff:

Alvin G. Lazen

Meetings: None.

Accomplishments: A contract proposal to perform a critical assessment of the biologic effects of nonionizing radiation is awaiting action. Additional committee members will be appointed when a contract has been executed.

COMMITTEE ON BYSSINOSIS

Summary Description: Regulations were promulgated to control occupational exposure to cotton dust, in an effort to reduce the incidence of byssinosis (brown lung disease). The Committee on Byssinosis was charged to develop an agenda for research that would identify the agent in cotton dust that produces the symptoms that are called byssinosis. A second task was to comment on the role of pulmonary-function testing in the control of byssinosis in the workplace.

Membership:

Jerome Kleinerman, Chairman
Emil J. Bardana, Jr.
Mario C. Battigelli
Raymond E. Fornes
Solomon P. Hersh
Margaret Hitchcock
Kaye H. Kilburn
John P. McCormick
Philip R. Morey
Philip C. Pratt
Hans Weill
William F. Willoughby

Staff:

John Redmond, Jr.
Norman Grossblatt (Editor)

Meetings:

August 22, 1980 (New Orleans, La.)
August 25-26, 1980 (Salishan Lodge, Gleneden Beach, Ore.)
October 16, 1980

Accomplishments: A draft report has been prepared and is being reviewed.

COMMITTEE ON EMERGENCY MEDICAL SERVICES

Summary Description: The Committee, formed in 1968 as a successor to the NRC Committees on Trauma and on Shock, has been supported by categorical and core grants from the Department of Transportation, the Department of Health, Education, and Welfare (now the Department of Health and Human Services), the American National Red Cross, and the Robert Wood Johnson Foundation. It has drawn national attention to problems of emergency medical care and has developed guidelines for emergency services. Specific activities and task forces have also provided advice regarding the training of ambulance personnel and emergency medical technicians, ambulance design and standardization, the regionalization of emergency medical services (EMS) systems, emergency airway management, and the broader issue of cardiopulmonary resuscitation and emergency cardiac care.

Membership:

Donald S. Gann, Chairman
Rebecca A. Anwar
Richard S. Crampton
Alan R. Dimick
Willian R. Drucker
Charles F. Frey

Martin D. Keller
Donald G. Penterman
Edmund Ricci
Leslie Rudolf
Blair Sadler
Marla E. White
Tamarath Yolles

Liaison Members:

David R. Boyd
Lawrence R. Rose

Committee to Advise the American National Red Cross:

George T. Anast, Chairman
C. Robert Clark
Alan R. Dimick
Archer S. Gordon
Carol S. Kramer
Phillip A. Snodgrass
William Stryker
John G. Suelzer

Staff:

David A. McConnaughey
Daniel L. Weiss

Meetings: None.

Accomplishments: The EMS Committee has published and widely disseminated a report, The Emergency Department: A Regional Medical Resource, which reviews developments in the last decade (i.e., the proliferation of EMS systems and the virtual doubling of emergency-department visits, which have affected emergency-department management and staffing) and suggests ways of addressing such concomitant problems as the inabililty of most emergency departments to deal adequately both with the critically ill and injured and with the great influx of nonurgent patients. The theme of the report is that it is no longer appropriate for an emergency department to serve simply as an entryway into its hospital; rather, it should function as a key element in an EMS system.

The proceedings of the conference on medical control in EMS systems, with the Committee's conclusions and recommendations, are being published and will be distributed to state and local EMS directors throughout the United States.

The Committee to Advise the American National Red Cross has not had occasion to meet since completing its revision of the Advanced First Aid Manual. At the request of the Red Cross, the Committee Chairman and a staff officer attended a conference on hypothermia on June 1-3, 1981, in Duluth. A statement on

emergency treatment of hypothermia is being prepared for submission to the Red Cross.

COMMITTEE ON FEDERAL RESEARCH ON BIOLOGIC AND HEALTH EFFECTS OF IONIZING RADIATION

Summary Description: The Director of the National Institutes of Health (NIH), Department of Health and Human Services (DHHS), asked the NAS to prepare a proposal concerning a study of the federal research effort on the human and biologic effects of ionizing radiation. The background of the request is Public Law 95-622 (approved November 9, 1978), which states that the Secretary of DHHS (then the Department of Health, Education, and Welfare) "shall conduct a comprehensive review of federal programs of research on the biological effects of ionizing radiation." In presenting the bill to the House of Representatives (Congressional Record, October 14, 1978), Representative Paul Rogers said that the House committee in question intended that specified tasks be conducted by or in consultation with the NAS.

Research into the biologic and human health effects of ionizing radiation is sponsored or conducted by a variety of federal agencies, relatively independently of one another, and is designed to meet the unique needs of the several agencies. Major portions of such research are sponsored by the Department of Energy (DOE), the Department of Defense (DOD), the Department of Agriculture (USDA), the Food and Drug Administration Bureau of Radiological Health (FDA/BRH), the National Science Foundation (NSF), the Nuclear Regulatory Commission (NRC), the National Bureau of Standards (NBS), and other agencies.

The execution of the requested study encompassed the following activities:

- Brief review of the current breadth and status of research on the biologic and human health effects of ionizing radiation.

- Review of all appropriate research programs and their management. Particular attention was paid to the breadth of each research effort, its realized and potential contributions, and clarification of questions that are not addressed by the total research effort.

- Evaluation of managerial mechanisms for selection of research programs and investigators, financing of studies, and individual research projects and research programs.

Membership:

Russell H. Morgan, Chairman
Elie Abel
Howard Bucknell, III
John J. Crowley
Patricia W. Durbin
Edward R. Epp
Patrick J. Fitzgerald
Maurice S. Fox
Hans E. Frauenfelder
Harry K. Genant
George T. Harrell, Jr.
George B. Hutchison
Leon O. Jacobson
John S. Laughlin
Cyrus Levinthal
Charles W. Mays, Jr.
J. Frank McCormick
Robert D. Moseley, Jr.
Robert D. Phemister
Edward B. Roberts
Louis Rosen
Harvey M. Sapolsky
Charles T. Schmidt
Richard B. Setlow
John F. Sherman
Roy E. Shore
H. Eldon Sutton
John P. Witherspoon
Sheldon Wolff

Liaison Member
Charles U. Lowe

Staff:

Eliahu J. Salmon
Elizabeth Harvey
Dwain Parrack
Daniel L. Weiss
Frances M. Peter (Editor)

Meetings:

July 24-25, 1980
August 18-22, 1980 (Woods Hole, Mass.)
September 27-28, 1980 (Subcommittee IV workshop, San Francisco, Cal.)
October 16-17, 1980
November 12-13, 1980 (Subcommittee I, Writing Group)

Accomplishments: On the basis of information received from the principal investigators who were contacted, the federal research was classified according to objectives, programs, types of sources, exposures, and effects. The information is stored for computerized retrieval. The scientific community at large was contacted through a letter in Science that asked for views on the national needs for future research in this field. The methods of identification of research needs and their review by the various federal agencies sponsoring research were evaluated. A series of paper reviews, individual interviews, and visits were undertaken with principal investigators, national laboratories,

managers and ex-managers of federal research programs, and staff of Congressional committees. Two workshops were held--one on biologic effects (Berkeley, Cal., February 1980) and one on medical and environmental radiation (Albuquerque, N.M., April 1980). A draft research-strategy document, prepared by the Interagency Committee on Federal Research, was reviewed by the Committee, and suggestions for improvement were developed. The Committee's report was completed and submitted to the Office of the Director, National Institutes of Health, on June 30, 1981.

COMMITTEE ON LABORATORY-ASSOCIATED BIOLOGICAL RISKS

Summary Description: The Committee was convened to respond to the issue of research using recombinant-DNA technology and other laboratory-associated biologic risks. An ad hoc risk-benefit panel examined the issue by studying the information available in the fall of 1977 and issued an assessment document that was the basis of NAS testimony before cognizant committees of Congress. The Committee reviewed the original assessment document in March 1978 and revised it to include data that had appeared in the interim. It plans to continue the updating of the data and conclusions.

In the late spring of 1978, the Committee reviewed a draft of an outline document prepared by the American Society of Microbiologists concerning the education and training of workers in recombinant-DNA laboratories and commented extensively on the requirements for such instructions. The Committee commented also on the Department of Health, Education, and Welfare (now the Department of Health and Human Services) Recombinant DNA Research Proposed Revised Guidelines. The membership has remained in place, to respond to further issues.

Membership:

Maclyn McCarty, Chairman
Herman N. Eisen
Charlotte Friend
Arthur Kelman
Cyrus Levinthal
Charles H. Rammelkamp

Staff:

Daniel L. Weiss

Meetings: None

Accomplishments: The Committee has been maintained in a standby state to deal with future problems in the field of laboratory-associated biologic risks.

BOARD ON MATERNAL, CHILD, AND FAMILY HEALTH RESEARCH

Summary Description: The Board on Maternal, Child, and Family Health Research was established in 1974 to perform the following functions:

- Identify the health needs of young persons (infants, children, and adolescents).
- Review research reports and national health statistics to identify maternal, child, and family health needs and suggest priorities for improving maternal, child, and family health.
- Survey private and public policies and practices that influence maternal, child, and family health care and research and provide a forum for discussion and study of change.
- Help to direct public and private resources toward a coherent national effort in behalf of maternal, child, and family health.

Membership:

Richard E. Behrman, Chairman
Henry L. Barnett
Jerome S. Harris
Edward F. Lis
Ruth Watson Lubic
Margaret E. Mahoney
Luigi Mastroianni, Jr.
Robert W. Miller
Jacqueline A. Noonan
Paul G. Quie
Frederick C. Robbins
Irving Schulman
Albert J. Solnit
Myron E. Wegman
Doris L. Wethers

Staff:

Daniel L. Weiss

Meetings: None

Accomplishments: A list of programs proposed by the Board follows. Funding continues to be sought to carry out these programmatic goals.

- A study of the biologic and medical effects of teen-age pregnancy on both the child and the mother. This program is closely coordinated with parallel studies by the Institute of Medicine and the Assembly of Behavioral and Social Sciences on health policies, education, and behavioral features of the teen-ager at risk of pregnancy.

- A workshop-conference to prepare guidelines for the diagnosis and treatment of toxoplasmosis. Partial funding for this program has been received. The program is planned for 1981-1982.

- A critical review of the scientific literature on low-level lead toxicity in children, to be followed by a conference to propose research needs and elucidate policy implications.

COMMITTEE ON ASSESSING ALTERNATIVE BIRTH SETTINGS

Summary Description: In a joint endeavor with the Institute of Medicine, the Division is undertaking a study of how to acquire the information needed to make informed and rational choices among possible birth settings. The purpose of the study is to identify methods and research designs that would allow assessment of different birth practices with respect to safety, cost, quality of maternity care, and optimal environment for family interaction and development. The study will result in a report that will critically review current knowledge and that could be used to solicit research proposals, to assess proposals received, and to generate the research needed for decision-making by consumers, health-care providers, health policy-makers, and third-party payers. The study was generated by the Board on Maternal, Child, and Family Health Research and funded for 1 year with a grant from the Department of Health and Human Services, Health Services Administration.

Membership:

Leah Lowenstein, Chairwoman
George Little
Irwin R. Merkatz
Kenneth R. Niswander
Nigel Paneth
Charles A. Rohde
Lillian Runnerstrom
Beatrice Selwyn
Marjorie P. Wilson
Camille B. Wortman
Marvin J. Zelen

Staff:

Enriqueta C. Bond
Caren Carney
Kathryn King

Meeting:

May 8, 1981

Accomplishments: A tentative report outline has been prepared, and Committee members are writing preliminary drafts. Four consultants have been hired to prepare background papers on economic aspects, methodologic issues, and the available literature. These preliminary pieces are to be considered at the Committee's September 10-11, 1981, meeting. Final assignments will be made at the meeting, and a final draft will be prepared for Committee review in December. The report is expected to be completed by February 1982.

MEDICAL FOLLOW-UP AGENCY

COMMITTEE ON EPIDEMIOLOGY AND VETERANS FOLLOW-UP STUDIES

Summary Description: This program originated in 1946. It facilitates the use of federal records, chiefly the medical records of the armed forces and of the Veterans' Administration (VA), for medical research. The Medical Follow-up Agency (MFUA) acts as a records and statistical resource, helping qualified investigators to obtain the information they require from the records and participating in the analysis of data. It is supported by contracts with the VA, several institutes of the National Institutes of Health, the Department of Energy, and the Department of Defense. From time to time, individual studies are supported by other agencies or by subcontracts with universities. The Committee on Epidemiology and Veterans Follow-up Studies provides policy guidance.

Membership:

Brian MacMahon, Chairman
Ransom J. Arthur
Michael E. De Bakey
John R. Durant
Joseph F. Fraumeni, Jr.
Gary D. Friedman
Barbara S. Hulka
Leonard T. Kurland
Paul Meier
Dorothy P. Rice
H. Eldon Sutton

Subcommittee on Twins:

H. Eldon Sutton, Chairman	Walter E. Nance
Gordon Allen	Sandra W. Scarr
Joe C. Christian	

Subcommittee on Exposure at Tests of Nuclear Weapons:

James F. Crow, Chairman	Alfred G. Knudson
John A. Auxier	Raymond Seltser
George B. Hutchison	H. Eldon Sutton

Panel on Hiroshima/Nagasaki Occupation Forces:

Brian MacMahon, Chairman	John D. Boice, Jr.*
Robert E. Anderson	Stuart C. Finch
John A. Auxier	Alun R. Jones
Alexander G. Bearn*	Arthur C. Upton

Staff:

Seymour Jablon, Director	James E. Norman, Jr.
Elizabeth B. Harvey	Thomas L. Preston
Zdenek Hrubec	C. Dennis Robinette
Robert J. Keehn	

Meetings:

May 12-13, 1981 (Panel on Hiroshima/Nagasaki Occupation Forces)
June 11, 1981 (Subcommittee on Twins)

Accomplishments: The projects of the MFUA and their status during the reporting period are summarized below.

Studies Completed during the Year:

- Tetrachloroethane and Cancer (supported by the National Cancer Institute)

A paper summarizing the results of the mortality study of 13,000 men who served in Army chemical-processing companies in

*Unable to attend Panel meeting.

World War II was presented at the 11th Conference on Environmental Toxicology in November 1980 at Dayton, Ohio. In this study, 1,099 white males were identified who had some exposure to tetrachloroethane through work assignments requiring proximity to machinery that used the solvent to impregnate clothing with a substance to neutralize mustard gas. Their overall cancer mortality for 1947-1976 was 1.26 times that of the 1,319 men who served in the same companies but had duties that did not involve them in the impregnation process. The excess was due primarily to moderately increased risks of tumors of the genital organs, the leukemias, and other lymphatic cancers. The corresponding cohorts within the group of companies that used water in place of tetrachloroethane numbered 3,166 and 3,924, respectively. The risk of death from all malignancies for persons involved in clothing impregnation relative to those not so involved was 1.13, with very slight excesses for all major types, although none beyond the limits of chance. A manuscript for journal publication has been submitted.

- A Possible Relationship between Household Dogs and Multiple Sclerosis (supported by the Veterans' Administration)

To explore the feasibility of a larger study, a pilot questionnaire survey of 100 Vietnam-era veterans was conducted under subcontract with the National Opinion Research Center. The hypothesis of a link between canine distemper and multiple sclerosis (MS) was proposed by Stuart Cook of the Orange, New Jersey, VA Medical Center, after case-control interview studies in New Jersey and examination of evidence from a post-World War II MS epidemic in the Faroe Islands.

Twenty-two of 25 veterans with MS, 18 of 23 with Hodgkin's disease, and 37 of 50 veterans in a second control group completed and returned a questionnaire requesting information on pet dogs and cats in childhood, residential history, family size, education, and surgical episodes. Within 5 years before the diagnosis of MS (or the corresponding reference age for controls), one MS respondent reported owning four sick dogs, compared with none in either of the two control samples. The average total number of dogs per owner for both 5 and 10 years before the reference age was the same in all three groups. Respondents' residences were classified as south, middle, or north tiers of latitude, and their dogs as indoor (slept indoors or stayed mostly indoors) or outdoor. A strong variation with latitude was found for indoor dogs of all three groups combined, but not for outdoor dogs; the greatest proportion of indoor dogs (53%) lived in the north tier, and the smallest proportion (14%) lived in the south tier. This was an important, if tentative, finding, in light of the variation of the risk of MS with latitude.

• Workshop on Evaluation of Risks from Low-Dose Ionizing Radiation among U. S. Servicemen in Hiroshima and Nagasaki, 1945-1946 (supported by the Defense Nuclear Agency).

A panel was convened to study the question of possible late health effects of low-dose ionizing radiation on U. S. servicemen who served in Hiroshima or Nagasaki in late 1945 and early 1946. A report has been prepared for the Director of the Defense Nuclear Agency.

Studies in Progress:

• Additional Mortality Follow-up of a Roster of U. S. Veterans with Smoking Histories (supported by the National Cancer Institute)

In 1954, Harold Dorn assembled a cohort of some 294,000 U. S. veterans who held U. S. Government Life Insurance policies in 1953, 85% of whom provided histories of tobacco use, occupation, and other personal information on two mailed questionnaires. This cohort has been traced and analyzed for mortality three times, the last of which ascertained deaths through 1969. The MFUA, under contract with the National Cancer Institute (NCI), is updating mortality ascertainment through June 1980 of 186,000 men not known to have died before 1970. It is expected that an additional 85,000-90,000 deaths will have occurred, providing a total of perhaps 195,000 deaths to be analyzed in relation to smoking history, occupation, and other personal data. During the first contract year, the file of persons thought to be alive on January 1, 1970, has been processed through the VA insurance awards files, where deaths of unlapsed policyholders are recorded, and through the Beneficiary Identification and Records Locator Subsystem (BIRLS), by name and policy number. Some 75,000 deaths have been found from these searches, approximately one-third of which represent persons with claims folders containing death certificates in VA Regional Offices and the remainder persons whose folders were returned to the 15 Federal Archives and Records Centers of the General Services Administration. Another 40,000 persons are scheduled for processing through the St. Louis VA Master Index microfilm file to get additional identifying information (military service number, date of birth, or both) before reprocessing through BIRLS. Some 10,000 causes of death have now been received from Regional Offices, and it is expected that the MFUA, under a contract modification, will begin coding these in the fall of 1981, as the work enters the second year of a planned 3-year schedule.

• Testicular Cancer and Genital Abnormalities (supported by the National Cancer Institute)

In collaboration with the Environmental Epidemiology Branch of the NCI, the MFUA has begun a prospective mortality study of Army veterans hospitalized in 1944-1945 or during the Korean conflict for testicular trauma, mumps orchitis, epididymitis, or cryptorchidism. Excess risk of death from testicular cancer will be sought among the first three groups; the cryptorchidism group, with a known 8- to 10-fold relative risk, will be used to calibrate the other comparisons. A roster of some 21,000 service numbers has been assembled from Army World War II and Korean conflict Surgeon General's Office files representing men hospitalized in service for these four conditions: 1,700 with trauma, 4,100 with mumps orchitis, 10,000 with epididymitis, and 5,000 with cryptorchidism. These numbers have been traced through the registry file in St. Louis to obtain names, enabling mortality ascertainment through the VA BIRLS system.

• Former Prisoners of War (supported by the Veterans' Administration) MFUA studies of the morbidity and mortality experiences of former prisoners of war commenced with a 6-year followup of American servicemen held prisoner by the Germans and the Japanese during World War II. Both illness and death were found to be higher in former prisoners than in selected comparison groups. These samples were restudied in the mid-1960s to establish how long these differences persisted and to search for possible late effects in former prisoners. Also included in these later studies were men held by the North Koreans during the Korean conflict and a Korean comparison group. More recently, the mortality follow up was extended to the end of 1975, providing a full 30-year followup of the World War II experiences (22 years for Korea). These studies show that imprisonment, especially by the Japanese and North Koreans, involved exposure to conditions causing a high incidence of illness due to malnutrition, infections and parasitic disease, and physical injury--which led to a 40% mortality in captivity. These effects lasted after repatriation, mortality remaining high for 8 years in Pacific prisoners and up to 14 years for Korean former prisoners. There is evidence that health problems not observed earlier will appear as these men grow older. Work has commenced on a resurvey of these men by questionnaire and through VA records, which will permit an evaluation of hospital admission experiences since 1965. The health experiences of Pacific prisoners who died before 1976 from causes significantly in excess--tuberculosis, cirrhosis of the liver, and all forms of trauma--are being studied to identify the factor(s) associated with these increases. Various measures

of stress in captivity developed earlier will be examined as predictors of late-appearing health problems.

- VA Cooperative Trials of Cancer Therapy (supported by the Veterans' Administration)

This cooperative study brings together the surgical services of a group of VA hospitals, the VA Surgical Oncology Group (VASOG), and the MFUA in a series of evaluations of various treatments for cancer. Although considerable success has been achieved with the surgical removal of malignant disease, not all patients are cured. VA surgeons treating carcinomas of the lung, stomach, and large bowel, encouraged by the early promise of chemotherapy, organized this group in 1957. The MFUA, a charter member of the group, is the Statistical Coordinating Center, with responsibility for experimental design and for the receipt, processing, and analysis of data. The group is financed by the NCI, with funds being administered by the VA. On October 1, 1980, the VASOG began a 2-year phaseout period. The objectives of the MFUA during this period include updating the files on patients entered into the various therapeutic files during a period of diminished hospital assistance; completing the analysis of data for recent trials to describe the effects of the experimental therapies; reanalyzing selected earlier trials with additional annual followup, in an effort to strengthen the case for declaring treatments to be of some benefit; completing special studies of the disease process that are now in progress; and developing protocols for further studies of the course of disease after resection, making use of the 11,000 well-documented cases that have been accumulated in the Statistical Center files.

- Occurrence of Second Primary Disease Following Adjuvant Cancer Chemotherapy (supported by the National Cancer Institute)

Like ionizing radiation, some chemicals used in the treatment of cancer are potentially carcinogenic. The Environmental Epidemiology Branch (EEB) of the NCI is evaluating completed randomized clinical trials, in an effort to assess this risk. The first evaluation of this type involved patients enrolled in the VASOG trials of triethylenethiophosphoramide (TSPA) and 5-fluorodeoxyuridine (FUDR) as adjuvants to resection for colorectal carcinoma. Although no excess cancers were found, this collaborative effort with the MFUA established that the method of analysis was practical. The EEB is interested in continuing this line of investigation in several lung, stomach, and colorectal trials. The VASOG lung trials that commenced in the late 1950s are of interest, because they offer the potential for long followup. The gastric and

colorectal trials of interest were more recently completed and will have an average followup of about 2 years--thought to be a sufficient latent period for leukemia, if the disease were induced by the drugs under study. The potential exists for combining these investigations with similar clinical trials across the country, to provide the basis for an expanded surveillance system.

- Participants in Nuclear Tests (supported by the Department of Defense and the Department of Energy)

The finding by the Centers for Disease Control (CDC) of an apparent increase in leukemia among participants at shot SMOKY, one of the U. S. atmospheric tests of nuclear weapons, has raised considerable interest among members of the scientific community, the Congress, and the general public. If taken at face value, the results challenge the risk estimates for radiation-induced leukemia provided in the 1972 report of the NRC Committee on the Biological Effects of Ionizing Radiations and the 1977 report of the U.N. Scientific Committee on the Effects of Atomic Radiation. A study has been undertaken to assess the mortality experience of participants at a number of tests. The sample consists of more than 40,000 men present at the CASTLE, GREENHOUSE, and REDWING series in the Pacific or the PLUMBBOB or UPSHOT-KNOTHOLE series at the Nevada Test Site. Identification of participants by the services is continuing, but should be completed within the coming year. The MFUA has received partial lists of participants in all series, with PLUMBBOB being the most nearly complete. Mortality ascertainment and deletion of multiple entries for the same people are continuing. The study of participants at SMOKY appears to be producing the same results as the CDC study (nine leukemia deaths observed versus about three expected in the 3,360 men present). A report is being prepared.

- Sarcoidosis and Mortality from Cancer (supported by the National Cancer Institute)

Immunologic defects are thought to predispose to particular cancers, particularly lymphomas. Sarcoidosis, associated with defective immunity in the form of delayed hypersensitivity and lymphoproliferation with increased immunoglobulin concentrations, is being studied, to clarify further the role of the immune system as a defense against cancer. Some 1,366 men admitted to Army and Navy hospitals for sarcoidosis during World War II and the Korean conflict were included in the study. Their mortality experience from 1951-1975 is being analyzed, and this project should be completed in 1981.

• Body Build and Mortality in World War II Army Veterans (supported by Veterans Administration' program funds)

Under the supervision of physical anthropologists, anthropometric measurements were made on about 100,000 men at separation from the Army in 1946. For nearly 45%, somatotype (Sheldon) photographs were also prepared. Information on race and a limited amount of socioeconomic data are also available. About 94,000 men have now been identified in the VA and military records, and cause of death has been obtained for the 6,000 deaths that occurred through 1970. Analysis of these data is now under way; it is already evident that some remarkably strong correlations exist between bodu build in 1946 and mortality patterns over the next 20-odd years. The study should be completed in 1981.

• Edgewood Toxicology Follow-up (supported by the Department of the Army)

Acting on a suggestion by the VA, the MFUA has agreed to provide operational assistance to the ALS Committee on Toxicology in its study on possible long-term adverse health effects of chemicals experimentally administered to 6,721 volunteer soldiers at Edgewood, Maryland, in 1960-1975. As part of the study being conducted for the Department of the Army, the Committee on Toxicology is using VA and military records to investigate mortality and morbidity in the group. Rather than create additional and overlapping channels between the NAS and the federal agencies involved, the MFUA is acting in a service capacity by providing data collection and automated file management.

• Longitudinal Study of Cardiovascular Disease (supported by the Veterans' Administration)

The incidence of coronary heart disease is highly correlated with blood pressure over at least an 18-year period of followup. Study cohorts have consisted, for the most part, of older persons; thus, at Framingham, no person who was under 45 at the first examination was included. The aim of this study has been to take advantage of an existing file to make observations concerning men younger than 45 at examination and to extend the duration of study, to permit evaluation of the long-term prognostic significance of slight blood-pressure increase, increase in heart rate, and other clinically detectable changes of uncertain significance. The 1944-1945 studies of blood pressure and hypertension in 23,000 Army officers by Hillman, Levy, White, and Stroud provide the basis for a 30-year study of the risk of fatal cardiovascular disease in relation to early observations on blood pressure, height, weight, heart rate, urinary albumin, age, and the like. After

elimination of men who died before 1946, or were 50 or older at last examination, or retired for disability, 12,408 records remain. Deaths number 4,341--nearly 35%. The data are being analyzed.

• Medical-Genetic Studies of Twins (supported by the National Heart, Lung, and Blood Institute)

Twins make possible some of the most incisive approaches available for the study of complex human events by providing control of covariables in pairs of people of the same age, same family background, and, in the case of monozygotic twins (except for rare mutations), same genotype. The twin program of the MFUA is based on a registry of 15,900 pairs of twin veterans who participate in a variety of medical-genetic studies in person and through the extensive records resources of the military agencies and the VA. The program is concerned with the exploitation of this resource, with its maintenance, with the preservation of its applicability to a wide variety of research objectives, and with the activities necessary to evaluate feasibility and to develop methods for new investigations. The Subcommittee on Twins monitors the activities of the program, including the selection of specific research efforts on the basis of appropriate research protocols.

Studies that have been completed concern the role of smoking in relation to respiratory and cardiovascular symptoms, residence-associated exposure to air pollution in relation to respiratory symptoms, change in ocular pressure after administration of corticosteroids, genetics of atopic dermatitis and psoriasis, genetics of multiple sclerosis, genetics of immunoglobulin E, evaluation of genetic factors in early mortality, evaluation of twin concordance for cancer and ischemic-heart-disease morbidity and mortality, and identification of the genetic influences on income and other economic and social characteristics. The feasibility of evaluating genetic influence on items on the Thurstone Temperament Schedule has been determined. The role of urinary glucuronidase in the etiology of bladder cancer has been explored, and aryl hydrocarbon hydroxylase and other biochemical entities were assayed in twin pairs with one member having lung cancer. The heritability of organ-specific complications of alcoholism such as alcoholic psychosis and liver cirrhosis, were estimated.

Current studies include one in which contact is being sought with twins in pairs with one or both members having the diagnosis of parkinsonism. The purposes are to evaluate twin concordance of the disease and to compare early history of members of disease-

discordant twin pairs in a search for variables of epidemiologic interest. The twins who participated almost 10 years ago in the study of cardiovascular-disease risk factors are being re-examined. A study plan has been developed for ophthalmic evaluation on twins living in Florida, to determine prevalence and twin concordance of eye disorders, particularly senile macular degeneration, but the work has been delayed for lack of funding. A study of familial determinants of socioeconomic characteristics has been undertaken, to compare information on the twins obtained by questionnaire with information obtained from their adult offspring. A comparison of gene products is planned for monozygotic and dizygotic twin pairs with one member diagnosed as alcoholic. Isozyme patterns of alcohol and aldehyde dehydrogenase will also be evaluated, in an effort to find biochemical mechanisms that might predispose to alcohol addiction. Information generated by the current studies is routinely incorporated into the operating files of the Registry. The files have been updated with information on mortality through 1979. Information has been obtained on 1978 VA hospitalizations and on disability compensation and pension claims in the VA systems.

A study of pathology materials related to germ-cell tumors, a new review of previously studied psychiatric diagnoses, and an evaluation of the association between HLA type and various disease entities have been proposed.

Studies Being Started:

- A Pilot Study of Occupational Morbidity and Mortality in Navy and Marine Corps Personnel of the Korean Conflict (supported by the Department of the Navy)

The Navy has established a contract with the MFUA to conduct a feasibility study of occupational morbidity and mortality in personnel of the U. S. Navy and U. S. Marine Corps who served during the Korean conflict. Random samples of 4,000 Navy enlisted men and officers (9:1 sampling ratio) and 1,000 Marine Corpsmen who served during 1950-1953 will be traced for mortality through 1980 and for a subsample of perhaps 350 persons, including those who had died, to determine their morbidity during active duty. The Navy sample will be drawn from the engineering and hull occupation group, and the Marine sample from armament repair and aircraft maintenance groups. Service records will be consulted to provide information on age, race, aptitude, education, service-schools attendance, and assigned duties. Results will

provide a basis for planning large-scale occupational morbidity and mortality studies of servicemen of this era.

• Pilot Study of the Interaction of Service-Diagnosed Alcoholics with the VA System (supported by the Veterans' Administration)

Various approaches to studying alcoholism in the military-VA system had been considered previously. Alcoholism imposes a large burden on the VA system through its deleterious effects on health and on the social and occupational functioning of veterans. Some military personnel diagnosed with alcoholism in service do not receive extensive VA services, but the history of others typically involves complex medical problems with repeated hospital admissions, special treatment programs, and medical disability pensions or compensation benefits. The VA has expressed interest in finding criteria that would define the subgroup of veterans responsible for the very large number of admissions for this condition and in determining whether it would be feasible to evaluate differences in morbidity and mortality among alcoholics in relation to their varied contacts with the VA. To evaluate the feasibility of finding such criteria and establishing relationships between medical history and the nature of VA contacts, a pilot study has been launched that includes 600 men admitted for alcoholism during World War II, the Korean period, and the Vietnam period and 600 men admitted during the same periods for nasopharyngitis and matched to the first group on age at admission. Information in the VA system is being surveyed for this sample.

Studies Being Planned:

The studies in the MFUA program often require major investments of effort and funds, not only by the MFUA itself, but also by the federal agencies whose records are used (chiefly the military services and the VA). It is therefore usually necessary to invest heavily in planning, in trials of alternative methods, and in trials of feasibility before a definitive protocol for a proposed study is prepared. Some support for such planning efforts is received through the contract with the VA. During fiscal year 1981, a number of planning activities were undertaken.

• Mortality Follow-up of World War II Army Servicemen Given Infected Yellow Fever Vaccine

In 1942, a serum hepatitis (hepatitis B) outbreak among Army recruits was eventually found to be the result of large-scale immunization with contaminated lots of yellow fever vaccine. A

prospective mortality study of 2,000 of those cases for the period 1946-1965 found no significant increase in the risk of death from cirrhosis. A new mortality study is being planned that will follow a sample of 10,000 - 15,000 men vaccinated with infected lots who later developed acute hepatitis and another group of equal size vaccinated with the same lots who were never diagnosed as having clinical hepatitis during their World War II military service. The best serologic evidence indicates that 1-3% of the first group may be positive for HB surface antigen and 80-95% positive for anti-HB core antigen. The corresponding numbers for the second group are estimated at 10% and 40-50%. Relative-risk estimates for primary liver cancer among carriers of the HB surface antigen range from 20 to 250, and this will be the end-point of main interest, with mortality from liver cirrhosis a secondary concern. A concurrent serologic study on 600 subjects--200 men in each of the categories defined above and a third control group--has been planned by Jay Hoofnagle of the Digestive Diseases Branch of the National Institute of Arthritis, Metabolism, and Digestive Diseases. This investigation would provide a definitive picture of the carrier states for HB surface and core antigens, as well as anti-HB surface antigens, among all three groups 40 years after vaccination. A promising technique for identifying large numbers of such persons has been developed, and a protocol for the mortality study will be ready by the fall of 1981.

- Radiation Exposure of Air Crews

The NCI has asked the MFUA to explore the feasibility of examining the effects of small doses of ionizing radiation by study of Strategic Air Command (SAC) flying personnel. The average radiation dose at sea level from cosmic radiation is about 30 mrems annually, or about one-third of the total background radiation of about 100 mrems. The dose rate from cosmic radiation increases rapidly with altitude, however:

Sea level	0.0033 mrem/hour
13,000 feet	0.024 mrem/hour
26,000 feet	0.15 mrem/hour
40,000 feet	0.58 mrem/hour
46,000 feet	0.9 mrem/hour

Thus, at 45,000 ft, which SAC B-52 airplanes maintained, the dose rate from cosmic radiation was more than 200 times that at

sea level. Air crews would have received doses exceeding 1 rem/year, or more than one-fifth of the current limit for occupational exposure. Discussions with Air Force personnel at the School of Aerospace Medicine indicated that the necessary information may be obtainable from magnetic tape files there. After evaluation of this possibility, the desirability of such a study will be discussed with representatives of the NCI.

- Determination of Completeness of Mortality Ascertainment by the Veterans' Administration

A study is being planned to evaluate the completeness with which information on survival status of veterans can be recovered from BIRLS. Information on an appropriate sample of deaths will be obtained from the National Center for Health Statistics. The data will be processed through the military records at the St. Louis Federal Archives and Records Center, and then through BIRLS. Veterans of World War II, Korea, and peacetime will be included, with special attention being paid to the Vietnam era.

- Epidemiology of Mesothelioma

The MFUA has been asked to act as a center for the collection, coding, and analysis of data on a national study of mesothelioma ascertained through the cancer registries of the Surveillance, Epidemiology and End Results program of the NCI and through various record systems of the VA. A proposal for this activity is being developed.

- Studies on Senile and Presenile Dementia

The VA and the National Institute on Aging, with the MFUA, have started planning a study of the natural history of senile and presenile dementia. Present plans are to draw study samples from files of the Gerontology Research Education and Clinical Centers for a cohort approach and from the VA Patient Treatment File for a case-control approach.

COMMITTEE ON MILITARY ENVIRONMENTAL RESEARCH

Summary Description: The Committee was established to assist the U.S. Army Medical Research and Development Command (USAMRDC) with its program of environmental research. From time to time, the Command is directed to establish safe limits in contamination problems that are peculiar to the military and for which research

is necessary to create a data base (for example, wastes from munition manufacture, land renovation at contaminated Army reservations, and land disposal of wastewater). The Committee, assisted as required by ad hoc subcommittees, provides USAMRDC with critical reviews of proposed research approaches.

Membership:

Frank G. Standaert, Chairman	Paul D. Haney
Robert C. Cooper	Lawrence H. Keith
W. Clark Cooper	Eric B. Sansone
Kenneth L. Dickson	David L. Sirois
Robert T. Drew	Michael J. Symons
Gerald L. Feder	Elizabeth Weisburger
Herschel E. Griffin	Bobby G. Wixson

Subcommittee on Occupational Health and Industrial Hygiene:

Herschel E. Griffin, Chairman	Lawrence H. Keith
W. Clark Cooper	Eric B. Sansone
Robert T. Drew	Michal J. Symons
Paul D. Haney	Elizabeth Weisburger

Subcommittee on Environmental Hazard Assessment:

Paul D. Haney, Chairman	Gerald L. Feder
Robert C. Cooper	Lawrence H. Keith
Kenneth L. Dickson	Michael J. Symons
Robert T. Drew	Bobby G. Wixson

Staff:

John Redmond, Jr.	Norman Grossblatt (Editor)

Meeting:

May 12, 1981 (Subcommittee on Occupational Health and Industrial Hygiene)

Accomplishments: Two major subjects are the focus of current research interests. The occupational health of the workers producing unique Army material and the soldiers using this material in training and under combat conditions is of concern. Among items of interest are smokes and obscurants and the gases (carbon monoxide, sulfur oxides, ammonia, and nitrogen oxides) in combat

vehicles. Also of major concern are the water supply and sanitation that support combat operations in a variety of locations. There is a need for better "go-no-go" tests for the acceptability of field-supplied water.

COMMITTEE ON VETERINARY MEDICAL SCIENCES

Summary Description: The Committee was organized in 1975 to provide a focal point in the NRC for considerations related to veterinary medical sciences. Its establishment was initiated in recognition of the important role that the veterinary medical sciences play in the biomedical sciences and of their contribution to human health. It is concerned with the welfare of veterinary medicine, with maximizing the participation of veterinary medical scientists in biomedical research and education, and with making the resources of the veterinary medical community available to the biomedical research endeavor.

Membership:

W. Jean Dodds, Chairman
Donald A. Abt
Colin M. Bloor
Walter C. Bowie
Neville P. Clarke
James G. Fox
John R. Gorham
Albert M. Jonas
Richard J. Kociba
Richard B. Talbot

Staff:

June S. Ewing

Meetings:

October 9, 1980
April 2, 1981 (Survey Subcommittee)
April 27, 1981 (Survey Subcommittee)
June 14-17, 1981 (Woods Hole, Mass.)

Accomplishments: The Committee decided that a key issue in veterinary medical training is postgraduate specialty training and that legislative initiatives have an important effect on manpower needs. The Committee is studying the impact of legislation and regulations on the need for veterinary manpower, and the study will determine the character and distribution of the need for veterinary medical scientists and develop recommendations for methods to meet deficiencies in specailized professional manpower.

U.S.A NATIONAL COMMITTEES

U.S.A. NATIONAL COMMITTEE FOR THE INTERNATIONAL BRAIN RESEARCH ORGANIZATION (USNC/IBRO)

Summary Description: The International Brain Research Organization was founded in 1960 to bring together neuroscientists of different disciplines from many countries and to provide a means for them to cooperate in furthering the aims of brain research. Membership is composed of both individual and corporate members, the latter required to adhere in one of five dues categories. In May 1972, at the invitation of the Secretary-General of IBRO, the NAS became the adhering body for the United States and established the U.S.A. National Committee to effect appropriate U.S. participation in IBRO and to advise the NAS on international matters relevant to neuroscience. This is a continuing activity of indefinite duration.

Membership:

Eugene Roberts, Chairman
W. Maxwell Cowan
Robert W. Doty
George B. Koelle
Rodolfo Llinas
Dominick P. Purpura
Richard F. Thompson

Staff:

June S. Ewing

Meetings: None

Accomplishments: The Committee maintains liaison with the Organizing Committee for the First World Congress of IBRO, to be held April 1-6, 1982, in Lausanne, Switzerland. Program recommendations were formulated at the June 10, 1980, meeting and sent to the IBRO Central Council for consideration. The Committee developed and submitted a proposal for a travel-grant program for the First World Congress of IBRO. An administrative subcommittee and a selection subcommittee were chosen to develop and implement the proposed travel-grant program.

U.S.A. NATIONAL COMMITTEE FOR THE INTERNATIONAL COUNCIL OF SOCIETIES OF PATHOLOGY (USNC/ICSP)

Summary Description: In 1957, the World Health Organization (WHO) undertook a program to promote worldwide standardization of tumor classification in the furtherance of medical treatment and research in the field and established 27 International Reference Centers (IRCs) to handle the operational aspects of the tumor types selected for study. In 1962, at the request of the WHO, the International Council of Societies of Pathology was formally established as an international organization to advise the WHO Cancer Unit concerning the program. The NAS has since maintained the U.S.A. National Committee to coordinate the policies and activities of the four participating societies of pathology in the United States: the American Society of Clinical Pathologists (ASCP), the American Association of Pathologists (AAP), the College of American Pathologists (CAP), and the U.S.-Canadian Division of the International Academy of Pathologists (IAP). To date, 23 IRCs have completed their work, published manuals, and prepared transparencies for distribution. Revisions have begun on two classifications--lung and breast.

Membership:

Leland D. Stoddard, Chairman
H. Russell Fisher, Vice Chairman
William H. Hartmann
Bruce H. Smith
Benajmin F. Trump

Ex officio
F. K. Mostofi
Humberto Torloni

Staff:

June S. Ewing
Daniel L. Weiss

Meetings:

December 1, 1980
January 9, 1981 (Publications Subcommittee)
June 9, 1981

Accomplishments: The Committee accomplishes its promotional and educational goals by sending an exhibit, constructed and maintained by the Armed Forces Institute of Pathology, to national and regional meetings of pathology societies and

by arranging for lectures during the meetings by pathologists who are experts on the particular tumors being discussed and who have usually been associated with the development of their classification. During fiscal year 1981, the exhibits and lectures were as follows:

Exhibits:

October 1980	Prostate	CAP-ASCP, St. Louis, Mo.
March 1981	Kidney, eye	U. S.-Canadian Div., IAP, Chicago, Ill.

Lectures:

October 1980	Prostate	CAP-ASCP, St. Louis, Mo.
March 1981	Kidney, eye	U. S.-Canadian Div., IAP, Chicago, Ill.

In June 1980, the Committee held a workshop designed to examine future programs in international pathology. The workshops produced program recommendations that were submitted for consideration by the ICSP at its September 1980 General Assembly in Paris, France.

U.S.A. NATIONAL COMMITTEE FOR THE INTERNATIONAL UNION AGAINST CANCER (USNC/UICC)

Summary Description: The International Union Against Cancer (referred to as UICC, from the French title, Union Internationale Contre le Cancer) was founded in 1933 at the I International Cancer Congress in Madrid. In 1952, the U.S.A. National Committee was established by the NAS to coordinate the activities of scientists in the United States with those of other members of the UICC, which is now composed of 180 members in 75 countries. Committee membership is made up of two representatives each from the American Cancer Society and the National Cancer Institute, one representative each from the other full members of the UICC in the United States, and officers of the UICC residing in the United States. This is a continuing activity of indefinite duration.

Duties of the Committee are to seek support for U.S. participation in the UICC, to nominate and brief representatives to meetings of the UICC, to provide for the administration of payment of the national subscription to the UICC on behalf of the United States, to establish an office or facilities for the transmission of information related to cancer, to encourage

membership in the UICC by U.S. organizations, and to recommend to the UICC Nominating Committee candidates for all offices.

Membership:

Edwin C. Mirand, Chairman	W. P. Laird Myers
William J. Blot	Richard Steckel
David B. Clayson	George Weber
Hugh Creech	Sidney Weinhouse
Oscar N. Guerra	Francis J. Wilcox
Robert C. Hickey	
William B. Hutchinson	Ex officio
LaSalle D. Leffall, Jr.	Charles R. Ebersol
Robert W. Miller	Gerald P. Murphy
Anthony Monaco	

Staff:

June S. Ewing — Daniel L. Weiss

Meetings:

September 10, 1980
November 5, 1980 (Membership Subcommittee, New York City, N.Y.)
December 15-16, 1980 (Congress Subcommittee, Seattle, Wash.)
March 13, 1981

Accomplishments: The Committee has invited the UICC to hold the XIII International Cancer Congress in the United States in 1982. The site selected is Seattle, Wash., and the Congress will be held on September 8-15, 1982. Members of the Committee are active on the various organizing committees of the Congress, and the Committee has continued input through its chairman, who is also the Secretary-General of the Congress, and through William B. Hutchinson, member of the Committee and President of the Congress. The Committee nominated a slate of officers for the UICC to be considered by the UICC Council at its August 1980 meeting in Oslo, Norway.

U.S.A. NATIONAL COMMITTEE FOR THE INTERNATIONAL UNION OF PHYSIOLOGICAL SCIENCES (USNC/IUPS)

Summary Description: Although International Physiological Congresses have been held triennially since 1889, the International Union of Physiological Sciences was incorporated in 1953, and the U.S.A. National Committee was formally established by the NAS in 1955.

The Committee's major effort is the implementation of a travel-grant program to assist qualified U.S. scientists in attending the international congresses. It is also responsible for briefing U.S. delegates to IUPS General Assemblies, which coincide with congresses; it encourages cooperative enterprises to advance physiologic knowledge; and it advises the NAS on all matters concerning U.S. participation in the IUPS. It is a continuing activity of indefinite duration.

Membership:

Orr E. Reynolds, Chairman
John S. Cook, Vice Chairman
Charlotte P. Mangam, Secretary
James B. Bassingthwaighte
David H. Cohen
Robert E. Forster, II
William F. Ganong
Arnost Kleinzeller
Ernst Knobil
Earl H. Wood

Ex officio
John R. Pappenheimer
Knut Schmidt-Nielsen

Staff:

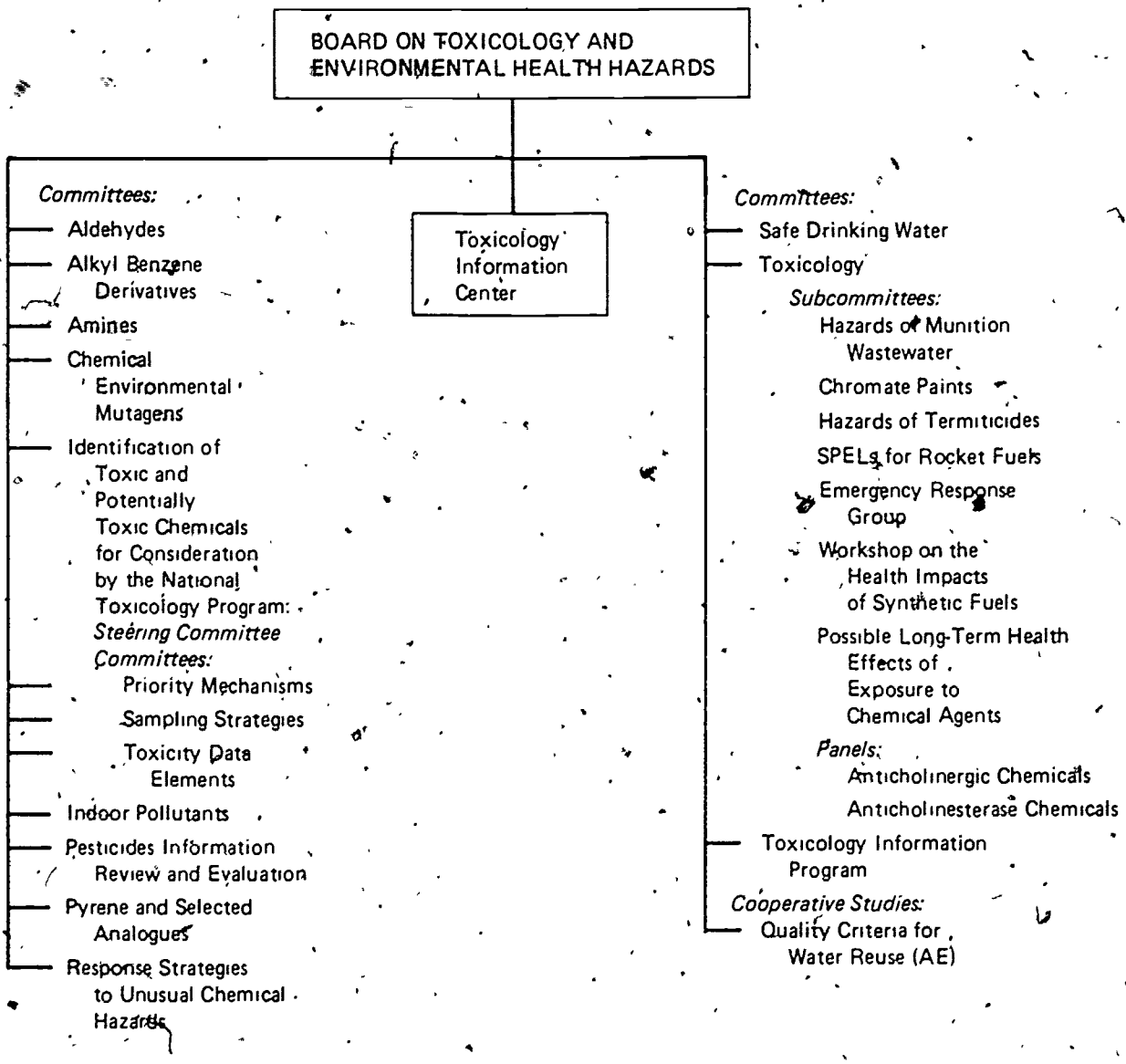
June S. Ewing

Meeting:

April 13, 1981 (Atlanta, Ga.)

Accomplishments: In cooperation with the American Physiological Society, the Committee conducted a travel-grant program for the XXVIII IUPS Congress, held July 13-19, 1980, in Budapest, Hungary. Approximately 230 awards were made. Selection criteria included age, nature of participation, quality of abstract and previous publications, and similar information. A delegation was selected that attended the X General Assembly at the XXVIII IUPS Congress, July 13, 1980. A travel-grant program is being planned for the XXIX IUPS Congress in Sydney, Australia, in 1983. The Committee voted to support Vancouver, British Columbia, for the XXX IUPS Congress, in 1986.

BOARD ON TOXICOLOGY AND ENVIRONMENTAL HEALTH HAZARDS


BOARD ON TOXICOLOGY AND ENVIRONMENTAL HEALTH HAZARDS
Committees:
Aldehydes
Alkyl Benzene Derivatives
Amines
Chemical Environmental Mutagens
Identification of Toxic and Potentially Toxic Chemicals for Consideration by the National Toxicology Program: Steering Committee
Committees:
Priority Mechanisms
Sampling Strategies
Toxicity Data Elements
Indoor Pollutants
Pesticides Information Review and Evaluation
Pyrene and Selected Analogues
Response Strategies to Unusual Chemical Hazards
Toxicology Information Center
Committees:
Safe Drinking Water
Toxicology
Subcommittees:
Hazards of Munition Wastewater
Chromate Paints
Hazards of Termiticides
SPELs for Rocket Fuels
Emergency Response Group
Workshop on the Health Impacts of Synthetic Fuels
Possible Long-Term Health Effects of Exposure to Chemical Agents
Panels:
Anticholinergic Chemicals
Anticholinesterase Chemicals
Toxicology Information Program
Cooperative Studies:
Quality Criteria for Water Reuse (AE)

BOARD ON TOXICOLOGY AND ENVIRONMENTAL HEALTH HAZARDS

Summary Description: In October 1974, a visiting committee was appointed by the Assembly to review the activities of committees that were concerned with toxicology and related matters. Chief among the recommendations contained in the visiting committee's September 1975 report was that the Assembly expand its activities in toxicology by establishing a division of toxicology and health hazards within which appropriate activities would be supervised and coordinated. The Assembly discussed this proposal at its meeting in November 1975 and January 1976 and voted in March 1976 to establish, under the Executive Office of the Assembly, a "board on toxicology and environmental pollutants." In November 1976, after discussion of the proposal with other elements of the NRC, the Assembly approved the establishment of the Board on Toxicology and Environmental Health Hazards (BOTEHH). This proposal was approved by the NRC Governing Board on January 22, 1977, and the first members of the Board were appointed in May 1977. Support for the new organization was achieved in September 1977 with the signing of a contract with the Environmental Protection Agency to undertake studies of sulfur oxides and other pollutants. The Board provides guidance and leadership to the Assembly on matters of toxicology and environmental health hazards and contributes to its ability to address broad issues of occupational and environmental toxicology. It serves as the Assembly focus for deliberation on issues in these fields and aids other elements of the NRC in carrying out related studies.

Membership:

Ronald W. Estabrook, Chairman
Philip Landrigan, Vice Chairman
Theodore L. Cairns
Victor H. Cohn
John W. Drake
A. Myrick Freeman
Richard L. Hall
Ronald W. Hart
Michael Liebermah
Brian MacMahon
Richard A. Merrill
Robert A. Neal
Ian C. Nisbet
Charles R. Schuster, Jr.
Gerald N. Wogan

Ex officio
Edward Bresnick
Jack G. Calvert
David B. Clayson
James E. Crow
John Doull
Roger O. McClellan
Robert E. Menzer
Robert W. Miller
Sheldon D. Murphy
Norton Nelson
Robert Snyder
John D. Spengler
James L. Whittenberger

Staff:

Robert G. Tardiff, Executive Director
Gordon W. Newell, Associate Executive Director

Meetings:

September 8-9, 1980
December 1-2, 1980
March 9, 1981
May 18-19, 1981 (Jefferson, Ark.)

Accomplishments:

- The Board successfully completed negotiations with the National Institute of Environmental Health Sciences for the conduct of a $2.1 million 3-year study, "The Identification of Toxic and Potentially Toxic Chemicals for Consideration by the National Toxicology Program."

- The Board lent substantial assistance in the development of a project to be conducted in the ALS Executive Office, "Institutional Mechanisms for Assessment of Risks to Public Health."

- In keeping with the Board's interest in risk assessment, it helped to sponsor the first workshop of the Society for Risk Analysis, on the analysis of actual versus perceived risks.

- Program initiation funds have been made available to assist in the development of a study of the analysis and integration of metabolic and toxicokinetic data in risk-safety evaluations. The proposed study would analyze current concepts in the interpretation of toxicologic data--particularly those associated with metabolism and toxicokinetics--as they apply to the identification of chemical hazards or to decisions underlying the control of hazardous substances. The proposed sponsor is the Environmental Protection Agency (EPA).

- The ad hoc group on critical issues in the 1980s has prepared a draft as input to the ALS yearly process of exploring "critical issues" spanning a 1- to 2-year period to use as a standard by which to assess its Annual Program Plan. The group has identified emerging trends of issues in environmental health important to government and to those influenced by government policies, regulations, and statutes. The group's report will also be used by the Board in directing its priorities for future studies.

- The Board is exploring various mechanisms for its entry into international activities, from U.S. national committees for international organizations (e.g., International Union of Toxicology and International Union of Pharmacology) to international affairs without formal affiliations. Negotiations will continue in this direction.

- The Board continued as a U.S. observer of the scientific Group on Methodologies for Safety Evaluation of Chemicals. This group, established by the World Health Organization and the Scientific Committee on the Problems of the Environment, met in May 1981 in Ispra to discuss methods of assessing the action of chemicals on reproductive functions.

TOXICOLOGY INFORMATION CENTER

Summary Description: The Toxicology Information Center (TIC) provides three basic services to BOTEHH committees: on-line and manual literature searching, acquisition of documents that committee members wish to analyze for their reports, and verification of bibliographic references for their reports. Thus, the TIC is a part of a study from the proposal-writing stage (estimating the volume of literature that will need analysis for a given topic), through development of the data base that will be analyzed, to conclusion and the ultimate preparation of a report for delivery to the sponsoring agency. The services are provided directly to each committee member, with liaison between TIC staff officers proficient in library and chemical sciences and project staff officers.

The Center also maintains a comprehensive reference collection of toxicologic literature, including textbooks, journal reprints, government and private publications, and several private reprint collections donated by committees that prepared some of the more exhaustive NRC toxicology reports and by individual toxicologists on their retirement. This collection effort has been supported by the Committee on Toxicology for approximately 25 years and, because its initial collection activities were retrospective, includes a comprehensive half-century of toxicologic resource materials. The materials gathered over the years have been systematically cataloged by chemical substance and major toxicologic concept. The resulting catalog is unique, in that one can find, in a single resource arranged alphabetically by chemical name, a thorough toxicologic profile that takes into account a major portion of the data generated on a given chemical.

This catalog is now being converted to an automated data base, the National Research Council's Toxicology Information Center Data Base (NRCTIC). The new form permits retrieval of citations, not only by chemical name, but by author, journal, and publication date or by keywords representing biomedical and toxicologic concepts. Articles are retrievable by any one or a combination of the above entities.

Staff:

Barbara B. Jaffe, Manager
Leslye B. Giese
Edna E. Millard
Edna M. Paulson
David M. Savage
Pamela J. Smith
Virginia M. White

Accomplishments: The Center continued to provide bibliographic services for several BOTEHH committees. A quarterly reporting system has been established to report to each committee's staff the expenditures in bibliographic services that have been requested. The reports generated are useful not only in management of current expenditures, but also in projecting future report costs for this expensive and heretofore hard-to-predict facet of project development.

With the assistance of the NAS Office of Automated Services, the TIC has developed NRCTIC, a fully operating data storage and retrieval system that has been modeled on Medline-like retrieval capabilities. Its capabilities are listed below.

General Input Capabilities:

- Provides easy input mechanisms that are geared to expedite collection and entry of up-to-date, accurate toxicologic information.

- Provides an expandable, dynamic data-base management system, with provisions for adding new fields as the system evolves. (For example, if it is decided to add abstracts to the Toxfile records, that can be done without major revision of the system software.)

- Allows for simultaneous data entry to both Chemfile and Toxfile.

- Provides "add," "delete," and "modify" mechanisms for important fields.

Chemfile Input Capabilities:

- Provides a block-mode entry that can be verified to ensure accuracy.

- Provides cross-correlation checks for new synonyms and primary chemicals added to Chemfile.

- Prevents addition of duplicate chemicals (by whatever synonym used) into Chemfile.

- Provides a mechanism to add new data to the information within each record.

Toxfile Input Capabilities:

- Provides a conversational "fill-in-the-answer" method of entering data elements.

- Allows for key verification of authors' names.

- Provides accuracy of entry of keyword concepts by allowing four-letter codes to be entered for each keyword concept and by notifying the user of whether a code entered is valid, and then displaying the full keyword on the screen before allowing another keyword entry.

- Maintains the integrity of the system's file integration by keeping a chemical name from being entered in Toxfile if it does not already appear in Chemfile.

- Provides accuracy in keying in chemical names by insisting that both the chemical name and the Chemical Abstracts Service (CAS) number be entered and by notifying the user when a chemical name and its CAS registry number do not correspond character-by-character to the way they appear in Chemfile.

Search and Retrieval Capabilities:

- Provides rapid access to all information in the system by means of a query-oriented program.

- Provides "friendly" coaching for novice users through "HELP" commands.

- Provides search mechanisms that can query the literature file, by any combination of authors, chemical names, CAS numbers, publication dates, journal sources, and keywords.

- Allows searchers to scan retrieved titles of literature citations so that, in large retrievals, the output may be reduced before printing.

Managerial Capabilities:

- Maintains all statistical data on users' inquiries.

- Incorporates security provisions (to prevent operation by unauthorized persons).

- Provides a locator mechanism for microfiche copies of the TIC reprint collection and shelf locations of reference materials.

- Provides a monitoring mechanism that can calculate the frequency of use of journals, from which the advisability of subscription discontinuation or renewal can be determined.

COMMITTEE ON ALDEHYDES

Summary Description: Formed under BOTEHH and through a contract with the EPA, the Committee was established to study formaldehyde, acrolein, and other selected aldehydes as environmental pollutants. The Committee's report, delivered to the EPA in the spring of 1981, considered the sources, chemical and physical characteristics, measurement, and prevalence of the compounds under study. This information included the chemistry of atmospheric transformation of the compounds; their automotive, aircraft, and industrial emission; and the use of products or the compounds from which they are formed. The report presented and evaluated information on the effects of selected aldehydes on human health and welfare, with emphasis on uniquely sensitive populations, the sources of these pollutants, and the concentrations to which humans are likely to be exposed. This information may be used by the sponsor in connection with the need to establish environmental criteria so that regulations for the control of aldehyde pollutants can be promulgated.

Membership:

Jack G. Calvert, Chairman	Craig D. Hollowell
Lyle F. Albright	David H. W. Liu
Eileen Brennan	Jon P. Nelson
Stuart M. Brooks	Charles F. Reinhardt

Staff:

James A. Frazier	Norman Grossblatt (Editor)

Meeting:

July 8-9, 1980

Accomplishments: On March 17, 1981, the final report was submitted to the sponsor. The Committee was disbanded on March 26, 1981. On May 19, 1981, the National Academy Press issued the published version of the report, Formaldehyde and Other Aldehydes.

COMMITTEE ON ALKYL BENZENE DERIVATIVES

Summary Description: The Committee was established in June 1979 to address the EPA's concerns regarding the environmental and health effects of selected alkyl derivatives of benzene. The Committee has reviewed and evaluated the scientific and technical information on six alkylated benzenes: toluene, xylene, ethylbenzene, cumene, styrene, and styrene oxide. A report was submitted to the EPA in the fall of 1980. This report is one of a series of assessment documents on environmental pollutants that have been requested by the EPA.

Membership:

Robert Snyder, Chairman	Howard Johnson
Gary P. Cooper	Curtis D. Klaassen
Thomas Crocker	Vaun Archie Newill
James R. Gillette	Robert O'Brien
Bernard Goldstein	Hugh M. Pettigrew
Julian P. Heicklen	V. M. Sadagopa Ramanujam
Joe Hightower	Christopher Wilkinson

Staff:

Sushma Palmer	Frances M. Peter (Editor)

Meetings: None

Accomplishments: The report was reviewed in July and August and transmitted to the EPA on October 1, 1980.

COMMITTEE ON AMINES

Summary Description: Under a contract with the EPA for scientific and technical assessment reports, the Committee produced two reports, one dealing with aromatic amines [aniline, 2,4-diaminotoluene, 4,4-methylene bis(2-chloroaniline), p-cresidine, trifluralin, and furazolidone], and the other with aliphatic amines (morpholine, triethanolamine, and 2-nitropropane). The reports reviewed the current state of knowledge on health and environmental effects of these selected compounds and included sections on analytic methods, uses, potential for human exposure, carcinogenic potency and estimation of risk, and a review of relevant epidemiologic studies.

Membership:

David B. Clayson, Chairman
George T. Bryan
David H. Fine
Charles C. Irving
Charles M. King
Richard Monson
Jack L. Radomski
Donald H. Stedman
Steven R. Tannenbaum
Snorri S. Thorgeirsson
John H. Weisburger
Errol L. Zeiger

Staff:

Robert J. Golden
Frances M. Peter (Editor)

Meetings: None

Accomplishments: The report Aromatic Amines: An Assessment of the Biological and Environmental Effects was delivered to the EPA in February 1981. The report on aliphatic amines has been reviewed by the ALS and the Report Review Committee and will be delivered to the EPA by September 1981.

COMMITTEE ON CHEMICAL ENVIRONMENTAL MUTAGENS

Summary Description: The Committee on Chemical Environmental Mutagens (CCEM) was initiated under a contract with the EPA on September 13, 1979. It was established to address complex scientific issues associated with chemical mutagens in the environment. With a focus on the protection of human health, the CCEM provides scholarly analysis of critical issues dealing with the detection of chemical mutagens, determination of their relative potency, and assessment of their impact on the health of present and future generations. The initial task of the CCEM is a thorough exploration of mechanisms that may be used to assess the mutagenic potency of chemicals and to relate mutagenicity to human health. A second, related task of the CCEM is to conduct a feasibility study pertaining to the quantitative predictive value of short-term mutagenicity tests for carcinogenicity. Reports addressing these two tasks are planned for completion by September 13, 1982.

Membership:

James F. Crow, Chairman
Seymour Abrahamson
Carter Denniston
David G. Hoel
Eliezer Huberman
Peter N. Magee
Daniel W. Nebert
Thomas Roderick
Margery W. Shaw
Fred Sherman
Vincent F. Simmon
H. Eldon Sutton
Sheldon Wolff
Michael D. Hogan, Consultant
Paul B. Selby, Consultant
John W. Drake, (BOTEHH Liaison Member)

Staff:

George R. Hoffmann
Norman Grossblatt (Editor)

Meeting:

October 24-25, 1980

Accomplishments: At the October meeting, plans were made for the preparation of a complete draft of the first CCEM report. Since the meeting, CCEM members, consultants, and staff have worked on segments of the report, and subsets of the Committee have met to confer on specific issues. The next CCEM meeting will be devoted to the Committee's discussion and review of a complete first draft.

COMMITTEE ON INDOOR POLLUTANTS

Summary Description: The Committee was charged with preparing a report on the sources, types, and concentrations of pollutants to which people are exposed in indoor environments, such as residences and public buildings; the effects of these pollutants on human health; methods of controlling or abating the pollutants; the effects of energy-conservation measures on concentrations of the pollutants; and models of cost used in considering alternative choices of environmental control. The report will characterize the major problems of pollution indoors, as documented in the available published literature. The Committee members will consider gaps in the information needed to evaluate the effects of pollutants indoors and will make recommendations for research to fill these gaps.

Membership:

John D. Spengler, Chairman
Michael D. Lebowitz, Cochairman
*Ronald W. Hart
Craig D. Hollowell
Morton Lippmann
Demetrios J. Moschandreas
Jan A. J. Stolwijk
David L. Swift
James E. Woods, Jr.

Staff:

James A. Frazier
Norman Grossblatt (Editor)

Meetings:

July 17-18, 1980 (Subcommittee)
August 14-15, 1980
September 25-26, 1980
December 15-16, 1980

Accomplishments: The report was approved by the Report Review Committee on May 22, 1981. The final version will be transmitted to the EPA in July 1981.

*Chairman from August 1, 1979, to April 30, 1980; then member.

IDENTIFICATION OF TOXIC AND POTENTIALLY TOXIC CHEMICALS FOR CONSIDERATION BY THE NATIONAL TOXICOLOGY PROGRAM

Summary Description: A Steering Committee and three other committees were established in 1980 in response to a contract with the National Institute for Environmental Health Sciences. In 1978, the National Toxicology Program (NTP) was set up within the Department of Health, Education, and Welfare with the goal of strengthening activities in the testing of chemicals of public-health concern and in the development and validation of new and better-integrated test methods. The NTP provides the necessary toxicologic information needed by the research and regulatory agencies.

To assist the NTP in determining the fraction of chemicals that have public-health implications, the Steering Committee and three other committees (on Sampling Strategies, on Priority Mechanisms, and on Toxicity Data Elements) have undertaken a 3-year study. One task is to estimate, with appropriate sampling approaches, the fractions of compounds on which there are various amounts and qualities of toxicity data; this requires initially the identification of general principles by which to judge the quality of toxicity studies and the comprehensiveness of the toxicity data base. A second task will be to recommend possible criteria by which NTP may set priorities for research and testing of chemicals. The results of this study will provide the NTP with information necessary to carry out its mission and with decision-making tools by which to orient its activities.

Membership, Steering Committee:

James L. Whittenberger, Chairman
John Bailar
John Doull
Arthur C. Upton
Ian Nisbet (BOTEHH Liaison Member)

Staff:

Robert G. Tardiff
Norman Grossblatt (Editor)

Meetings:

December 15, 1980
February 13, 1981
May 21, 1981 (Boston, Mass.)

Accomplishments: A "select universe" of compounds has been identified, for purposes of this study, as one containing all compounds of potential public-health concern. It was decided that the compounds in question would be subdivided into food additives, drugs, pesticides, cosmetics, and chemicals in commerce.

The Steering Committee provided direction and reviewed the progress of the three other committees in preparation for the first-year report to the NTP.

COMMITTEE ON PRIORITY MECHANISMS

Summary Description: The Committee's task is to develop criteria by which the NTP may set priorities for research on and testing of chemicals. Toward this goal, the Committee reviewed and evaluated available priority procedures. The search for procedures included a survey of federal programs with particular attention to the regulatory agencies, of industry, and of academia. On the basis of its review, the Committee will create a "priority-setting framework" that reflects the various testing priority needs that affect the mission of the NTP. This framework will include the basic elements that determine the health-hazard potential of chemicals, such as exposure potential and toxicity, as well as attention to factors of a more subjective nature, such as perception of risk. When a process for setting priorities among chemicals has been developed, the Committee will test and validate the process by using it to rank one or more samples of populations from the "select universe" of chemicals.

Membership:

Arthur C. Upton, Chairman
Bernard D. Astill
Stephen L. Brown
Patricia A. Buffler
Richard M. Cooper
Baruch Fischhoff
Corwin H. Hansch
Sheldon D. Murphy
Talbot R. Page
Verne A. Ray
Harold R. Ward

Staff:

Samuel McKee
Gerald Rosen (NRC Fellow)
Walter Rosen

Meetings:

January 14-15, 1981
March 24-25, 1981
June 3-4, 1981

Accomplishments: The Committee has surveyed, with the aid of a staff report, the literature on priority-setting procedures. Ten procedures, representing the array revealed by the survey, were selected for detailed examination. To conduct this examination and to plan and develop a report, the Committee was organized into three work groups: on methods and integration, on exposure assessment, and on toxicity assessment. The group on methods and integration prepared a paper on goals and strategies in priority ranking of chemicals, which aided the Committee in organizing its report and in evaluating the selected priority systems.

COMMITTEE ON SAMPLING STRATEGIES

Summary Description: The Committee considered available sampling methods for their appropriateness in choosing a sample of chemicals from a much larger "select universe" of chemicals, taking into consideration such elements as the nature of the "select universe," human-resource limitations, and the desired statistical precision of estimates produced from the sample. The method ultimately chosen was used to draw a sample that will be analyzed by the Committee on Toxicity Data Elements. The latter Committee will use the information to characterize the status of toxicity information on chemicals in the sample, categorize the distribution of toxicity data in the sample, and estimate the proportion of chemicals in the "select universe" having various degrees of toxicity data. This knowledge will be used in estimating the types and amounts of toxicity testing required to meet various goals of the NTP.

Membership:

John Bailar, Chairman
William W. Carlton
Bernard D. Goldstein
William D. Kalsbeek
Richard D. Remington
Benjamin Tepping
William Wagner
Joseph Waksberg

Staff:

Scott Baker

Meetings:

February 2-3, 1981
April 3, 1981

Accomplishments: The Committee developed a sampling procedure that was used to draw a representative sample of 696 chemicals from the "select universe." A screening process was applied to the 696 chemicals in which minimal toxicity-information standards defined by the Committee on Toxicity Data Elements were used to identify 100 chemicals for the tentative final sample.

COMMITTEE ON TOXICITY DATA ELEMENTS

Summary Description: Taking the sample of 100 chemicals drawn by the Committee on Sampling Strategies, the Committee on Toxicity Data Elements will subject those compounds to an exhaustive search of literature describing their toxicity, both *in vivo* and *in vitro*, in humans and in experimental models that are qualitatively or quantitatively predictive of human responses. Literature retrieval and indexing will be conducted by the BOTEHH Toxicology Information Center. The information sought will include, but not necessarily be limited to, data from acute, subchronic, and chronic studies; studies of the effects on various organs and their functions; and studies of molecular alterations (such as DNA damage and repair, mutagenesis, and enzyme inhibition and stimulation). These data will be measured against criteria (developed by this Committee), first, for the spectrum of data needed to assess potential human risk under various exposure conditions, and second, for the quality of individual data to determine the extent to which they are applicable to the assessment of potential risks to human health. On the basis of this analysis, compounds will be categorized according to the type of additional toxicity testing needed (e.g., acute, chronic, and reproductive) and according to the spectrum of additional tests needed to render judgments about potential risks to human health. Results of analysis of the sample will later be applied to the "select universe" of chemicals.

Membership:

John Doull, Chairman
Eula Bingham
David Brusick
George T. Bryan
Robert T. Drew
E. Marshall Johnson
Morton Lippmann
Thomas M. Mack
Gilbert Mannering
Donald E. McMillan
Robert Neal
Edward O. Oswald
Emil A. Pfitzer
Dale F. Rudd
Marvin Schneiderman
Carrol S. Weil
Hanspeter R. Witschi

Staff:

Scott R. Baker
Gordon W. Newell
Jeannee Yermakoff (NRC Fellow)

Meetings:

February 13-14, 1981
April 20-21, 1981
June 3-4, 1981

Accomplishments: Criteria were established to aid the Committee on Sampling Strategies in identifying chemicals with minimal toxicity data for inclusion in the sample of compounds for analysis. The Committee will use the approach developed to rate the toxicity data on the selected chemicals.

COMMITTEE ON PESTICIDES INFORMATION REVIEW AND EVALUATION

Summary Description: Public Law 92-516, the Federal Environmental Pesticide Control Act, provides for the NAS to establish a committee for prompt review and resolution of controversies over scientific and technical facts that arise in the course of hearings before a federal law judge on matters involving pesticide registration and regulation. To meet this responsibility, the Committee on Pesticides Information Review and Evaluation was established in 1977. The basic function of the Committee is to organize and direct the activities of such expert subcommittees as may be established to respond to specific queries.

Membership:

Sheldon D. Murphy, Chairman
Richard Griesemer
Vincent F. Simmon
John Van Ryzin
Elizabeth K. Weisburger

Staff:

Robert G. Tardiff

Meetings: None

Accomplishments: No referrals were received during the year.

COMMITTEE ON PYRENE AND SELECTED ANALOGUES

Summary Description: As part of a continuing request for scientific and technical assessment reports under a contract with the EPA, the BOTENH assembled this Committee to assess the human health effects of pyrene and selected analogues that are contained in mobile-source emission. Benzo[a]pyrene is a compound that has been extensively investigated and currently serves as a model for mechanisms of chemical carcinogenesis. There is reason to believe that the knowledge of these mechanisms can be effectively brought together and assessed, so that it can serve in part as a basis for the EPA to make regulatory decisions. As part of its report, the Committee will review the current state of knowledge on the health and environmental effects of the compounds in question, their sources, the extent of exposure to them, and methods of measuring them. Using this class of chemicals as a case study, the Committee will attempt to formulate general principles concerning the identification of members of the population who are particularly susceptible to chemical intoxication. Where appropriate, the Committee will make recommendations for further research.

Membership:

Edward Bresnick, Chairman
Marshall W. Anderson
Earl Benditt
Robert A. Gorse, Jr.
Daniel Grosjean
Ronald A. Hites
Attallah Kappas
Richard E. Kouri
Malcolm C. Pike
James K. Selkirk
Ronald W. Estabrook
(BOTEHH Liaison Member)

Staff:

James A. Frazier — Norman Grossblatt (Editor)

Meetings:

May 11-12, 1981
May 29, 1981

Accomplishments: The Committee has selected candidate compounds for study and developed a working outline. Assignments have been made, and the Committee expects to have a rough draft prepared by the end of its meeting in August 1981.

COMMITTEE ON RESPONSE STRATEGIES TO UNUSUAL CHEMICAL HAZARDS

Summary Description: The Committee originated through the NAS offer to cooperate with the Italian government and scientific community in the aftermath of a chemical explosion at Seveso, Italy, in July 1976. On invitation by the Italian government, a team of American scientists visited Italy in April 1977 to determine with Italian officials the needs and opportunities for binational cooperation. The U.S. scientists and their Italian counterparts recommended the formation of an official U.S. committee to work in close cooperation with an Italian committee to study the effects of the Seveso incident. The Committee on Response Strategies to Unusual Chemical Hazards, originally identified as the Binational Cooperative Study for Exposure to TCDD, was established in January 1979. The Committee's objectives go beyond evaluation of newer health data from Seveso (in conjunction with the Italian committee and extend to the development of guidelines that may be used to implement a worldwide mechanism for guiding biomedical researchers at the scene of accidents similar to that at Seveso in the collection and analysis of data concerning adverse effects on health.

Membership:

Robert W. Miller, Chairman
A. L. Burlingame
Aaron B. Lerner
Sheldon D. Murphy
Robert A. Neal
Milos Novotny
Patrick O'Keefe
Alan Poland

Staff:

Robert G. Tardiff — Frances Peter (Editor)

Meetings: None.

Accomplishments: The Committee sponsored a 3-day workshop in April 1981 at the Mario Negri Institute in Milan, Italy, on assessment of multichemical contamination. The workshop attempted, with the presentation of papers by both American and Italian participants, to elucidate the analytic, environmental, and toxicologic problems associated with chemical mixtures; to describe state-of-the-art investigational procedures; and to advance concepts and approaches for the understanding of multichemical interactions influencing chronic risks to human health. The proceedings of the workshop will be published. Work is continuing on preparation of the proceedings of the workshop on plans for clinical and epidemiologic followup after area-wide chemical contamination, held at the NAS in 1980.

COMMITTEE ON SAFE DRINKING WATER

Summary Description: The Safe Drinking Water (SDW) Act (Public Law 93-523) became effective on December 16, 1974. It required the administrator of the EPA to promulgate national drinking-water standards and, for the first time, regulations for enforcing them. It also directed the administrator to ask the NAS to study the adverse effects on health that are attributable to contaminants in drinking water. The result of this study, a report entitled Drinking Water and Health, was submitted to Congress and the EPA in May 1977.

The SDW Act was amended in 1977 to request that additional studies be conducted by the NAS and reported to the EPA and Congress at 2-year intervals. The second study was published in two volumes (Drinking Water and Health, Volumes 2 and 3), which addressed the following topics: epidemiologic studies of cancer frequency and some organic constituents of drinking water (a review of recent published and unpublished literature), water hardness and cardiovascular disease, the chemistry of disinfectants in water, the disinfection of drinking water, problems of risk estimation, toxicity of selected drinking-water contaminants, evaluation of activated carbon for treating drinking water, and the contribution of drinking water to mineral nutrition in humans.

Most recently, the Committee was asked to revise and update the chemical-hazard evaluations reported in 1977 and 1979 and to evaluate selected additional chemicals. It also examined the potential adverse health effects associated with deterioration of water quality in the distribution system.

A new Committee on Safe Drinking Water is now being appointed to fulfill another contract with the EPA. This Committee will continue to evaluate the potential health effects of selected drinking-water contaminants and, in addition, will review the epidemiologic evidence of adverse health effects associated with arsenic and asbestos.

Membership:

John Doull, Chairman
Julian B. Andelman
Donald R. Buhler
William G. Characklis
Russell F. Christman
Steven D. Cohen
Richard S. Engelbrecht
A. Wallace Hayes
James M. Hughes
Vincent P. Olivieri
Malcolm C. Pike
R. Craig Schnell
Joseph C. Street
Carol H. Tate

Staff:

Robert J. Golden
Riley D. Housewright
Frances M. Peter (Editor)

Meetings:

August 14-15, 1980
September 10, 1980
October 5-6, 1980
December 17-18, 1980

Accomplishments: Volume 4 of Drinking Water and Health will be delivered to the EPA in August 1981. It contains chapters on the following topics: elements of public water supplies, chemical quality of water in the distribution system, biologic quality of water in the distribution system, health implications of distribution-system deficiencies, and toxicity of selected inorganic and organic contaminants in drinking water.

COMMITTEE ON TOXICOLOGY

Summary Description: The Committee on Toxicology (COT) provides advice to the Air Force, the Army, the Environmental Protection Agency, the National Aeronautics and Space Administration, and the Navy. It suggests studies to these agencies and receives requests from them for advice and assistance under the terms of a contract with the Office of Naval Research and an interagency memorandum of agreement. It considers technical issues in toxicology, recommends environmental exposure limits, suggests specific toxicology testing or research, advises on and participates in field studies on toxicology problems, and evaluates the hazards and health implications of specific product uses.

Membership:

Roger O. McClellan, Chairman
Lawrence Fishbein
Ian T. Higgins
Wendell Kilgore
Leonard T. Kurland
Howard Maibach
H. George Mandel
Joseph V. Rodricks
Ronald C. Shank
Carl M. Shy
Edward A. Smuckler
Robert Snyder
Peter Spencer
Philip G. Watanabe

Staff:

Gary R. Keilson
Gordon W. Newell
Norman Grossblatt (Editor)

Meetings:

September 11-12, 1980
December 16-17, 1980
February 28-March 1, 1981 (San Diego, Cal.)
June 29, 1981

Accomplishments: The Committee organized subcommittees, reviewed reports produced by them, and undertook new tasks on various subjects for its sponsoring agencies, including the assessment of risks of short-term exposures to contaminants in drinking water and the application of resulting guidelines to selected compounds. An ad hoc subcommittee was established to explore the feasibility of responding to a request by the EPA for assistance in developing suggested no-adverse-response levels (SNARLs) for drinking-water contaminants through a review of SNARL documents prepared by the EPA.

SUBCOMMITTEE TO ASSESS HAZARDS OF MUNITION WASTEWATER

Summary Description: The subcommittee was established to review the toxicity of five pollutants in ordnance disposal wastes, which have been detected in groundwater.

Membership:

Lawrence Fishbein
Roger O. McClellan
Robert Snyder

Staff:

Gary R. Keilson
Gordon W. Newell
Norman Grossblatt (Editor)

Meetings:

September 11-12, 1980
December 16-17, 1980
February 28-March 1, 1981 (San Diego, Cal.)
June 29, 1981

Accomplishments: The review has been completed. Suggestions were provided for target interim contaminant concentrations in drinking water. The Committee has approved the draft report, which will be submitted for review.

SUBCOMMITTEE ON CHROMATE PAINTS

Summary Description: The Subcommittee was organized to evaluate the health risks of airborne exposure to lead, zinc, and strontium chromates, which are contained in spray paints.

Membership:

Ian T. Higgins
Howard I. Maibach
Peter Spencer

Staff:

Gary R. Keilson
Gordon W. Newell
Norman Grossblatt (Editor)

Meetings:

September 11-12, 1980
December 16-17, 1980
February 28-March 1, 1981 (San Diego, Cal.)
June 29, 1982

Accomplishments: An evaluation of the carcinogenic data on these compounds has been completed. Dermal problems and neurotoxicity are being investigated.

SUBCOMMITTEE TO ASSESS POTENTIAL HAZARDS OF TERMITICIDES

Summary Description: The Subcommittee will evaluate the health risks of several pesticides approved for use to control termites in military housing. Where data permit, the Subcommittee will suggest maximal exposure limits for these pesticides. Included in this project will be a review of the Committee's interim recommendation made for chlordane in 1979.

Membership:

David Gaylor
Wendell Kilgore
Leonard Kurland
Howard I. Maibach
Edward A. Smuckler

Staff:

Gary R. Keilson
Gordon W. Newell
Norman Grossblatt (Editor)

Meetings:

September 11-12, 1980
December 16-17, 1980
February 28-March 1, 1981 (San Diego, Cal.)
June 29, 1981

Accomplishments: The evaluation is continuing.

SUBCOMMITTEE TO DERIVE SPELs FOR HYDRAZINE, UNSYMMETRICAL DIMETHYLHYDRAZINE, AND NITROGEN DIOXIDE-NITROGEN TETROXIDE

Summary Description: The COT organized the Subcommittee to review the existing data on hydrazine, unsymmetrical dimethylhydrazine, and nitrogen dioxide-nitrogen tetroxide and develop short-term public emergency limits (SPELs) for up to 24-h exposures. These limits are used as criteria on which to establish evacuation corridors for accidental propellant release.

Membership:

Ian T. Higgins
Roger O. McClellan
Russell Prough
Marvin Schneiderman
Ronald C. Shank

Staff:

Gary R. Keilson
Gordon W. Newell
Norman Grossblatt (Editor)

Meetings:

September 11-12, 1980
December 16-17, 1980
February 28-March 1, 1981 (San Diego, Cal.)
June 29, 1981

Accomplishments: The Subcommittee completed a review of the data on hydrazine, including a recent long-term inhalation study. A report was approved by the Committee and has been submitted for review. The Subcommittee is preparing a report on the other compounds.

EMERGENCY RESPONSE GROUP

Summary Description: Organized under the COT contract with the Office of Naval Research, the Emergency Response Group provides timely answers to emergencies that arise in any of the COT sponsoring agencies. The Group consists of four toxicologists on the BOTEHH staff, who initially provide verbal responses to requests in emergencies so designated by the sponsors. These responses are followed by written reports that are reviewed by COT for content and for the logic of the safety evaluation.

Staff:

Robert J. Golden
Gary R. Keilson
Gordon W. Newell
Robert G. Tardiff

Accomplishments: The Emergency Response Group supplied information on 2-methoxy-2-methylpropane, which was found in a drinking-water supply as a result of a spill.

SUBCOMMITTEE FOR A WORKSHOP ON THE HEALTH IMPACTS OF SYNTHETIC FUELS

Summary Description: A grant was received from the Navy for the organization and conduct of a workshop on the possible toxicologic hazards associated with the use of synthetic fuels in Army vehicles.

Accomplishments: Planning for the workshop continued.

SUBCOMMITTEE ON THE POSSIBLE LONG-TERM HEALTH EFFECTS OF EXPOSURE TO CHEMICAL AGENTS

Summary Description: A contract to study the health effects of chemical agents was established in 1980 between the NAS and the Office of Naval Research for the Department of the Army, Office of the Surgeon General. The program is intended to review the human testing program with chemical agents conducted at Edgewood (Aberdeen Proving Ground) during 1960-1975. This review requires the collection of animal and human data and reports from all possible sources, to enable the COT to evaluate the long-term hazard potential (including delayed sequelae) of human experimental exposures to specified chemicals.

Membership:

Panel on Anticholinergic Chemicals:

H. G. Mandel, Chairman
Leo Abood
Virginia Dunkel
Max. Fink
Leo Hollister
John O'Neill
Adrian Ostfeld
Norman Weiner

Panel on Anticholinesterase Chemicals:

Peter Spencer, Chairman
Edson Albuquerque
Wolf Dettbarn
Frank Duffy
Walderico Generoso
Alexander Karczmar
George Koelle

Staff:

Francis N. Marzulli
Gordon W. Newell

Consultants:

Ron Kassel
J. Ketchum
Stephen Krop
Jeannie McNutt
Joseph Wiles
John H. Wills

Meeting:

June 30, 1981 (Joint, Panels on Anticholinergic Chemicals and Anticholinesterase Chemicals)

Accomplishments: The precise number of involved soldier volunteers has been identified as 6,721. Chemicals were organized into pharmacologic classes: the anticholinergics, with 27 compounds, and the anticholinesterase chemicals, with 16 compounds. Two panels of specialists were selected to review these chemicals. Activities involved collecting case-file data on human exposures and reports published at Edgewood and elsewhere (certain Edgewood reports and chemical agents had to undergo declassification procedures before panel review). A digest report for each class of chemicals was prepared for each panel by a consultant pharmacologist, who reviewed the collected literature and data. A first meeting of the panels on anticholinergic and anticholinesterase chemicals was held jointly on June 30, 1981, with Roger O. McClellan, Chairman of the COT presiding. A plan of procedure was developed, with special interest and emphasis on human mortality and morbidity findings among involved subjects.

TOXICOLOGY INFORMATION PROGRAM COMMITTEE

Summary Description: The Toxicology Information Program (TIP) was established in the National Library of Medicine (NLM) in 1966 to develop computer-based files of toxicology information that

would become widely available. In response to a request for assistance from the Director, NLM, the TIP Committee was established in June 1966. By the end of the year, it had submitted its recommendations concerning a long-range concept of the TIP. The Committee has since provided periodic reviews of the progress of the TIP and evaluation of proposed new projects. In recent years, the advisory services of the Committee have been extended to activities sponsored by the Toxicology Information Subcommittee of the Department of Health and Human Services' Committee to Coordinate Environmental and Related Programs.

Membership:

Robert E. Menzer, Chairman
Gary P. Carlson
Neal Castagnoli
Hugh L. Evans
Jeffrey W. Howe
Paul E. Morrow
Albert L. Picchioni
Bernard A. Schwetz
Michael D. Shelby
Robert A. Neal
(BOTEHH Liaison Member)

Staff:

George R. Hoffmann
Henry S. Parker
Norman Grossblatt (Editor)

Meetings:

November 11, 1980
March 23, 1981 (Bethesda, Md.)
June 10-11, 1981 (Oak Ridge, Tenn.)

Accomplishments: During the last year, the Committee made recommendations to the NLM on a variety of TIP projects, including TOXLINE, CHEMLINE, the Toxicology Data Bank, the Toxicology Information Response Center, the Laboratory Animal Data Bank, and TIP publications. The Committee also offered guidance on the contribution of the TIP to other programs in toxicology and toxicology information, including the National Toxicology Program, the Chemical Substances Information Network, the Environmental Mutagen Information Center, and the Environmental Teratology Information Center. The Committee issued recommendations to the NLM on each of the issues discussed within 30 days after each meeting.

COOPERATIVE STUDY: PANEL ON QUALITY CRITERIA FOR WATER REUSE
(Sponsor: Assembly of Engineering)

Summary Description: At the direction of Congress, the Army Corps of Engineers is studying the water-supply needs of the Washington, D.C., metropolitan area and evaluating various water resources in the Potomac River Basin and their associated effects on human health and welfare. The object is to recommend the most effective way to develop the resources best suited to ensuring a dependable long-term supply of water for the area. In conjunction with this study, an Estuary Experimental Water Treatment Plant has been built by the Army Corps of Engineers to test the feasibility of producing potable water from the Potomac River Estuary. The design and operation of this plant are being assessed by the Committee to Review the Potomac Estuary Experimental Water Treatment Plant Project.

The Panel on Quality Criteria for Water Reuse was formed, under sponsorship of the Assembly of Engineering, to establish criteria and procedures for the review committee by which reused water may be judged for potability and for use in food-processing. The current criteria and guidelines assume that a potable water supply meets specific quality standards. The Panel will be concerned with analysis and monitoring, predictive toxicity testing, risk assessment, and the human-health significance associated with consumption of water that is largely reused. The experimental treatment plant has begun operation with a 6-month testing period followed by 2 years of actual operation. There will be extensive testing of the product water. The Panel will have the opportunity to be involved in this process, evaluate data, and make suggestions. Evaluation of the quality and acceptability of the water must be correlated with the performance of the treatment process in the ultimate appraisal of the treatment plant's performance.

Membership:

Russell F. Christman, Chairman
Julian B. Andelman
Joseph C. Arcos
Joseph F. Borzelleca
Thomas W. Clarkson
Rose Dagirmanjian
Richard S. Engelbrecht
David W. Gaylor
Harold Kalter
Perry L. McCarty
Verne A. Ray
Charles Rohde

Staff:

Robert J. Golden

Robert G. Tardiff

Meetings:

August 6, 1980
January 29, 1981
May 14, 1981

Accomplishments: The Panel has delivered an interim report to the Committee to Review the Potomac Estuary Experimental Water Treatment Plant Project. The report will allow the Corps of Engineers to make adjustments in the testing protocols to derive maximal benefit from health evaluation efforts. The full report will be completed in the fall of 1981.

ASSEMBLY OF LIFE SCIENCES REPORTS

Advanced First Aid. Revision of the American Red Cross Manual by the Ad Hoc Committee to Revise the Manual Advanced First Aid, Committee on Emergency Medical Services, Division of Medical Sciences, October 1980, unpublished.

The Alkyl Benzenes. A report prepared by the Committee on Alkyl Benzene Derivatives, Board on Toxicology and Environmental Health Hazards, 1980. National Academy Press, 1981, ix + 384 pp. ISBN 0-309-03180-x; paperbound $11.00.

Aromatic Amines: An Assessment of the Biological and Environmental Effects. A report prepared by the Committee on Amines, Board on Toxicology and Environmental Health Hazards, February 1981. 319 pp; available from the Board.

Assessing Changing Food Consumption Patterns and Their Effect on Nutritional and Health Status Indicators. A report of the Committee on Food Consumption Patterns, Food and Nutrition Board, Division of Biological Sciences. 1981. National Academy Press (in press).

Chemotherapy for Gastric Cancer (Letter to the Editor). Medical Follow-up Agency, Division of Medical Sciences. R. J. Keehn and G. A. Higgins, Jr. Lancet, 1:323, February 1981.

Critique of the Draft Report, Federal Strategy for Research into the Biological Effects of Ionizing Radiation. A report prepared by the Committee on Federal Research on Biological and Health Effects of Ionizing Radiation, Division of Medical Sciences, July 1980, 25 pp., unpublished.

Drinking Water and Health, Volume 2. Includes: The Chemistry of Disinfectants in Water: Reactions and Products; The Disinfection of Drinking Water; and An Evaluation of Activated Carbon for Drinking Water Treatment. Safe Drinking Water Committee, Board on Toxicology and Environmental Health Hazards, 1979. National Academy Press, 1980, xi + 393 pp. ISBN 0-309-02931-7; paperbound $15.50.

Drinking Water and Health, Volume 3. Includes: Toxicity of Selected Drinking Water Contaminants; Problems of Risk Estimation; Epidemiological Studies of Cancer Frequency and Certain Organic Constituents of Drinking Water; Water Hardness and Cardiovascular Disease; and The Contribution of Drinking Water to Mineral Nutrition in Humans. Safe Drinking Water Committee, Board on Toxicology and Environmental Health Hazards, 1979. National Academy Press, 1980, xvi + 415 pp. ISBN 0-309-02932-5; paperbound $17.00.

The Effects on Populations of Exposure to Low Levels of Ionizing Radiation. BEIR III report of the Committee on the Biological Effects of Ionizing Radiations, Division of Medical Sciences. National Academy Press, 1980, xvi + 524 pp. ISBN 0-309-03095-1; paperbound $14.25.

Effects Upon Health of Occupational Exposure to Microwave Radiation (RADAR). Medical Follow-up Agency, Division of Medical Sciences. C. D. Robinette, C. Silverman, and S. Jablon. Am. J. Epidemiol. 112:39-53, July 1980.

Effects Upon Health of Occupational Exposure to Microwave Radiation (RADAR) (Letter to the Editor, Author's Reply). Medical Follow-up Agency, Division of Medical Sciences. C. D. Robinette. Am. J. Epidemiol. 113:201-202, February 1981.

The Emergency Department: A Regional Medical Resource. A report of the Subcommittee on Emergency Department Staffing, Committee on Emergency Medical Services, Division of Medical Sciences, December 1980. vi + 58 pp.; available from the Division of Medical Sciences.

The 1978 Enzyme Survey. A report of the Committee on GRAS List Survey - Phase III, Food and Nutrition Board, Division of Biological Sciences, May 1981; available from NTIS PB 81 216 897.

Epidemiology of Amyotrophic Lateral Sclerosis. I. A Case-Control Comparison Based on ALS Deaths. Medical Follow-up Agency, Division of Medical Sciences, J. F. Kurtzke and G. W. Beebe. Neurology, 30:453-462, 1980.

Evidence of Genetic Predisposition to Alcoholic Cirrhosis and Psychosis: Twin Concordances for Alcoholism and its Biologic End Points by Zygosity Among Male Veterans. Abstract of paper presented at Thirty-first Annual Meeting, American Society of Human Genetics, New York, Sept. 1980. Medical Follow-up Agency, Division of Medical Sciences. Z. Hrubec and G. S. Omenn. Am. J. Hum. Genet. 32:112A, Nov. 1980.

Evidence of Genetic Predisposition to Alcoholic Cirrhosis and Psychosis: Twin Concordances for Alcoholism and Its Biological End Points by Zygosity Among Male Veterans. Medical Follow-up Agency, Division of Medical Sciences. Z. Hrubec and G. S. Omenn. Alcoholism: Clinical and Experimental Research 5:207-215, Spring 1981.

Familial Factors in Early Deaths: Twins Followed 30 Years to Ages 51-61 in 1978. Medical Follow-up Agency, Division of Medical Sciences. Z. Hrubec and J. V. Neel. (Accepted for publication in Human Genetics.)

Federal Research on the Biological and Health Effects of Ionizing Radiation. A report of the Committee on Federal Research on Biological and Health Effects of Ionizing Radiation, Divison of Medical Sciences. 1981. National Academy Press (in press).

Flux of Organic Carbon by Rivers to the Oceans. Report of a Workshop, Woods Hole, Massachusetts, September 21-25, 1980, prepared by the Committee on Flux of Organic Carbon to the Ocean, Division of Biological Sciences. (U.S. Department of Energy) 1981; 397 pp.; available from NTIS:CONF-8009140; paperbound $21.00; microfiche $3.50.

Food Additives: Summarized Data from NRC Food Additives Surveys. A report of the Subcommittee on Chemicals Used in Food Processing, Committee on Food Protection, Food and Nutrition Board, Division of Biological Sciences. (June) 1981; available from NTIS PB 81 228 595.

Food Chemical Codex, Third Edition. Committee on Codex Specifications, Food and Nutrition Board, Division of Biological Sciences. National Academy Press, 1981, 766 pp. ISBN 0-309-03090-0; clothbound $45.00.

Formaldehyde and Other Aldehydes. A report of the Committee on Aldehydes, Board on Toxicology and Environmental Health Hazards. National Academy Press, 1981, ix + 340 pp. ISBN 0-309-03146-X; paperbound $11.50.

Indoor Pollutants. A report of the Committee on Indoor Pollutants, Board on Toxicology and Environmental Health Hazards. 1981. National Academy Press (in press).

The Laboratory Animal Data Bank - A Program Review. A report to the National Library of Medicine by the Committee on Laboratory Animal Data, Institute of Laboratory Animal Resources, Division of Biological Sciences. (May) 1981; unpublished.

Laboratory Animal Management: Marine Invertebrates. A report of the Committee on Marine Invertebrates, Institute of Laboratory Animal Resources, Division of Biological Sciences. National Academy Press, 1981, x + 382 pp. ISBN 0-309-03134-6; paperbound $19.25.

Mammalian Models for Research on Aging. A report prepared by the Committee on Animal Models for Research on Aging, Institute of Laboratory Resources, Division of Biological Sciences. National Academy Press, 1981, xvii + 587 pp. ISBN 0-309-03094-3; paperbound $19.50.

Management of the Diarrheal Diseases at the Community Level. Report of the Committee on International Nutrition Programs, Food and Nutrition Board, Division of Biological Sciences. (March) 1981.

Methodologic Problems in Matched-Pair Studies Using Twins. Medical Follow-up Agency, Division of Medical Sciences. Z. Hrubec. (Accepted for publication in Advances in Twin Research, Alan R. Liss, Inc.)

Nutrition Services in Perinatal Care. Report of the Committee on Nutrition of the Mother and Preschool Child, Food and Nutrition Board, Division of Biological Sciences. 1981; vii + 72 pp.; available from Food and Nutrition Board.

Olfactory Sensitivity in Humans: Genetic Versus Environmental Control. Medical Follow-up Agency, Division of Medical Sciences. H. B. Hubert, R. R. Fabsitz, M. Feinleib and K. S. Brown. Science 208:607-609, 1980.

Pathological Stage Grouping of Patients with Resected Carcinoma of the Lung. Medical Follow-up Agency, Division of Medical Sciences. T. W. Shields, E. W. Humphrey, M. Matthews, C. E. Eastridge and R. J. Keehn. J. Thorac. Cardiovasc. Surg. 80:400-405, Sept. 1980.

Principles of Toxicological Interactions Associated with Multiple Chemical Exposures. A report prepared by the Panel on Evaluation of Hazards Associated with Maritime Personnel Exposed to Multiple Cargo Vapors, Board on Toxicology and Environmental Health Hazards, and Committee on Maritime Hazardous Materials, National Materials Advisory Board, Commission on Sociotechnical Systems, December 1980.

Prospects for Pathology Studies in the NAS-NRC Twin Registry. Medical Follow-up Agency, Division of Medical Sciences. R. E. Anderson, R. B. Hill, and Z. Hrubec. Hum. Pathol. 11:403, Sept., 1980.

Randomized Study of 5-FU and CCNU in Pancreatic Cancer. Report of the Veterans Administration Surgical Adjuvant Cancer Chemotherapy Study Group. Medical Follow-up Agency, Division of Medical Sciences. C. Frey, P. Twomey, R. Keehn, D. Elliott, and G. Higgins. (Accepted for publication in Cancer.)

Review of Research Reports on SO_x, NO_x, NH_3, CO; Water Quality, Chlorine Residual Tests. A report to U.S. Army Medical Research and Development Command, Department of the Army, from the Committee on Military Environmental Research, Division of Medical Sciences. (April) 1981; unpublished.

Risk Assessment/Safety Evaluation of Food Chemicals. A report prepared by the Subcommittee on Food Toxicology, Committee on Food Protection, Food and Nutrition Board, Division of Biological Sciences, December 1980, ix + 36 pp. Available from National Academy Press. $1.65.

Toxicology Information Program of the National Library of Medicine. Periodic reports to the National Library of Medicine prepared by the Toxicology Information Program Committee, Board on Toxicology and Environmental Health Hazards. July and December 1980, March 1981, unpublished.

Variability of Heart Rate, P-R, QRS, and Q-T Durations in Twins. Medical Follow-up Agency, Division of Medical Sciences. R. J. Havlik, R. J. Garrison, R. Fabsitz, and M. Feinleib. J. Electrocardiol., 13:45-48, 1980.

Weight Changes in Adult Twins. Medical Follow-up Agency, Division of Medical Sciences. R. Fabsitz, M. Feinleib, and Z. Hrubec. Acta Genet. Med. Gemellol. 29:273-279, 1980.

ASSEMBLY OF LIFE SCIENCES

CORRESPONDING SOCIETIES

ASSEMBLY OF LIFE SCIENCES CORRESPONDING SOCIETIES

The National Research Council has long recognized the importance of maintaining close liaison with the many national scientific societies organized to encourage and promote research and better communication within specific scientific disciplines. The administrative reorganization of the NRC in 1973 required a redefinition of relationships between the professional societies and the new assemblies and commissions of the NRC. Each of these components was made responsible for the development of its own programs to meet U.S. and international needs with a single annual review and authorization by the NRC Governing Board.

The Assembly of Life Sciences recognized that the scientific organizations of the many disciplines within the life sciences could make substantial contributions to the effectiveness of the Assembly's programs and that they could be a convenient and valuable channel through which aid could be solicited from outstanding scientists in specific fields. In addition, the Assembly wished to ensure that these organizations would be periodically informed of events and progress within the Assembly, so that they, in turn, could inform their members.

Acting on a personal invitation from the chairman of the ALS, a number of societies that had been affiliated with the former Divisions of Biology and Agriculture and of Medical Sciences became Corresponding Societies of the Assembly. Since the creation of the Assembly, in 1973, several additional societies have asked to become Corresponding Societies and have been accepted as such.

Following is a list of the ALS Corresponding Societies as of June 30, 1981.

Aerospace Medical Association
The American Academy of Allergy
American Academy of Neurology
American Academy of Orthopaedic Surgeons
American Academy of Pediatrics
American Agricultural Economics Association
American Association for Cancer Research
American Association for Laboratory Animal Science
American Association of Anatomists
American Association of Blood Banks
American Association of Cereal Chemists
American Association of Clinical Chemists
American Association of Immunologists
American Association of Pathologists

American College of Cardiology
American College of Laboratory Animal Medicine
American College of Obstetricians and Gynecologists
American College of Physicians
American College of Surgeons
American College of Toxicology
American College of Veterinary Toxicologists
American Dairy Science Association
American Dental Association
American Federation for Clinical Research
American Fisheries Society
American Gastroenterological Association
American Genetic Association
American Industrial Hygiene Association
American Institute of Nutrition
American Meat Science Association
American Medical Association
American Neurological Association
The American Ornithologists Union
American Pharmaceutical Association
The American Physiological Society
The American Phytopathological Society
American Psychiatric Association
American Public Health Association
American Roentgen Ray Society
The American Society for Cell Biology
American Society for Clinical Investigation
American Society for Horticultural Science
American Society for Microbiology
American Society for Pharmacology and Experimental Therapeutics
American Society for Photobiology
American Society of Agricultural Engineers
American Society of Agronomy
American Society of Animal Science
American Society of Biological Chemists
American Society of Clinical Pathologists
American Society of Hematology
American Society of Human Genetics
American Society of Ichthyologists and Herpetologists
American Society of Limnology and Oceanography
American Society of Mammalogists
American Society of Parasitologists
The American Society of Plant Physiologists
American Society of Plant Taxonomists
The American Society of Tropical Medicine and Hygiene
The American Society of Zoologists
The American Surgical Association
American Urological Association
Animal Behavior Society
Association for Tropical Biology
Association of American Physicians
Biometric Society, Eastern North American Region
Biophysical Society
Botanical Society of America
Crop Science Society of America
The Ecological Society of America
Entomological Society of America
Environmental Mutagen Society
Genetics Society of America
Health Physics Society
Institute of Food Technologists
International Solar Energy Society, American Section
The Mycological Society of America
The Paleontological Society
Phycological Society of America
The Poultry Science Association, Inc.
Radiation Research Society
Reticuloendothelial Society
Society for Cryobiology
Society for Developmental Biology
Society for Economic Botany
Society for Gynecologic Investigation
Society for Investigative Dermatology

Society for Neuroscience
Society for Pediatric Research
Society for Range Management
Society of American Foresters
Society of General Physiologists
Society of Nematologists
Society of Protozoologists
The Society of Systematic Zoology
The Society of Toxicology
Soil Science Society of America
The Teratology Society
Weed Science Society of America
The Wildlife Society