ber of changes that it was possible to make in the Eisenhower budget. (Making the budget is a year-round job. The new Administration is limited in its budget changes by the limited amount of time that it has to review the budget before Congress must begin to act on it.)

How many of the recommendations will actually get through Congress, and how much room there will be in future budgets for similar program expansions, depends in large part on how successful the Administration is in winning support, or at least acceptance, of its over-all economic policies. The necessity and difficulty of winning this support made the budget message the most peculiar thing of its kind the American public has ever had occasion to ponder—H.M.

News Notes

Page Charges in Biological Journals

The Conference of Biological Editors at its 1961 annual meeting studied, in both a work session and a general session, the matter of page charges by biological journals of primary publication. (Page charges were defined as partial costs of publication of a paper, payable not by the author but by the institution, or from the fund, that supports his research.)

Among the factors which have led to consideration of page charges are the following.

1) Support of research by federal and private funds since World War II has enormously increased the amount of material to be published, but the number of journal subscribers has not increased proportionately, partly because of increased subscription prices.

2) Still higher subscription prices militate against wider circulation to individuals and impose severe hardships on institutional and library budgets, which have not benefited directly from the availability of federal and private grants for research. Such hardships and deterrents to circulation are even more acute abroad than in this country.

3) On any but a temporary basis, direct government subsidy to *selected* journals is undesirable, and direct support of *all* seems impracticable or unnecessary. Indirect subsidy, through payment of page charges, leaves wide freedom of choice to individuals as to which journals to support by submission of their research papers for publication.

4) Several journals of the American Institute of Physics have satisfactorily used a system of page charges for 25 years or so. Other journals, including a few in biology, have had satisfactory experience with the system over a shorter period. During this time federal policies and public laws have been modified explicitly to permit the payment of page charges from federal research grants as well as from appropriations to government laboratories.

5) For many years it has been common practice for journals to charge "excess publication costs" for tables, engravings, formulas, color, or text pages beyond a stated maximum. Such a policy rewards brevity but tends to restrict arbitrarily the coverage of a report. Moreover, it encourages the practice of fragmenting a research report into several papers, which, together, cost more to publish and are less effective than a single, more extensive, paper.

6) Editorial appraisal of the scientific merits of a paper should be divorced from any questions of cost and charges. Journals of the American Institute of Physics and of certain other societies have accomplished this by deferring any inquiry as to whether or not page charges will be accepted by an author's institution or payable from his research funds until after the paper has been accepted for publication.

A summary statement of guiding principles adopted by the conference, whose membership includes the editors of more than 100 biological journals, is as follows.

Publication is recognized as an essential step in the completion of research. That a portion of publication costs should be borne by research budgets is a corollary of this principle. The CBE considers that a system of page charges, adequately safeguarded to eliminate financial considerations from scientific evaluation of papers, is an acceptable and desirable means for supplementing journal income.

Many systems differing in detail may be devised, but common to all should be these provisions: that the charge should be substantially less than the full cost of publication; that the charge should not be payable by the author personally, but by his institution or the funds that support his research; and that the charge should be imposed only if the author's institution or his supporting funds are able to accept it.

News Briefs

Nuclear power costs. The Atomic Energy Commission has published a 40-page, revised version of *Costs of Nuclear Power.* The pamphlet is available from the Office of Technical Services, U.S. Department of Commerce, Washington 25, D.C., for 50 cents a copy. It includes information on several new reactor projects, and the text and tables have been revised and expanded to include new data that became available during the third quarter of 1960.

The report has nine major section headings: research and development costs, construction costs by major categories, total construction costs, working capital, annual fixed charges, fuel-cycle costs, cost of operation and maintenance, total generating costs, and objective for competitive nuclear power in the United States. Data on foreign installations are given when they are available; the report gives figures for 30 foreign nuclear power plants and for 22 plants in the United States.

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U.S.-Mexican engineering program. The University of Wisconsin's College of Engineering and the Mexican Institute of Technological and Advanced Studies at Monterrey, Mexico, will cooperate in an unusual program for training American engineering students at the Mexican institution during the next 2 years. The program is the first of its kind to be undertaken by the United States and Mexico. It was made possible by a $100,000 grant from the Carnegie Corporation of New York. The funds will support a junior-year program for Wisconsin engineering students at the Instituto Technologico y de Estudios Superiores de Monterrey. The first year's program is to be a pilot study, involving only University of Wisconsin students. The program may be extended to other universities later.

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Bottles measure ocean flow. Some 30,000 bottles, bobbing on the ocean for more than 3 years, have provided the Pacific Oceanographic Group of the Fisheries Research Board of Canada with data on the circulation of the Northeastern Pacific and Bering Sea.

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Number of diabetics increases. The number of diabetics in the United States has increased greatly in recent decades, the Metropolitan Life Insurance Company reports. There are about 1.5 million known cases of diabetes in this

country, according to data derived from the current U.S. National Health Survey. This is equivalent to 9 per 1000 population. The number of diabetics now is more than double that in 1937, as estimated from the first National Health Survey. The increase is largely due to population growth and to the greater longevity of diabetics.

The new survey indicates that diabetes is about 1⅓ times as frequent among females as among males for all ages combined. The large majority of diabetics of both sexes are past middle life; more than 80 percent are 45 or older, and nearly 40 percent are 65 and over.

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Soviet physics. The American Institute of Physics has announced that its bimonthly publication, *Soviet Physics-Doklady*, which offers brief reports on Russian research in the whole range of pure and applied physics, will appear monthly, starting with the July issue (vol. 7, No. 1). The journal is a translation of the physics sections of *Doklady Akademii Nauk S.S.S.R.* (the *Proceedings* of the Academy of Sciences of the U.S.S.R.).

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Nonmetallic crystals. An international symposium on the chemical physics of nonmetallic crystals will be held 28–31 August at Northwestern University, Evanston, Ill. The symposium is sponsored by the divisions of chemical physics and solid state physics of the American Physical Society and the division of physical chemistry of the American Chemical Society. The principal objective of the meeting is to survey the knowledge of binding in nonmetallic crystals and the equilibrium properties of point defects (chemical and structural) in these crystals.

The program will consist of both invited and contributed papers; these will be published collectively, either in an issue of a scientific journal or in an independent volume. Abstracts of prospective contributions should be sent *before 1 May* to the chairman of the program committee, Professor W. J. Moore, Department of Chemistry, Indiana University, Bloomington, Ind.

Grants, Fellowships, and Awards

Biometry. Training programs designed to prepare students in the application of statistical and mathematical methods to biological problems, particularly those related to health and medical sciences, now exist in more than 20 universities throughout the country. Supported by training grant funds from the Public Health Service, National Institutes of Health, these programs provide unusual opportunities for careers in teaching, research, and consultation.

Programs of study are individually designed to lead to doctoral degrees and, in special instances, to other academic degrees. Traineeship stipends are provided at various levels, depending on the education and experience of the trainee, and include allowances for dependents.

Interested individuals are encouraged to correspond with one or more of the 20 program directors, a list of whom may be obtained from Emmarie C. Hemphill, Executive Secretary, Advisory Committee on Epidemiology and Biometry, Division of General Medical Sciences, National Institutes of Health, Bethesda 14, Md.

For those with no time for training during the academic year, an unusual opportunity is provided by a cooperative Graduate Session of Statistics in the Health Sciences, sponsored by the 20 program directors and made possible by a training grant from the Public Health Service. For information concerning available stipends and course offerings at elementary, intermediate, or advanced levels for the summers of 1961 and 1962, write to Dr. Jacob E. Bearman, University of Minnesota, Minneapolis, Minn.

History of science. The History of Science Society has announced the 1961 Ida and Henry Schuman Prize contest in the history of science. The annual award of $250 was established by Henry and Ida Schuman of New York City for an original prize essay in the history of science and its cultural influences. The competition is open to graduate and undergraduate students in any American or Canadian college, university, or institute of technology. Papers should be approximately 5000 words in length, exclusive of footnotes, and should be thoroughly documented. It is hoped that the prize-winning essay will be suitable for publication in *Isis*.

Papers should be sent *by 1 July* to the chairman of the prize committee, Professor Edward Grant, Department of History and Logic of Science, Indiana University, Bloomington, Ind.

Life sciences. The Division of Biological and Medical Sciences of the National Science Foundation has announced that the next closing date for receipt of basic research proposals in the life sciences is *15 May*. Proposals received prior to that date will be reviewed at the summer meetings of the foundation's advisory panels, and disposition will be made approximately 4 months after the closing date. Inquiries should be addressed to the Biological and Medical Sciences Division, National Science Foundation, Washington 25, D.C.

Mental health. The fellowship program of the National Institute of Mental Health provides support for training in mental-health research leading to an understanding of human behavior, normal and abnormal. The program gives wide latitude both in the selection of a field of study and in the research approach. Work may be in the medical, biological, psychological, and social sciences; it may be basic or applied, clinical or nonclinical; and it may be in such areas as mental retardation, juvenile delinquency, aging, and alcoholism.

Fellowships are awarded on three levels—predoctoral, postdoctoral, and special. Applications may be submitted at any time. However, for review next fall, completed forms should be returned *before 1 August*. Notification of action is usually made within 4 months. For detailed information write to: Dr. B. E. Boothe, Chief, Research Fellowship Program, Research Grants and Fellowships Branch, National Institute of Mental Health, Bethesda 14, Md.

Pharmacology, travel. The Section on Pharmacology, International Union of Physiological Sciences, has received a grant from the National Institutes of Health to pay travel expenses for U.S. scientists who attend the First International Pharmacological Meeting in Stockholm, 22–25 August. Part of the fund will be used to cover passage of the invited American participants and of the members of the U.S. National Committee of IUPS. The rest of the grant will be awarded to scientists who have a particular interest in the general program.

Applications should be submitted in triplicate *before 1 May* to Dr. Carl F. Schmidt, President of the IUPS Section on Pharmacology, Department of Pharmacology, University of Pennsylvania, School of Medicine, Philadelphia 4, Pa. Full name, age, address, nationality, earned degree or degrees, academic affiliation, membership in any biological society, and field of research should be stated in the applica-

tion. No one who holds a government or private grant which allows travel funds should apply.

Scientists in the News

Martin Schwarzschild of Princeton University has won the Henry Draper Medal of the National Academy of Sciences for his work in stellar evolution. The medal, established in 1883 to recognize significant contributions to astronomical physics, will be presented at the annual meeting of the academy in Washington on 24 April. A professor of astronomy at Princeton, Schwarzschild has written some 33 papers on the internal composition and evolution of the stars and related astronomical subjects.

He is widely known as the director of Project Stratoscope, in which the surface of the sun was photographed from an unmanned balloon at about 15 miles above the earth's surface. Rising clear of 96 percent of the earth's turbulent atmosphere, the telescope-camera unit was self-aimed under the control of light-sensitive semiconductors, and it produced the sharpest photographs ever taken of the granulation and pore structure of the sun's surface. Analysis of the data obtained from these pictures contributed toward an understanding of the mechanisms of heat transfer from the center of the sun to its surface. For this work Schwarzschild and two of his colleagues received in 1957 the AAAS Newcomb Cleveland Prize. A second project, Stratoscope II, is now in progress.

Martin Schwarzschild. [O. J. Turner]

Eight Nobel Prize winners will gather at Columbia University on 11 April to receive the Alexander Hamilton Medals for 1961. The Hamilton awards are presented annually by the Association of the Alumni of Columbia College to alumni or faculty members for "distinguished service in any field of human endeavor."

The 1961 recipients are as follows.

Edward C. Kendall, Nobel Prize in physiology and medicine, 1950; professor of chemistry at Princeton University.

Polykarp Kusch, Nobel Prize in physics, 1955; professor of physics at Columbia.

Willis Lamb, Nobel Prize in physics, 1955; professor of theoretical physics at Oxford University.

Joshua Lederberg, Nobel Prize in physiology, 1958; professor of genetics at Stanford University.

Hermann J. Muller, Nobel Prize in physiology, 1946; professor of zoology at Indiana University.

John H. Northrop, Nobel Prize in chemistry, 1946; professor emeritus of bacteriology at the University of California.

I. I. Rabi, Nobel Prize in physics, 1944; professor of physics at Columbia.

Harold C. Urey, Nobel Prize in chemistry, 1934; professor of chemistry at the University of California.

The following awards were presented during the recent annual meetings of the American Physical Society and the American Association of Physics Teachers, held in New York.

Walter Kohn of the School of Science and Engineering at the University of California, La Jolla, received the 1961 Oliver E. Buckley Solid-State Physics Prize of the APS "for his extension and elucidation of the foundations of the electron theory of solids." Funds for this prize have been provided by Bell Telephone Laboratories.

Jerrold R. Zacharias of Massachusetts Institute of Technology received the Oersted Medal of the AAPT for his efforts to improve the teaching of physics in U.S. high schools, particularly through his work in organizing and directing the Physical Science Study Committee in Cambridge.

The AAPT Distinguished Service Citations for notable contributions to physics education in the United States were presented to **Thomas B. Brown**, a member of the faculty of Harvey Mudd College and professor emeritus at George Washington University; **Walter C. Michels**, professor of physics at Bryn Mawr College; **Eric Rodgers**, chairman of the department of physics at the University of Alabama; and **Yale K. Roots**, of the U.S. Naval Propellant Plant, Indian Head, Md.

The winners of the AAPT physics apparatus competition, which was supported by a grant from the Central Scientific Company, were as follows.

The first prize in the undergraduate laboratory category, for $500, went to **Erwin W. Mueller**, of Pennsylvania State University, for a field ion microscope.

The first prize, for the same amount, in the lecture demonstration area was won by **Walter Eppenstein**, of Rensselaer Polytechnic Institute, for his design of bread-boards for the display of electrical circuits by an overhead projector.

Second prize ($200) in the laboratory category was awarded to **Charles Zucker**, of Fairleigh Dickinson University, for a wire method of measuring the magnetic field.

A prize of $200, second prize in the lecture demonstration classification, went to **Paul Whiting**, of the University of Minnesota, for his demonstration of conservation of momentum in an hourglass system.

Winners of third place, with prizes of $100, were **John G. King**, of the Massachusetts Institute of Technology, for a molecular beam apparatus, and **H. V. Neher**, of California Institute of Technology, for a lecture demonstration on light pressure.

John S. Foster, Jr., associate director of the University of California's Lawrence Radiation Laboratory, Livermore, has been appointed director of the laboratory, effective 1 June. He replaces **Harold Brown**, who was recently named by President Kennedy to the position of director of defense research and engineering for the U.S. Department of Defense.

Winston M. Rodgers, senior principal scientific officer of the Industry Division, Department of Scientific and Industrial Research, London, will be in this country from late April to July, studying operations research and statistics at the managerial level.

Warren C. Johnson, vice president of the University of Chicago and professor of chemistry, has been named to receive the Atomic Energy Commission Citation. He retired last year, as chair-

man of the AEC's General Advisory Committee, a post he had held for 4 years. Johnson also served as chairman of the commission's Board of Senior Reviewers from 1949 to 1956. He is being honored for meritorious service in advancing the atomic energy programs of the commission and of the United States.

Johnson is the second recipient of the AEC Citation, which was established in 1960 to honor persons not in the employ of the commission. The citation, accompanied by a symbolic medallion, will be presented in a ceremony in Washington, D.C., late in April.

Nine U.S. scientists who received 1960 Borden Awards of a gold medal and $1000 for outstanding research achievements are listed in an annual directory just released by the Borden Company Foundation, Inc. A total of 179 awards has been made by the foundation since the program began in 1937. The awards are administered by professional and scientific associations. The administering groups and the 1960 award winners, with summaries of their principal contributions, follow.

American Chemical Society. **Eugene L. Jack**, professor of dairy industry, University of California, for his studies on the composition, structure, physical properties, and nutritional values of milk fat.

American Dairy Science Association. **Norman L. Jacobson**, professor of dairy husbandry, Iowa State University, for his research contributions to dairy animal nutrition, including work on utilization of carbohydrates by dairy animals and the effects on dairy cattle of feed treated with antibiotics.

American Dairy Science Association. **Mark Keeney**, professor of dairy manufacturing, University of Maryland, for a number of significant research contributions on the chemistry of butterfat.

American Home Economics Association. **Marian E. Swendseid**, associate professor of nutrition and physiological chemistry, University of California, for her research in vitamin and protein nutrition.

Association of American Medical Colleges. **Robert F. Pitts**, professor and chairman of the department of physiology, Cornell University Medical College, for his fundamental contributions to an understanding of renal tubular functions.

American Institute of Nutrition. **R. Gaurth Hansen**, professor and head of the department of agricultural chemistry, Michigan State University, for a series of studies, in the general fields of biochemistry and nutrition, that have contributed to a clearer understanding of the nutritional role of milk sugar.

American Academy of Pediatrics. **Harold E. Harrison**, pediatrician-in-chief, Baltimore City Hospital, and associate professor, Johns Hopkins University School of Medicine, for his fundamental research on vitamin D and its role in the regulation of the transport of calcium and phosphorus.

Poultry Science Association. **Frederick W. Lorenz**, professor of poultry husbandry and poultry physiologist in the Experiment Station, University of California at Davis, for research contributions that are basic to the use of estrogens in poultry production and to artificial insemination in turkeys.

American Veterinary Medical Association. **Henry H. Dukes**, professor emeritus of veterinary physiology, Cornell University, for his studies in the general area of animal physiology, which have served as a starting point for many investigations into the metabolic diseases of cattle. He was also cited for his long and productive career as a teacher and trainer of research workers.

Donn Rosen has been appointed assistant curator in the department of ichthyology at the American Museum of Natural History, New York. For the past year he has been with the University of Florida at Gainsville, where he held the posts of assistant professor of biology and assistant curator of biological sciences at the university's Florida State Museum.

Werner K. Weihe, chief of the Far Infrared Branch at the U.S. Army Engineer Research and Development Laboratories, Fort Belvoir, Va., has been named executive editor for the United States for *Infrared Physics*, an international research journal to be published by Pergamon Press, Ltd., England. Other editors of the new journal include M. Migeotte of Belgium, T. S. Moss of England, Sidney Passman of the United States, and an international editorial board. A regional editor for the U.S.S.R is to be appointed.

Margaret H. Sloan, National Blood Program executive and staff director of a recent medical research study for the Senate Appropriations Committee, has been appointed special assistant to the director of the National Cancer Institute. She will be active in program development, particularly in the international field. Dr. Sloan has earned international recognition for her service as assistant director and later director of advisory services to the National Blood Program of the National Academy of Sciences–National Research Council, which she joined in 1950.

Recent Deaths

M. Hillel Feldman, New York, N.Y.; 72; dentist who was a pioneer in oral surgery; in 1917 organized the dental department at Lincoln Hospital, where for many years he trained interns in oral surgery; wrote the textbook *Exodontia*; 1 Mar.

James O. Foley, Birmingham, Ala.; 64; since 1947 professor of anatomy at the University of Alabama Medical Center; a former department chairman, he was associate dean of the Medical College from 1951 to 1956; 28 Feb.

Irving Hyman, Buffalo, N.Y.; 52; chief of neurology at Buffalo General Hospital and chairman of the neurology department at the University of Buffalo Medical School; 7 Mar.

Asa S. Kinney, South Hadley, Mass.; 87; associate professor emeritus of botany at Mount Holyoke College; 2 Mar.

Philip Schwed, Baltimore, Md.; 38; research physicist at the Research Institute for Advanced Studies (1956–1961); principal scientist in the institute's cosmic radiation program; conducted theoretical studies in particle and solid-state physics; formerly with Lewis Laboratory; 2 Feb.

Joseph C. Turner, New York, N.Y.; 51; professor of medicine at the College of Physicians and Surgeons of Columbia University; director of the Clinical Pathology Laboratories and head of the hematology clinic at Columbia-Presbyterian Medical Center; author of a textbook on clinical pathology; 2 Mar.

Carl J. Warden, De Land, Fla.; 70; former professor of psychology at Columbia University; headed the animal psychology laboratory at Columbia for some years, later had charge of the Laboratory of Comparative Psychology and dealt largely with human psychology; wrote *The Emergency of Human Culture* and served as associate editor of the *Journal of Genetic Psychology*; 28 Feb.