government is going into the market under a serious handicap.

According to the Bureau of the Budget, a holder of a bachelor's degree looking for his first job can expect an average starting salary of $5954 from the government, compared with $6881 from contractors doing business with the government. After 20 years, the government employee would receive $11,608, compared with $13,608 for his nongovernmental counterpart.

The disparities become greater with higher educational attainment. Five years after college graduation, the government scientist or engineer with a Ph.D. can expect to receive $8606, while his nongovernmental equivalent is getting $11,564. As their careers proceed, the gap grows even larger, accelerating the curious process of employees' leaving the government to work for private contractors who draw a large part or all of their business from the government, while the government laments that it cannot hold onto its highly talented employees.

The answer offered by the Administration is to make federal employment more attractive, while recognizing it is in the government's interest to have a diversity of institutions available to carry on its research activities. The guiding rule, the Administration states, "should be to assign the job where it can be done most effectively and efficiently, with due regard to the strengthening of institutional resources as well as to the immediate execution of projects."

The Administration notes, in its research contracting study, that principally because of its intention to continue relying on outside contractors, it is essential that steps be taken to upgrade the quality of the government's own science establishment. "No matter how heavily the government relies on private contracting, it should never lose a strong internal competence in research and development. By maintaining such competence," the report continues, "it can be sure of being able to make the difficult but extraordinarily important program decisions which rest on scientific and technical judgments."

The improvement of salary scales is cited as the most urgent objective, but opportunities for professional satisfaction are also cited as particularly important for attracting and retaining personnel. To accomplish this, the report recommends that each federal agency should attempt to give its own research facilities assignments "to attract and hold first-class men." In addition, it is suggested that federal agencies look to their own science and engineering personnel for some of the "technical advice and participation in broad program and management decisions" that are now contracted to outside organizations.

Finally, the Administration's study suggests the creation of "a new kind of government research and development establishment, which might be called a Government Institute." These institutes would incorporate the "more positive attributes of the non-profit corporation." This idea is not spelled out in any detail, but is offered as a promising line for further study if congressional unhappiness with the nonprofit setup should grow.

At the heart of congressional concern is the inevitable difficulty of managing $12.4 billion worth of research. The remedy nearest at hand is the pay reform bill, which will make it easier for the federal government to be what the report called "a sophisticated buyer" of research and development. The bill incorporating the pay increases is now before the House Post Office and Civil Service Committee; the treatment it receives will tell a lot about Congress's sophistication in spending.—D.S.G.

Announcements

Written articles in the natural sciences and their engineering and technological applications (exclusive of medicine) are eligible for the 1962 **AAAS-Westinghouse Science Writing Awards,** provided through a grant from the Westinghouse Educational Foundation. The two $1000 prizes, one each for newspaper and magazine writing, will be presented on the basis of initiative, originality, scientific accuracy, clarity of interpretation, and value in promoting a better understanding of science by the lay public. Entries may be either single articles or a series, and must have appeared in United States publications (other than trade journals or professional scientific magazines) between 1 October 1961 and 30 September 1962. Entries may be nominated by persons other than the author; entrants may submit as many as three separate articles in each category.

Judges for the 1962 awards are Allan V. Astin, director, National Bureau of Standards; Walter Barlow, president, Opinion Research Corporation; Osborn Elliott, editor, *Newsweek*; Earl English, dean, University of Missouri School of Journalism; Felix R. McKnight, executive editor, Dallas *Times Herald*; and Morris Meister, president, Bronx Community College.

Citations will be presented the newspaper and magazine in which the winning articles appeared. Honorable mention or other special recognition will be made at the discretion of the judges. The presentations will take place at the annual dinner of the National Association of Science Writers, to be held on 27 December during the AAAS annual meeting in Philadelphia. Deadline for submissions: *10 October*. (AAAS-Westinghouse Awards, 1515 Massachusetts Ave., NW, Washington 5, D.C.)

Nine over-age U.S. warships will be converted through the Alliance for Progress program for use in supplying **electrical power to South American coastal cities.** Six of the vessels will go to Ecuador to hook into existing power systems; Colombia will get three to ease the load on equipment supplying power to the city of Barranquilla.

No charge will be made for the ships, which would otherwise be sold as scrap for about $46,000 each, but recipient governments will pay conversion costs of approximately $175,000 each. Capital cost will be about $46 per kilowatt of capacity (3600 to 4000 kilowatts), as contrasted with shore-plant construction cost of $211 per kilowatt.

A **Committee on Agricultural Science** has been formed which will continually evaluate the U.S. Department of Agriculture's research program and propose means of increasing the emphasis and effectiveness of basic research. The 16-man committee is headed by W. M. Myers of the University of Minnesota.

Meeting Notes

A national conference on **engineering technology in missile and spaceborne computers** will be held on 30 and 31 October in Anaheim, Calif. Primary emphasis will be on working equipment and techniques, but papers describing

significant new approaches and future trends are also acceptable. Authors should obtain the necessary company and government clearances for the papers before submission of summaries. Deadlines: 1000-word summaries, *15 June*; final drafts, *28 September*.

Copies of the conference proceedings, with reprints of all papers, will be available at registration. (R. A. Kudlich, AC Spark Plug Division, General Motors Corporation, 950 N. Sepulveda Blvd., El Segundo, Calif.)

A conference on the uses of **photography in science** will be offered from 20 to 24 August in San Francisco. The program, designed for persons who use photography as a tool in research and industry, will include a review of the physical sciences which concern the scientific photographer, a study of applied scientific photography, and a survey of new developments in technology. (University of California Extension, Berkeley 4)

An institute on **information retrieval**—covering current devices and techniques, their relation to traditional library and indexing procedures, and probable lines of future development—will be held from 19 to 22 September in Minneapolis. Registration fee is $15. (Director, Center for Continuation Study, University of Minnesota, Minneapolis 14)

Papers are being solicited for a symposium on **space phenomena and measurements**, to be held from 15 to 18 October in Detroit. A parallel session on selected topics in space nuclear propulsion, energy conversion, nuclear instrumentation, and radiation effects will be included. Deadlines: 100-word abstracts, *1 July*; rough drafts, *1 September*. (Michael Ihnat, AVCO Corporation, 201 Lowell St., Wilmington, Mass.)

Grants, Fellowships, and Awards

Undergraduate or graduate students of American colleges or universities are eligible to apply for the $1000 **Nininger meteorite award**, presented on the basis of manuscripts describing original field, laboratory, or theoretical investigations. Deadline for submission of 10,000-word manuscripts: 1 July. (C. B. Moore, Department of Chemistry and Geology, Arizona State University, Tempe)

Senior scientists who wish to make short-term (minimum 1 month) **visits to Australia** for research purposes or to confer with Australian scientists are invited to apply for fellowships offered by the Australian Academy of Science. Fellows would largely determine their own programs, but would be expected to participate in colloquia and to deliver a limited number of lectures in one or more major cities. No restrictions are imposed regarding subject, nationality, or occupation of appointees. [L. G. H. Huxley (physical sciences); D. F. Waterhouse (biological sciences); Australian Academy of Science, Gordon St., Canberra City, A.C.T.]

A Gustav Johanson award of $500 has been established to recognize contributions to the conception and implementation of **industrial timing equipment** or circuitry, excluding military or domestic appliance applications. Candidates may be persons of any nationality whose contributions have been put into important industrial use within the 5-year period ending 1 June of the award year. (Carl Lind, Johanson Award Committee, 1608 Summer St., Philadelphia 3, Pa.)

A doctoral training program in **clinical and experimental psychology** has been established at the University of Louisville. Assistantships and fellowships (maximum $3000) are available for 1962–63; graduate work beyond the M.S. degree will be initiated in September 1963. (Dept. of Psychology and Social Anthropology, University of Louisville, Louisville, Ky.)

Microbiological Associates, Inc., a firm concerned with tissue culture products, invites applications from Ph.D. candidates in **biology** who are interested in completing their academic requirements in the Washington, D.C., area. Beginning 1 July, the three selected applicants will receive $5500 per year plus tuition and will be required to spend 30 hours per week performing research duties assigned by the company. (Thomas G. Ward, Microbiological Associates, Inc., 4813 Bethesda Ave., Washington 14, D.C.)

Junior investigators engaged in research or receiving research training in **ophthalmology** or the related visual sciences may apply for travel grants to the 19th International Congress of Ophthalmology (New Delhi, India, 3–7 Dec.) Applicants must be citizens of the United States and cannot be employees of the federal government. Deadline: *15 June*. (Alson E. Braley, Department of Ophthalmology, State University of Iowa Hospitals, Iowa City)

Films

Dental Roentgenographic Film: Characteristics and Use in Radiation Hygiene; 20 minutes, color, free-loan (or purchase at $94.93 f.o.b.). Available to dental schools, clinics, and societies and health service groups. Covers slow, medium, and fast roentgenographic film; ways to decrease patient exposure; and use with older-type equipment employing mechanical timers. (Office of Technical Information, National Bureau of Standards, Washington 25, D.C.)

The Fat American; 51 minutes, black and white; purchase price, $250. Examines causes, cures, and consequences of excess weight; and the controversy linking diet with cholesterol content of the blood and heart disease. Includes comments of Paul D. White, cardiologist to former President Eisenhower; Ancil Keys, physiologist; and Irvine Page, former president of the American Heart Association. (Carousel Films, Inc., 1501 Broadway, New York 36)

Eternal Children: 30 minutes, free-loan. Studies the problems of retarded children, showing care and training methods being evolved in special schools and institutions. Attention is focused on the need to improve community facilities. (International Film Bureau, Inc., 332 S. Michigan Ave., Chicago 4, Ill.)

Clinical Aspects of Leprosy; 4 minutes, color. Rental fee: $2.50. Clinical symptoms, filmed at the Carville (La.) Leprosarium of the U.S. Public Health Service. (Public Film Rental Library, University of California Extension, Berkeley 4)

Medical Genetics; Part I (1960), Part II (1962); each approximately 34 minutes, color, free loan. Part I covers historical development, the physical basis of inheritance, and some chromosomal abnormalities in man. Part II uses clinical examples, such as aminoacidurias, to explain the reflection of genetic variation through specific changes in protein structure, and physical properties and function. (Department of Professional Education, National Foundation, 800 Second Ave., New York 17)

Dispersion Theory Approach to Nucleon-Nucleon Scattering; 45 minutes, color, free loan. Technical lecture by H. Pierre Noyes outlining main ideas and techniques used in calculation of the nucleon-nucleon scattering matrix from its analytic properties and unitarity. Presupposes some familiarity with scattering solutions of the nonrelativistic Schroedinger equation and Chauchy's theorem, and an acquaintance with Feynman diagrams. (Elton P. Lord, Office of Public Information, A.E.C., Washington 25, D.C.)

Courses

The 1962 **Fisk Infrared Institute** will be held from 14 to 24 August at Nashville, Tenn. The program will consist of an introductory infrared session held concurrently with a gas chromatography session (14–18 Aug.), and an advanced infrared session (20–24 Aug.). Participants in one of the concurrent sessions will be able to audit half the lectures in the other program. Partial tuition scholarships are available to academic personnel. Registration, $10; tuition, $100 for each session. (Director, Fisk Infrared Institute, Fisk University, Nashville 8, Tenn.)

A series of courses in **microscopy** will be held in Chicago from 9 July to 7 September. The program includes a basic, intensive course on industrial use of the polarizing microscope (9–27 July); concurrent courses on microscopy in criminalistics and photodecomposition of solids (13–24 Aug.); and a course on mathematical analysis for chemists (27 Aug.–7 Sept.). (McCrone Research Institute, 451 E. 31 St., Chicago 16)

The following **postgraduate courses** will be offered during 1962 by the American College of Chest Physicians:

Cardiopulmonary problems in children; Chicago, 23–27 July.

Recent advances in the diagnosis and treatment of heart and lung diseases; Philadelphia, 17–21 Sept. (To be repeated in New York from 12–16 Nov.)

Clinical cardiopulmonary physiology; Chicago, 22–26 Oct.

Occupational diseases of the heart and lungs; Detroit, 3–7 Dec.

Tuition for each course is $75 to members, $100 to nonmembers. (Murray Kornfeld, ACCP, 112 E. Chestnut St., Chicago 11, Ill.)

Scientists in the News

Edward U. Condon, head of Washington University's physics department and former president of the AAAS, has been appointed visiting professor of physics at Oberlin (Ohio) College for 1962-63.

Gunnar Thorson, of Denmark's Marine Biological Laboratory in Elsinore; **Ferguson Wood**, of the CSIRO Marine Laboratory of the Commonwealth Scientific and Industrial Research Organization, Cronulla, New South Wales, Australia; **Alexander Ivanoff**, of Laboratoire de Physique Appliquée aux Sciences Naturelles in Paris; and **James A. Crutchfield**, of the University of Washington (Seattle), will serve as visiting professors at the University of Miami's Institute of Marine Science during 1963-64.

Shields Warren, professor of pathology at Harvard Medical School, will receive the Albert Einstein award for 1962. The $5000 prize is administered by trustees of the Lewis and Rosa Strauss memorial fund.

Paul S. Johnson, physicist and consultant in electronics to the Air Force Office of Scientific Research, has been appointed electrophysics program manager for the National Aeronautics and Space Administration.

Kenneth M. Gaver has resigned as director of research for the Ogilvie Flour Mills Company in Montreal. He plans to continue as a management and technical consultant in biocolloids.

E. Harold Hinman, of the Agency for International Development's office of public health, has accepted an appointment as professor and head of the department of preventive medicine at Jefferson Medical College of Philadelphia.

Seymour S. Kety, chairman of the department of psychiatry at Johns Hopkins University, has won the first annual Stanley R. Dean award of $2000 for his work on the biochemical basis of schizophrenia.

Sanford Palay, of the National Institute for Neurological Diseases and Blindness, has become professor of neuroanatomy at Harvard Medical School.

Recent faculty appointments at the University of Illinois:

L. Leon Campbell, former associate professor at Western Reserve University, has been named professor of microbiology.

William H. Creswell, Jr., an assistant executive secretary with the National Education Association, has been appointed professor of health and safety education.

Adrian Scheidegger, associate professor of mathematics at the University of Alberta (Canada), will become professor of petrophysics.

Edwina Davis, science editor of the Atlanta (Ga.) *Journal*, has won the Russell L. Cecil writing award of the Arthritis and Rheumatism Foundation.

Horace A. Barker, professor of biochemistry at the University of California (Berkeley), has won the $1000 Borden award in nutrition for his work on the active coenzymatic form of vitamin B_{12}.

Stephen Rothman, emeritus professor of dermatology at the University of Chicago, has received the 1962 achievement medal of the American Academy of Dermatology and Syphilology.

Lawrence W. Gardenhire, associate director of Radiation Incorporated's advanced communications group, will receive the National Telemetry Conference's annual Telemetry Man of the Year award.

Hugh L. Dryden, deputy administrator of the National Aeronautics and Space Administration, is the tenth recipient of the Smithsonian Institution's Langley medal, established in 1908 and awarded for work in aerodromics and its application to aviation.

Ross A. McFarland, professor and director of the Guggenheim Center for Aviation Health and Safety at Harvard, has received the $1000 Walter Boothby award of the Aerospace Medical Association.

At the 1962 annual meeting of the American Geophysical Union (Washington, D.C.; 25-28 Apr.):

Sydney Chapman, of the High Altitude Observatory in Boulder, Colo., won the William Bowie medal for "unselfish cooperation in research."

Lloyd V. Berkner, president of Grad-

uate Research Center of the South-West in Dallas, received the first John A. Fleming award for research in geomagnetism, atmospheric electricity, and aeronomy.

James N. Brune, of Lamont Geological Observatory, won the James B. Macelwane award for "contributions to the geophysical sciences by a scientist under the age of 35."

Nicholas E. Golovin, a former technical assistant for the National Aeronautics and Space Administration, has joined the staff of Jerome B. Weisner, the President's special assistant for science and technology.

Recent staff appointments at Cranbrook Institute of Science, Bloomfield Hills, Mich.:

Warren L. Wittry, of Illinois State Museum, has been named curator of anthropology and assistant director of the institute.

Torsten Althin, director of Tekniska Museet in Stockholm, has become director of the institute's physics project.

Theodore Delevoryas, of the University of Illinois, has been appointed associate professor of paleobotany at Yale.

Edward A. Zagar, former regional fisheries biologist for the Florida Game and Fresh Water Fish Commission, has been appointed fisheries specialist at S. B. Penick & Company's farm chemical and insecticide division in St. Louis, Mo.

Fred Elmadjian, former senior scientist at Worcester Foundation and director of biological research at Worcester State Hospital, has joined the training branch of the National Institute of Mental Health as scientist administrator (biological sciences).

Chad J. Raseman, on loan to the U.S. Atomic Energy Commission for 2 years, has returned to Brookhaven National Laboratory in Upton, N.Y.

Frederick L. Stone, acting chief of the U.S. Public Health Service's division of general medical sciences, will head the new PHS division of research facilities and resources at the National Institutes of Health, effective 15 July. **Clinton C. Powell**, assistant director of the National Institute of Allergy and Infectious Diseases, will succeed Stone as chief.

Sydney P. Clark, Jr., of the Carnegie Institution of Washington's Geophysical Laboratory, will become the first Sidney James Weinberg professor of geophysics at Yale, effective 1 July.

Julius Sendroy, Jr., head of the chemistry division at the U.S. Naval Medical Research Institute in Bethesda, Md., has won the 1962 Van Slyke award presented by the American Association of Clinical Chemists' New York-Metropolitan section.

Grant R. Bartlett, formerly with Scripps Clinic and Research Foundation in La Jolla, Calif., has joined the staff of the Laboratory for Comparative Biochemistry in San Diego, a recently established nonprofit corporation concerned with fundamental research in the biological sciences.

Recent awards of the American Society of Mechanical Engineers' Washington section:

John W. Sawyer, of the U.S. Bureau of Ships, received a national ASME award for his work on noise reduction in turbines and gears.

Robert E. Fischell, of Johns Hopkins' Applied Physics Laboratory, won the annual technical achievement award for his development of magnetic stabilization techniques used in space satellites.

Charles S. Thornton, chairman of the department of biology at Kenyon College, Gambier, Ohio, has been appointed chairman of the department of zoology at Michigan State University. **Edwin J. Robinson, Jr.**, will succeed him as chairman at Kenyon.

Recent awards of the National Academy of sciences:

James A. Shannon, director of the National Institutes of Health, received the Public Welfare medal for achievement in the uses of sciences for human welfare.

Marshall W. Nirenberg, of the National Institute of Arthritis and Metabolic Diseases, won the newly established $5000 molecular biology award for his work on the biosynthesis of protein.

Susann F. Biddulph, plant physiologist at Washington State College, and **Vera R. Usdin**, biochemist at New Mexico Highlands University, Las Vegas, are the 1962 recipients of Sigma Delta Epsilon's grants-in-aid for research by women.

Recent Deaths

John Bartholomew; English cartographer and geographer; 9 Feb.

Chris E. Best, 46; research chemist with Firestone Tire & Rubber Company in Akron, Ohio; 26 Mar.

Alfred Blumberg, 79; pathologist associated with Variety Children's Research Foundation of Coral Gables, Fla.; 9 Apr.

Lawrence E. Curfman, 81; retired professor of mathematics at Kansas State Teachers College in Pittsburg; 2 Feb.

Stanley M. Dmohoski, 40; mathematics aide with Naval Ordnance Laboratory at White Oak, Md.; 22 Apr.

Walter P. Elhardt, 70; emeritus associate professor of physiology at the University of Illinois; 7 Mar.

Michael Goldenburg; former senior eye surgeon at Illinois Eye and Ear Infirmary; 11 Mar.

S. Gale Lowrie, 77; emeritus professor and former head of the department of political science at the University of Cincinnati; 2 Nov. 1961.

Harold H. Lurie; metallurgist and staff assistant for special projects at Cummins Engine Company in Columbus, Ind.; 11 Jan.

Hugh P. Nicholson, 60; mining and metallurgy specialist and chief engineer at Union Carbide Ore Company; 4 Feb.

Sir **Frederick H. Page**, 76; aeronautical engineer and founder of Handley Page, Ltd., Britain's first aircraft manufacturing company; former president of the Royal Aeronautical Society; 22 Apr.

Herbert Rattner, 62; chairman of the department of dermatology at Northwestern University; Apr.

Edward L. Siegel, 43; assistant chief psychologist at the Veterans Administration Hospital in Syracuse, N.Y., and clinical assistant professor of psychology at State University of New York's Upstate Medical Center; 27 Feb.

Roderick Sprague, 61; plant pathologist at Washington State Tree Fruit Experiment Station (Wenatchee); 17 Mar.

Otto Taborsky, 67; translator of technical articles for American Meteorological Institute, and former teacher and researcher at Teleki Scientific Institute in Budapest; 12 Apr.

Thomas G. Walsh, 47; specialist in nuclear physics with Army Corps of Engineers' Research and Development Laboratory at Fort Belvoir, Va.; 23 Apr.