ity party in Congress and the President are of the same political denomination, of the mutually embarrassing results of some investigations.

Minority Leader Ford has suggested that the Government Operations committees might be controlled by the party not represented in the White House to assure congressional vigilance. This suggestion apparently has not been received with wide enthusiasm in Congress.

The General Accounting Office, an arm of Congress created to assist in providing legislative control over receipt and expenditure of public funds, has proved to be an effective auditing agency, usually ex post facto. It does not perform the evaluative role for Congress which the Bureau of the Budget, for example, has acquired in the executive. The GAO, however, a separate organization which is of, but not in, Congress, may provide a model for a corps of professionals which could help Congress with its surveillance of administration.

Closer oversight of science programs seems certainly to be in congressional minds, as the creation of subcommittees on research and development in the space, armed services, and government operations committees indicates. And House Interior Committee chairman Oren Harris (D–Ark.) recently announced plans for a detailed study of the Department of Health, Education, and Welfare.

The oversight question will certainly be raised during the new study on congressional reorganization authorized to take place this year. It is clear that if Congress doesn't wish to resign itself to being Number 2 behind the executive, it will have to try harder.

—JOHN WALSH

Defense: California Planners Try Novel Approach to Problems of Economic Reconversion

Although the war in Vietnam has managed to make the question of large-scale reconversion seem utopian, adjustments to the closing of bases and the defense economies initiated by the Johnson administration give people plenty to worry about nonetheless. Chief among the worriers is the state of California, where an estimated 30 percent of the state's manufacturing employment is tied directly to defense production. In the area around San Diego the proportion leaps to about 80 percent. Faced with the prospect of wide unemployment, California has begun an experiment to discover whether its scientific and engineering manpower can be usefully employed in other fields.

The experiment has a particularly novel quality. California's approach is not to offer its vast army of aerospace engineers retraining but to see if other, nondefense, problems will respond to the "systems analysis" approach with which the engineers are already familiar. The hope is not just that the aerospace companies will prove to be competent in diverse areas but that they can demonstrate their competence in ways that will enable them to attract further nondefense business.

State officials began the project by considering a list of problems suggested by theorists of reconversion as likely to provide a fair test of the R & D community's ability to turn its skills to major public problems. Several additional criteria were used, among them the intrinsic importance of the problems to the state of California and the availability of funds to support large-scale undertakings in various fields if such efforts were suggested by the initial studies. From the list of possibilities, four subjects were chosen, and bids were invited from the industry.

The result of the competition, in which about 40 companies participated, is that Aerojet-General Corporation is now studying a long-range system to handle the state's waste-management problems; the Space-General Corporation is studying California's system of criminal justice; North American Aviation is developing specifications for a study of transportation in California through the year 2015; and Lockheed Missiles and Space is considering the requirements of an information system for the state government. "State officials are not so naïve as to believe that the four . . . contracts are going to have any significant economic impact on the research and development community," said a letter from state finance director Hale Champion to the Los Angeles *Times*. "But, should these preliminary studies lay the groundwork for the kind of massive research and development assault that any one of these study areas requires in order to provide significant breakthroughs, then our . . . investment indeed will have been worthwhile—both from the standpoint of research and development workload for California industry and from the standpoint of the economies and other public benefits to be derived from systems improvement in the areas of study." Each of the contracts is for $100,000, and all are scheduled to be completed between June and September 1965.

To supervise the contracts, the state has set up a small group under the auspices of the Department of Finance, which has responsibility for most of the state's economic development programs. Although state officials are monitoring the industrial contracts, they are frankly skeptical about their suitability for such a task. "We haven't got any experience along those lines," one official pointed out half-humorously. "Let's face it—we might be completely snowed." To keep from being "snowed" the state has invited the help of another R & D firm, the Systems Development Corporation, to assist in monitoring and evaluating the aerospace studies. "I suppose they could snow us too," the same official commented, "but we've worked with them before on some data processing problems, and we trust them."

So far, except for a minor dispute between the California legislature and the executive branch over the funding of the project, the experiment has aroused no opposition. The project originated entirely in California and has proceeded without outside advice. In Washington, however, federal officials in the Pentagon, the Department of Commerce, and the Disarmament Agency, are watching the experiment with great interest. And, judging by the number of unsolicited cheers from other defense-dependent communities across the nation, California officials feel confident that their efforts are raising hopes elsewhere as well.

—ELINOR LANGER

Announcements

A **group transportation** arrangement between Amsterdam, Netherlands, and Tokyo has been arranged for persons who plan to attend the international **congress of the physiological sciences**, 1–9 September in Tokyo. A plane will leave Amsterdam 17 August, and will be due in Yokohama 28 August. The trip will include 3 days in Moscow, and a 3-day side trip to Tashkent, Bokhara, and Samarkand. The return trip leaves Yokohama 17 September,

to arrive in Amsterdam 21 September. Travel will be by plane except between Nakhodka and Yokohama, which will be by boat, and between Khabarovsk and Nakhodka, which will be by train. The cost per person for a party of 15 or more will be $857. Additional information is available from Jan Duyff, Institute of Physiology, University of Leiden, Leiden, Netherlands.

The **plant research** laboratory recently established at Michigan State University in conjunction with the Atomic Energy Commission is inviting applications for graduate study leading to the Ph.D. degree, and for postdoctoral research associateships in various areas of basic plant science. Graduate degrees will be awarded through the appropriate department of the university. The laboratory, presently housed in temporary quarters, will move into its own building next year. By this fall, research is expected to be in progress in the following areas: function and mechanism of action of growth hormones, growth regulation through regulation of enzyme activity, cell wall metabolism, tissue culture, metabolic foundations of plant growth control by environmental factors, and aging of plant cells. Inquiries concerning the laboratory's programs should be directed to L. G. Wilson, Plant Research Laboratory, Michigan State University, East Lansing. Applications for admission to the graduate program should be sent to the director of admissions of the university.

A seven-nation **cooperative study of the Kuroshio Current**, the Pacific Ocean equivalent of the Gulf Stream, is scheduled to begin in July. The first phase of the study is to last through next February and will include 33 research vessels: 20 from Japan; three each from the Soviet Union, the United States, and the Republic of Korea; two from the Philippines; and one each from the Republic of China and Hong Kong. According to a coordinating group for the study, the project will have three primary targets:

Synoptic and multidisciplinary surveys of the whole Kuroshio system at least twice a year;

Studies of the frequency and extent of the Kuroshio's short-term fluctuations;

Studies of its seasonal variations.

The Kuroshio, which means "black current" in Japanese, originates around 10° north of the equator, moves north from the eastern coast of the Philippines to the eastern coast of Japan, and then heads toward the west coast of North America.

The **Conference Board of the Mathematical Sciences** has announced plans to appoint an executive secretary in its Washington office. The Board will be pleased to receive suggestions of possible candidates from members of the scientific community. Correspondence should be sent by 1 June to the chairman, R. H. Bing, Conference Board of the Mathematical Sciences, Department of Mathematics, University of Wisconsin, Madison 53706.

Meeting Notes

Medical diagnostic applications of ultrasound will be the subject of a conference to be held 20–21 May in Pittsburgh. Discussion will include the uses of ultrasonic techniques for diagnoses in various areas of specialization in medicine and surgery. (C. Moses, University of Pittsburgh School of Medicine, Pittsburgh, Pa. 15213)

Travel grants are available through the Institute of Electrical and Electronics Engineers to help U.S. scientists and engineers attend the sixth international conference on **medical electronics and biological engineering**, scheduled 23–27 August in Tokyo. The funds are being provided by an NIH grant, and an inter-society committee is being formed with the cooperation of the National Academy of Engineering to screen requests and apportion the funds. Deadline for receipt of applications and "relevant supporting information": *7 May*. (M. Eden, Rm. 20D-219, M.I.T., Cambridge, Mass. 02139)

A group travel plan to the meeting is also being arranged. Details may be obtained from B. D. Aaron, P.O. Box 186, Roslyn, N.Y. 11576.

Papers are invited for presentation during an international conference on **industrial electronics and control instrumentation**, 8–10 September in Philadelphia. The meeting will be sponsored by the Institute of Electrical and Electronics Engineers and the University of Pennsylvania, and will center on "applied industrial control." It will be devoted to reports on actual equipment and accomplishments relating to economically justified control of industrial processes. Papers may be on applied industrial measurements, existing control systems and components, functioning processes and their control systems, or education in instrumentation and control. A 35-word abstract and a summary of 300 to 500 words are required. Deadline: *24 May*. (E. A. Weiss, Sun Oil Co., 1608 Walnut St., Philadelphia, Pa. 19103)

Classified and unclassified papers are solicited for the third **fluid amplification** symposium, to take place 26–28 October in Washington. The sponsor of the meeting will be Harry Diamond Laboratories (U.S. Army Materiel Command). The topics to be included are improvement of signal-to-noise ratio, novel fabrication or miniaturization techniques, contributions toward a theory of design of the binary amplifier, large-amplitude wave analysis, new or improved types of sensors, frequency regulation of fluid oscillators, new device (component) concepts, novel instrumentation particularly adapted to fluid amplifiers, and application to systems. Deadline for receipt of abstracts: *14 May*. (J. M. Kirschner, Fluid Systems Branch, Harry Diamond Laboratories, Washington, D.C. 20438)

Grants, Fellowships, and Awards

The Alexander von Humboldt Foundation offers two types of fellowships to **non-German scholars and scientists** for advanced academic research projects at universities or research institutes in West Germany and West Berlin. Applicants must hold a degree equivalent to the German doctorate or the "Staatsexamen" (State Research Diploma); M.D.'s must also have completed their required training. There are no special quotas as to nationality or field of specialization of the recipients. Applicants should be 25–35 years old and have a working knowledge of German. However, German-language scholarships lasting 2 to 4 months are available if needed. Persons who have previously studied in Germany are ineligible. Applications must be accompanied by a detailed outline of the planned research project, and three letters of reference regarding the applicant's capabilities and the feasibility of his project. Each fellowship includes payment of university fees in addition

to the stipends and dependents' allowances. Also, if the recipient's travel expenses to Germany are not paid through other sources, the Foundation will assume them. Applications should be submitted in triplicate by persons not residing in Germany, in duplicate by those now in the country. The fellowships are:

"Fellowship A": approximately 250 awards for the 10-month academic year; applicants must have at least 2 years' experience in teaching or research at the university level. The stipend is DM 800 (about $200 U.S. funds) a month. Deadline for receipt of applications: *1 October*.

"Fellowship B": about 50 awards for 6 to 12 months, with no fixed beginning or terminating dates; applicants must have at least 5 years' teaching experience at the college level, or several years of independent research in university research institutes, and have several publications. The stipend is DM 1100 (about $275 U.S. funds). Applications will be received all year, but recipients will be announced about *1 January, 1 July*, and *1 October*. (Alexander von Humboldt Foundation, Bad Godesberg, Schillerstrasse 12, Germany)

A summer institute in the **application of phase equilibria to sulfide ores** will be held at Lehigh University 19 July to 28 August, under the auspices of the Society of Economic Geologists. Applicants must have had at least 2 years' teaching experience and now be teaching economic geology at a college. A background in general inorganic chemistry, mineralogy, and some field experience are also necessary. The program, sponsored by the National Science Foundation, will include lectures, seminars, laboratory sessions, and field trips. Stipends of $450 will be provided, plus $90 each for up to four dependents, and a maximum of $80 travel allowance. Enrollment will be limited to 30 persons. (P. B. Myers, Jr., Department of Geology, Lehigh University, Bethlehem, Pa. 18015)

The University of Kansas medical center has received a $271,000 grant from the National Institute of General Medical Sciences for a training program in **clinical pharmacology**. The program includes 2 years of residency training in internal medicine and 3 years in basic science. Training may begin with the basic-science portion if a satisfactory residency in any area of medicine has already been completed. (D. L. Azarnoff, Clinical Pharmacology Study Unit, University of Kansas Medical Center, Kansas City 66103)

The Division of Biological and Medical Sciences of the National Science Foundation announces that the next closing date for receipt of **basic-research proposals in the life sciences** is 1 May. Proposals received prior to that date will be reviewed at the summer meetings of the NSF's advisory panels. Inquiries should be sent to the Biological and Medical Sciences Division, National Science Foundation, Washington, D.C. 20550.

The AAAS is accepting entries for its annual **socio-psychological** prize, to be awarded during the 1965 meeting, 26–31 December in Berkeley. Entries may be unpublished manuscripts or papers which have been published since 1 January 1964; they should "further the comprehension of the psychological-social-cultural behavior of human beings." Entries may be of any length, but must present a completed analysis of a problem, the relevant data, and an interpretation of the data in terms of the postulates with which the study began. Preference will be given to manuscripts of less than 50,000 words. They should be submitted in quadruplicate, with six copies of an abstract of up to 1200 words. Deadline for receipt of manuscripts: *1 September*. (D. Wolfle, Executive Officer, AAAS, 1515 Massachusetts Ave., NW, Washington, D.C. 20005)

Pre- and postdoctoral fellowships for research training in **toxicology** are available through Harvard University's School of Public Health. In addition to the stipends offered, tuition, fees, and dependents' allowances will be provided. Applicants for the Public Health Service fellowships must be U.S. citizens. The predoctoral fellowships lead to the M.S. or D.Sc. degree, and carry stipends of $250 to $450 a month. Applicants must be less than 40 years old, have a strong background in the physical and biological sciences, and have honor grades in their major science field. The postdoctoral fellowships are for research; applicants should have a degree in the basic or clinical medical-biological sciences. Deadline for receipt of applications: *1 June*. (S. D. Murphy, Department of Physiology, Harvard University School of Public Health, 665 Huntington Ave., Boston 15, Mass.)

The University of Kentucky is offering postdoctoral fellowships for study on physiological responses to stresses encountered in space flight. Emphasis of the work will be on **cardiovascular and respiratory physiology**. The fellowships are for 1 year, and carry stipends of $6000 to $8000. Applicants should have their M.D. or Ph.D. (Department of Physiology and Biophysics, University of Kentucky Medical Center, Lexington)

Courses

The Netherlands Central Institute for Brain Research will present its third international summer school, 5–9 July. The topic for study will be the **cerebellum**: its structure, function, biochemistry, and behavior. A $10 registration fee will be charged. Following the course, 12–16 July, participants may take part in the institute's research program. (J. P. Shade, Central Institute for Brain Research, IJdijk 28, Amsterdam [Haven-Oost], Netherlands)

Northeastern University will sponsor a workshop in **electron microscopy** in the biological sciences 20 June to 2 July in Weston, Mass. Participation will be limited to 12 students. It will be a "residential program" with instruction from 9 a.m. to 10 p.m., and laboratory facilities will be available for student use 24 hours a day. The tuition is $550, plus a $50 laboratory fee. Deadline for submission of applications: *15 May*. (C. F. Youse, Northeastern University Center for Continuing Education, 360 Huntington Avenue, Boston, Mass.)

Applications are being accepted for a course in **biomedical telemetry**, to be given 28–30 May by the University of California extension center in San Francisco. The program will cover fundamental electronic concepts and circuitry, systems and components, case studies illustrating present applications, research problems, and areas of future applicability. The tuition for the course is $60 for graduate students, $125 for others. Deadline for enrollment: *24 May*. (Letters and Science Extension, University of California, Berkeley)

A laboratory course in **histochemistry** will be offered 7–12 June at the University of Kansas Medical Center, Kansas City. It will include techniques of tissue preparation, including cryostat

operation and freeze-substitution, and histochemical techniques for plasmalogens, proteins, and hydrolytic and oxidative enzymes. The tuition is $75. (Department of Postgraduate Medical Education, University of Kansas School of Medicine, Kansas City 12)

The Cook County Graduate School of Medicine announces a course in the **neuromuscular diseases of children**, with special emphasis on management, 7–18 June. It is designed for pediatricians, orthopedists, neurologists, psychiatrists, and physiatrists interested in the care and treatment of children with neuromuscular handicaps. Emphasis will be on practical clinical aspects of treatment and rehabilitation procedures. The fee for the course is $290, and registration is limited. (Registrar, Cook County Graduate School of Medicine, 707 South Wood St., Chicago, Ill.)

A course on **x-ray diffraction** is scheduled 7–18 June at the Polytechnic Institute of Brooklyn, New York. The lectures and laboratory sessions will cover the equivalent of a six-credit graduate course. No previous experience in the field is necessary, but persons who do have prior experience may arrange to take advanced work. The course aims at training participants to do "most routine x-ray powder and single crystal work." Attendance will be limited to 25; the tuition fee is $275. (Mrs. D. Cattell, Special Courses, Polytechnic Institute of Brooklyn, Brooklyn)

Scientists in the News

Warren Weaver, recently retired vice president of the Alfred P. Sloan Foundation and president of the AAAS in 1954, has received the Kalinga Prize for this year. The award is presented annually by UNESCO for contributions to public reporting and understanding of science. It includes an honorarium of £1000 ($2800).

Wray Grayson Brady, chairman of the mathematics department at Washington and Jefferson College, Washington, Pa., has been appointed chairman of the mathematics department of the University of Bridgeport, Conn., as of September.

Yuang-Cheng Fung will become a visiting professor at the University of Michigan college of engineering and a visiting scientist in the school's Institute of Science and Technology for the fall term. He is a professor at California Institute of Technology.

Emil Frei, III, formerly associate scientific director for experimental therapeutics at the National Cancer Institute, has become director of clinical investigations and chief of the division of experimental therapeutics at M. D. Anderson Hospital and Tumor Institute, University of Texas.

Washington University, St. Louis, Mo., has appointed **Raymond R. Tucker** professor of urban affairs, beginning in September. The chairman of the university's department of mechanical engineering from 1941 to 1953, he recently completed a third term as mayor of St. Louis.

The American Society of Experimental Pathology has named **Peter C. Nowell** to receive its annual $1000 award to a member under 40 who has made "the most outstanding contribution to the conquest of disease." Nowell, a professor of pathology at the University of Pennsylvania medical school, was honored for his work on the "Philadelphia chromosome" and on phytohemagglutinin.

The election of 19 engineers to the recently formed National Academy of Engineering has been announced. The new members, chosen because of their "important contributions to engineering theory and practice or because of unusual accomplishment in the pioneering of new and developing fields of technology," will meet with the 25 founding members during the first annual meeting, 27–29 April in Washington. The new members are:

Othmar H. Ammann, consulting engineer, Ammann & Whitney.

Raymond Lewis Bisplinghoff, associate administrator, advanced research and technology, NASA.

George H. Brown, vice president, research and engineering, RCA.

Wallace Lacy Chadwick, consultant, Southern California Edison Company.

Charles Stark Draper, head, aeronautics and astronautics department, M.I.T.

Edwin Richard Gilliland, head, department of chemical engineering, M.I.T.

Edward L. Ginzton, president, Varian Associates.

Patrick E. Haggerty, president, Texas Instruments, Inc.

Edward H. Heinemann, vice president, engineering and program development, General Dynamics Corp.

Frederic Ancrum Lord Holloway, president, Esso Research and Engineering Company.

George W. Housner, professor of civil engineering and applied mechanics, California Institute of Technology.

Clarence L. Johnson, vice president, advanced development projects, Lockheed Aircraft Corp.

Ruben F. Mettler, president, TRW Space Technology Laboratories.

John R. Pierce, executive director, research communications principles and systems, Bell Telephone Laboratories.

Allen Emerson Puckett, vice president, Hughes Aircraft Company.

John B. Skilling, consulting engineer, Worthington, Skilling, Helle, and Jackson.

Philip Sporn, chairman, system development committee, American Electric Power Company.

Chauncey Starr, president, Atomics International Division, North American Aviation.

Horton Guyford Stever, president, Carnegie Institute of Technology.

Frederick Seitz, president of the National Academy of Sciences, and **J. George Harrar**, president of the Rockefeller Foundation, were recently elected public trustees of the Nutrition Foundation.

Frederick L. Milthorpe, professor in the department of agricultural sciences at the University of Nottingham, England, will become a visiting professor in the department of botany at the University of Chicago, for 6 months starting in June.

The University of North Carolina has appointed **William G. Hollister** associate professor of psychiatry. He retired from the PHS in December, as chief of the community research and services branch of the National Institute of Mental Health.

John C. Marr has returned to duty as director of the biological laboratory and director of the Hawaii area of the U.S. Bureau of Fisheries after a year's leave as a Guggenheim Fellow at the Fisheries Laboratory, Lowestoft, England, and the University of Hawaii.

Jerry J. Nisbet, assistant administrative officer in the science department at Ball State University, Muncie, Ind.,

Winners of the Ernest Orlando Lawrence Memorial Award for 1965, for their "recent meritorious contributions in the field of atomic energy," are, left to right (top): George A. Cowan, Los Alamos Scientific Laboratories, for his work in weapons diagnostics; Floyd L. Culler, Oak Ridge National Laboratories, for contributions in reactor fuel technology; Milton C. Edlund, Babcock & Wilcox Company, Lynchburg, Va., for reactor development; Theodore B. Taylor, Defense Atomic Support Agency, Washington, for work in weapon and reactor physics; and (bottom left) Arthur C. Upton, Oak Ridge National Laboratory, for contributions in radiobiology. Each will receive a medal, a citation, and $5000 during a ceremony next Thursday at the National Academy of Sciences in Washington. The award is presented by the Atomic Energy Commission upon recommendation of its general advisory committee and with the approval of the President.

has been appointed head of the university's new department of biology, effective 1 September.

Max S. Matheson, a senior chemist at Argonne National Laboratory, has been named director of the laboratory's chemistry division. He succeeds **Winston M. Manning**, who recently became an associate director of Argonne.

Amoz I. Chernoff, formerly research professor at the University of Tennessee Memorial Research Center, Knoxville, has been appointed director of research at the center.

Recent Deaths

Frank E. Bulda, 56; professor of biology at St. John's University college of pharmacy; 25 February.

Sir Alwyn Douglas Crow, 70; chief of rocket research for Great Britain during World War II and retired chief of scientific and technical services, British Joint Services Mission; 5 February.

Delafield DuBois, 85; retired professor of electrical engineering at Yale; 6 January.

J. G. Flowers, 69; retired president of Southwest Texas State College; 23 February.

Marvin Fox, 55; manager of arms control at Hughes Aircraft Company and a leading U.S. expert in design, construction, and operation of nuclear reactors; 19 March.

Willard Gardner, 81; retired professor and head of the physics department, Utah State University; 31 December.

Albert Hayes, 82; retired chairman of the geology department, Rutgers University; 1 February.

William Heard Kilpatrick, 93; professor emeritus of education, Teachers College of Columbia University; 13 February.

Wolfgang B. Klemperer, 72; on the senior technical staff of Douglas Aircraft Company's missile and space systems division; 25 March.

Andrei Lebedinsky, 62; head of the physiology departments of the Military Medical and Naval Medical Academies, Leningrad; 3 January.

Faustino Miranda Gonzalez; head of the department of botany, Universidad Nacional Autonoma de Mexico; 17 December.

Frank Hugh Sparks, 73; former president of Wabash College; 30 December.

Erratum: In Barry Commoner's review of *Plant Virology* (9 April 1965, p. 209), column 3, lines 23 and 24, should read ". . . [if they are not, we shall eventually find out]. . . ." Owing to a printing error the word *not* was omitted from the review.