

flect the United States' concept of its obligations to NATO, not the will of the NATO nations. There is thus little likelihood that when the French nuclear force comes into being France will be willing to dilute its control over its own forces, unless the United States is ready to take the same step. And while the Kennedy Administration has been doing a great deal of thinking and talking about the means of placing the American nuclear deterrent under NATO control, it has made no progress in solving the political problem of selling this idea to Congress, or the technical problem of reconciling multinational control with the need of instantaneous response.

#### The Issue of American Assistance

Since the start of the French weapons program, the issue of American assistance has been a constant source of irritation between the two nations. Officially, American policy remains strictly opposed to futhering the nuclear ambitions of any nation. But under the impact of French determination and success in going it alone, U.S. policy has slowly evolved toward some cooperation; meanwhile, however, a fairly heavy toll in political animosity has been paid. For example, the United States has been seeking to involve the French scientific community in cooperative space efforts without furthering French missile capacity. Thus, there is traffic in instruments for high-altitude research but the United States will not furnish the French with inertial guidance equipment for their own rockets. It has also refused to furnish information on rocket fuels. At the same time, the Administration has agreed to sell the French 10 KC-135 jet aerial tankers that are intended to extend the range of the French atomic air fleet. The rationale offered by the Administration is that, while it will not assist the French in developing weapons or missiles, it is willing to cooperate in extending the reach of conventional means of delivery. The hairsplitting is admirable but the French view the distinction with amusement and some contempt, pointing out that American determination to refrain from assisting France's nuclear development seems to have diminished under pressure to reduce the gold flow from the United States. The tanker deal will bring the United States about \$50 million, and this goes a good way toward offsetting the annual \$250 million loss of American gold to France.

As France comes close to member-

ship in the nuclear club, interest there is growing in the considerable body of literature on arms control and disarmament that has been produced in the United States and Great Britain. Such interest is not nearly as widespread in France as it is in the U.S. and Great Britain, nor has nuclear-age strategy achieved a place in French academic life. But many Frenchmen for the first time are becoming aware of such works as the *Daedalus* volume on arms control, disarmament, and national security. One French official who is associated with the civilian side of the nuclear effort commented, "Many of us are discovering that a whole world of scholarship exists of which we know nothing at all." And a French journalist who has been trying to promote broader acquaintance with arms control and disarmament literature added, "A lot of people here are now first coming into contact with such concepts as counterforce and first- and second-strike capabilities. It is not unusual," he said, "to encounter persons who are involved in developing the French nuclear force who are not the least bit familiar with these concepts."

American officials here have noted this lack of intellectual ferment over the implications of nuclear power, but outside of an informal and personal recommendation that such and such a book might be interesting, there is no effort to promote interest in the subject. One official said that, "in a most tentative way," there has been some thought about making available some information on the United States' relatively long experience in command and control of nuclear forces, but it appears that at this late stage there is little that the United States can do to influence French intentions. James Gavin, the outgoing American ambassador to France, is generally reported to have argued that the United States should actively assist the French with the nuclear program, extracting some element of political control or cooperation as the price for sparing the French some of the enormous costs. The French have indicated informally that they might be receptive to American assistance, especially for some heavy equipment for their gaseous diffusion plant, but it is generally felt by American officials here that the French are so far along with their weapons program that even a sudden turnabout in American policy on assisting them would not be matched by French willingness to alter their goal.—D. S. GREENBERG

## Announcements

The National Academy of Sciences has established an ad hoc committee for international programs in **atmospheric sciences and hydrology** to prepare a United States scientific program for international consideration. The committee was formed at the request of the Federal Council for Science and Technology under a recent United Nations resolution that called for an international program in atmospheric sciences to be organized through the World Meteorological Organization and UNESCO. Under the chairmanship of Sverre Petterssen, of the University of Chicago, the group will deal with hydrology; atmospheric transfer processes, circulation, prediction, and modification; solar terrestrial relationships; aeronomy; physics of the lower atmosphere; atmospheric chemistry and tracers; meteorological services; and biometeorology. An additional panel on education is planned. (NAS, Geophysics Research Board, Washington 25, D.C.)

A series of eight **cancer research documentaries** will be released after 15 October as a part of the American Chemical Society's weekly radio series, "Men and Molecules." The tape-recorded programs, produced by the society, will cover recent research in leukemia, new anticancer drugs, biochemical aspects of cancer, and the relationship between human cancer and viruses, air pollutants, and tobacco.

Letters from the late Sir **Henry Tizard** or information concerning his life and work, are being solicited for use in the preparation of his biography. (Ronald W. Clark, 10 Campden St., Kensington, London W.8, England)

The first test hole to be drilled on phase II of **Project Mohole**—the National Science Foundation-sponsored effort to drill completely through the earth's crust and sample the mantle beneath—was begun this week 1½ miles east of Mayaguez on the west coast of Puerto Rico. The 1000-foot test well is located near two proposed Mohole drilling sites: one north of Puerto Rico and the other off its east coast. Two other prospective sites are located in the Pacific off the Hawaiian Islands.

The test cores, which will measure 1⅞ inches in diameter, will be analyzed to aid engineers in the design of drill

pipe and bits for the actual Mohole drilling.

During phase I of the project, completed in April 1961 off the west coast of Mexico, five holes were drilled under 12,000 feet of water and 600 feet into the bottom, completely penetrating a layer of sediments and reaching the top of a second layer composed of gray-black basalt, a volcanic rock. Phase II will be drilled through approximately 3 miles of water and 3 miles of hard rock and sediment, the latter consisting of a layer of unconsolidated clay, a layer of unknown composition, and a third layer, which overlies the Mohorovicic discontinuity ("Moho") and is believed to consist of serpentinite, a hard, dense rock composed of magnesium and silicate minerals.

Bibliographic data on **aerospace medicine** are being solicited for use in a *Bibliography on Bioregenerating Systems for Extraterrestrial Habitation* that is being prepared by the Library of Congress. The bibliography will cover domestic and foreign literature (since January 1959) on all aspects of closed ecology—in particular, on aerobic, anaerobic, and chemical waste disposal; biological gas exchange mechanisms; nutritional support for man; and toxicology. Also included will be contemporary research on extraterrestrial environments—especially that of the moon—and human requirements in these environments. All submitted materials will be returned upon request. (Project Supervisor, Aerospace Medicine Bibliography, Science and Technology Division, Library of Congress, Washington 25, D.C.)

This year's "Science in Action" series, produced by the California Academy of Sciences, began 10 September over channel 4 (KRON-TV, San Francisco). The weekly programs, hosted by Earl S. Herald, superintendent-curator of the Steinhart Aquarium, San Francisco, will cover missile photography, tropical fishes, oxygen therapy, natural resources, pre-Columbian art, animal senses, orthotics and prosthetic devices, physics, Project Mohole, Telstar, "electronic brains," meteorology, and "hybrid" rockets.

The Oak Ridge (Tenn.) Institute of Nuclear Studies has formed an **Information and Exhibits Division** to meet the needs of the programs administered under contract with the

U.S. Atomic Energy Commission. The division's exhibits operations department is to operate the American Museum of Atomic Energy, Oak Ridge. Also planned are science demonstrations and nation-wide traveling exhibits. Vincent E. Parker, recently appointed deputy director of ORINS, will serve as acting chairman of the division pending appointment of a permanent chairman.

### Grants, Fellowships, and Awards

Various fellowships and grants for research in the **social sciences and humanities** are available through the Social Science Research Council. Pre-doctoral and postdoctoral research training fellowships (deadline for application, *1 December*) and faculty research fellowships and grants in aid of research (application deadline, *1 November*) are offered without restriction as to disciplinary specialty or area of interest within the field. Other special fellowships and grants (deadline, *15 December*) are intended for research and training in selected fields or subjects. A booklet outlining the programs is available on request. (Social Science Research Council Fellowships and Grants, 230 Park Ave., New York 17, N.Y.)

Postdoctoral research-traineeships, -associateships, and clinical investigatorships in **neuropsychiatry** are available at the Veterans Administration Research Laboratories, Pittsburgh, Pa. The traineeships, with emphasis on biological sciences and mental health, include neurophysiology, neuropharmacology, psychopharmacology, neurochemistry, behavior, and experimental psychiatry. Associateships cover psychiatry, neurology, and psychology; clinical investigatorships are in neuropsychiatry and neurology. (Amedeo S. Marrazzi, VA Research Laboratories in Neuropsychiatry, Leech Farm Rd., Pittsburgh 6, Pa.)

Graduate and undergraduate scholarships and fellowships in **conservation** are available through the National Wildlife Federation. Maximum stipend for graduate students, \$1000; maximum for undergraduates who have completed at least 1 year of college, \$500. Deadline: *1 December*. (Executive Director, National Wildlife Federation, 1412 16th St., NW, Washington 6, D.C.)

Funds for graduate study in **statistics** are available at Florida State University as follows.

*Biometry training fellowships* (3-year); annual stipends for first-, second-, and third-year students are \$3000, \$3250, and \$3500, respectively. Additional allowances for expenses are available during periods of internship.

*Graduate fellowships*; annual stipends are \$2000, \$2200, and \$2400 (plus dependency allowances, fees, and tuition) for the first, second, and third years, respectively.

*Teaching and research assistantships* (on a half- or quarter-time basis); minimum, \$200 per month for half-time appointments, plus waiver of out-of-state tuition fees.

(R. A. Bradley, Department of Statistics, Florida State University, Tallahassee)

### Meeting Notes

The 1st international symposium on **histochemistry**, with emphasis on the differentiation and proliferation of tissues, will be held from 13 to 16 May 1963 in Warsaw, Poland. Subjects will include functional differentiation of cells, functional modifications in proliferation and differentiation of tissues, organogenesis and histogenesis, and pathological growth of tissues. Papers may be presented in English, French, and Russian. Deadlines: registration, *15 November*; complete texts and résumés, *1 February*. (R. Wegmann, International Committee for Histochemistry and Cytochemistry, 45 rue des Saints-Pères, Paris 6°, France)

A symposium on **materials information retrieval**, sponsored by the Air Force Aeronautical Systems Division, will be held in Dayton, Ohio, on 28 and 29 November. Most of the speakers will be representatives of Government agencies and contractors who are engaged in materials information activities, general information activities, and information systems research. (Edward Dugger, ASRCM-1, Aeronautical Systems Division, Wright-Patterson Air Force Base, Ohio)

A **visual communications** congress and exhibit will be held from 7 to 11 December in Philadelphia. The 18 scheduled seminars will cover computers in design, storage and retrieval for microfilm, data processing and

handling, and uses and advantages of all forms of copying, including diffusion, spirit, and electrostatic methods. (John E. Sedan, 18465 James Couzens Hwy., Detroit 35, Mich.)

A traveling demonstration-exhibit of **programed instruction and teaching machines** will be shown in Washington, D.C., from 22 to 26 October. The exhibit is being prepared by the Center for Programed Instruction, Inc., under the auspices of the U.S. Office of Education. It will include color slides of all teaching machines currently on the market and a library of all academic programs available for the 1962-63 school year. Five other appearances are planned at school association conferences in Louisville, Ky. (1-3 Nov.), St. Joseph, Mo. (31 Jan.-2 Feb.), Atlantic City, N.J. (16-20 Feb.), Oklahoma City, Okla. (30 Mar.-3 Apr.); and Denver, Colo. (21-26 Apr.); a showing during December in New Orleans is intended to serve Louisiana, Mississippi, Alabama, Arkansas, and Texas. (Sara N. Thompson, Center for Programed Instruction, 365 West End Ave., New York 24)

## Films

**Atomization**; 17 minutes, black-and-white, free loan. Uses high-speed photography to show analysis of the behavior of liquids under various stresses. (Shell Oil Co., 50 W. 50 St., New York 20)

**Biological Sciences Curriculum Study**; 20 minutes, black-and-white, free loan. Shows activities and materials of the BSCS. (American Institute of Biological Sciences, Biological Sciences Curriculum Study, University of Colorado, Boulder)

**Fuel for Nuclear Power**; 34 minutes, color, free loan. Shows processes by which uranium concentrates are converted to metal and made into fuel elements, describes the treatment of irradiated fuel elements and postirradiation examination of fuel elements. (Senior Representatives, U.K. Atomic Energy Authority, British Embassy, 3100 Massachusetts Ave., Washington 8, D.C.)

**Microscopic Studies of Capillary Flow**; 24 minutes, color. Rental \$1.75, purchase \$140. Microscopic study of the flow of air, oil, and water through sand-filled capillaries and plates. (Audio Visual Aids Library, Pennsylvania State University, University Park)

**Modern Methods in Tissue Culture**; 25 minutes, color, free loan. Shows techniques used in obtaining tissue material and establishing monolayer and suspension cultures. (Microbiological Associates, P.O. Box 5970, 4813 Bethesda Ave., Washington 14)

**Radiation: Physician and Patient**; 45 minutes, color, free loan. Discusses the control of radiation exposure in diagnostic radiology, covering the radiobiological, genetic, and somatic effects; dosage problems; and clinical applications. (American College of Radiology, 20 N. Wacker Dr., Chicago 6, Ill.)

## New Journals

**Family Process**, vol. 1, No. 1, June 1962. J. Haley, Ed. Mental Research Institute, Palo Alto Medical Research Foundation, 860 Bryant St., Palo Alto, Calif. Semiannual.

**Ethnology**, vol. 1, No. 1, Jan. 1962. G. P. Murdock, Ed. University of Pittsburgh Press, 3436 Walnut St., Philadelphia 4, Pa.

**Journal of the American Academy of Child Psychiatry**, vol. 1, No. 1, Mar. 1962. I. Joslyn, Ed. American Academy of Child Psychiatry, 1035 Fifth Ave., New York, N.Y. Quarterly.

**National Surveyor**, vol. 1, No. 1, Apr. 1962. D. A. McIntosh, Publ. National Surveyor Publishing Co., P.O. Box 166, Lockport, N.Y. Monthly. \$12 per year.

**Toxicon**, vol. 1, No. 1, Aug. 1962. F. E. Russell, Ed. Pergamon Press, 122 E. 55 St., New York 22, N.Y. Quarterly. Organizations, \$30 per year; individuals, \$15 per year.

**Rickia** (cryptogamic series of the *Arquivos de Botânica do Estado de São Paulo*), vol. 1, June 1962. O. Fidalgo, Ed. Cryptogamic Section, Instituto de Botânica, Caixa Postal 4005, São Paulo, Estado de São Paulo, Brazil. Yearly. \$3.

**Cytogenetics**, vol. 1, No. 1, June 1962. H. P. Klinger, Ed. S. Karger AG, Arnold-Böcklin-Strasse 25, Basel, Switzerland.

**Arctic Anthropology**, vol. 1, No. 1, 1962. C. S. Chard, Ed. Editor, c/o Dept. of Anthropology, University of Wisconsin, Madison 6, Wis. \$4 per volume (2 Nos.). Irregular.

**New Society**, vol. 1, No. 1, 4 Oct. 1962. T. Raison, Ed. Subscription Manager, New Society, Cromwell House, Fulwood Place, High Holborn, London, W.C.1, England. £3 per year. Weekly.

## Scientists in the News

**Robert N. Kreidler**, a former staff assistant to Jerome Wiesner, the President's science adviser, has been named director of educational affairs for the Alfred P. Sloan Foundation, New York.

Recent awards of the American Psychological Association:

**Walter R. Miles**, chief scientist of the U.S. Naval Submarine Base, New London, Conn., has received the gold medal award for his psychological research on aging and sensory processes.

**Harry Helson**, of Kansas State University; **Jerome S. Bruner**, of Harvard University; and **William K. Estes**, of Indiana University, have won awards of \$1000 each for "distinguished scientific contributions" in the field.

**William R. Pritchard**, associate director of the Veterinary Medical Research Institute at Iowa State University, has been named dean of the school of veterinary medicine at the University of California, Davis.

**George Spencer**, former engineering manager at Erie Resistor Corporation's Pacific division, has been named manager of the military data systems at Control Data Corporation's system sciences division, Minneapolis.

**Cyril F. Atkins**, professor of chemistry at Morgan State College, Baltimore, Md., is serving as visiting professor of chemistry at the University of Libya, in Tripoli, until August 1963.

**C. W. Spencer**, associate professor of metallurgical engineering at Cornell University, has been appointed manager of the materials department at Avco Corporation's Research and Advanced Developmental Division, Wilmington, Mass.

**Theodor Blum**, a practicing oral surgeon in New York, has received the 1962 Henry Spenadel award, presented annually by the First District Dental Society for work in the "welfare of humanity in the field of dentistry."

**Barlane R. Eichbaum**, formerly with the Aeronutronic Division of Ford Motor Company, has joined Philco Scientific Laboratory as director of the computer research program and chairman of the memory task force.

**Winfield W. Tyler**, formerly manager of General Electric Company's light production studies, has been named director of the Fundamental Research Laboratory at Xerox Corporation, Rochester, N.Y.

**James W. Colbert, Jr.**, dean of the School of Medicine and assistant professor of internal medicine at St. Louis University, has joined the National Institute of Allergy and Infectious Diseases as associate director for program analysis.

**Reubin Andres**, assistant chief of medicine in the Baltimore City (Md.) Hospitals and assistant professor of medicine at Johns Hopkins University, has been appointed assistant chief of the National Heart Institute's gerontology branch.

**Wendell B. Sell**, engineer and vice president and general manager of the Marquardt Corporation's Pomona Division, has joined Packard Bell Electronics, Los Angeles, as group vice president. He replaces **S. Dean Wanlass**, who resigned in June.

**Donald D. Van Slyke**, research chemist at Brookhaven National Laboratory, has received the first Scientific Achievement Award of the American Medical Association, presented for "outstanding contributions to medical science by non-physician scientists."

**James F. Reagan**, vice president of engineering and manufacturing at Howell Instruments, Fort Worth, Tex., has been named director of engineering, aircraft and missile research and development at North American Aviation's Columbus (Ohio) division.

**Capt. Kenneth L. Knight**, formerly of the Naval Medical Field Research Laboratory, Camp Lejeune, N.C., has been released from active duty to become associate professor in Iowa State University's department of zoology and entomology.

**Samuel G. Nordlinger**, a member of the U.S. Atomic Energy Commission's reactor development division, has been named AEC scientific representative in London. He succeeds **M. Carl Walske**, who is resigning to accept a position with the physics division of Rand Corporation, Santa Monica, Calif.

**Fred E. Croxton**, former superintendent of information and records at the Goodyear Atomic Corporation, Portsmouth, Ohio, has been named director of the new Redstone Scientific Information Center at Redstone Arsenal, Alabama. The center is a joint operation of the Army Missile Command and NASA's Marshall Space Flight Center.

Recent additions to the staff of the Smithsonian Institution's Museum of Natural History:

**J. Lawrence Angel**, associate professor of anatomy at Jefferson Medical College, as curator of the physical anthropology division.

**Stanwyn G. Shetler**, of the University of Michigan, as assistant curator of the phanerogams division.

**Philip S. Humphrey** and **George E. Watson**, of Yale University, as curator and assistant curator, respectively, of the birds division.

**Paul J. Spangler**, of the U.S. Department of Agriculture, and **W. Donald Duckworth**, of North Carolina State College, as associate curators in the division of insects.

**Donald F. Squires**, of the American Museum of Natural History, as associate curator of the marine invertebrates division.

**John H. Wickham, Jr.**, former executive director of the Association of Professional Photogrammetrists, has been named head of the recently formed photogrammetric systems division of Keuffel & Esser Company, Hoboken, N.J.

**Clifford G. Grulee, Jr.**, acting dean and director of the division of graduate medicine at Tulane University School of Medicine, is the new dean of the University of Cincinnati College of Medicine. He succeeds **Stanley E. Dorst**, who has retired.

**Lloyd J. Hibbard**, retired design engineer for Westinghouse Electric Corporation, will receive the American Society of Mechanical Engineers' 1962 Elmer A. Sperry award for developing and applying the ignitron rectifier in railroad electrification.

**David W. Abse**, of the University of North Carolina, has joined the faculty of the University of Virginia School of Medicine as professor of psychiatry.

**Louis J. Le Roux**, former professor of physical chemistry at the University of Pretoria, has been appointed a vice president of the South African Council for Scientific and Industrial Research, Pretoria.

**Robert F. Furchgott**, professor and chairman of the department of pharmacology at the State University of New York Downstate Medical Center, Brooklyn, will serve as visiting professor at the University of Geneva during the current academic year.

**Carlyle M. Ashley**, chief staff engineer with the Carrier Corporation, Syracuse, N.Y., has received the F. Paul Anderson medal of the American Society of Heating, Refrigerating and Air-Conditioning Engineers.

**Clinton H. Thienes** has retired as director of the Huntington Memorial Hospital's Institute of Medical Research, Pasadena, Calif. He plans to continue with the institute as consultant.

**Leon Rosen**, of the Laboratory of Infectious Diseases, National Institute of Allergy and Infectious Diseases, has been named head of the laboratory's newly established Pacific Research Section at Queen's Hospital in Honolulu. Other members of the staff include **Jerome Kern** and **Christine Cumming**, both of LID, and **Gordon D. Wallace**, formerly of the University of California (Berkeley).

**Robert P. Egermeier**, assistant professor of mechanical engineering at New Mexico State College, has been appointed to organize and manage Aerospace Corporation's White Sands (N.M.) Flight Test Office.

**Albert S. Glickman**, director of the psychological research department of the Navy's Personnel Research Activity, Washington, has been appointed chief of the U.S. Department of Agriculture's newly formed personnel research staff.

**James C. Hampton**, research associate professor of pathology at the University of Texas, has been named professor and chairman of the department of anatomy at Northwestern University Medical School. He succeeds **Barry Anson**, who has retired.