

This is one of a series of investigations involving new means of propulsion for space applications. Conceptually, this study, which was proposed by General Atomic, differs from other proposals under consideration in that it looks to the employment of a series of controlled detonations within the atmosphere and beyond. The initial commitment for this study calls for the expenditure of \$1 million during fiscal year 1959. Research will be conducted, in the main, at General Atomic's John Jay Hopkins Laboratory for Pure and Applied Science in San Diego. Continuation of the program will be based upon the results of the study during the initial phase.

### Zoological Nomenclature

The International Commission on Zoological Nomenclature has announced that, beginning 6 December 1958, it will start voting on the following cases involving the possible use of its plenary powers for the purpose specified against each entry. Full details of these cases were published on 6 June in the *Bulletin of Zoological Nomenclature* (vol. 16, part 2); (i) *Mysis* Latreille, [1802-1803], designation of type species for, and validation of neotype for species (*Cancer oculatus* Fabricius, 1780) so designated (Class, Crustacea; Order, Mysidacea); (ii) *Dactyloceras* Hyatt, 1867, designation of type species for (Class, Cephalopoda; Order, Ammonoidea: Jurassic); (iii) *gemmascens* Esper, [1794] (*Madrepora*), validation (Class, Hydrozoa; Order, Stylasterina). Comments should be sent as soon as possible in duplicate to the assistant secretary to the commission, R. V. Melville, 28 Park Village East, Regent's Park, London, N.W.1, England.

### Oil from Shale

The Denver Research Institute of the University of Denver has announced the successful operation of a pilot plant which extracts oil from oil-bearing shale at a cost which is reported to be commercially competitive. This process, should it prove capable of expansion to industrial scale, would open the nation's oil shale reserves to commercial development and greatly augment our total resources of petroleum.

A reduction in cost of up to 50 percent over other extractive processes has been reported by the institute's director, Shirley A. Johnson, Jr. In a projected source-to-market problem, this reduction would allow a producer to sell Colorado-produced oil on the West Coast for \$1.42 to \$1.92 a barrel. The current cost of crude oil produced by drilling is about

\$1.40 per barrel of medium grade, according to a major marketer.

To extract oil from shale by the new process, metal or ceramic balls—thermospheres—are heated and then run counter to a flow of finely crushed shale in a retort. This heats the shale to a point at which it releases its hydrocarbons. The resulting shale coke, which retains some of its combustible elements, is then burned in a furnace to provide heat for warming the thermospheres. This process is one of four considered feasible by experts in the field of shale-oil extraction [*Sci. Monthly* 84, 275 (1957)].

The pilot plant, which has a daily capacity of 24 tons, has been in operation for the past 9 months. The work is being done by the Denver Research Institute for the Oil Shale Corporation, owner of the Western Hemisphere rights to the process. A Swedish engineer, Olof Aspergen, holds the patent rights on the basic process.

### Grants, Fellowships and Awards

*General.* The closing date for U.S. Government awards for 1959-60 authorized under the Fulbright and Smith-Mundt acts is 1 October. These grants are for university lecturing and advanced research in Europe, the Near East and Africa, and the Far East. Application forms and additional information are obtainable from the Conference Board of Associated Research Councils, Committee on International Exchange of Persons, 2101 Constitution Avenue, Washington 25, D.C.

*Physiological Sciences.* The 21st International Congress of Physiological Sciences will be held in Buenos Aires, Argentina, 9-15 August 1959, under the sponsorship of the International Union of Physiological Sciences. The United States adheres to the International Union through the National Academy of Sciences, which has established a National Committee for this purpose. The National Committee is seeking funds to provide a limited number of allotments in support of travel to the congress for scientists residing in the United States who may require such assistance. Individual allotments will not exceed \$750 each.

Application for a travel allotment should be submitted in duplicate in the form of a letter giving information on age, training, publications, academic or professional title, and society affiliation. Applicants who plan to submit papers for presentation at the congress should include the proposed title of each paper. Such letters must be submitted *before 15 October 1958* to the Chairman, U.S.A. National Committee on the International Union of Physiological Sciences, 2101 Constitution Avenue, NW, Wash-

ington 25, D.C. Applications for assistance toward travel expenses are entirely separate from applications for registration and for the submission of papers.

*Poliomyelitis.* Deadlines of 1 September and 1 December have been established for application to the National Foundation for Infantile Paralysis for postdoctoral fellowships in research and academic medicine or in the clinical fields of rehabilitation, orthopedics, and preventive medicine. Applications for fellowships in the medical associate fields or physical therapy teaching and occupational therapy teaching should also be filed by these dates. For further information write to: Division of Professional Education, National Foundation for Infantile Paralysis, 301 E. 42 St., New York 17, N.Y.

*Social science.* The Social Science Research Council, 230 Park Ave., New York 17, N.Y., has announced that international conference travel grants equivalent to round-trip, tourist-class fare are offered to social scientists residing in the United States for attendance at meetings outside North America. These grants are offered only for meetings designated in advance by the council.

The tentative list of meetings in 1958 through 1960 follows. The approximate number of grants to be offered for each meeting is shown in parentheses: Congress of the Interamerican Society of Psychology, Rio de Janeiro, December 1958 (3); Congress of the History of Science, Barcelona, August-September 1959 (6); Conference of the International Union for Scientific Study of Population, Vienna, August-September 1959 (5); Congress of the International Sociological Association, Perugia, September 1959 (5); International Institute of Administrative Sciences, West Germany (6); Congress of the International Statistical Institute, 1959 (if held outside North America—10); International Congress of Historical Sciences, 1960 (36); Congress of the International Union of Scientific Psychology, 1960 (15).

Forms for application for travel grants will be supplied by the council on request. Applications for grants for the December 1958 Interamerican Psychological Congress will be due 15 October, and grants for this meeting will be announced as soon as possible thereafter. Applications for all meetings to be held in the summer of 1959 will be due 1 December 1958, and grants will be announced 1 March 1959 or earlier.

### Atmospheric Sciences

The National Science Foundation announced on 7 July the establishment of a Program for Atmospheric Sciences in the Division of Mathematical, Physical,

and Engineering Sciences. Earl G. Droessler joined the staff of the foundation as Program Director for Atmospheric Sciences. He was formerly with the Office of Science, Department of Defense.

The Atmospheric Sciences Program is being established by the foundation as a result of recommendations by the President's Committee on Weather Control and the Committee on Meteorology at the National Academy of Sciences-National Research Council.

The new program will deal with meteorology including not only the more conventional type of meteorological research, but also energy transfer processes between earth, sea, and air; turbulent flow of gaseous fluids; heat-exchange processes; upper-atmosphere studies; atmospheric chemistry; and general circulation problems of the atmosphere and oceans. Attention will also be given to the field of cloud physics, especially the physics of precipitation, where much basic research must be pursued before the possibility of controlling or modifying weather can be evaluated.

Droessler brings to his new assignment wide experience in administration and coordination of military scientific research and development, and in research in meteorology and glaciology.

## News Briefs

The first of July marked the centennial of the first reading of Charles Darwin's paper on the evolution of the species. The occasion was marked at a meeting in London of the Linnaean Society held in honor of Darwin and Alfred Russell Wallace, who, working independently, had arrived at a theory which was so strikingly similar that the papers were read together. The attending group of biologists learned that the first reading was passed over by the president of the society, Thomas Bell, as a matter of no great importance. He was disappointed, Bell said, that 1858 had "not been marked by any of those striking discoveries which at once revolutionize, so to speak, the department of science on which they bear."

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The Martin Company has opened a laboratory for basic research in Baltimore, Md. Patterned after the Institute for Advanced Study at Princeton, the company's Research Institute for Advanced Study was established "to observe phenomena of nature and to encourage, promote, and support investigations in search of underlying knowledge of these phenomena. To conduct theoretical and experimental studies, to discover the fundamental laws which affect them. . . ." Operating without security

restrictions and without specific program direction by the parent company, the institute's staff of 35 scientists pursue fundamental studies which may or may not have eventual application. Photosynthesis, cosmic ray studies, Einstein's relativity theory, and nonlinear differential equations are some of the current and projected subjects of inquiry.

## Proposed Legislation

Of the many bills introduced in Congress, some have a special relevance to science and education. A list of such bills recently introduced follows:

H Con Res 325. Authorize Joint Committee on Atomic Energy to print for its use 10,000 copies of the public hearings on the physical research program as it relates to atomic energy. Price (D-Ill.). House Administration.

S 3753. Provide that the Secretary of Interior shall develop and carry out an emergency program for eradication of starfish in Long Island Sound and adjacent waters. Bush (R-Conn.). Senate Interior and Insular Affairs.

HR 12710. Provide for research into problems of flight within and outside the earth's atmosphere. McDonough (R-Calif.). House Select Committee on Astronautics and Space Exploration.

S 3898. Authorize the establishment of the Indiana Dunes National Monument. Douglas (D-Ill.). Senate Interior and Insular Affairs.

S 3892. Stabilize production of copper, lead, zinc, acid-grade fluorspar, and tungsten from domestic mines by providing for stabilization payments to producers of ores or concentrates. Murray (D-Mont.). Senate Interior and Insular Affairs.

S 3900. Liberalize tariff laws for work of art and other exhibition material. Javits (R-N.Y.). Senate Finance.

S 3932. Provide for federal assistance for construction and expansion of public community junior colleges. Yarborough (D-Texas). House Labor and Public Welfare.

S 3946. Amend provisions of Public Health Service Act re grants for hospital construction to include institutions for care and treatment of mentally retarded. Yarborough (D-Texas), Proxmire (D-Wis.). Senate Labor and Public Welfare.

HR 12771. Restore (for 1 year) the duties on aluminum and aluminum products established in the Tariff Act of 1930. Baker (R-Tenn.). House Ways and Means.

HR 12821. Require the Surgeon General to undertake a special research program on cystic fibrosis. Broomfield (R-Mich.). House Interstate and Foreign Commerce.

## Scientists in the News

JOHN I. YELLOTT, former assistant director of Stanford Research Institute and executive director of the Association for Applied Solar Energy in Phoenix, Ariz., has announced formation of the firm John Yellott Associates with headquarters at 901 W. El Caminito, Phoenix, Ariz. The new firm will render consulting services in mechanical engineering, with specialization in various aspects of power generation by steam and gas turbines, fuel utilization, energy conversion, and particularly in applications of solar energy to special problems in space heating and cooling.

BRUCE WALLACE, geneticist at the Biological Laboratory, Cold Spring Harbor, has been named associate professor in the department of plant breeding at Cornell University, effective 1 September. Wallace will continue his research in *Drosophila* genetics and teach genetics and experimental evolution.

HARRY J. FULLER, editor-in-chief of the *American Journal of Botany* and editor of the *Plant Science Bulletin* since its founding, has resigned from these posts because of ill health. HAROLD C. BOLD, professor of botany at the University of Texas, will succeed Fuller on the *American Journal of Botany*. HARRIET B. CREIGHTON of Wellesley College, has been elected editor of the *Plant Science Bulletin*. Bold has resigned as secretary of the Botanical Society, effective 1 September.

S. B. SELLS, chief of the department of medical psychology at the Air Force School of Aviation Medicine at Randolph Field, Texas, has been appointed professor of psychology at Texas Christian University.

To honor outstanding engineering achievement in the field of agriculture, the American Society of Agricultural Engineers has awarded the John Deere Gold Medal to WALLACE ASHBY, Beltsville, Md.; and two Cyrus Hall McCormick Gold Medals—one to THOMAS CARROLL, Toronto, Ont., Canada, and one to DENT PARRETT, St. Joseph, Mich.

O. BURR ROSS of Salina, Kan., general manager of the Gooch Feed Mill Company, has been named head of the department of animal science at the University of Illinois College of Agriculture. He succeeds L. E. CARD, who recently accepted an assignment as group leader of the University of Illinois agricultural staff working under the university's International Cooperation Administration contract in India.