

Wind Tunnel Announced

A new \$3.5 million continuous-flow hypersonic wind tunnel that can generate air speeds 9 times the speed of sound is operating at the California Institute of Technology's Jet Propulsion Laboratory in Pasadena, a research unit of the National Aeronautics and Space Administration. Supported by the U.S. Army Ordnance Corps, JPL's new aerodynamic facility is one of the first hypersonic wind tunnels in the United States that can engage in missile-development testing on a high-production basis.

The tunnel, the third installed at JPL since 1947, took about 3½ years to build. The preliminary design and fabrication specifications were developed by JPL engineers, and detailed design, fabrication, and erection were carried out by the Westinghouse Corporation. Use of the facility is divided equally among NASA research programs, Army weapon development, and Air Force weapon development.

The outstanding feature of the new tunnel is its flexible, two-dimensional nozzle, the design of which was based on the experience gained by JPL from its earlier tunnels. The two tapering stainless steel plates, which can be seen in the accompanying picture at the top and bottom of the nozzle, can be ad-

justed to the contour of test forms by a system of 16 hydraulic jacks.

A characteristic that distinguishes this tunnel from a conventional supersonic tunnel is that the air must be heated before it is introduced into the nozzle in order to prevent the formation of droplets of liquid air. Therefore, a 4200-kilowatt-electric heater was placed between the compressors and the supply section, so designed that it would be able to boost the temperature of the air coming in from the compressor from 150° to as high as 1350° F.

Materials Study To Be Expanded

Government-supported research on materials for the space age will be expanded in coming years. Plans for the expansion are currently being prepared by a number of government agencies. The action follows recommendations by both the President's Science Advisory Committee and a committee of the National Academy of Sciences.

Behind the new effort is the conviction of many scientists that the need for high-strength, heat-and corrosion-resistant materials, particularly metals, must be met before advances in the use of atomic power and in space exploration can be made. In the view of some authorities, technological needs in the

last decade have expanded faster than research activities on materials, and existing materials are being pushed to the limits of their capabilities.

The need and the problems it poses were examined recently by A. J. Hertzog, president of the Climax Molybdenum Co. and chairman of the materials advisory board of the National Research Council: "From the point of view of the materials worker it is difficult to understand why so much support is forthcoming toward the design of equipment for which no suitable materials are yet known, whereas support for materials research and development comes in similar intensity only when end-item pressure is upon us."

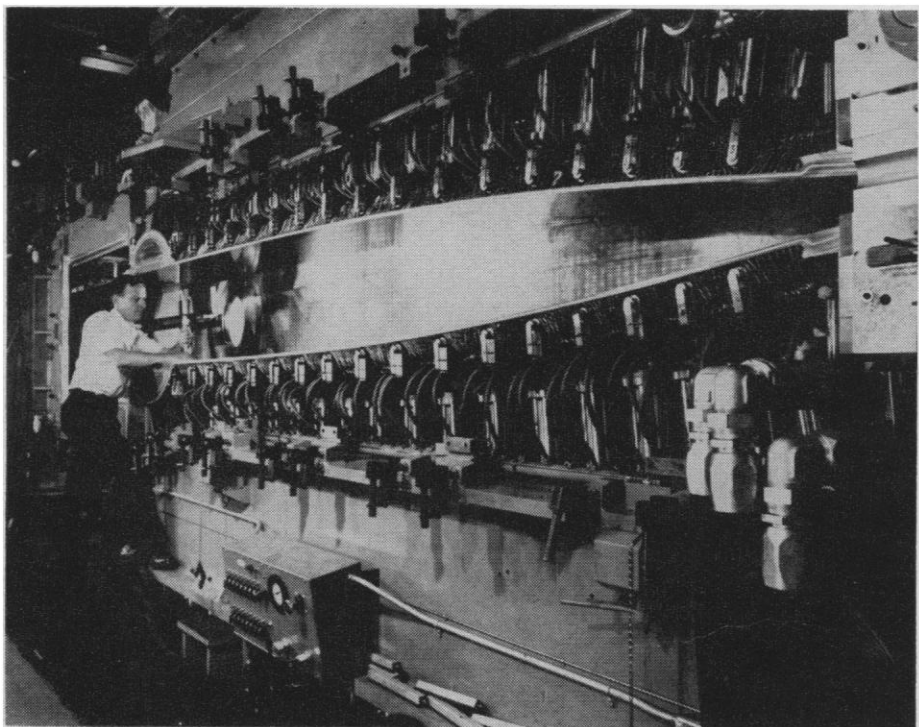
Hertzog's statement reflects a concern shared by government scientists. Recently, both the President's Advisory Committee and the Federal Council on Science and Technology have given increased attention to the problem of materials research. Last spring an interdepartmental committee, headed by John H. Williams of the Atomic Energy Commission, was set up to study the materials problem and give periodic reports to the Council.

The deliberations of these two committees, together with the work of the NAS committee, have resulted in a governmental move toward expanded materials research as well as a program for carrying out this research by the many federal agencies directly interested in materials development. Both the National Bureau of Standards and the Department of Defense have recently increased research activities in the field. Last June, the Department of Defense, noting that materials represented a "serious limiting factor" in the development of new weapons, allocated \$15 millions for university research on materials. Similarly, the National Bureau of Standards has intensified its work on the properties of metals and other substances.

News Briefs

Columbia University has concluded an agreement for an exchange of professors with Moscow University. The agreement, for 1 year on an experimental basis, is one of the first arrangements for a professorial exchange between Soviet and United States universities. An exchange of graduate students between the two countries is now in its second year.

Last May Harvard University an-



A downstream view of the nozzle of the C.I.T. Jet Propulsion Laboratory's new hypersonic wind tunnel shows a JPL technician checking the position of the calibration probe used to measure the aerodynamic characteristics of the tunnel.

nounced a tentative agreement for an exchange of professors with Leningrad University. It was then hoped that the arrangement would be in operation by September. However, the university has yet to receive specific exchange proposals from Leningrad.

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The first international institute for experimental research in gerontology has been established, at the University of Basle. F. Verzar of the university will direct research work, which will be concentrated on the aging of the tissues of small animals.

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A regional training course on the use of radioisotopes in agricultural research will be held at the Indian Agricultural Research Institute, New Delhi, from 20 January to 17 February 1960. The course has been organized jointly by the Government of India, the Food and Agriculture Organization, the International Atomic Energy Agency, and the United Nations Educational, Scientific, and Cultural Organization. Inquiries should be addressed to the UNESCO South Asia Science Co-operation Office, 21, Curzon Road, New Delhi, India.

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The Camille and Henry Dreyfus Foundation has made a grant of \$25 million for the establishment of an international center for polymer chemistry at North Carolina's new Research Triangle Institute. The research center will be known as the Camille Dreyfus Laboratory, in memory of Camille Dreyfus, who was the founder and first president of Celanese Corporation of America. It will be located on Research Triangle Institute's 200-acre campus in the 4500-acre Research Triangle Park. The park, now being developed as a center for research laboratories, is within 15 miles of the University of North Carolina, Duke University, and North Carolina State College, respectively.

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The National Science Foundation has released *Current Projects on the Economic and Other Impacts of Scientific Research and Development, 1959*, which describes the nature, objectives, scope, and principal research methods of a group of studies being conducted by United States colleges and universities. A summary of each of the 107 projects is presented, together with the names and academic affiliations of the investigators and the anticipated form of publication of the research results. Simultaneously, the foundation released *Bibliography on the Economic and*

Social Implications of Scientific Research and Development, a selected, annotated compilation of references to studies of scientific research and development. Copies of both publications are available from the Superintendent of Documents, Government Printing Office, Washington, D.C., at a cost of 25 cents each.

Scientists in the News

Sir Edward Bullard, Adolph Knopf, and Jack L. Hough were awarded the Geological Society of America's highest honors at the society's annual dinner on 3 November in Pittsburgh, Pa. They received, respectively, the Arthur S. Day Medal, the Penrose Medal, and the Kirk Bryan Award.

Nelson Marshall, formerly dean of liberal arts at Alfred University, has been appointed administrative associate and professor of biological oceanography at the Narragansett Marine Laboratory of the University of Rhode Island. He will also serve as dean of summer session at the university. **Harry P. Jeffries**, formerly of Rutgers University, has been appointed associate oceanographer and assistant professor of biological oceanography at the laboratory.

Paul Woldstedt of the Geological Institute of the University of Bonn is currently research associate in the geology department at the University of Minnesota. He is visiting a number of universities and research centers to present lectures on the European Pleistocene and to participate in field excursions.

John J. Willaman of the U.S. Department of Agriculture retired last month. Since 1940 he has been in charge of research on fruits, vegetables, tobacco, maple, honey, and wild plants at the Agricultural Research Service's Eastern Utilization Research and Development Division in Wyndmoor, Pa.

Alfred N. Richards, emeritus professor of pharmacology and former vice president for medical affairs at the University of Pennsylvania, received the Abraham Flexner Award of the Association of American Medical Colleges for "long and distinguished service to medical education" at the association's annual banquet in Chicago, Ill., on 2 November.

Thomas C. Fleming has been appointed medical director of the Warner-Chilcott Laboratories Division of Warner-Lambert Pharmaceutical Company, Morris Plains, N.J. He had been affiliated with Mead, Johnson Company as director of product development.

William H. Guier of the Johns Hopkins University Applied Physics Laboratory was named last month the "outstanding young scientist of Maryland for 1959" by the Maryland Academy of Sciences. He received the award for his use of Doppler-shift calculations to establish a new means of tracking earth satellites. The awards, established this year, will be presented annually to a resident of Maryland under 35 years of age.

Egon Orowan, George Westinghouse professor of mechanical engineering at Massachusetts Institute of Technology, received the Bingham Medal of the Society of Rheology at the 30th anniversary banquet of the society, held 5 November at Lehigh University. He was cited for his contributions to the understanding of the behavior of solids.

Joseph C. Clarke has been appointed manager of the Atomic Energy Commission's New York Operations Office. Clarke, who had served as deputy manager of the New York Office since 1 July 1954, replaces **Merril Eisenbud**, who resigned to accept an appointment as professor of industrial medicine at New York University.

Edward S. Amis, professor of physical chemistry at the University of Arkansas, has won the 1959 Southern Chemist Award of the American Chemical Society's Memphis Section. The gold medal "for distinguished service to the profession of chemistry in the Southern states" was presented at a banquet in Richmond, Va., on 6 November.

Vincent Schultz has joined the Atomic Energy Commission's division of biology and medicine at commission headquarters, Germantown, Md., as an ecologist in the environmental sciences branch. Previously he was employed at the University of Maryland as a consulting statistician and associate professor of biostatistics.

Margaret J. Carlson, formerly a supervisory bacteriologist for the Army Institute for Research of the Walter Reed Army Medical Center, Washing-