the chamber's floor, and by contracting the muscles of its extremities it easily pushed itself off the floor. The recordings suggest that these movements were brief and rather smooth.

"As the animal's thorax was no longer pressed under the influence of its increased weight, the frequency of its breathing declined. After a very brief period of quickened heart-beat, the systole frequency continued to diminish, consistently approached its initial level. It took, however, about three times as long for the number of heart beats to reach the initial level as it did in laboratory experiments in which the animal was subjected to the same acceleration as when the sputnik was put into orbit.

"This is most probably connected with the fact that in the ground experiments the animal, after the acceleration ended, was in normal conditions, while in the sputnik the acceleration was replaced by a state of complete weightlessness.

"In this state the animal's nerves whereby it feels the position of its body in space were not sufficiently affected by the external irritants. This conditioned the change in the functional state of the nervous system regulating blood circulation and respiration and determined a certain extension of the time for the normalization of these functions after the acceleration effect ended.

"It is also possible that this phenomenon was somewhat intensified by the action of concomitant factors during the ascent—vibration and noise, which were greater than in the laboratory experiments.

"It should be noted that the change in the physiological functions, registered in the animal at the beginning of the sputnik's movement along its orbit, coincides basically with the results of previous investigations with high-altitude rockets.

"An analysis of an electrocardiogram recorded during the state of weightlessness revealed certain changes in the configuration of its elements and the duration of separate intervals. The observed changes were not of a pathological nature and were connected with the heightened functional activity during the period preceding the state of weightlessness. The electrocardiogram showed transient reflected nervous changes in the regulation of the heart's action. In the subsequent period the picture of the electrocardiogram grew increasingly closer to that characteristic of the animal's initial condition. In spite of the unusual state of weightlessness the animal's motions were moderate.

"The normalization of blood circulation and respiration during the period of weightlessness, *i.e.*, during the period of the sputnik's movement along its orbit, evidently indicates that this factor in itself did not cause any essential and stable changes in the state of the animal's physiological functions. Thus it may be said that the animal well endured not only the sputnik's ascent to the orbit but also the conditions of travel along the orbit.

"In ensuring the conditions necessary for the animal's vital activity in a prolonged flight in a sputnik, it is most important to provide a proper gas environment, the composition and pressure of which should not cause violations of the animal's physiological functions. This task could be accomplished only by the use of an hermetically sealed chamber in which normal atmospheric pressure with an oxygen content of 20 to 40 per cent and a carbon dioxide gas content of no more than one per cent was maintained by air regeneration.

"Special highly active chemical compounds which, absorbing water vapors and carbon dioxide, emitted oxygen were used as regenerating substances. These chemical compounds absorbed also such noxious gases formed in the process of the animal's vital activity as ammonia, for example. An analysis of the data obtained showed that oxygen was emitted in sufficient quantities. The fact that the pressure in the chamber did not drop shows that it was effectively sealed. . . ."

Center for Communication Sciences

A Center for Communication Sciences has been set up at Massachusetts Institute of Technology to conduct studies of the communication functions of the nervous system, of computers, and of organisms and machines in conjunction with each other.

The center will use the facilities of the Research Laboratory of Electronics, where there has been a concentration of interest in this field. The steering committee for the center is composed of Jerome B. Wiesner, director of the Research Laboratory of Electronics; Claude E. Shannon, one of the originators of the mathematical theory of communication; Gordon S. Brown, head of the department of electrical engineering; Robert M. Fano, a communications engineer specializing in information theory; Roman Jakobson, a linguist; and Walter A. Rosenblith, a biophysicist with a special interest in sensory communications.

The activities of the new center can be traced back to the Massachusetts Institute of Technology Radiation Laboratory, which, during World War II, was responsible for the development of radar. After the war, the Research Laboratory of Electronics was established to continue research work in related fields on a peacetime basis. Staff members of the laboratory have worked on a large number of problems, but increasing interest in the communication sciences has resulted in the participation of research-workers from fields not commonly associated with electrical engineering, such as psychology, physiology, and linguistics.

Among the questions to which the center would like to find the answers are the following: Can we describe in mathematical form the grammar of a natural language? Can we give a rational account of the way in which the brain processes information coming to it through the senses? What role does information play in human learning and decision-making? Are there laws which resemble the laws of physics in their generality and predictive power?

Scientific Secretaries for Atomic Energy Conference

An international team of 21 scientific secretaries from 13 countries has been appointed for the second United Nations International Conference on the Peaceful Uses of Atomic Energy, to be held in Geneva 1–13 September. All have arrived at U.N. Headquarters in New York. They will work there, and later in Geneva, on the subjects that will receive major attention at the conference: nuclear fission; fission reactor engineering; physics; biology and isotopes; and raw materials, mining, and chemistry.

The secretaries, whose appointments were announced last month by Sigvard Eklund, conference secretary-general, are: Renee Bovy (Belgium), Frank Bruce (United States), Terence E. F. Carr (United Kingdom), Thomas C. Church (Canada), Thomas Coor (United States), D. Harold Copp (Canada), Israel Dostrovsky (Israel), Aleksandr Nikitich Efimov (U.S.S.R.), Hiroshi Fukunaga (Japan), Claudio Garavaglia (Italy), Fred Hudswell (United Kingdom), David Okrent (United States), Ivan Dmitrievich Rozhansky (U.S.S.R.), Afaf A. Sabri (United Arab Republic), Carlos Sanchez del Rio (Spain), Cesar Sastre (Argentina), Gavriil Sergeevich Strelin (U.S.S.R.), Pierre Yves Tanguy (France), Ivan Ulehla (Czechoslovakia), William Brian Woollen (United Kingdom), and Valery Ziegler (France).

News Briefs

Revue de Géographie Physique et de Géologie Dynamique is again being published after suspension because of World War II. For information, communicate with Masson et Cie., éditeurs, Paris.

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Norman Hilberry, director of Argonne National Laboratory, is heading an atoms-for-peace survey mission to Latin America. This is the first major project

of its kind sponsored by the recently formed International Atomic Energy Agency. Hilberry's survey team includes nuclear energy and administrative specialists from France, Britain, Brazil, and IAEA.

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The number of births for the first quarter of 1958 is 7000 less than in the first quarter of 1957. Population Reference Bureau, Washington, D.C., attributes this to the recession. A deficiency in births, as compared with the year before, has existed since November 1957. In 1958, the drop has been greater each month. In January 1958, it amounted to 1000 births; in February, to 2000; and in March, to 4000. This is the first time for several years that the seasonal trend in births has shown a consistent decline.

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Some 80 scientists from the United States, Great Britain, and France took part in a two-day conference on communication of scientific information at the San Jose (Calif.) Research Laboratory of the International Business Machines Corporation, 26–27 May. The meeting coincided with the dedication of IBM's new research, manufacturing, and educational facilities 10 miles south of San Jose. Alan T. Waterman, director of the National Science Foundation, was the principal speaker.

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A contract for the design and operation of the Atomic Energy Commission's exhibit in the Second International Exhibition of the Peaceful Uses of Atomic Energy—a commercial exhibition—to be held in Geneva, Switzerland, 1–14 September, has been awarded to the Atomic Industrial Forum, Inc., of New York.

Scientists in the News

JONAS E. SALK, professor of experimental medicine, University of Pittsburgh; AMOS CHRISTIE, professor of pediatrics, Vanderbilt University School of Medicine; and ALEX M. BURGESS, Providence, R.I., received awards during the 39th annual session of the American College of Physicians. The James D. Bruce Memorial Medal was awarded to Salk for outstanding accomplishments in preventive medicine; the John Phillips Memorial Medal went to Christie for research in internal medicine, especially in histoplasmosis; and Burgess received the Alfred Stengel Memorial Award for his "outstanding influence in maintaining and advancing the best standards of medical education, medical practice and clinical research."

The American Heart Association has announced the appointment of three career investigators, bringing to six the number of scientists whose research is being supported on a lifetime basis by the association and its affiliates. The new career investigators are: DAVID B. SPRINSON, professor of biochemistry, Columbia University College of Physicians and Surgeons; JOHN V. TAGGART, professor of medicine, also at Columbia; and LEWIS W. WANNAMAKER, associate professor of pediatrics, University of Minnesota Medical School.

JAMES M. MITCHELL, associate director for management and public affairs, National Science Foundation, is head of a three-man team of United States management experts who will study the organization, staffing, and training needs of agencies of the Tunisian Government. The 4-month mission has been formed in response to Tunisia's request to the Technical Cooperation Program of the International Cooperation Administration for expert assistance in modernizing her administrative structure and executive staffing.

The John Fleming Medal of the American Institute of Geonomy and Natural Resources was presented on 14 May to Dr. and Mrs. J. B. HERSEY at the Woods Hole Oceanographic Institution. The medal awarded was "for outstanding accomplishment in science and human welfare," on recommendation of the board of directors of the AIGNR and 67 foreign correspondents representing 26 countries. The citation for the medal was delivered by Columbus O'D. Iselin, director of the institution, who stated:

"I did not suspect how rapidly Dr. Hersey would build up geophysics at this laboratory. He has advanced the fundamental subjects of the geology and geophysics of the ocean basins, and certainly has observed the rule that some of us have to have a practical idea from time to time in order to obtain money allowing all of us to do some science. Not only has Dr. Hersey turned out many practical ideas but he has also done much more than his share of turning out basic science. He has a very large administrative load, he spends time giving the Navy sound advice and he has brought large sums of money to the Institution with which to do basic science."

ROBERT E. FAIRES of the Naval Research Laboratory, Washington, D.C., has been appointed head of the transducer branch, Sound Division.

HERMAN H. GOLDSTINE has joined the staff of the IBM Research Center at Yorktown, N.Y., as research adviser. Goldstine has been conducting research in pure and applied mathematics as a permanent member at the institute for Advanced Study at Princeton, N.J., for the past 12 years. He was director of the computing laboratory, and he collaborated with John Von Neumann in the design and development of the first computer there.

RAYMOND A. WHEELER, lieutenant general, U.S. Army, retired, who is an engineer consultant to the International Bank for Reconstruction and Development, has received the George W. Goethals Medal of the Society of American Military Engineers in recognition of his "exemplary duty while serving as the United Nations Commander of Salvage and Clearing Operations of the Suez Canal." Other winners of the society's awards are as follows:

DONALD A. RICE, chief of the gravity and astronomy branch of the Geodesy Division, Coast and Geodetic Survey, received the Colbert Medal for his "important contributions to the Department of Defense in the fields of gravimetric and topographic-isostatic reductions of the deflection of the vertical and of gravity."

RICHARD A. LAUGHLIN, Commander, Civil Engineer Corps, U.S. Navy, received the Moreell Medal for his "outstanding performance of duty as Director of the Logistics Planning Division of the Bureau of Yards and Docks."

WILLIAM F. CASSIDY, brigadier general, Corps of Engineers, U.S. Army, received the Wheeler Medal for his "outstanding leadership in directing the flood fighting and disaster relief activities of the Corps during the floods of 1955–1956 in California."

EDWARD C. GILL, Colonel, U.S. Air Force, received the Newman Medal for his "outstanding accomplishments in the administration of military engineering affairs for the Air Materiel Command and the United States Air Force."

JOHN W. N. SCHULZ, brigadier general, U.S. Army, retired, received the Gold Medal for Distinguished Service for his "unselfish devotion to the welfare of The Society."

At a dinner commemorating the 25th anniversary of the founding of the American Institute of Nutrition held during the annual meeting of the Federation of American Societies for Experimental Biology at Philadelphia, LEMUEL D. WRIGHT, professor of nutrition at Cornell University, was awarded the Borden Award in Nutrition, and PAUL GYÖRGY, professor of pediatrics and pediatrician-in-chief at the Hospital of the University of Pennsylvania, received the Osborne and Mendel Award. The Borden Award is given annually by the Borden Company Foundation, Inc., the Osborne and Mendel Award by the Nutrition Foundation, Inc.

György is internationally known for his contributions to basic nutrition. Milestones in his research career include the