News of Science

NBS Jerkmeter

■ The National Bureau of Standards has devised a barium titanate jerkmeter for studying the action of the human heart. The instrument is essentially a piezoelectric accelerometer with an output that is electrically differentiated. Unlike most instruments used in ballistocardiography, the jerkmeter does not require a fixed reference point. Thus, it is inherently isolated from extraneous motions such as building or operating-table vibrations. The device was designed and constructed by T. A. Perls and C. W. Kissinger under a program of basic instrumentation sponsored at the NBS by the Department of Defense and the Atomic Energy Commission.

In general, a jerkmeter is a transducer that gives an electrical output proportional to jerk, the time derivative of acceleration. Jerk has been measured in connection with elevator and vehicle riding comfort as well as in various physiological studies. The present development was undertaken to obtain measurements of the third time-derivative of the displacement of a reclining patient. The motion of interest is caused by the inertial forces generated by the flow of blood and is therefore intimately related to the function (and malfunction) of the heart. Developed as a research tool, the jerkmeter is being used by the Civil Aeronautics Administration to study the correlation of jerk measurements with proper diagnosis of heart conditions.

Creation of Rare Minerals

Rare minerals seldom found near the earth's surface have been created at the University of California, Los Angeles, by subjecting common minerals to extreme pressures and temperatures. Using a laboratory device called the "simple squeezer," George Kennedy and David Griggs of U.C.L.A.'s Institute of Geophysics have duplicated conditions that form minerals at extreme depths in the earth's crust.

From common quartz they have created coesite, a dense mineral that can exist in nature only at a depth of 40 miles or more in the earth. They have made jade from feldspar, and aragonite from limestone.

The research team also has been able to make various dense aluminous minerals from ordinary clay. From data on temperatures and pressures required to make these minerals, the depths at which similar minerals are formed in the earth's crust can be determined.

Anthropometric Map of Poland

Polish scientists are completing preliminary work on the first anthropometric map of Poland. Measurements have already been taken of more than 40,000 people in various Polish cities. The data collected will make it possible to determine the prevalent average types of body structure characterstic of both sexes and of different age groups. The research is being supervised by a committee headed by Jan Mydlarski, chief of the Anthropology Institute of the Polish Academy of Sciences.

The information gathered thus far forms the basis for further measurements of 300,000 individuals. Next year teams of anthropologists will begin measuring Poland's rural population as well as its students.

AAAS-Rosenthal Cancer Prize

Lloyd W. Law, physiologist and head of the leukemia studies section of the Laboratory of Biology, National Cancer Institute, is the first recipient of the newly established AAAS-Anne Frankel Rosenthal memorial award for cancer research. The $1000 prize, which is supported by the Richard and Hinda Rosenthal Foundation, was presented during the recent meeting of the AAAS in Atlanta, Ga.

Law's research has been concerned with the factors affecting the development of leukemia and breast tumors; the genetics of the mouse and of *Drosophila*; and the chemotherapy of neoplasms. The award committee felt that knowledge of leukemia has been materially increased by Law's admirably conceived and carefully controlled studies.

AEC Division of International Affairs

The Atomic Energy Commission has announced the establishment of a Division of International Affairs and the appointment of John A. Hall as the division's first director. Hall has been with the AEC since 1948; he has headed the Office of International Affairs, which is being absorbed in the new division. He served as director of liaison and protocol for the U.S. Delegation to the International Conference on Peaceful Uses of Atomic Energy at Geneva last August.

Working in close cooperation with the State Department and other Government agencies, the new unit is charged with the commission's functions in connection with (i) the bilateral agreements for cooperation relating to the peaceful applications of atomic energy; (ii) the proposed International Atomic Energy Agency; (iii) other matters of interest to the AEC before the United Nations such as proposals relating to disarmament; and (iv) maintaining liaison with the State Department and foreign officials in connection with atomic energy matters.

Radioactive Pharmaceuticals

"Developments in radioactive pharmaceuticals" were discussed at the annual meeting of the AAAS by Marshall Brucer, chairman of the medical division at the Oak Ridge Institute of Nuclear Studies. At the conclusion of his talk, Brucer pointed out that during the past 10 years the use of radioiodine has increased from a few millicuries to almost 50,000 millicuries per month; further, the use of radiophosphorus has increased to almost 13,000 millicuries per month, and radiogold, which was almost unknown in 1950, is now being distributed at the rate of more than 50,000 millicuries each month.

Brucer commented that "For a drug to change within 10 years from an almost unknown item to the point where its hundred millionth millicurie approaches use is a remarkable development. One hundred million of anything is a lot, and it indicates that there already is a radioactive pharmaceutical business even though there may not be a radioactive pharmaceutical industry."

Flint Ridge Cave System

■ Exploration by members of the National Speleological Society's Flint Ridge Project has disclosed that Floyd Collins' Crystal Cave in Kentucky is actually the nucleus of a cave system larger than any

other now known. This exploration has uncovered many miles of cave passages, including connections between Crystal Cave and other nearby caves, showing that integration exists in the Flint Ridge cave system.

Passages already surveyed or explored in the system now total 32 miles, making it the largest known. It is anticipated that many more miles will be added to this figure as additional known and yet-to-be-discovered passages are studied. The second largest cave is Hollich in Switzerland.

Since early 1954, systematic exploration has been conducted in Flint Ridge by the project members to compile complete data covering the cave system configuration, underground drainage, and animal lfe. The work was described at the recent meeting of the AAAS by Roger W. Brucker, David B. Jones, William T. Austin, and Brother G. Nicholas.

News Briefs

■ Radio waves come from at least 1936 heavenly sources, most of which are not identified with any visible object, according to a report to the Royal Astronomical Society by Martin Ryle of the Cavendish Laboratory, Cambridge, England. About 500 sources have been accurately plotted. Some 30 are large, several may be galaxies in collision, and a few are the expanding remnants of supernovas.

■ The volcano Bezymyanny in Kamchatka, U.S.S.R., considered extinct for hundreds of years, erupted on 20 Oct. Director Zladovets of the volcanological laboratory of the Soviet Academy of Sciences said on the Moscow Radio that the cloud of ashes above the crater had swelled to 6 miles in height by the middle of November.

■ A planetarium capable of projecting the motion of 8600 stars and planets was opened on 4 Dec. in Poland's heavy industry city of Stalinogrod. The planetarium, the first in the country, is named after Nicholas Copernicus.

Scientists in the News

WILLIAM F. GIAUQUE, Nobel laureate and professor of chemistry at the University of California, Berkeley, is to receive the Gilbert N. Lewis medal of the California Section of the American Chemical Society. The gold medal is awarded from time to time in recognition of special achievements in theoretical chemistry. This is the third time the medal has been given. It will be presented to Giauque on 15 Feb. at a special award ceremony.

Giauque was selected especially for his low-temperature work, which also won him the Nobel prize. His method of using a strong magnetic field made it possible to achieve temperatures a few thousandths of a degree above absolute zero.

W. G. NIXON of the Cavendish Laboratory, Cambridge University, Cambridge, England, has arrived at the University of Redlands for a period of 3 months. The National Science Foundation has provided funds to support Nixon's stay as a visiting research associate in x-ray microscopy. He is one of the pioneers in this field.

Nixon will deliver a series of evening lectures on 7, 15, 22, and 25 Feb. During his visit he also will give informal talks and will review the progress of x-ray microscopy research at the university. Information may be obtained from Prof. Albert V. Baez, Physics Department, University of Redlands, Redlands, Calif. Nixon will spend April, May, and June at Stanford University under the same NSF grant.

EDGAR L. PIRET, professor of chemical engineering at the University of Minnesota, has received the William H. Walker award of the American Institute of Chemical Engineers.

ROBERT L. PIGFORD, chairman of the department of chemical engineering at the University of Delaware, was awarded the institute's Professional Progress award.

DAVID TABOR of Cambridge University, Cambridge, England, has arrived at Stanford Research Institute, where he will work for a year in the control systems laboratory on problems of surface physics. He is on leave from his post at Cambridge as assistant director of research in the Laboratory for the Physics and Chemistry of Surfaces.

WALTER G. FRANKENBURG of Lancaster, Pa., has received the Cigar Industry Annual Research award in recognition of his contributions to the development of the basic science and technology of tobacco. Specifically, acknowledgement was expressed to the award winner for his thorough investigations of the chemical processes that occur in the harvested tobacco leaf, including the conversion of nicotine into a series of other substances, and for the successful application of this new knowledge to problems of the cigar industry. The award is sponsored annually by the Cigar Manufacturers Association of America in conjunction with the Cigar Institute of America.

RUSSELL W. MUMFORD, vice president and consulting engineer for American Potash and Chemical Corporation, retired recently after 35 years of service with the company. Mumford's association with the organization began in 1920 when he was named chemical engineer in charge of research and development for the company's main plant at Trona, Calif.

During succeeding years he served as assistant manager of the Trona plant, and in 1929 he became consulting engineer. Mumford was named a vice president of the corporation in 1941 and was elected a director in 1947. He continued as vice president and consulting engineer until his retirement.

HARLOW SHAPLEY, professor of astronomy at Harvard University and former director of the Harvard College Observatory, has been elected an honorary member of the National Academy of Sciences of India.

CHARLES W. MAYO, professor of surgery at the Mayo Foundation, Rochester, Minn., recently received the 1955 award of the American Pharmaceutical Manufacturers Association. He was cited for contributions to medicine and to world understanding through work with the United Nations.

DANIEL D. CUBICCIOTTI, JR., has joined the staff of Stanford Research Institute as a senior scientist in the recently formed department of chemical physics. He was formerly supervisor of inorganic chemistry research with the Atomics International Division of North American Aviation at Downey, Calif. Cubicciotti will be engaged in fundamental studies of fused salt systems and metal-gas reactions at high temperatures, thereby opening up a new field of research at S.R.I.

OTTO STRUVE, chairman of the astronomy department at the University of California, Berkeley, has been awarded the Medaille Julés Cesar Janssen for 1955 by the Institut de France.

WILLIAM SEEMAN, former chief of the clinical psychology department at the Mayo Clinic, has assumed the newly created position of associate professor of medical psychology in the department of psychology, University of Oklahoma School of Medicine.

ARCHIE O. HALLER of the department of rural sociology at the University of Wisconsin, has been named associate professor, sociology and anthropology, at Michigan State University, effective 1 July.