

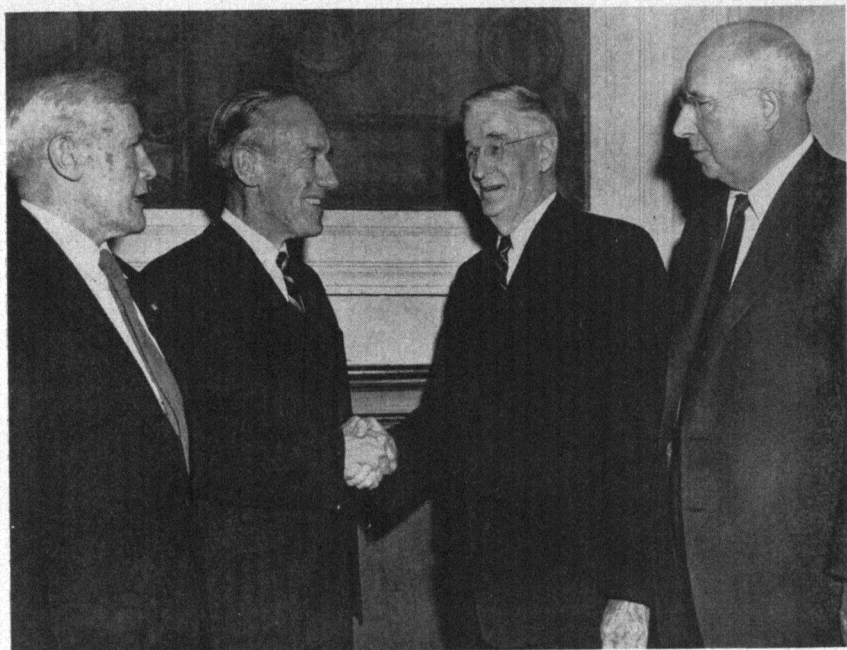
A

Photographic

Sampling of

Foundation

Activities



### A GREAT SCIENTIST RETIRES

Dr. Vannevar Bush was the honored guest at the annual reception of the National Science Board on December 5, 1955. Dr. Bush retired at the end of last year from the presidency of the Carnegie Institution of Washington and from formal participation in the administration of scientific affairs. More than 100 friends of Dr. Bush, representing the executive, judicial, and legislative branches of the Government, as well as his colleagues and associates in the scientific and educational community, came to wish him well. Here, Dr. Bush (second from right), often recognized as the "father" of the National Science Foundation, shakes hands with Dr. Detlev W. Bronk, newly elected Chairman of the National Science Board, in company with Dr. Waterman, Director of the Foundation (left), and Dr. Chester I. Barnard, retiring Chairman of the Board.



### **BRINGING THE STARS DOWN TO EARTH**

**Widely extending man's knowledge of the universe, this 60-foot radio telescope at Harvard University's Agassiz Station Observatory was dedicated on April 28, 1956. The Foundation is supporting construction of a 140-foot radio astronomy telescope at Green Bank, W. Va. The new Green Bank facility will be available for use by astronomers throughout the Nation. (p. 56.)**



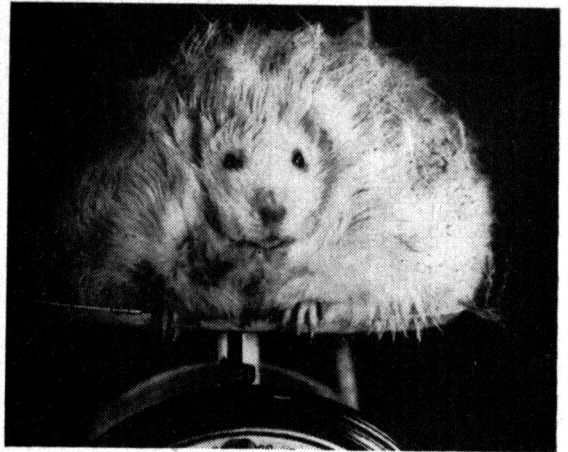
## COMPUTERS HELP SPEED SCIENTIFIC RESEARCH

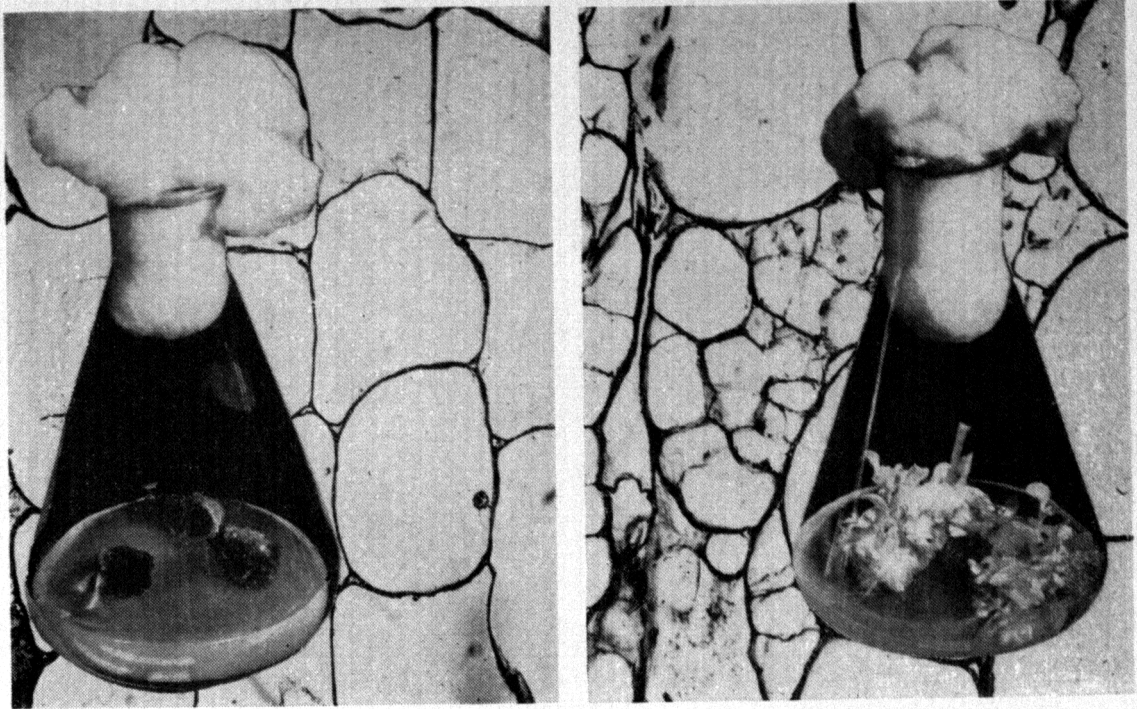
ILLIAC is the heart of the Digital Computing Laboratory at the University of Illinois. Voltages are being checked in the arithmetic unit at the left, while at the right a punched output tape which communicates with the machine is being examined. Scientists have been using the ILLIAC to compute solutions to hydrodynamical field equations in relativity theory—an example of the contribution of high speed digital computers to science progress. The Foundation recently announced grants totaling \$135,000 to support university computing centers at the California Institute of Technology, the Massachusetts Institute of Technology, Oregon State College, and the Universities of Washington and Wisconsin. (p. 57.)



#### HYPOTHALAMIC CONTROL OF APPETITE

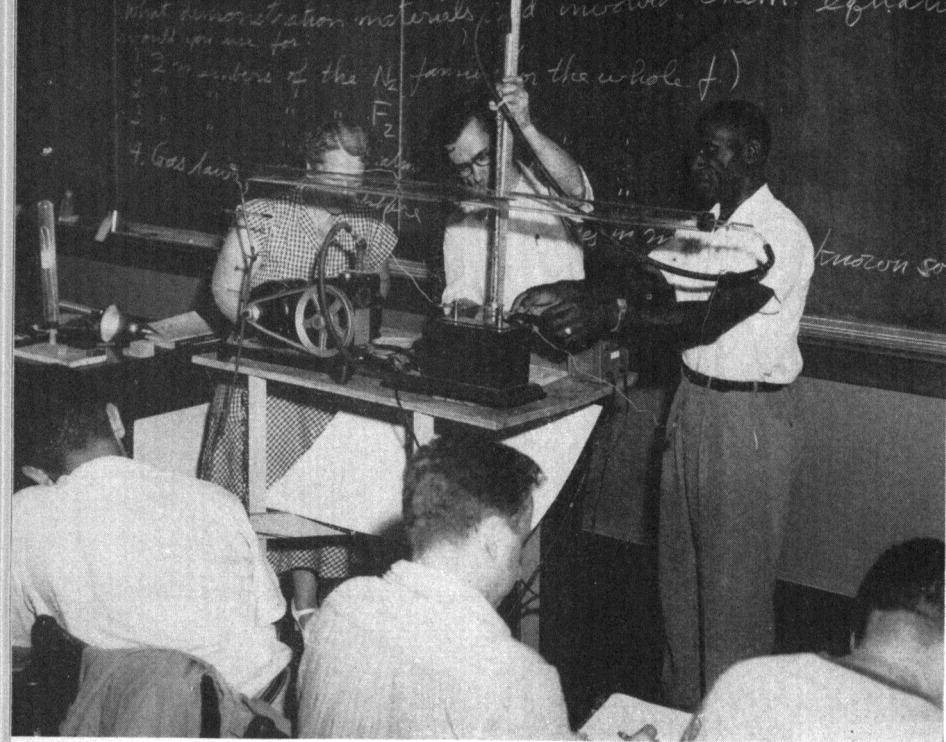
The two rats are litter-mate brothers. However, one weighs about twice as much as the other because a specific tiny area in the hypothalamus (a portion of the brain) has been experimentally damaged. Destruction of this appetite center results in virtually uncontrollable appetite. Animals whose appetite center is damaged appear not to be able to stop eating as long as food is accessible and, in consequence, become very obese. This and related research, supported by the National Science Foundation, promises to provide a more complete understanding of the complex factors which control eating behavior and motivation.





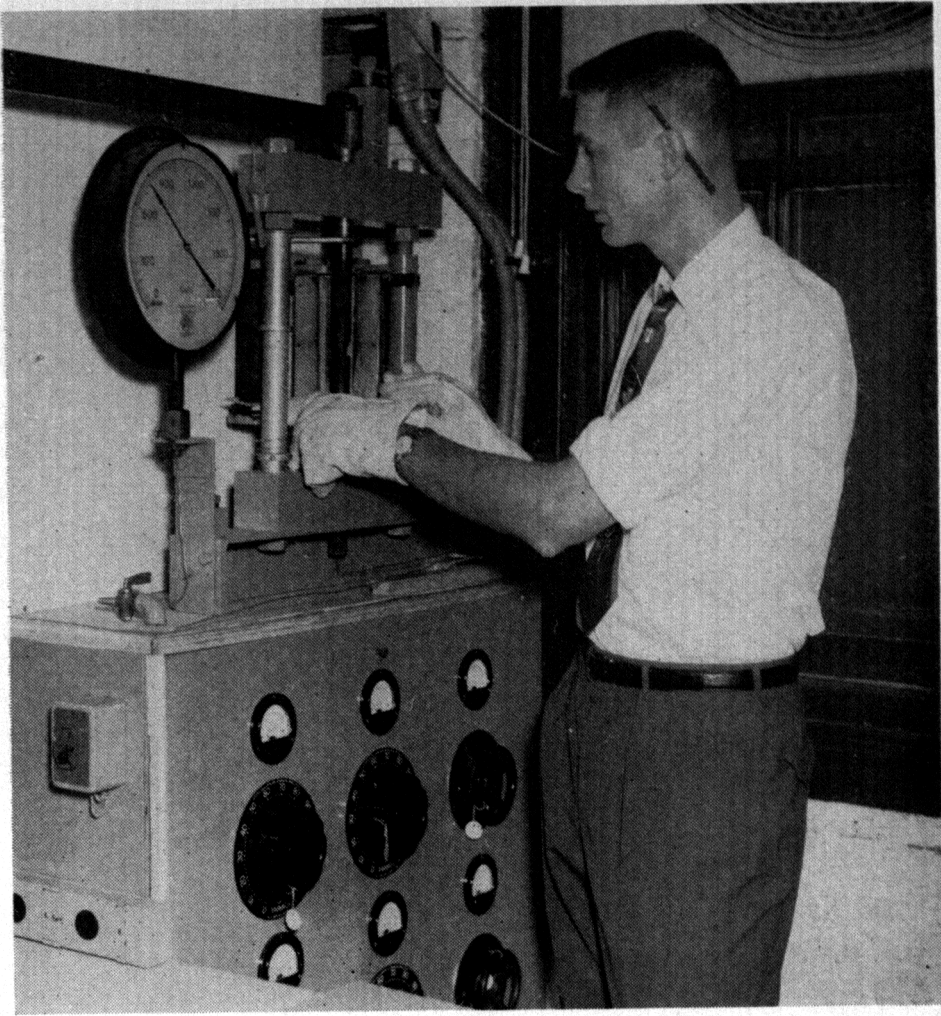
### KINETIN STIMULATES CELL DIVISION

The newly discovered substance, kinetin, causes marked increase in cell division. The piece of plant tissue in the left flask is growing in an artificial fluid medium. That in the right flask is growing in the same solution with a tiny amount of kinetin added. The large increase in size and the budding in the latter are evident. The flasks have been superimposed on microscopic views of the plant tissues to show the marked rise in number of cells in the tissue exposed to kinetin. (p. 47.)



#### IMPROVING HIGH SCHOOL SCIENCE TEACHING

Groups similar to this one in the physics laboratory of Pennsylvania State University studied and worked in classrooms and laboratories of 25 summer institutes for high-school and college science teachers supported by the National Science Foundation. Here the teachers experiment with the electrical discharge of gases at low pressures. During the 1956 summer period, 1,300 teachers improved their skills in science instruction in institutes widely scattered across the Nation. In 1957, the Foundation expects to support some 95 summer institutes to serve about 4,500 high-school science teachers and 250 college science teachers. (p. 67.)



**ONE OF 895 FELLOWS OF THE NATIONAL SCIENCE FOUNDATION**

**Wallace G. Ernst, of Minnesota, a graduate of Carleton College, opens an electric furnace to remove a small piece of mineral from equipment which simulates actual pressures and temperatures under which minerals are formed several miles under the earth's surface. In his terminal year studies for his doctorate at Johns Hopkins University, Ernst is working in the Geological Laboratory of the Carnegie Institution of Washington. He was one of 895 men and women who were awarded fellowships by the Foundation during 1955-56 and who were continuing advanced study in science in colleges and universities in the United States and other nations. (p. 72.)**





#### **BOOKS FOR FUTURE SCIENTISTS**

**In cooperation with the American Association for the Advancement of Science, the National Science Foundation supports traveling science libraries for students in outlying communities of the Nation where library facilities are relatively inaccessible. Boxes containing a total of 150 books, carefully selected by competent scientists in the several fields of science, are rotated each month among participating schools. (p. 69.)**

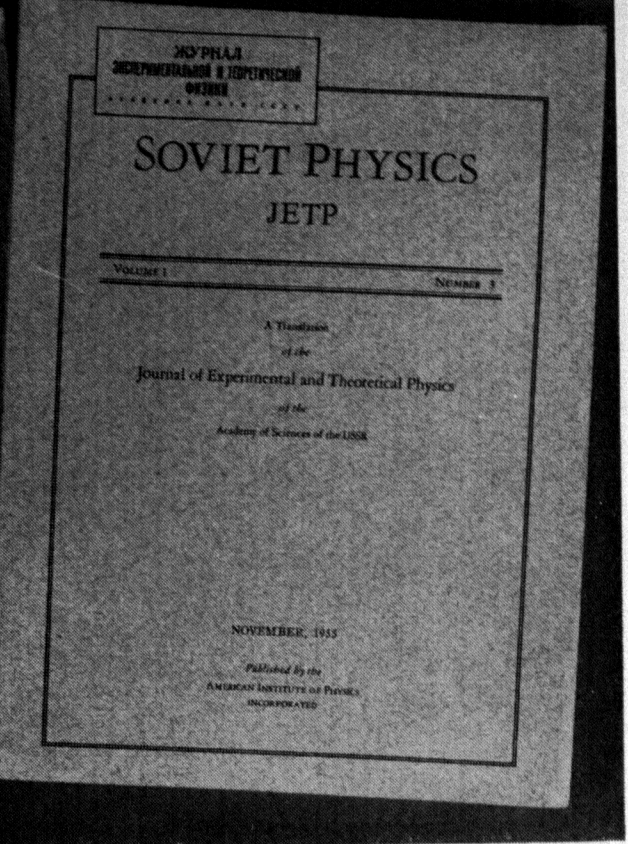
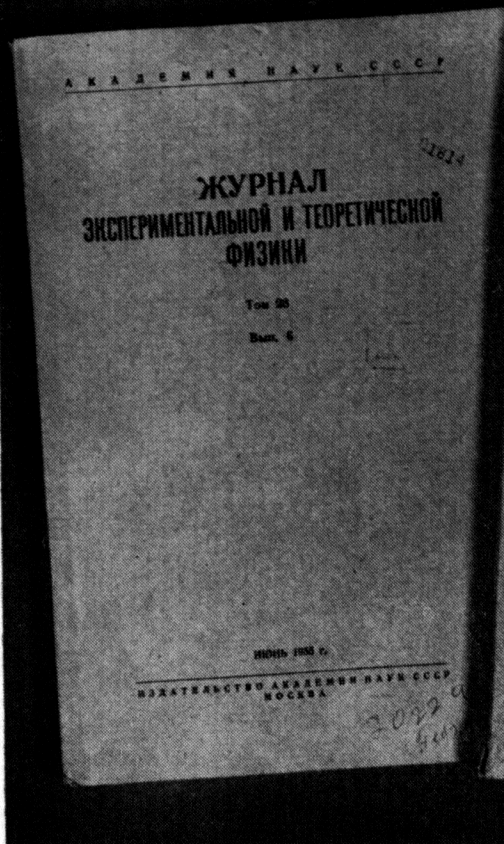


Рис. 2. Единичная сфера с областью  $0 \leq \alpha \leq \alpha_0$ ,  $-\beta_0 \leq \beta \leq \beta_0$  (область  $ABCD$ ), в которой рассеивается половина всех рассматриваемых вторичных частиц. Рисунок симметричен относительно плоскости  $xz$ . Направление падающих частиц совпадает с осью  $z$ . Ядерная реакция происходит в точке  $O$

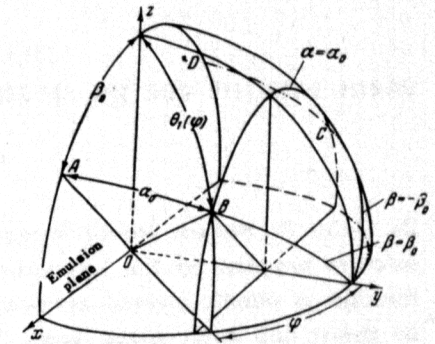
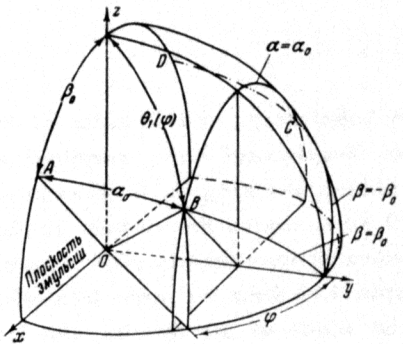
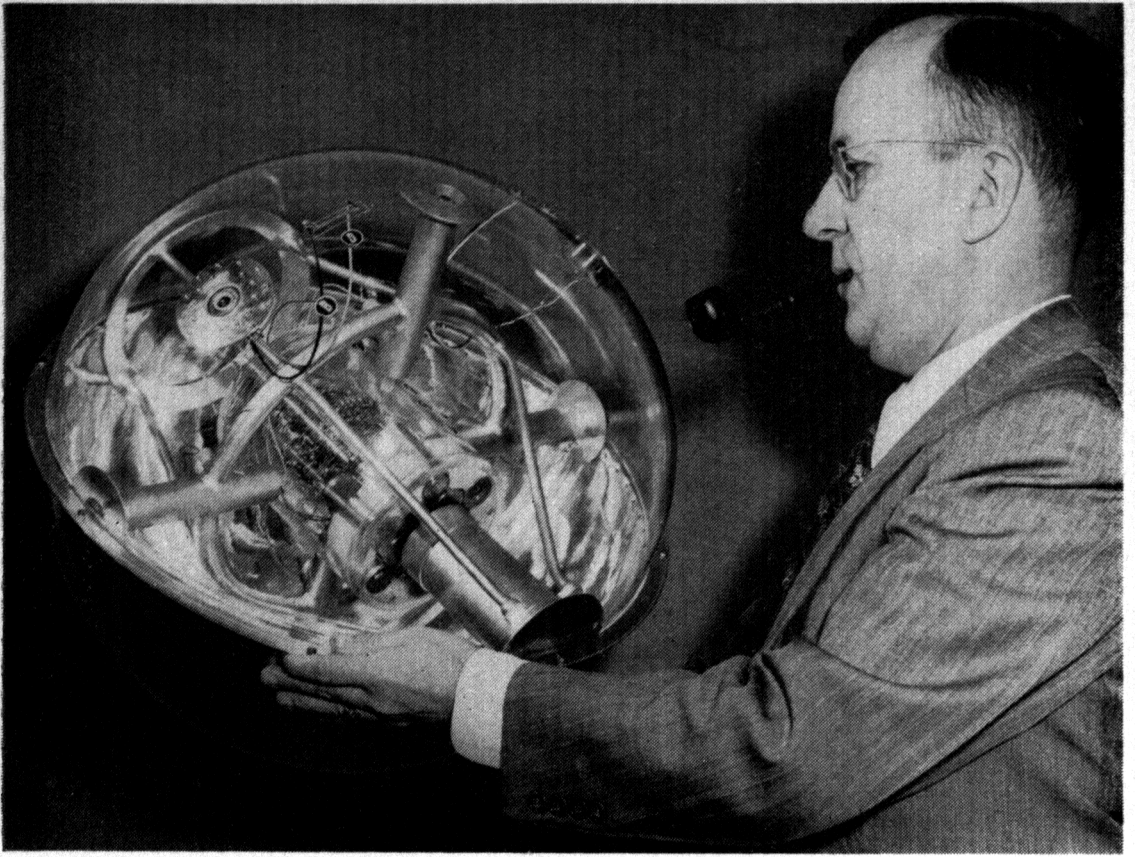


FIG. 2. The unit sphere with the region  $\sigma \leq \alpha \leq \alpha_0$  and  $-\beta_0 \leq \beta \leq \beta_0$  (surface  $ABCD$ ) within which is scattered half of all the secondary particles under consideration. The figure is symmetric about plane  $xz$  (the emulsion plane). The direction of the incident particle is along the  $z$  axis.  $O$  is the point of the nuclear interaction.

OTHER-NATION RESEARCH MADE AVAILABLE TO UNITED STATES SCIENTISTS

The Russian Journal of Experimental and Theoretical Physics was one of several Russian scientific journals translated into English under programs supported by the National Science Foundation during fiscal year 1956 to make more accessible to United States scientists the research performed by scientists of other nations of the world. Soviet Physics-JETP is published and sold through subscription by the American Institute of Physics. It received wide acceptance among physicists, and by the close of the fiscal year, its subscription list had grown to 700. (p. 80.)



#### **EARTH SATELLITE FOR THE INTERNATIONAL GEOGRAPHICAL YEAR**

**Dr. John P. Hagen, Naval Research Laboratory, and Director of Project Vanguard, earth satellite program of the International Geophysical Year, examines a model of the satellite through a plastic-covered cutaway section showing its instrumentation. The satellite will be thrust into outer space, some 300 miles above the surface of the earth, by a powerful, three-stage rocket. There it will revolve in its elliptical orbit, circling the earth once every hour and a half while recording geophysical data for radio transmission to receivers on the earth's surface. Observations will be made of air density, the ionosphere, geodetic and meteoritic phenomena, temperature and pressure, ultraviolet radiation from the sun, and cosmic ray intensities. The National Science Foundation is coordinating certain aspects of Federal Government participation in the International Geophysical Year and is also responsible for administering Federal Funds for the IGY in accordance with the program plans of the United States National Committee. (p. 22.)**