News Notes

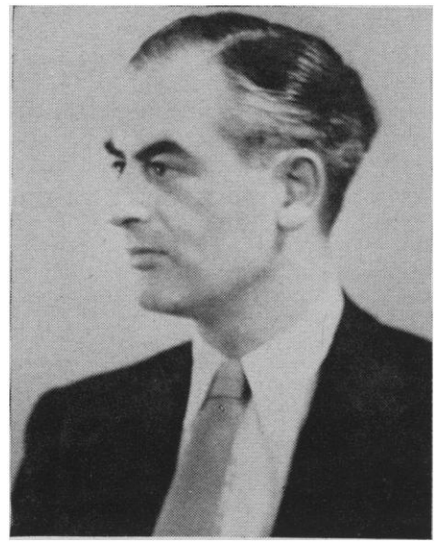
Burnet and Medawar Share Nobel Award in Physiology and Medicine

Sir Macfarlane Burnet, 61, professor of experimental medicine at Melbourne University in Australia, and Peter Brian Medawar, 45, professor of zoology at University College, London, have been named joint recipients of the 1960 Nobel Prize for Physiology and Medicine, which this year amounts to approximately $43,700. They are being honored for their "discovery of acquired immunological tolerance," by showing that under certain conditions a body can be induced to tolerate the transplantation of foreign tissue.

All body cells in animal and man carry a distinct, individualistic immunological pattern. If a foreign immunity pattern is introduced through a tissue graft or organ transplant, an immunity reaction sets in and antibodies are produced that destroy the alien matter. A homograft usually takes at first, then dies in about 2 weeks and is sloughed off.

Theory Formulated in 1949

In 1949 Burnet, who heads the Walter and Eliza Hall Institute for Medical Research in Melbourne, formulated an immunity theory in which he held that a body does not inherit the capacity to "recognize" tissues of its own strain but that it gradually develops this ability during the embryonic period. He predicted that if foreign tissues were introduced during this formative stage, the body would later tolerate them if they were reintroduced.



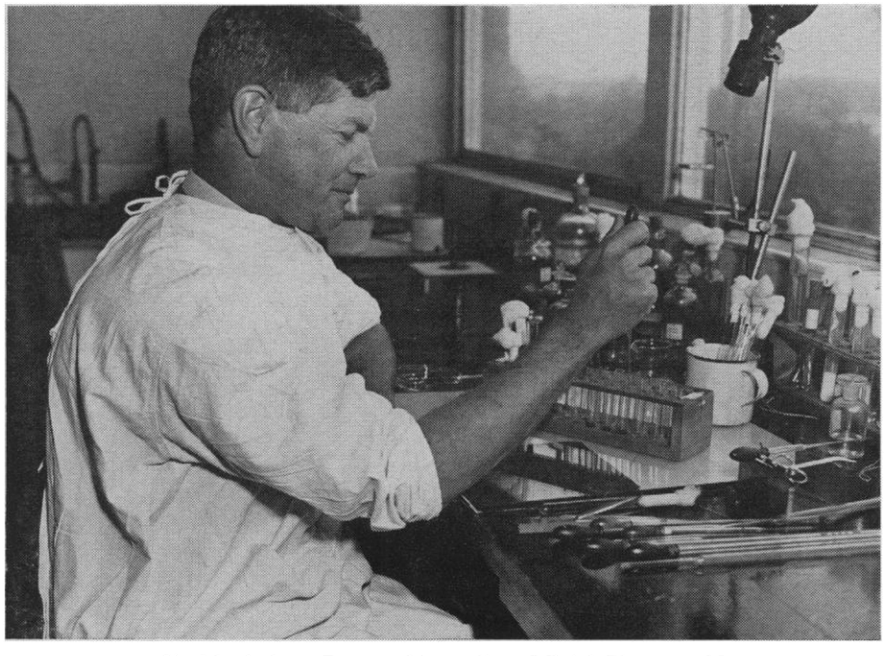
Peter Brian Medawar. [Basic Books]

This theory of acquired tolerance was proved valid by Medawar and his coworkers, who published a report in 1953. Mouse embryos were inoculated while in the womb with tissue from mice of a different breed. When similar tissue was grafted to the animals after birth, the operations were successful.

Medawar gives particular credit for this work to Rupert Billingham and Leslie Brent, who worked with him first as students and later as colleagues. Billingham now is at the Wistar Institute in Philadelphia.

Since the confirmation of Burnet's theory, it has been found that x-rays and cortisone can overcome the immunity barrier to foreign tissue in an adult animal that has not received prenatal treatment. This method was used recently at the Harvard Medical School in a successful kidney transplant from one brother to another.

The discovery of the tolerance phenomenon was described in the citation released by the Karolinska Institutet in Stockholm, which selects the annual medical award winners for the Nobel Foundation, as "a major breakthrough in the field of immunology" that has opened "a new chapter in experimental biology, with several problems of great practical medical importance laid open to attack."



Sir Macfarlane Burnet. [Australian Official Photograph]

Climatron Dedicated at Missouri Botanical Garden

The Missouri Botanical Garden in St. Louis dedicated its new climate-controlled display and research greenhouse, called "The Climatron," on 1 October. In addition to the trustees of the Garden, under the chairmanship of Robert B. Smith, many distinguished visitors were present. Detlev Bronk, president of the Rockefeller Institute, delivered the dedicatory address. Mayor Tucker, Chancellor Shepley of Washington University, Father Hastings of St. Louis University, and William C. Steere, director of the New York Botanical Garden, gave short talks.

The Climatron is unique in that it has two separate air-conditioning systems, one of which operates during the day and the other during the night. Each system is designed to produce a gradient of temperatures throughout the building, and the two systems operate in different directions at an angle to each other of 90°. This makes it possible to maintain an entire range of climates in different parts of the house, but with no physical separation of the various areas. Another special feature is the indirect lighting; 112 large lamps project their light against the Plexiglas cover of the greenhouse, and the light is then reflected back into the growing areas.

Construction of the new greenhouse is the first phase of a master plan for redevelopment of the Garden that has been worked out by Frits W. Went,

who became director of the Garden in 1958. An outgrowth of Went's studies in climate-control systems, made while he was professor at the California Institute of Technology, the Climatron is the first completely air-conditioned and moisture-controlled display greenhouse ever built.

Following structural principles established by Buckminster Fuller, inventor of the geodesic system, the architects designed a dome-shaped structure 175 feet in diameter that rises more than 70 feet at the center without a single interior support. Lined by a layer of Plexiglas suspended from the aluminum framework, the dome is supported at five points on a circular concrete base, which contains all the mechanical equipment.

The dome provides a shadowless enclosure, giving a feeling of natural space that simulates the open sky. The Climatron has a two-level interior, the

Satellites in Orbit

This table gives data on the 17 man-made objects in orbit on 1 November. The weights, especially for some of the larger satellites, include the last stage of the orbiting rocket. Figures for the actual payload weight were not available. In general, the United States appears to be well ahead of the Russians in bringing back scientific data from space. The Russians remain well ahead in rocket thrust, and possibly in their ability to recover objects from orbit. The data were furnished by the National Aeronautics and Space Administration.

Name	Type	Date	Weight		Lifetime		Initial distances	Scientific value	Transmitting data
			Total	Payload	Total	Useful			
Explorer I	Cylinder	31 Jan 58	31 lb	18 lb	3–5 yr	105 days	217–1573 mi	Geiger counters and micrometeorite detector. Discovery of Van Allen radiation	No
Vanguard I	Sphere	17 Mar 58	3¼ lb		200–1000 yr	Indefinite	409–2453 mi	Thermometers. Geodetic studies	Yes
Lunik I	Sphere	2 Jan 59	3245 lb	800 lb	Indefinite	65 hr	Solar orbit	Follow-up of Sputnik III findings on the ionosphere, atmospheric density, and cosmic rays	No
Vanguard II	Sphere	17 Feb 59	21½ lb		Indefinite	27 days	347–2046 mi	Placed in orbit	No
Pioneer IV	Cone	3 Mar 59	13½ lb		Indefinite	90 hr	Solar orbit	Geiger counters, de-spin device. Data on Van Allen radiation penetration and extension into space	No
Explorer VI	Spheroid with vanes	7 Aug 59	142 lb		2 yr (?)		156–26,357 mi	Magnetic field measurements; cloud-cover scanning; whistler radio experiment; detailed cross section of radiation surrounding earth	No
Vanguard III	Sphere and cylinder	18 Sept 59	100 lb	50 lb	30–40 yr	85 days	320–2320 mi	Magnetic measurements; temperature and micrometeorite measurements	No
Explorer VII	Cones	13 Oct 59	91½ lb		20–30 yr	1 yr	344–673 mi	Measurements of Van Allen and cosmic radiation; study of earth's heat balance, micrometeorites	Yes
Pioneer V	Sphere plus vanes	11 Mar 60	95 lb	40 lb	100,000 yr	106 days	Solar orbit	Long-range communication; studies of solar-flare effects, particle energies and distribution, magnetic field in space	No
Tiros I	Cylinder	1 Apr 60	270 lb		50–100 yr	78 days	429–466 mi	Cloud-cover photography	Yes
Transit IB	Sphere	13 Apr 60	265 lb		16 mo	1–3 mo	233–479 mi	Navigation system for ships and aircraft	No
Spacecraft		15 May 60	5 tons		Indefinite		188–229 mi		No
Midas II	Cylinder	24 May 60	2½ tons		40 mo	2 days	292–322 mi	System for detecting missile launchings with infrared sensors	Yes
Transit IIA	Sphere	22 June 60	223 lb		50 yr	1 yr (?)	389–665 mi	Detection of "galactic noise" radio waves	Yes
NRL satellite	Sphere	22 June 60	42 lb		50 yr	1 yr (?)	382–657 mi	Measurement of solar radiation	Yes
Echo I	Sphere	12 Aug 60	240 lb		Indefinite	Indefinite	945–1049 mi	Communications satellite with reflective aluminum surface	Yes
Courier IB	Sphere	4 Oct 60	500 lb	300 lb	Indefinite	1 yr (?)	501–658 mi	Communications satellite	Yes

lower stage containing a lily pool, planted with specimens from the Garden's world-famous collection of water lilies; this is connected to a series of rice paddies displaying rice in various stages of development. In this area there are also a Hawaiian garden profusely planted with tropical flowers and a tropical mist forest.

On the upper level there is a greater variety of plants—ranging from coffee, tea, and rubber plants in one section to vegetation of a steaming Amazon jungle in another.

New Program in Space Geology Announced by Geological Survey

The U.S. Department of the Interior has announced that the Geological Survey is launching a research program in astrogeology that will be financed by the National Aeronautics and Space Administration. The program includes geologic analysis of photographs of selected areas on the moon; studies of terrestrial craters; investigations into the origins and composition of tektites, meteorites, and related materials that are possibly of impact origin; and experimental research on the mechanics of impacting objects.

In the new studies, large-scale diagrams will be prepared of specific areas on the moon that have been selected by NASA as landing sites for space vehicles. In order to gain all possible geologic information in single and also in stereoscopic photographs, existing methods for taking lunar photographs will be supplemented by several lines of investigation.

For example, during the past 4 years Survey geologists have been investigating two types of terrestrial crater that probably have lunar equivalents—meteorite impact craters and volcanic craters. Although they differ in the mechanics of formation, in subsurface structure, and in certain surface characteristics, these two types of craters can be superficially similar. A detailed understanding of their formation should make it possible to produce valid photogeologic interpretations of their lunar counterparts.

This research is also of fundamental importance in any photogeologic analysis of the history of the lunar crust. Much valuable information is expected to be gained, too, from comparisons of earth materials in the vicinity of known craters with target rocks purposely subjected to very high velocity impacts at NASA's Ames Research Center, Moffet Field, Calif.

Tektites, meteorites, and related materials found on earth will be studied to determine what they are made of and to seek new evidence on where, when, and how they originated. Considerable knowledge has been gained about meteorites already, but the origin of tektites, those mysterious bits of pitted, rounded, glassy material found in many parts of the world, is still highly controversial. Some of the other matters the Survey scientists hope to pursue include investigation of the nature and flight time of particles in space and investigation of the nature of objects most likely to be found on the moon and the part they play in altering the face of the moon.

Dental Survey Results Reported by Education Council

Results of the most extensive survey of dentistry ever made in the United States were announced recently. Carried out by the American Council on Education, the 2-year survey was financed by grants from the W. K. Kellogg Foundation, the Rockefeller Brothers Fund, the Louis W. and Maud Hill Family Foundation, and the American Dental Association.

John A. Perkins, president of the University of Delaware, was chairman of the commission that directed the study, which was established to "assess the achievement, resources, and potentialities of dentistry with a view to determining the desirable areas of future growth and development." The survey identified four of the nation's major dental problems.

The American people generally set an astonishingly low priority on dental care.

There is an increasing need for more dentists to care for the nation's burgeoning population.

Despite the country's great wealth, some of its citizens are unable to pay for the comprehensive dental care that is desirable.

Even more extensive use must be made of the auxiliaries in the dental field—the dental hygienist, the dental assistant, and the dental laboratory technician.

The largest financial item in the recommendations of the survey was that for the program concerned with dental care of children. It is estimated that the program urged would cost $120 million the first year, leveling off within 12 years to an annual expenditure of $940 million.

In the area of dental research, the commission suggested that present funds, about $45 million, be increased to $1 billion.

News Briefs

Vassar centennial: science and society. "The Growing Political Role of the Academic Scientist" was examined by Bentley Glass of Johns Hopkins University in the opening address of a conference on science and society being held today and tomorrow at Vassar College. This Conference on the Natural and Social Sciences is the first of three major conferences planned to celebrate Vassar's centennial year. Others on the 2-day program are Ernest C. Pollard and Donald W. Taylor of Yale University, and Ernest Nagel of Columbia University.

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Health group visits U.S.S.R. A team of six American scientists left on 12 October for the Soviet Union to survey progress in the field of maternal and child care. The 30-day mission is sponsored by the U.S. Public Health Service's National Institute of Neurological Diseases and Blindness. A group of Russian specialists will make a similar study in this country at a later date. Members of the U.S. group are: Stewart H. Clifford, Allan C. Barnes, Katherine Bain, Bernard G. Greenberg, Edith L. Potter, and Fred S. Rosen.

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Yale sesquicentennial. The Yale University School of Medicine celebrated the 150th anniversary of its founding with a 2-day sesquicentennial program, 28–29 October. Heading the list of distinguished speakers were Sir Howard Florey, Nobel laureate from England, and Lloyd G. Stevenson, noted medical historian and dean of medicine at McGill University in Canada. Some 1500 guests attended.

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Nuclear testing in space. The Atomic Energy Commission has announced the establishment at Los Alamos, N.M., of an experimental ground-based station for studying one of the methods which might be used to detect nuclear detonations in near space. The station's equipment, developed by the Los Alamos Scientific Laboratory, will test an atmospheric fluorescence detection technique that has been proposed for

inclusion in the world-wide network of nuclear test detection stations being discussed in Geneva. The new device uses a narrow band filter and an optical detector mounted behind a wide angle lens to detect visible fluorescence from a nuclear explosion.

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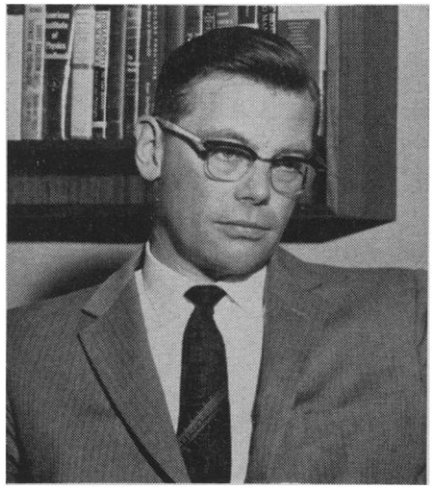
Harvard nutrition building. Ground was broken on 19 October for the new four-level nutrition research building to be erected in Boston by the Harvard School of Public Health. The building has been made possible through a gift of $102,600 a year for 10 years from the General Foods Corporation.

Scientists in the News

Massachusetts Institute of Technology is establishing a department of nutrition, food science, and technology that will be headed by **Nevin S. Scrimshaw**, director of the Institute of Central America and Panama and regional adviser on nutrition of the Pan American Health Organization, regional office of the World Health Organization. The new department, which is formed around the existing food technology department, will conduct a greatly expanded program of research and teaching in nutrition. Scrimshaw, who is at present an adjunct professor of public health nutrition at Columbia University and a visiting lecturer at the Harvard School of Public Health, will assume his duties at MIT on 1 August 1961.

Executive officer of the new department will be **Samuel A. Goldblith**, who has been associated with the department for many years and who has served as acting head since the death last September of Bernard E. Proctor.



Nevin S. Scrimshaw

Richard W. Vilter of the University of Cincinnati has received the $1000 Goldberger Award, jointly presented each year by the American Medical Association and the Nutrition Foundation, for a long-term study of the causes of anemia in the United States. In his award address, Vilter said that his investigation indicates that only about 4 percent of anemia in the United States is caused by deficiencies of vitamin B_{12}, folic acid, or vitamin C. A more important cause—responsible for 18 percent of the anemia observed at Cincinnati General Hospital, the site of the 3-year survey—is iron deficiency due to chronic loss of blood. An additional 78 percent is caused by other factors "unrelated" to nutrition. As a result, Vilter holds that it is medically wrong to prescribe vitamins routinely for anemia.

N. Rashevsky, professor and chairman, Committee on Mathematical Biology, University of Chicago, is spending 5 months in Italy as research consultant in mathematical biology at the University of Genoa.

Louis Levin, former head of the Office of Institutional Programs for the National Science Foundation, has joined the faculty of Brandeis University as its new dean of science. Levin, known for his work in the life sciences, also assumes the post of associate dean of faculty and chairman of the School of Science Council at Brandeis. In addition, he will function as the university's director of academic grants.

The award winners at the recent annual meeting of the American Institute of Biological Sciences included the following two scientists.

Janet R. Stein, instructor in the department of botany and biology at the University of British Columbia, who received the Darbaker Prize of the American Botanical Society of America for "meritorious work in the study of algae based primarily on papers published during the previous two calendar years."

Robert Ornduff, graduate student at the University of California, Berkeley, who received the American Society of Plant Taxonomists' George R. Cooley Award for the "best taxonomic paper presented at the annual meeting of the society." Ornduff has recently been appointed assistant professor in the department of biology at Reed College, Portland, Ore.

Alan L. Leiner, formerly chief of the digital systems section of the National Bureau of Standards, has recently joined the International Business Machines research organization as manager of machine organization at the Mohansic Laboratory. He is being joined in his new assignment by three other former members of the National Bureau of Standards, **A. Weinberger, J. L. Smith**, and **W. A. Notz**, who had been associated with him.

Stephen Rothman has retired from his post of professor and head of the section of dermatology in the department of medicine at the University of Chicago. As professor emeritus he will continue to conduct research work in the Argonne Cancer Research Hospital, which is operated by the university for the Atomic Energy Commission. He is succeeded by **Allen L. Lorincz**, associate professor of dermatology at the university since 1957.

Scott Adams has taken up his duties as deputy director of the National Library of Medicine. Formerly librarian of the National Institutes of Health, Adams has been serving since 1959 as director of the Foreign Science Information Program of the National Science Foundation. In his new position he is responsible for the development and operation of extramural grant programs in support of activities in the field of medical communications and medical librarianship.

He has the assistance of **Estelle Brodman**, who has relinquished her post as the chief of the Reference Division after 11 years of service. **Robert B. Austin** is now serving as acting chief of the Reference Division.

David L. MacAdam, research physicist and department head at the Eastman Kodak Company, is the new president-elect of the Optical Society of America. He will assume this title in January 1961 and take office as president in January 1962. **Wallace R. Brode**, former State Department science adviser and a past president of the AAAS, is now president-elect and will take office as president next January. **James G. Baker** of the Harvard College Observatory is the incumbent president.

Laurence E. Strong, professor of chemistry at Earlham College and director of the Chemical Bond Approach Project, has left for a 3-month visit in South Africa and parts of Central

Africa. He will explore science education programs in Africa and discuss with teachers and others the various course-content improvement projects in the United States. The trip is sponsored jointly by the United States–South Africa Leader Exchange Program, the African-American Institute, the Carnegie Corporation, and the National Science Foundation.

Harold Orlans, formerly director of studies for the White House Conference on Children and Youth, has been appointed to the Brookings Institution staff to conduct a study of the impact of federal programs on higher education, particularly on the quality of instruction. The study is being supported by a contract with the U.S. Office of Education. Before his White House Conference assignment, Orlans served as chief of the National Science Foundation's foreign science section.

Willem D. Malherbe of the faculty of veterinary science in Onderstepoort, South Africa, has accepted an appointment as visiting professor of clinical laboratory medicine at the University of Pennsylvania's School of Veterinary Medicine, effective 1 October.

Father **Francis N. Glover**, a Jesuit priest who is a physicist at the Boulder Laboratories of the National Bureau of Standards, left in mid-September for 10 months in the Philippine Islands, where he will conduct research in upper-atmosphere physics at Manila Observatory (Baguio) and at the Far Eastern University in Manila.

Jacob Sachs, professor of chemistry at the University of Arkansas, has just returned from 6 months as visiting professor of biochemistry at the medical school of the University of El Salvador and consultant to the Salvadorean Nuclear Energy Commission. His mission was conducted under the direct technical assistance program of the Division of Science Development, Organization of American States.

A. V. S. de Reuck, former assistant editor of *Nature*, has been appointed deputy director of the Ciba Foundation for the Promotion of International Cooperation in Medical and Chemical Research, London.

M. P. Cameron has returned to the Ciba Foundation as scientific assistant and librarian after 5 years in the United States.

The annual Thomas William Salmon Lectures, the outstanding American psychiatric lectureship, will be delivered on 5 December at the New York Academy of Medicine by **Harry F. Harlow**, research professor at the University of Wisconsin since 1930.

J. Ernest Wilkins, Jr., mathematician and an authority on nuclear reactor theory, has joined General Dynamics Corporation's General Atomic Division in San Diego, Calif., as assistant chairman of the theoretical physics department at the John Jay Hopkins Laboratory for Pure and Applied Science. Previously Wilkins served as manager of research and development at Nuclear Development Corporation of America, White Plains, N.Y., where he directed fundamental and applied work on nuclear reactor shielding, reactor core physics, reactor dynamics, and new fuel element concepts. A major part of his work has been in the area of the penetration of matter by neutrons and gamma rays.

John O. Corliss, associate professor of zoology at the University of Illinois, is on sabbatical leave for 1960–61 and is serving as honorary research associate in the department of zoology at University College London, London, England.

David K. Cheng and **Mark T. Ma** of Syracuse University's electrical engineering department were named award winners at the recent National Electronics Conference for their paper, "A new mathematical approach for linear (antenna) array analysis."

Glen Wade of the Raytheon Company was also named an award winner for his tutorial paper, "Parametric amplification with solid-state materials and with electron beams."

Henry B. Linford, professor of chemical engineering at Columbia University, has received the 1960 Edward Goodrich Acheson Gold Medal of the Electrochemical Society in recognition of his distinguished service to the society and for his contributions to education in electrochemistry.

Leon J. DeMerre, former senior scientist with the Department of Hygiene of the State of New York, has been named head of the food and drug laboratories in the scientific department of Joseph E. Seagram and Sons, Inc., New York.

John B. Newkirk, for 9 years research associate in the department of metallurgy and ceramics at the General Electric Research Laboratory in Schenectady, N.Y., has accepted an appointment as professor of chemical and metallurgical engineering at Cornell University. The new appointment is connected with the Materials Science Center now being established at Cornell.

A $4-million program in materials science, recently announced by the University of Pennsylvania, will be directed by **John N. Hobstetter**, professor of metallurgical engineering. The research program is to be conducted for the Advanced Research Projects Agency of the Department of Defense.

Recent Deaths

Henry B. Froning, South Bend, Ind.; 76; chemist and dean emeritus of the College of Science at the University of Notre Dame; joined the faculty in 1920 as a chemistry professor and was head of the department of chemistry and chemical engineering in 1940, when he was appointed dean; retired in 1943; 18 Oct.

Charles A. Holden, Concord, N.H.; 88; former dean of Dartmouth College's Thayer School of Civil Engineering; was a professor at Dartmouth from 1901 until he retired in 1937; was also a hydrographer for the U.S. Geological Survey from 1900 to 1904 and served as a New Hampshire state engineer from 1916 to 1937; 12 Oct.

Abram Joffe, Leningrad, U.S.S.R.; 80; physicist member of the Soviet Academy of Sciences whose work contributed largely to the launching of his country's sputniks; specialized in semiconductors; was instrumental in the establishment of important research centers throughout the Soviet Union, including the Physico-Technical Institute of the Academy of Science, which he helped found in 1951; 13 Oct.

Walter A. Rukeyser, Montreal, Canada; mid-60's; mining engineer and geologist, formerly of New York; specialist in the mining of asbestos; wrote *Working for the Soviets: An American Engineer in Russia*, published in 1932; 19 Oct.

Margaret Storey, San Francisco, Calif.; 60; Stanford University zoologist; assistant curator, zoology, Natural History Museum, was the only woman in the country officially registered as a timer of track events; 18 Oct.