later life is, in part, a consequence of the long-term decrease in mortality from the infectious diseases. For example, tuberculosis in 1956 accounted for only one-third of the payments made for this cause in 1936, while the proportion of disbursements for pneumonia and influenza declined from 8.0 percent to 1.5 percent in the same period.

The external causes of death accounted for somewhat more than one-tenth of the claim payments last year. About $34,330,000 was paid on fatal accidents, with more than half the payments on deaths resulting from motor vehicle accidents.

More than $280 million, or two-thirds of the total death claim payments last year, was for policyholders who died before reaching age 65. About $55,760,000 was disbursed on insured persons who died in the ages from 25 through 44, and more than $216 million on those who were between 45 and 65 years of age when they died.

Public Health Grants

Grants and awards totaling $1,020,143 for the training of public-health specialists have been announced by the U.S. Public Health Service. The 230 recipients included physicians, engineers, health educators, laboratory workers, dentists, and members of other health professions. These people will enter colleges and universities throughout the nation this fall for a year of training in the public-health aspects of their professions. Grants amounting to $919,878 also were made to 44 colleges and universities offering public-health nursing courses and to 11 schools of public health to assist in the training of students whom the schools select.

This is the second year that public-health training funds have been available from the Federal Government. Last year, under a $7-million appropriation, the traineeship grants and awards financed the training of 364 public health workers. The purpose of the program is to help relieve the acute personnel shortages in state and local health agencies. In selecting trainees, consideration is given to the professional categories in which personnel shortages are most acute, the age of the candidates, their previous training and experience, and other factors that will increase the supply of young, well-trained workers.

Rare Chemicals

The following chemicals are wanted by the Registry of Rare Chemicals, Armour Research Foundation of Illinois Institute of Technology, 35 W. 33 St., Chicago 16, Ill.: zirconium tetraisopropoxide; 3,4-dimethylbenzoic acid; 2,3-diaminobenzoic acid; lead tetrachloride; spiro (3.3) heptane; 2,4,5-tris(p-chlorophenyl)imidazole; 2-heptylnonanoic acid; 1,2-methylenedioxybenzene; acetone azine; 4,4″-diamino-p-terphenyl; 4-methoxy-phloretic acid; menthofurane; 1,2,3,4,5,6,7,8-octahydroanthracene; phenyldichloroarsine; 2-methoxybenzophenone; 3,4-methylenedioxyphenethylamine (homopiperonylamine); p-hydroxycinnamic acid; n-decyl benzene; triacontane; umbellulone.

Pre-College Science Center

Through the generosity of the Dorr Foundation and the Loomis Institute, the Pre-College Science Center has been established to offer boys of high-school age, who are interested in possible careers in the physical sciences, an opportunity to pursue a special summer program. This program allows the talented student to follow his natural interest and to extend his competence in a specific area of the physical sciences and related mathematics.

There are 24 boys in the first class, each one carefully selected from Connecticut public, private, and parochial schools on the basis of exceptional ability in science. The students and resident staff of the center are using the living, recreational, and laboratory facilities of the Chaffee and Loomis Schools, adjacent to each other, in Windsor, Conn.

The center's strategic position in Hartford County near applied laboratory and research facilities in a variety of scientific fields has made it possible to provide a diversified group of engineering advisers, to one of whom each student is specifically assigned for a section of the program.

The study program is flexible and is adjusted to the aptitudes, interests, and backgrounds of the students selected. The course of study is not intended as an intensive program or as an accelerated course but rather as an opportunity for a selected group of boys with unusual ability in science and mathematics to live and work together happily while pursuing their common and individual interests.

There is no tuition charge. A single fee of $175 partially defrays the cost of board, room, and laundry. A few scholarships are available for students in the amount of this fee in the case of genuine financial need. Since the cost to the sponsors averages about $1200 per student, the fee is a small part of this total.

Because the size of the group invited to attend the center is limited, students are selected on a competitive basis from a large number of applicants. The students accepted must have completed at least the sophomore year in high school; however, an exceptionally well qualified student who has completed the freshman year might be considered. Each year requests for application blanks must be made by 15 Apr. and completed forms be filed within a month.

Proposed Legislation

Of the many bills introduced in Congress, some have a special relevance to science and education. A list of such bills introduced recently follows:

HR 8386. Lessen nation's dependence on foreign sources of supply for tungsten in times of emergency. Baring (D Nev.) House Interior and Insular Affairs.

HR 8328. Amend Internal Revenue Code of 1954 to impose import taxes on lead and zinc. Baring (D Nev.) House Ways and Means.

S 2447. Authorize and direct Secretary of Interior to undertake continuing studies of effects of insecticides, herbicides, and fungicides upon fish and wildlife. Magnuson (D Wash.) Senate Interstate and Foreign Commerce.

HR 8461. Amend Atomic Energy Act of 1954 to provide for appointment of representatives of U.S. in organs of International Atomic Energy Agency; make provisions re participation of U.S. in that Agency. Cole (R N.Y.) Joint Atomic Energy.

News Briefs

Electric power was produced for the first time on 12 July by heat from the Sodium Reactor Experiment (SRE) during tests of the reactor and auxiliary components at a plant in the Santa Susana Mountains about 30 miles northwest of Los Angeles, Calif. The SRE was designed and built for the Atomic Energy Commission by Atomics International.

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The first motion picture of Project Vanguard, the launching and tracking of the earth satellite, has been distributed to 225 television stations in 12 countries, as well as to motion picture theaters, by the International Business Machines Corporation. Produced by Transfilm, the 4-minute animated film is titled "A Moon Is Born" and is being shown in both color and black and white.

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The Geological Survey of India has located a rich mineral area in the Nagpur district in the state of Bombay. The region contains deposits of chromite, copper, gold, iron, and antimony.

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West German natural scientists will shortly begin a geologic investigation of the bed of the North Sea for oil and

other valuable deposits. The 5-year investigation will be carried out chiefly by the surveying ship *Gauss* of the Hydrographical Institute in Hamburg. A number of other West German research institutes will participate in the project.

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A program to improve science teaching in Burma has been aided by the Asia Foundation. The United Nations Educational, Scientific, and Cultural Organization reports that the foundation has donated radio transmitters and receivers, model telephones, model steam engines, instruments to measure humidity, astronomical charts, and other scientific equipment to three science clubs in Burma. The clubs were organized by the Burmese Government with the aid of the United Nations to stimulate out-of-school interest in scientific subjects.

August Scientific Monthly

Articles appearing in the August issue of *The Scientific Monthly* are "Origin of the amniote egg," A. S. Romer; "World affairs, languages, and children," K. Mildenberger; "Origin and use of the English peat fens," K. Thompson; "Social responsibility of the physician," H. J. Geiger; "Minimum earth satellites as 'storm patrol,'" S. F. Singer. Three articles based on papers presented at a symposium on American foreign aid are included: "Purposes of international aid programs," H. vanB. Cleveland; "Foreign aid and the theory of economic development," R. Nurske; "Future of American foreign aid," M. F. Millikan. Thirteen books are reviewed.

Scientists in the News

Two astronomers have retired from the staff of the Mount Wilson and Palomar Observatories: MILTON L. HUMASON, whose observations have provided most of the evidence supporting the theory of the expanding universe, and SETH B. NICHOLSON, specialist in solar phenomena and discoverer of four of Jupiter's satellites.

Humason joined the Mount Wilson Observatory in 1917, first as janitor and then as night assistant. In the latter capacity he displayed such skill as an observer that he was made a member of the staff of investigators in 1922. He first assisted in a survey of early-type stars with bright hydrogen lines, later in a study of stellar magnitudes and parallaxes.

In the course of this work, Humason developed an unusual proficiency in the photography of spectra of very faint objects. Following the discovery by the late Edwin Hubble in the 1920's of the major role played by the extragalactic nebulae in the structure of the universe, Humason turned to the study of these objects and soon accumulated spectra of a substantial number of galaxies spread over a wide range of distances. It was a study of the relationship between the velocities as measured on these spectrograms and the distances of these galaxies that led Hubble to the concept of the expanding universe. For the following quarter-century Humason devoted most of his attention to this problem.

The introduction of extremely fast photographic plates, the development of new and very rapid spectrographs, and the completion of the 200-inch Hale telescope enabled Humason to push his observations to fainter and fainter and, therefore, more and more distant galaxies. These techniques now permit photographing the spectra of galaxies far too faint to be seen visually with the telescope used to collect the light. Humason therefore had to develop elaborate offset procedures that insure locating invisible images accurately on the slit of the spectrograph and holding them there during long exposures. His studies culminated in the publication in 1936, in collaboration with N. Mayall of the Lick Observatory and Allan Sandage of the Mount Wilson and Palomar Observatories, of the velocities of more than 900 galaxies. Some of these velocities are as high as one-fifth of the velocity of light.

In 1948, Humason was appointed secretary of the observatories, in which capacity he handled the correspondence and public relations, as well as many other administrative problems, of the observatories. A native of Dodge Center, Minn., Humason received his Ph.D. degree honoris causa, from Lund University, Sweden.

Nicholson joined the staff of the Mount Wilson Observatory in 1915. During his first few years he investigated the orbits of several of Jupiter's satellites, the ninth of which he had discovered at Lick Observatory in 1914. In collaboration with Edison Pettit, he developed a very sensitive vacuum thermocouple. This they used to measure the total radiation and surface temperature of stars, the planets, and the moon. Studies of the rates of cooling of the moon's surface during an eclipse gave a measure of the thermal conductivity of the surface rocks and provided information on their physical characteristics. In the late 1930's and again in the early 1950's, Nicholson returned to the observation of Jupiter's satellites and discovered the tenth, eleventh, and twelfth of these objects and determined the positions necessary to fix their orbits.

Throughout Nicholson's 42 years at the observatories, a large part of his efforts have been devoted to solar observations. He has developed a detailed knowledge of the complex phenomena of the sun's visible surface. He has supervised the systematic collection of data on sunspots, including the polarity and strength of their magnetic fields. In collaboration with Oliver Wulf of the California Institute of Technology and the U.S. Weather Bureau, he has made detailed investigations of the correlation between solar and terrestrial phenomena.

Nicholson received his B.S. degree in 1912 at Drake University and his Ph.D. degree in 1915 at the University of California. He is a member of the National Academy of Sciences.

LLOYD C. MITCHELL, research chemist for the U.S. Food and Drug Administration, Washington, D.C., is to receive the annual Harvey W. Wiley award of the Association of Official Agricultural Chemists. Mitchell is the first winner of the award, which was established last year to honor the father of the original Pure Food and Drug Law. The $500 award goes to a scientist who has made an outstanding contribution to the development of methods for the analysis of foods, drugs, cosmetics, feeds, fertilizers, pesticides, and soils.

A food chemist from the beginning of his career in 1909, Mitchell has developed many methods of analysis for spices, cereals, dairy products, and eggs. Especially well known are his studies published in 1932 and 1933 on the composition of shell eggs and commercial egg products.

This year's honorary degree recipients include the following:

HERBERT M. EVANS, emeritus professor of anatomy at the University of California, from Johns Hopkins University.

BENTLEY GLASS, professor of biology at Johns Hopkins University, from Washington College.

JOSEPH R. NELLER, soil chemist at the University of Florida Agricultural Experiment School, from Macalester College.

FRANCO RASETTI, professor of physics in John Hopkins University, from the University of Glasgow, Scotland.

TRACY SONNEBORN, professor of Zoology at Indiana University, from Johns Hopkins University.

CARL P. SWANSON, professor of botany at Johns Hopkins University, from the University of Massachusetts.

JOHN H. WILSON, formerly head of the editorial branch of the Technical Information Department at the China Lake (Calif.) Naval Ordnance Test Station, has been appointed technical writer and editor for the Atlantic Research Corporation, Alexandria, Va.