open to all traffic, many interesting relations are revealed that are not directly recognized as those of pure physics. By way of suggestion, the following from Pasteur may be of interest:

> Science it is true is of no nationality . . . yet it is the highest personification of nationality. Science has no nationality because knowledge is the patrimony of all humanity—the torch that gives light to the world. Science should be the highest personification of nationality, because of all the nations that one will always be foremost that shall be first to progress by the labors of thought and intelligence.

F. W. STEVENS

WASHINGTON, D. C.

ARTHUR ARTON HAMERSCHLAG

ARTHUR ARTON HAMERSCHLAG, born in Nebraska, was a native of the West, educated in the East, honored for his work by university degrees and society fellowships. He was perhaps most widely known for his advancement of trade and technical educational methods, culminating in the presidency of the Carnegie Institute of Technology at Pittsburgh for a period of twenty years.

With the advent of the world war he gave his technical services to his country as advisory assistant to the Secretary of War. At its close he returned to technical engineering investigations as president of the Research Corporation of New York, a service closed by death on July 20, 1927, at the age of fifty-eight years.

Thus ended a life characterized by breadth of vision, tempered by scientific honesty, keen insight, careful judgment, deep concentration, the results of an analytical mind and ripe scholarship.

He made scientific studies of commercial problems which have added to industrial progress, and his advice was sought in many fields. His life was a busy one and many of his studies required a large outlay of time and patience to unravel. Yet, with all his duties and urgent demands on time, he was never too busy to give counsel and advice to young men. This phase of his activities is known to those directly affected, but not to the outside scientific and industrial world, where his technical attainments were so well recognized.

These young men were encouraged to do their best work, to seek advancement on merit. Their problems were discussed from all angles and solution reached, just as in his work for industrial companies. They reported to him at regular intervals on their work and progress. The advice was given in personal interviews and even more by correspondence, usually by return mail. The number of these men would run probably into the hundreds during his lifetime.

The results are shown in the high positions in the industrial world now held by these protégés of Dr. Hamerschlag. They serve as executives, superintendents, etc., in some of the largest industries. They owe to a very large extent their progress and acknowledge their success as due to this influence.

He appeared to take a special delight and pleasure in these reports and in the advancement of these men. He delighted in sketching their upward rise in business, though seldom giving the name of the man.

Scientific and technical attainments survive and become part of knowledge and science, but the personal influence of a great and helpful man becomes part of life and character. Character building is as important, if not more so, than scientific growth, but when both are combined, that man becomes notable.

In a world beset with complexities, worry, toil, the lightening of the load by encouragement and helpful advice to the discouraged is a real humanitarian service.

Dr. Hamerschlag was a great engineer and educator; he was also a most valuable adviser and spur to greater endeavor to many young men who will miss his help, but who have become better and more successful men by his life, and who are very glad to pay this tribute to his memory.

G. P. GRIMSLEY

BALTIMORE, MD.

SCIENTIFIC EVENTS

CENTENARIES OF 1927

IN the London *Times*, as quoted in *Nature*, Professor H. J. Spooner directs attention to some of the notable centenaries which occur this year. Among the names of men of science which he mentions are those of Newton, Laplace, Fresnel, Volta and Lister. The bi-centenary of the death of Newton will be celebrated at Grantham in March, while the centenary of the death of Volta is being recognized by the holding of an electrical exhibition at Como. The custom of commemorating such events should find general acceptance, for, as Fairbairn once remarked, "the smallest honor we can do the great benefactors of mankind is occasionally to bring them to our recollection." To the names mentioned others are added by *Nature*, which says: "Next in interest to mathematicians and astronomers, after Newton and Laplace, comes that of Robert Woodhouse (1773–1827), successively Lucasian professor and Plumian professor, to whom belongs the credit of introducing the calculus at Cambridge and who found earnest disciples in Babbage,

Herschel and Peacock. Another astronomer who died the same year was Calandrelli (1749–1827), once director of the Vatican Observatory, while going back four hundrd years we have the birth of Stadius (1527–1579), a predecessor of Kepler as mathematician to the Emperor of Germany. A contemporary of Stadius who should not be overlooked was the famous Dr. John Dee, alchemist and astrologer, who was born in 1527 and died in 1608. To chemists and physicists the tercentenary of the birth of Boyle (1627–1691) and the centenary of the death of Augustin Jean Fresnel (1788–1827) will afford the greatest interest. Though Fresnel sank into an early grave he was one of the foremost students of optics, and it was only eight days before his death that Arago placed in his hands the Rumford medal of the Royal Society. Another physicist of note who died in the same year was Chladni (1756–1827), whose works on sound were translated into French through Napoleon. Henry Beaufoy (1764–1827) was both physicist and astronomer, but is still better known for his experiments in naval architecture. The year 1827 saw the publication by Ohm of 'The Galvanic Circuit worked out Mathematically.' Although no great chemist died in 1827, in that year were born Sir Frederick Abel (1827–1902), John H. Gladstone (1827–1902), Edward Nicholson (1827–1890) and, most distinguished of all, Marcellin Berthelot (1827–1907). In the same year the death occurred of Samuel Crompton (1753–1827), whose work as the inventor of the spinning mule will be the occasion of a gathering at Bolton, and also of George Medhurst (1759–1827), one of the inventors of the atmospheric railway. Among the great pioneers of last century was Sandford Fleming (born 1827), who was engineer-in-chief of the Canadian Pacific Railway from 1871 until 1880."

THE SEISMOLOGICAL WORK OF THE U. S. COAST AND GEODETIC SURVEY

THE most comprehensive survey of earthquakes of the United States, including the insular domain, ever undertaken by the government, is being compiled by the Coast and Geodetic Survey under the supervision of the director of the survey, E. Lester Jones.

The data are being compiled by the chief of the Division of Terrestrial Magnetism and Seismology, Commander N. H. Heck, to show the history of all the major disturbances that have been recorded on seismological instruments in United States territory, some cases dating back approximately a century. This information will be embodied in a compendium which will appear in the autumn telling the story of the principal earthquakes in both technical and non-technical language, with a short résumé of the scientific data, grouped by states and sections of the country as well as chronologically arranged.

The survey has recently completed its seismological report for October, November and December, 1925, with supplemental data to complete the record for 1924, and it has begun work for the official complete detailed record of 1926.

The 1925 report, prepared by the mathematician of the Division of Terrestrial Magnetism and Seismology, Frank Neuman, with the assistance of Lieutenant J. H. Service, Ensign F. B. Quinn and J. D. Thurmond, junior engineer, shows that out of 137 earthquakes recorded in United States domain from October 1 to December 31 of that year, the locations of the disturbances were well known or approximately known in 83 cases and uncertain or unknown in the other 54 cases.

The distribution of these known locations of earthquakes, by states, follows:

California, 17; foreign and submarine, 40; Mexico, 6; Wyoming, 4; Guam, 3; Connecticut, 3; Montana and Nevada, 2 each; Alaska, Hawaii, Maine, New Hampshire, Rhode Island, Washington (State), 1 each.

During that three months' period, seismographs formerly in operation at Vieques, Porto Rico, being thoroughly overhauled, were put in operation in the new Coast and Geodetic Survey magnetic and seismological observatory near San Juan, Porto Rico.

The surveys designed to detect earthquakes in California were continued during that period and a party, under the direction of William Mussetter, operated in the vicinity of the western end of the Santa Barbara channel.

Vessels engaged in survey work are directed to make reports of visible or felt effects of earthquakes but none were reported by them and examination of tidal records from the numerous gauges on the Atlantic and Pacific Oceans disclosed no indication of tidal waves during the three months.

The complete seismological summary for 1925 showing "distribution of earthquakes recorded in the United States, the regions under United States jurisdiction and adjacent sections," enumerate 568 earthquakes so recorded during the year 1925, of which 222 were definitely or approximately located (locations officially described as "well-known or approximately known"), locations of 77 being listed as uncertain and locations of 269 as still unknown.

Of these 568 earthquakes, 130 were "provisionally located" as occurring in North America and 43 with some uncertainty in North America; 4 provisionally, and 1 uncertainly, in South America; 3 provisionally, in Europe; 11 provisionally, and 1 uncertainly, in