

is one of the softest, loveliest things in the form of a metal that I have ever looked at." Some of Sherman's soldiers on their march to the sea passed through Chapel Hill. They too admired the lovely finish of a telescope found on a dusty shelf in one of the laboratories. In picking up the telescope tube to examine it more closely, they found something loose inside, which turned out to be two gold watches placed by professors for safe keeping in the securest place imaginable. Needless to say, the watches were immediately appropriated. When the soldiers had left the laboratory, the professors returned to wind up their watches, only to find no trace of them. The loss was at once reported to the commanding officer. The story does not end there; and furnishes another triumph for the course of true love. It is said that the commandant was in love with the daughter of the president. The gold watches were promptly recovered and were returned to their rightful owners.

In the North, Yale University in 1830 secured a 5-inch Dollond refractor of 10 feet focus. There was no observatory. The telescope was pulled around in the Athenaeum Tower and pointed through one of the windows. Unfortunately, the windows were low and no object more than 30 degrees above the horizon could be observed. Similarly, Harvard College⁴ possessed astronomical instruments from an early date but no astronomical observatory. Harvard College Observatory was established in October, 1839.

As might have been expected, astronomy, the so-

called queen of the sciences, played a most important part in the early years of the American Philosophical Society. And this was so, largely because astronomy more than any other science of 150 to 200 years ago was useful in the promotion of useful knowledge. To-day, when some of us can get along very well with a very inexpensive watch, we perhaps forget that before the days of the electric telegraph the only manner of ascertaining exact time was to make astronomical observations. Although exact time and topographic surveys were necessary as useful knowledge, the only astronomers whose names have lived throughout the two centuries are those who pursued knowledge for the useful purpose of gaining information about matters with no immediate practical application to business or to mundane affairs.

The history of astronomy of our society, revealed through manuscripts in our valuable library in the Drexel Building across the street, includes a few outstanding names of men who gained valuable knowledge regarding the distance to the sun or who progressed a step further toward solving Nature's secrets, through observations of eclipses of the sun or moon or of Jupiter's satellites.

And now in closing I wish to state that I am not vain enough to believe that you have found my review of astronomy "both entertaining and instructive," to quote the words of David Rittenhouse, even though I did find my brief excursion into the early history most entertaining and instructive to myself.

OBITUARY

ARTHUR NEWELL TALBOT

1857-1942

ARTHUR NEWELL TALBOT, professor of municipal and sanitary engineering, emeritus, at the University of Illinois, died in Chicago on April 3 after a short illness. Although he had retired from formal university duties in 1926, Dr. Talbot had continued his active interest in research and in engineering society affairs, and was attending the annual meeting of the American Railway Engineering Association when stricken on March 17. Just a year previously he had relinquished the direction of the association's investigation of stresses in railroad track, a project that he had actively conducted for 27 years.

Born in Cortland, Illinois, and educated at the University of Illinois, he graduated in civil engineering in 1881. After four years of railroad engineering in the West, he returned to teach in the university in 1885. He was made professor of municipal and sanitary engineering and placed in charge of theoretical

and applied mechanics in 1890. Thenceforth, his achievements are acknowledged to have "contributed more to the development and distinction of that college and its engineering experiment station than the work of any other man."

Dr. Talbot was a pioneer in engineering education and research in this country. He made numerous contributions to engineering practice in sewage disposal and sanitary engineering, in drainage and water supply, in surveying and railroad construction, in materials testing and specifications, in the construction of sewers, pavements, bridges and buildings, and in many allied fields. Beginning in 1903, he conducted extended researches in reinforced concrete and did much to establish this new building material on a rational and scientific basis of design. This work and his 27-year study of the problems of design and maintenance of railroad track are probably his greatest achievements in the field of engineering research.

Dr. Talbot was active in many engineering and scientific societies. He was a past-president and honorary member of the American Society of Civil Engi-

⁴ W. I. Milham, "Early American Observatories," *Popular Astronomy*, 45: 523, 1937.

neers, the American Society for Testing Materials and the Illinois Society of Engineers. He was also an honorary member of the Institution of Structural Engineers, the Western Society of Engineers, the American Water Works Association, the American Concrete Institute and the American Railway Engineering Association. He was a very active member of the Society for the Promotion of Engineering Education, and held various offices, including that of president. He was also a member of the Institution of Civil Engineers (London), the American Society of Mechanical Engineers, the American Public Health Association and the American Association for the Advancement of Science.

Among other honors, Professor Talbot received the degrees of D.Sc. from the University of Pennsylvania, 1915; D.Eng. from the University of Michigan, 1916; and LL.D. from the University of Illinois, 1931. He was also the recipient of many medals and awards, including the Washington Award, Western Society of Engineers; the Henderson Medal of the Franklin Institute; the Turner Medal, American Concrete Institute; the Lamme Medal, Society for the Promotion of Engineering Education; the Fritz Medal, United

Engineering Societies; and bronze plaques from the American Railway Engineering Association. In 1938, his work in developing a great materials research laboratory and staff was recognized by the University of Illinois by renaming the building in his honor, the Arthur Newell Talbot Laboratory.

A great engineer, teacher and director of research, Dr. Talbot was loved and respected for his quiet dignity, his broad technical interests and intellectual curiosity, his high ideals, his inspiring standards of thoroughness and precision, and for his kindly spirit of helpfulness and genuine interest toward all with whom he came in contact.

F. E. RICHART

UNIVERSITY OF ILLINOIS

RECENT DEATHS

WALTER F. REYNOLDS, chief of the section of triangulation of the Division of Geodesy of the U. S. Coast and Geodetic Survey, died on May 1. He was sixty-one years old.

EDWARD C. GROESBECK, metallurgist of the Division of Metallurgy of the National Bureau of Standards, died on May 8 in his sixty-first year.

SCIENTIFIC EVENTS

SCIENTIFIC RESEARCH IN SWEDEN¹

EXTENSIVE research activity is going on in Sweden, in order to find substitutes for products which can no longer be imported owing to the war. One of the most important centers for this research is the Physical-Chemical Institute, Uppsala, headed by Professor The Svedberg. The institute has now lost all the foreign research workers who used to study there, with the exception of one Swiss; nevertheless the staff has been doubled. Extensions have in particular been made to departments dealing with the many present supply problems, of which the chemical aspects fall within Professor Svedberg's own department, namely, the giant molecules. The work with different kinds of synthetic rosins and cellulose-derivatives is now progressing on a large scale. Among other objects of research may be mentioned bread. Experiments are being made to find a means of replacing imported hard wheat, which was formerly used to improve the baking qualities of bread made from Swedish native soft wheat. Investigations are also being carried out on synthetic rubber. The work has proceeded so far that the product has been evolved in the laboratories of the institute, although it is too early yet to say whether domestic production can be started and its probable extent.

One of the foremost technical means of research of

this institute is the Svedberg ultra-centrifuge, which has become of the utmost importance to science. The rotor of this centrifuge is given a speed of up to 70,000 revolutions per minute by a number of oil turbines. The institute also houses such instruments for research as one of the world's largest electro-magnets and a neutron generator, both of which have been made in Sweden. In the biochemical section the experiments for locating and cultivating infantile paralysis virus and tuberculin on the basis of a new method for analyzing mixtures through molecule splitting are carried on under the direction of Professor Arne Tiselius, who has devised this method. The object in the first place is to obtain a pure form of virus. The stoppage of the import of apes for these experiments for a while threatened the workers with the loss of indispensable test animals, but it is stated that their replacement with rats has now proved acceptable.

THE WARTIME SERVICE OF HARVARD UNIVERSITY

THE *Harvard Alumni Bulletin* gives the following information in regard to the wartime service of the members of the faculty.

To describe in a few words the modification of the university to the needs of wartime becomes inevitably a recital of facts and figures—a story which has been unfolding for many months. The faculty has accepted the

¹ From *Nature*.