five planets Mercury, Venus, Mars, Jupiter and Saturn, distinguished the signs of the zodiac and made long lists of the fixed stars. The chief duty of the astronomer was to observe the moon for the purpose of keeping the calendar.[78] Their predictions of eclipses were made by a rule based upon the empirical discovery that there was a period of a little over eighteen years within which eclipses repeat themselves.[79]

That Greek astronomy was based on the astronomy of the Babylonians is well known. We have noted that certain mathematical results regarded as original with the Greeks must, from now on, be attributed to the Babylonians and to the Egyptians. But whatever new facts are found concerning mathematics before the Greeks, the glory of their achievements in creating a vast body of deductive geometrical reasoning is not likely ever to be dimmed.

OBITUARY

EDWARD DRAKE ROE, JR.

DR. EDWARD DRAKE ROE, JR., for twenty-nine years professor of mathematics at Syracuse University, died suddenly at his home in Syracuse on Wednesday, December 11.

Dr. Roe had a long and distinguished career as student, educator, mathematician and astronomer. He received his bachelor's degree from Syracuse University in 1880. He then went to Harvard University where he first studied medicine and then returned to his studies in mathematics. He received a bachelor's degree from Harvard in 1885 and a master's degree in 1886. After teaching a few years, he went to the University of Erlangen, Bavaria, where he won his doctorate in 1898. He returned to America and was made associate professor of mathematics at Syracuse University.

In 1901 he was awarded the John Raymond French chair of mathematics and some years later was appointed director of the Holden Observatory of Syracuse University.

Dr. Roe built his own private observatory in connection with his own house. It was equipped with an Alvan Clark equatorial telescope and is considered one of the best-equipped private observatories in the country.

He was the author of nearly seventy scientific articles on mathematics, astronomy and philosophy. He was the author of a text-book in trigonometry and one in algebra.

He was the founder and director general of the honorary mathematical fraternity, Pi Mu Epsilon, and was a member of the Phi Beta Kappa, Sigma Xi, Pi Kappa Phi and Delta Kappa Epsilon. He was a fellow of the American Association for the Advancement of Science, a member of the American Mathematical Society, the founder and president of the Syracuse Astronomical Society, a member of the Deutsche Mathematiker Vereinigung, Circolo Matematico di Palermo and Société Astronomique de France.

Dr. Roe stood for high scholarship, thorough scientific study and research. He impressed all who knew him as a scholar with a deep thirst for knowledge. He worked with untiring patience in mathematics and its allied science astronomy in the university and in the community.

Throughout his years of service as a teacher Dr. Roe always stood for the highest ideals of intellectual honesty and scientific achievement. He was a devoted teacher, a deep thinker, a philosopher and an earnest Christian. In his death Syracuse University has suffered a distinct loss.

ALAN D. CAMPBELL

MEMORIALS

THE American Electrochemical Society has announced its intention of establishing the Joseph W. Richards Memorial Fund, the interest of which is to be used as an honorarium to foreign electro- and physical chemists who are to be invited by the society from time to time. The guests will present lectures at annual spring conventions of the American Electrochemical Society, and possibly at universities and other institutes of learning. Professor Richards was secretary of the American Electrochemical Society for almost twenty years and was very largely responsible for the founding of the society. He was ever a very strong advocate in fostering better relations between our own scientists and scientists abroad, inviting and entertaining many notables at his own expense. The many friends of Professor Richards, therefore, feel that this memorial to him is a most fitting one. All those interested are invited to send their contributions to the secretary of the American Electrochemical Society, Columbia University, New York City, making all checks payable to the Joseph W. Richards Memorial Fund. It is the desire of the Board of Directors of the society that the list of contributors include as many as possible of Professor Richards'

[78] British Museum, "Guide to the Babylonian and Assyrian Antiquities," London, 1922, p. 25.

[79] For a summary of Egyptian astronomy see T. E. Peet, "The Sciences" in "The Cambridge Ancient History," Cambridge, vol. 2, 1924, pp. 218, 656.

friends and acquaintances, and subscriptions in any amount are invited.

Industrial and Engineering Chemistry reports that the debt of modern science and industry to Karl Wilhelm Scheele, distinguished Swedish chemist and discoverer of glycerol, was recognized at the annual meeting in Chicago on December 11 of the Association of American Soap and Glycerine Producers, representing the leading soap manufacturers of the country. The association sent to Crown Prince Gustaf Adolf, honorary member of the Royal Academy of Sciences of Sweden, a message felicitating him on the part played by his country in the development of glycerol products. December 19 marked the one hundred and eighty-seventh anniversary of Scheele's birth, and 1930 marks the sesquicentennial of his discovery.

THE London correspondent of the *Journal* of the American Medical Association writes: "Sir Patrick Manson, who died in 1922, established the principle of the insect transmission of disease, and at the international medical congress held in London in 1913 he was acclaimed the father of tropical medicine. In 1907, with the help of Cantlie and others, he founded the Society of Tropical Medicine and Hygiene, of which he was the first president. Among its fellows, now numbering 1,500 of many nationalities, are those most distinguished in tropical medicine. Its work is hindered by lack of suitable premises. The society has decided to found a home and name it after Manson, to whom at present there is no memorial. The fellows and some friends have subscribed $30,000 toward the purpose and are appealing for $100,000 to which they believe that many outside the small professional circle of tropical medicine who know of Manson's labors as a leader of medicine and one of the world's benefactors will desire to subscribe. His great work began in Amoy in 1877 with his demonstration that the filaria of elephantiasis is transmitted by certain mosquitoes. This was no chance discovery but the result of labor done in isolation. So his conviction that malaria was transmitted by mosquitoes was no inspired guess but was founded on his long critical watching of the malarial parasite in human blood and led Ross to the final victory. Donations will be gratefully received by the Royal Society of Tropical Medicine, 11 Chandos Street, Cavendish Square, London, W 1."

RECENT DEATHS

DR. FLETCHER BASCOM DRESSLAR, professor of school hygiene in the Peabody College for Teachers, died on January 19, at the age of seventy-one years. Dr. Dresslar had been president of the Tennessee Academy of Sciences.

PHILIP NORTH MOORE, consulting geologist and mining engineer, president of the American Institute of Mining Engineers in 1917, died on January 20 at the age of eighty years.

STEPHEN TYNG MATHER, who was director of national parks in the Department of the Interior, died on January 22 at the age of sixty-two years.

DR. CAROLINE A. BLACK, who had been twelve years on the faculty of Connecticut College, latterly as associate professor of botany and chairman of that department, died on January 19 at Cincinnati, Ohio, of spinal meningitis. She was taken ill when returning from the American Association for the Advancement of Science meeting at Des Moines.

HUGH LONGBOURNE CALLENDAR, professor of physics at the Imperial College of Science, London, died on January 23, at the age of sixty-six years. He was distinguished for his work in connection with the measurement of the heat radiation of steam at high pressure. Dr. Callendar was professor of physics at McGill University from 1893 to 1898.

MAJOR PERCY ALEXANDER MACMAHON, F.R.S., the distinguished English mathematician, died on Christmas Day at his residence at Bognor, at the age of seventy-five years.

DR. DE FERRANTI, electrical engineer, inventor and manufacturer, died on January 14 at the age of sixty-five years. Dr. Ferranti was a past president of the British Society of Electrical Engineers. He was awarded the Faraday Medal of the Institution of Electrical Engineers in 1924, and was elected a fellow of the Royal Society in 1927. The University of Manchester gave him the honorary degree of D.Sc. in 1911.

SCIENTIFIC EVENTS

COMMISSIONS OF THE INTERNATIONAL GEOLOGICAL CONGRESS

IN its report of the congress *Nature* states that during the session a series of meetings was held in connection with the various international commissions, the work of which is an important feature in the life of the congress. In the end, several commissions had to be reconstituted, one new commission and one subcommission were established, while of the previous bodies, one (iron ores) was dissolved, so that the Congress now has the following commissions: Prix Spendiaroff (awarded to Dr. L. T. Nel, geologist on the Geological Survey of the Union of South Africa), Palæontologia Universalis, Lexicon de Stratigraphie, Glaciers, L'Homme Fossile, Croûte Terrestre, Géophysique et Géothermique, Carte de l'Europe, Carte