

Calendar of Discovery and Invention.

October 16, 1759.—The building of Smeaton's Eddystone lighthouse, occupied the summers of 1756-1759, and the light was first exhibited on Oct. 16, 1759. The lighting apparatus consisted of 24 candles held in a bronze frame.

October 16, 1843.—The name of Hamilton is now chiefly associated with the memorable invention of the calculus of quaternions, of which Hamilton wrote in 1866 to the Rev. J. W. Burrows: "To-morrow will be the fifteenth birthday of the Quaternions. They started into life full grown on the 16th October 1843, as I was walking with Lady Hamilton to Dublin, and came up to Brougham Bridge—which my boys have since called Quaternion Bridge. I pulled out a pocket-book which still exists, and made entry, on which at the very moment I felt that it might be worth my while to expend the labour of at least ten or fifteen years to come." In another letter, written some years afterwards, Hamilton said: "Nor could I resist the impulse—unphilosophical as it may have been—to cut with a knife on a stone of Brougham Bridge, as we passed it, the fundamental formula which contains the Solution of the Problem."

October 17, 1741.—On this day Linnæus, who had himself travelled in Lapland, Denmark, Germany, Holland, France, and England, pronounced before the University of Upsala his "Oratio de Peregrinationum intra Patriam necessitate." He displayed the usefulness of such excursions, by pointing out to the students that vast field of objects which their country held out to their cultivation; whether in geography, physics, mineralogy, botany, zoology, or economics; showing the benefit that must accrue to themselves and their country as rewards of their diligence.

October 18, 1892.—In the development of long distance telephony in America, Theodore Vail played a leading part. He first connected Boston with Salem, then Boston with New York, and on Oct. 18, 1892, New York was connected with Chicago, Graham Bell being the first to speak over the new line.

October 20, 1868.—Sir Norman Lockyer's notable spectroscopic discoveries were made known to the Royal Society in a letter dated Oct. 20, 1868, in which he stated: "I have this morning perfectly succeeded in obtaining and observing part of the spectrum of a solar prominence. As a result I have established the existence of three bright lines in the following positions:—(i) Absolutely coincident with C. (ii) Nearly coincident with F. (iii) near D."

October 20, 1880.—The first public lighting of a hall in Great Britain by means of the incandescent electric lamp was carried out by Swan on Oct. 20, 1880, in the rooms of the Literary and Philosophical Society of Newcastle.

October 21, 1824.—The home of the portland cement industry was Leeds, where Joseph Aspdin, a stonemason, discovered that by mixing finely pulverised lime with clay in certain proportions, burning it at a high temperature, and then grinding the product to powder, he obtained a new building material which, with the addition of water, when set, produced a block resembling Portland stone. He took out a patent for his invention of 'Portland cement' on Oct. 21, 1824. A century later a memorial to him was placed in Leeds Town Hall, when it was stated that the annual production of portland cement was 50,000,000 tons.

October 22, 1797.—The use of the parachute as a means of descending from balloons was due to the French aeronaut, Garnerin, who made his first descent with one on Oct. 22, 1797.

E. C. S.

Societies and Academies.

CAPE TOWN.

Royal Society of South Africa, Aug. 17.—A. J. Hesse: Some new species of Curculionidae from South Africa and South-West Africa. The total number of Hipporrhinus species has been increased from 146 to 152. The genus Solenorrhinus, which up to now was composed of only 1 species, has been enriched by 2 other new species, one of which is found on the Silver-leaf trees on Signal Hill. Two of the Curculionidae described are found in such widely separated areas as Zululand and South-West Africa and Transvaal and South-West Africa.—P. R. v. d. R. Copeman: Studies in the growth of grapes, Part 4: The initial changes in acidity. During the initial stages of growth of the berry, the changes in acidity of the juice are autocatalytic.—F. Dixey: The Dinosaur Beds of Lake Nyasa. A series of sediments occurring along the north-western shores of Lake Nyasa have yielded a number of interesting Dinosaur remains which are allied to the better-known deposits of Tendaguru. The beds consist principally of a great thickness of friable sandstones, sandy marls, and clays. They lie unconformably on older rocks which are affected by post-Karoo faults; and are themselves faulted and overlain by more recent deposits of the Nyasa trough.—S. H. Haughton: On some reptilian remains from the Dinosaur Beds of Lake Nyasa. It has been possible to identify two forms specifically; and many other bones can definitely be assigned to the Sauro-poda. The forms named are *Platycheloides nyasæ* gen. et. sp. n., the first recorded African Mesozoic testudinate, and *Gigantosaurus dixeyi* sp. n., a sauropod allied to a form described from Tendaguru.—D. Thoday and M. A. Pocock: On a Myosurus from South Africa, with some notes on *Marsilia macrocarpa*. The discovery is recorded of a species of Myosurus, a genus new to South Africa. It is identified provisionally, in the absence of material with ripe achenes, as *Myosurus minimus*.

WASHINGTON, D.C.

National Academy of Sciences (*Proc.*, Vol. 13, No. 8, August).—Carl H. Eigenmann and George S. Myers: A new genus of Brazilian characin fishes allied to *Bryichthys*.—E. F. B. Fries: Nervous control of xanthophore changes in *Fundulus*. The killifish changes in colour to correspond with its background by means of the expansion and contraction of melanophores and xanthophores. Control of the latter is mainly through a discriminating pigment-motor centre in the central nervous system.—Selig Hecht: A quantitative basis for the relation between visual acuity and illumination. Koenig found that visual acuity increases nearly as the logarithm of the intensity of illumination; hence the number of rods and cones in the retina can be varied functionally. This can be accounted for quantitatively by assuming that the sensibilities of the individual rods and cones vary about a mean in a manner similar to that in which a population varies. At the lowest intensities, vision is by the rods; then the cones begin to function, and since they come into action ten times as fast as the rods, visual acuity becomes a function of the foveal cones and increases to a maximum. Observations on colour-blindness can also be explained.—David White: The flora of the Hermit Shale in the Grand Canyon, Arizona. This shale constitutes the upper 300 ft. of the red beds in the Grand Canyon and is of Lower Permian age. The flora includes European conifers and pteridosperms and many Uralo-Asiatic forms; it indicates a dry climate possibly not much more humid than that of northern New Mexico at the