THE Oregon State College has acquired a collection of mounted birds and bird eggs, gathered for the past fifty-six years by Mr. and Mrs. J. C. Braly, of Depoe Bay, Ore. The collection, which has been conservatively valued at $77,000, included 32,500 eggs, 1,000 mounted birds, 1,200 bird skins and 100 mounted mammals. There is an almost complete representation of Oregon birds, a large number from the Pacific coast, as well as many from other parts of the United States and foreign countries.

THE Committee on the Elizabeth McCormick Child Research Grant of the Institute of Medicine of Chicago has at its disposal the sum of $1,500 which may be awarded to qualified investigators in the Chicago area for the aid of research in child welfare. Applications will be received up to October 15, and the award will be made soon after. Communications should be addressed to Dr. John Favill, Secretary, 122 South Michigan Avenue, Chicago. Since there are no formal blanks, application should be made by letter.

THE department of electrical engineering of Columbia University, of which Professor Frederick W. Hehre has been elected chairman, will offer a new sub-option to its regular power option, to be known as the electrochemical power option, leading to the usual degrees of B.S. or of E.E. or M.S. in electrical engineering. Prepared with the assistance of Dr. Colin G. Fink, of the department of chemical engineering, and Dr. Eric R. Jette, of the department of metallurgy, this sub-option is intended to afford training for electrical engineers anticipating employment in the electrochemical or electrometallurgical industries.

DISCUSSION

THE MANCHESTER LITERARY AND PHILOSOPHICAL SOCIETY

IN a letter dated the 14th of February, 1941, from the Rev. H. McLachlan, Unitarian College, Victoria Park, Manchester, to Dr. John F. Fulton, Yale University, it has been learned that the Eighteenth Century Library and Dalton relics belonging to the Manchester Literary and Philosophical Society have been destroyed by aerial warfare. As the society is one of the earliest of its kind, in Great Britain, having been founded in 1781, and because of its association with Dalton and Joule, it is felt that a brief report of its early activities should be placed on record.[1]

The early history of the society is linked with that of the Warrington Academy (1757–1784), for Thomas Percival, the "father" of the society, was a pupil at this school where he came under the influence of Priestley. Percival studied medicine in Edinburgh and in 1767 opened a consulting practice in Manchester, where he devoted his energies to problems in public health and epidemiology.

Possessing a charming personality and a keen mind with wide interests Percival soon began to attract the intellectual and talented men around him. Amongst those who attended the informal meetings in his home in King Street, was another notable figure in medicine, Charles White, surgeon to the Manchester Infirmary and pioneer in modern obstetrical practice, and author of the classical account of puerperal fever. White was no doubt the most original thinker in the circle of friends who began to collect at Percival's house. "These meetings became so pleasant, and the conversation so important, that many persons sought to attend, so that the resources of a private house were strained." Meetings were therefore held in a house in George Street, and finally in 1781 the society was formally established under the name of the Literary and Philosophical Society of Manchester.

Membership was at first limited to fifty, and it included the names of many other medical men, renowned in Manchester medical history, John Aikin, Peter Mainwaring, Thomas Henry, Alexander Eason, George Bell and John Ferrier. It was decided "that the subjects of conversation comprehend natural philosophy, theoretical and experimental chemistry, polite literature, civil law, general politics, commerce and the arts. But that religion, and practical branches of physics, and British politics, be deemed prohibited, and that the chairman shall deliver his veto whenever they be introduced." A library was started almost immediately, and the society met weekly except during the summer months. The first meeting was held on March 14, 1781.

The society prospered, and the more important papers presented at the meetings were published in a series of Memoirs beginning in 1785 and continuing to the present day. It is not surprising, therefore, that when the Warrington Academy was compelled to close its doors in 1784 its supporters turned to Manchester, where the Literary and Philosophical Society was creating an atmosphere of intellectual curiosity unknown elsewhere in provincial England. Thus came into being the Manchester Academy, which subsequently, after much wandering, settled in Oxford as Manchester College.

In 1794 John Dalton was appointed tutor in mathematics and natural philosophy in the Manchester Academy, and in the same year was elected member of

[1] For a fuller account of the history of the society see D. Sheehan, *Isis*, 1941 (in press).

the society, which by this time had built its own house at 36 George Street, Manchester, where some of the rooms were placed at the disposal of Dalton. Dalton continued to work in these rooms up to the time of his death in 1844, and it was here that the atomic theory was born. Dalton's classical essay on color-blindness, a defect from which he suffered, was communicated to the society in the year of his election. Dalton served as president of the Manchester Literary and Philosophical Society from 1817 to 1844, and at his death, his manuscripts, apparatus and personal belongings (including his spectacles, walking stick and numerous medals) were presented to the society.

Two years before Dalton's death, James Prescott Joule was elected to membership, and served as president for several terms of office during the next forty years. A tradition in experimental physics was thereby established in Manchester, which was continued by Sturgeon, Rutherford and Bragg up to the present day.

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THE AGE OF SAUROPOD DINOSAURS

AN article entitled "The Age of Jurassic Dinosaurs," by Dr. Edward W. Berry, appeared in SCIENCE, n.s., Vol. 93, No. 2416, Friday, April 18, 1941, page 374. The last paragraph of this article read as follows: "All this leads into the question of the age of the Morrison. I have expressed my opinion long ago, and wish merely to raise the question in the present connection, that if a Jurassic dinosaur (vertebrate chronology) makes footprints at a horizon near the middle of the marine Lower Cretaceous (invertebrate chronology) where do we go from here?" This article calls for elucidation.

Since the first notice was published of *Apatosaurus* (*Brontosaurus*), *Diplodocus* and other types of sauropod dinosaurs from the Morrison formation of Colorado and Wyoming, much has been written about the age of the Morrison and its fauna. At present, I believe, most vertebrate paleontologists are agreed that the Morrison fauna is of Jurassic age, but a great many discoveries relating to sauropod dinosaurs have been accumulated of late years, and much of this information has not yet been published.

In the exposures south of the Black Hills the lowest Cretaceous strata are represented by the Fuson and Lakota formations and there is a definite break between these Lower Cretaceous beds and the Jurassic below, although the vertebrate faunas in these two formations are not well known in this area.

In Montana, surrounding the Big Horn and Pryor Mountains, the Cloverly formation which is contemporaneous, probably with the combined Fuson and Lakota of the Black Hills, carries a distinct early Cretaceous vertebrate fauna whose affinity is with the late Cretaceous faunas elsewhere. American Museum expeditions worked in this region for several years continuously from 1931 to 1934 and secured a large series of skeletons of typical Cretaceous dinosaurs, Trachodonts, Nodosaurs and a new type of Iguanodont not yet described from the Cloverly formation. No sauropod skeletons were found, but a great many sauropod limb bones were seen in these beds. The same fauna was found and collected in the Cloverly formation near Harlowton, Montana, and in a few instances sauropod bones were recognized by our parties in the typical Kootenai beds near Great Falls. Some vertebrae were collected that are apparently those of *Diplodocus* although the exact generic and specific identification is hazardous. In the Big Horn region *Barosaurus* and *Morosaurus* are abundant in the Jurassic strata where there is a distinct break between the Jurassic and Lower Cretaceous beds and it is certain that sauropod dinosaurs extended through into the Lower Cretaceous, but we are not sure that they are the same genera as those found in the Jurassic strata. It is certain, however, that the abundant Lower Cretaceous dinosaur forms are not found in the Jurassic beds below.

Until recently it had been my opinion that the sauropod dinosaurs of Jurassic age died out sometime before the varied and rich fauna of Upper Cretaceous times came into existence. This opinion, however, has been altered by the results of the National Museum expeditions which have discovered sauropod dinosaurs, *Alamosaurus,* and a yet undescribed genus of sauropods in the Upper Cretaceous beds of Utah.

In the Big Bend region of Brewster County, Texas, the Chisos Mountains are surrounded by a series of alternating sands and clays that have been named the Aguja formation (Rattlesnake fm.). These beds are rich in Cretaceous dinosaur remains, for the most part disassociated and badly broken, but occasionally with identifiable specimens. The American Museum expedition of 1940 secured a fairly large collection from these beds in which there are typical Trachodont, Ceratopsian, Ankylosaurian and crocodilian remains. The genera, for the most part, are recognizable, but the species are new and the faunal facies is comparable to that of the Mesaverde and Judith River formations farther north. The area is extensive and no sauropod remains were found in this formation.

Above the Aguja and so far as could be seen conformably overlying it are the Tornillo clays. This is a series predominantly of clays 1600+ or − feet in thickness in which none of the Trachodont, Ceratopsian or