upon the Sacramento forests of New Mexico, the typist made me say that trees 25 feet in diameter were quite common. It was my intention to say 'trees from two to five feet,' etc.

ROBERT T. HILL.

SHORTER ARTICLES.

NOTE ON THE EMBRYO OF NYMPHÆA.

ALTHOUGH the mature embryo of *Nymphæa* Sm. has been frequently figured and described during the last half century as typically dicotyledonous, the interesting paper of Mr. Lyon on *Nelumbo (Minnesota Bot. Studies,* Ser. II., Part 5, p. 645–55, Pl. 48–50) made a further investigation desirable. Having already considerable material in hand with a view to a careful study of the genus (which is approaching completion), I have examined the mature and germinating embryos of several species, and studied the development in three members of widely differing sub-genera, viz., *N. odorata* Ait., *N. cærulea* Sav., and *N. Lotus* L. The course of events seems identical in all of these. A suspensor of three to five cells in linear series is formed, upon which a 'spherical embryo' of some hundreds of cells develops as described by Mr. Lyon for *Nelumbo.* This is embedded in a soft mass of endosperm at the micropylar end of the ovule; three fourths of the length of the seed is occupied with perisperm. The spherical embryo, however, unlike that of *Nelumbo,* gives rise to two opposite and symmetrical outgrowths near its lower end. These become the two equal cotyledons. The intervening apical portion of the sphere becomes the plumule, with the rudiments of two unequally developed leaves. The basal portion of the sphere becomes the radicle. At maturity the embryo exhibits two thick, concave, hemispherical cotyledons, applied against each other all round by their edges; while the central concavity is occupied by the plumule. The endosperm is now reduced to a single layer of cells and a line of thin crushed walls between these and the cotyledons. A large amount of oil is stored in the embryo and endosperm, with a little starch and some proteid. The perisperm is densely packed with starch.

It seems necessary, in view of these facts, to modify Mr. Lyon's classification of Nymphæaceæ among the Helobiæ. If we are to consider the development of *Nelumbo* as strictly monocotyledonous, then it must be separated as a distinct order, as some writers have already placed it. However, we would prefer to interpret the peculiar embryogeny of *Nelumbo* as a modified form of dicotyledony. The symmetry of the early embryonic vascular system supports this view; and the decurrence of the cotyledons around the radicle is paralleled in *Tropæolum.* Further, a complete fusion of the cotyledons along one edge has been noted in *Nuphar lutea* by Hegelmaier, as quoted by Henslow, and a much more pronounced 'pseudo-monocotyledony' is seen in *Trapa natans, Ranunculus ficaria,* etc. A number of striking examples and suggestions in this connection are followed up by Henslow in his paper on 'A Theoretical Origin of Endogens from Exogens' in *Journ. Linn. Soc.,* London, 29; 485–528, and in his 'Origin of Plant Structures,' pp. 136–79. Mr. Lyon's observations have numerous interesting bearings on Henslow's theory.

HENRY S. CONARD.

UNIVERSITY OF PENNSYLVANIA.

WILLIAM LE ROY BROUN.

DR. WILLIAM LE ROY BROUN (M.A., LL.D.), president of the Alabama Polytechnic Institute, died suddenly on January 23. He was one of the foremost educators of the country, and, from time to time, had been prominently associated with the leading educational institutions in the South.

In recent years he was conspicuous for the great work he accomplished as a pioneer in the field of technical education. Since 1884 he had been president of the Alabama Polytechnic Institute, and under his wise and progressive guidance this institution had been developed into a highly successful and widely known college of applied science. His death will be an immense loss to the cause of Southern, indeed of national, education.

He was a native of Virginia, born in Lou-

don county, 1827, and a distinguished Master of Arts of the University of Virginia, where he was a fellow student and an intimate friend of a group of prominent Southerners, including Dr. J. A. Broadus, William Wirt Henry, Professor Frank Smith of the University of Virginia, and others. Dr. Broun was graduated in 1850. He was elected to the professorship in the college of Mississippi in 1852 and stayed there two years, then to the chair of mathematics in the University of Georgia.

In 1856 Dr. Broun founded Bloomfield Academy near the University of Virginia, which he conducted successfully until the outbreak of the war between the States. In 1859 he married Miss Sallie J. Fleming, daughter of a prominent Virginia family. She has been dead a number of years.

Dr. Broun enlisted in the Confederate army as a lieutenant of artillery. He rose to the rank of lieutenant colonel in the Ordnance Department, and on account of his high mathematical and scientific attainments was made Commandant of the Arsenal in Richmond. He, perhaps, gave the last order in that city directing the blowing up of the Confederate Arsenal.

After the close of the war Dr. Broun was elected to the chair of physics in the University of Georgia, and in 1872 he became president of the Agricultural and Mechanical College of that University. From 1875 to 1882 he was professor of mathematics in Vanderbilt University, Nashville, Tenn., and in 1882 was elected president of the Agricultural and Mechanical College of Alabama, now known as the Polytechnic Institute. He remained in Auburn one year and went to the University of Texas as professor of mathematics, where he was made chairman of the faculty. In 1884 Dr. Broun was reelected president of the Alabama Polytechnic Institute at Auburn. He had served continuously as president of the institution since 1884.

Dr. Broun was a man of varied and accurate scholarship and of rare wisdom in the control of a great institution. Broadly founded in the principles of educational science, he always planned wisely, and was the first to establish and to develop several new branches of scientific education in the South, such as manual training, electrical engineering and biology.

SCIENTIFIC NOTES AND NEWS.

PLANS have been formed for the erection of a memorial tower and meteorological station in honor of Dr. J. P. Joule, F.R.S., at Sale, Cheshire, where he lived from 1872 to the time of his death in 1880.

DR. ED. SUESS, professor of geology at Vienna, has been made an honorary member of the Academy of Sciences at St. Petersburg.

M. ALFRED PICARD has been elected a member of the Paris Academy of Sciences.

THE Prince of Wales has been admitted as a fellow of the Royal Society.

DR. J. R. GREEN, the well-known botanist, has been elected a fellow of Downing College, Cambridge.

DR. WILHELM HITTORF, professor of physics at Münster, celebrated the fiftieth anniversary of his professorship on January 12. He was on the occasion made an honorary doctor of engineering of the Technical School at Charlottenburg.

THE twenty-fifth anniversary of the professorship of Augusto Tamburini, professor of psychiatry at the University of Modena, was celebrated on December 25, by the presentation of a medal and other ceremonies.

PROFESSOR ERNST VON LEYDEN, the eminent pathologist at the University of Berlin, will celebrate his eightieth birthday on April 20.

DR. KARL PIESKE, engineer in the hydrological bureau in Berlin, has been given the title of 'professor.'

DR. C. H. HERTY, of the University of Georgia, will shortly resign to accept a position in the bureau of forestry.

PROFESSOR A. C. HADDON, of Cambridge University, has been appointed advising curator of the Horniman Museum at Forest Hill, now under the charge of the London County Council.

DR. ADOLF MEYER, the new head of the Pathological Institute of the New York State