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.

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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-