neva Institute of Natural Science, announces a gift to the institute of $500 from the Lake Geneva Property Owners Association for the study of lake nuisances and limnological sequences resulting from pollution. A $300 fellowship to study fishery biology in Lake Geneva, Wisconsin, has been established by Frank W. Schwinn. Applications for this fellowship for the summer of 1941 should be sent to Dr. Hasler, Department of Zoology, University of Wisconsin.

THE *Journal* of the American Medical Association reports that Meharry Medical College at Nashville is making a campaign to raise more than two million dollars for an endowment fund. The General Education Board, which has been contributing toward the annual operating budget of the college, has announced that it will not continue this subsidy after this year. The board has offered conditionally, however, to make endowment grants amounting to $3,700,000 if the college can collect $1,700,000 from other sources. Of this amount $1,500,000 must be raised by July 1. The current endowment is about $800,000. A committee representing medical, educational and journalistic activities is sponsoring the campaign. Dr. Abraham Flexner is national chairman of the endowment program.

DISCUSSION

THE AGE OF JURASSIC DINOSAURS

A RECENT number of *Natural History* contains[1] a very interesting account of the discovery and collection of footprints of a gigantic Sauropod dinosaur identified as those of Brontosaurus, from the Glen Rose formation near Glen Rose, Somervell County, Texas. The American Museum, we are told, is installing these footprints under their excellent mounted Brontosaurus in the new Jurassic Hall. Brontosaurus, Diplodocus, etc., come from the Morrison formation of Colorado. The age of the Morrison was decided to be Jurassic by the late O. C. Marsh, largely because of his belief that the English Wealden was Jurassic, which has long since been disproved. In a great many parts of the world there exist continental beds of greater or less chronological magnitude between the latest marine Jurassic and the earliest marine Lower Cretaceous, and these always have given rise to differences of opinion and more or less controversy as to their age.

To those unfamiliar with Texas geology it may be said that the Glen Rose formation near Glen Rose from which the tracks were collected is thinner than it is farther east, and I am assured by Dr. E. H. Sellards that the tracks actually occur at a horizon which is rather late in Glen Rose time.

The age of the Lower Cretaceous of Texas has been the subject of much misconception in the past, largely from the ill-advised attempts of text-book writers, such as Chamberlin and Salisbury, to substitute the provincial term Comanchean as an independent system (period) co-extensive with the Lower Cretaceous of Europe. This is contrary to the conclusion of students of Cretaceous stratigraphy and paleontology, both American and European.

The Glen Rose is the middle formation of the Trinity group and the base of the Trinity in Texas is now considered younger than the Neocomian of Europe.

In 1911 I correlated it[2] with the late Barremian and Aptian of Europe (*vide* Douville, Kilian, Suess, etc.) correlating the overlying Fredericksburg with the European Albian on the basis of the faunas, and the Washita or upper Comanchean with the European Upper Cretaceous (Cenomanian).

All this leads into the question of the age of the Morrison. I have expressed my opinion long ago,[2] 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?

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[1] R. T. Bird, *Nat. Hist.*, 47: 2, 74–81, February, 1941.

[2] E. W. Berry, Maryland Geol. Surv. Lower Cretaceous, 1911 (correlation chart).

OSMOTIC PRESSURE FOR THE PLANT PHYSIOLOGIST

SOME time ago[1] these columns carried a suggestion that the basic definition of osmotic pressure emphasize its function as the cause and not the result of osmosis. Unfortunately the writer based his argument on the erroneous premise that diffusion pressure and osmotic pressure are identical. Subsequently a student of both physiology and physical chemistry has called attention[2] to the chemist's concept of fugacity as a sound basis for understanding osmotic pressure. In line with this concept but worded in explicit terms more commonly used by biologists as a whole, the following statement is offered as a brief exposition of osmosis and the way it works in plant tissues with particular reference to osmotic pressure as the cause of osmosis:

When water molecules are free to diffuse in an aqueous solution or in pure water, they have a certain diffusion pressure. When they move through a differentially permeable membrane as the result of a difference in diffusion pressures on the two sides of the membrane, this special

[1] H. C. Eyster, SCIENCE, 92: 171–172, 1940.

[2] S. C. Brooks, SCIENCE, 92: 428–429, 1940.