to refer to the total energy involved in nuclear changes, and I employed them to refer to the free energy of chemical reactions, no confusion is likely to arise from these analogous and consistent applications of these words.

W. BLUM

U. S. BUREAU OF STANDARDS

THE EFFECTS OF CIGARETTE SMOKING UPON THE BLOOD SUGAR

OUR attention has been called to the fact that observations similar to those published by us in SCIENCE, February 16, 1934, under the title "The Effects of Cigarette Smoking upon the Blood Sugar" have been reported previously by E. T. and S. Lundberg in one section of their general study of the internal secretions (Beitrag zur Kenntniss des Innersekretorischen Gleichgewichtsmechanismus, *Acta medica scand.* Suppl. 38, 1931).

Our observations were made in 1932. We regret our oversight.

HOWARD W. HAGGARD
LEON A. GREENBERG

SCIENTIFIC BOOKS

THE LOWER EOCENE FLORA OF SOUTHERN ENGLAND[1]

THE pyritized fruits and seeds found at Sheppey in the Thames estuary have been objects of interest for over two centuries. It was their apparently mature condition which led James Parsons in 1757 to controvert the ideas of John Woodward that Noah's Flood had occurred in the spring of the year and to insist that this important event had taken place in the fall, since the fossil fruits are mature, which they could scarcely have been in the spring.

Gideon Mantell also writes about Sheppey in his "Medals of Creation" and quaintly describes the outcrop and how to reach it conveniently from London. In 1840 James Scott Bowerbank published a work, "On the Fossil Fruits of the London Clay," the copper plates for which were engraved by Sowerby, and this, which is practically the only previous scientific work on these objects, is a model of careful description and illustration, such shortcomings as it has—and these are fairly numerous—being due to the lack of recent material for the purposes of comparison and correct botanical identification of the fossils.

The authors of the present work have had long experience in this field of research and have spent seven years on the present undertaking. They have conceived their problem in a comprehensive way and discuss not merely botanical questions and methods of study, but the geology, distribution, origin, climatic inferences and other considerations to be derived from their study.

It will be conceded, I think, that no previous work of a carpological nature has been as extensive or has been as well done, and the work is a mine of information not only on the fruits and seeds of the London clay, but is similarly informative on the carpological nature of any flora, fossil or recent, which contains considerable Indo-Malayan elements—information not to be found in works on systematic botany, nor to be obtained in any of the larger American herbaria, where little attention has been given to fruits and seeds and in which the collections are pitifully inadequate.

It is perhaps wise that the authors limit their interest almost exclusively to the field in which they excel, but this results, to cite but a single instance, in only one American flora—that of the Brandon, Vermont, lignite, receiving consideration, whereas the exceedingly rich and varied Wilcox flora, which is in part at least the same age as the London clay (Ypresian) but is largely based upon foliar remains, is barely referred to, and is not taken into consideration in their generalizations.

One of the most interesting results of this work is the very considerable number of extinct genera disclosed. This has been suspected for a long while, but is something which it is not possible to demonstrate in fossil floras which are almost wholly foliar in character.

Of the 234 named and satisfactorily identified species in the London clay flora, it is possible to refer almost all with a considerable degree of certainty to living families. However, many of the fossils show an emphasis or lack of emphasis of certain characters or have the family characters in different combinations than are exhibited in the still living genera, so that the authors quite rightly consider these to represent extinct genera. The families in which these extinct genera belong and their number are well worth enumerating.

There are one each in the families Juglandaceae, Urticaceae, Nymphaeaceae, Saxifragaceae, Hamamelidaceae, Linaceae, Meliaceae, Vitaceae, Tiliaceae, Sterculiaceae, Flacourtiaceae, Haloragaceae, Onograceae, Myrtaceae, Boraginaceae and Solanaceae; two each in the Palmae, Burseraceae, Euphorbiaceae, Celastraceae, Nyssaceae and Sapotaceae; three each in the Lauraceae, Sapindaceae and Apocynaceae;

[1] "The London Clay Flora." By Eleanor Mary Reid and Marjorie Elizabeth Jane Chandler. 4to, viii + 561 pp., 17tf., 33 pls. British Museum (Nat. Hist.) London, 1933.