

STIMULUS IN SOIL SCIENCE

Soil Chemistry and Fertility

Edited by G. V. Jacks. (Transactions of the Meeting of Commissions II and IV of the International Society of Soil Science, Aberdeen, September, 1966.) Pp. vii+415. (Amsterdam: International Society of Soil Science, c/o Royal Tropical Institute, 1967.) n.p.

THIS book, which deserves only praise, contains a good sample of current work and thought for those interested in the chemistry and fertility of soils. The forty-three contributions, forty of which are in English, are in six main sections: soil organic matter; major nutrients—split into non-metals and metals; trace elements; nutrient diffusion and flow in soils; and the principles of experimentation in soil-crop studies. Each section is introduced with a review-type paper, but most of the other contributions are based on the results of recent research. An appendix contains a brief account of the soils of Scotland.

The dividend from basic research on topics of agricultural relevance is believed to be among the highest paid by any research activity, mainly because a measure of real understanding can go such a long way. Those who are biologically minded might like to ponder on just one point quoted from page 137. "Because the N : S ratio of soil organic matter is substantially less than that of plant protein, it appears likely that any crop that depends entirely on nitrogen from soil organic matter will obtain an adequate supply of sulphur from the decomposition of organic matter". Clearly, this statement should spark off a chain of thought; for example, "it does not necessarily mean that soils receiving fertilizer N should have fertilizer S because there are natural sources of S, other than organic matter . . . however, when large quantities of fertilizer N are added or when legumes are being grown, the S supply should be carefully evaluated to ensure a proper balance of N and S for plant protein production". Acute sulphur deficiency in crops is, in fact, not all that widespread, but how often is plant protein production quietly limited by supplies of sulphur?

The Aberdeen meeting fulfilled its function by providing a stimulus to research and by permitting specialists to broaden their interests; the book can do the same. Much credit is due to the secretary of the organizing committee, Dr. J. Tinsley, to the editor, Mr. G. V. Jacks, and, not least, to the contributors from many parts of the world who must have submitted manuscripts promptly; the Aberdeen University Press also did a first-class job. In all, a most worthwhile effort under the auspices of the International Society of Soil Science.

P. W. ARNOLD

BOOK OF PALMS

The Natural History of Palms

By E. J. H. Corner. (The World Naturalist.) Pp. 393 + 24 plates. (London: Weidenfeld and Nicolson, 1966.) 105s.

A FIRST-RATE account of the palms should be expected from a man of Professor Corner's reputation and long experience in the tropics. The palms are reputed to be second only to the grasses in economic importance and, as Corner rightly points out, they are a family which has been badly neglected. Most unhappily, this book falls short of expectations. In a sense, the author, commenting on Seemann's *Popular History of Palms* (1856), provides a pithy review of his own work when he writes: "It is good reading just so far as one does not go to the original sources".

The Natural History of Palms is not faithful to many of its written sources nor to many of the palms themselves. Errors of fact, lack of attention to detail, unqualified

and often contradicted generalizations, inconsistency and a florid style, perhaps designed for but misleading to the lay reader and repugnant to the professional, mar the book. It does, however, draw attention to these remarkable plants, dispels any concept that the coconut is representative of the palms in all their diversity, and focuses attention on the many questions yet to be answered before we understand the palms. Written with obvious enthusiasm, it is regrettable that it was not also written with greater care.

Fifteen chapters devoted to general topics, morphology, geography, evolution, generic notes and classification are followed by two appendices, a glossary, chapter references, bibliography and index. The typography is pleasing, the dust-jacket and halftone plates are handsome, but the line figures, particularly those of habit, inflorescences, and flowers, are sometimes "impressionistic" rather than faithful to detail.

It is possible to comment on only a few of the marginal notes in my copy of the book. *The Natural History of Palms* includes the startling statement on the first page that "A fan palm has been reported from the Triassic of Colorado . . ." It is not documented in the references for the first chapter, but I infer from reference 255 to the tenth chapter that Corner refers to *Sanmiguelia lewisii* which Brown very carefully described only as "palmlike" or "tentatively regarded as a primitive palm" and nowhere as a fan palm. The reconstruction and photographs of the actual impressions do not lend credence to the idea of a fan palm on the model of living palms.

In the same chapter appears this generalization: "The floral parts of the monocotyledon are arranged in threes, not fours, fives, or some higher number as in dicotyledons." Then are the Araceae, Cyclanthaceae, Pandanaceae, some palms, *Paris*, among others with floral parts not in threes, also not monocotyledons? The palm flower is said to have ". . . eventually three sepals, three petals, six stamens, and an ovary with three carpels or three cavities . . ." but ". . . this finality has been experimented with in many different lines of palm evolution from a greater number of stamens and carpels. . . ." The more numerous sepals and petals of *Phytelephas* suggest that the perianth might also have been included with stamens and carpels in the last.

Corner's peculiar style also appears in the first chapter where, considering the growth of the monocotyledonous leaf, he writes: "The bigger the leaf, as in palms, pandans and bananas, the more conspicuous the thrust [of the young leaf upwards by means of basal growth]; in palms it is pre-eminent and it is the key to understanding what is going on in their heads". On page 151 he writes: "The ovary of *Phytelephas* is syncarpous. It consists, that is, not of separate carpels but of an ovary-box or carpellary tube, on which the primordia of the separate carpels are raised on a style to form its five to ten branches or stigmata; into the box the ovules have been transferred. How this is done is not known; . . ." Surely the answer must be "It is not done!"

Professor Corner has missed a splendid opportunity to elucidate the nature of the palm inflorescence. Worse, he dwells at length on the significance of the bipinnate leaf of *Caryota*, yet has incorrectly figured and described the terminus of its main axis which is normally a pair of leaflets rather than a single leaflet as on the lateral axes.

"The flower is the meanest bud that can be made" introduces the chapter on the flower. Meanest does not seem an apt adjective for the female flower of *Lodoicea* stated on page 137 to be ". . . one of the most massive flowers of all. . ." The diversity of floral morphology among the genera of palms is only partly brought out and there are some strange lapses as: "The exceptional subfamilies without multistaminate flowers are those of *Nipa* [sic], *Phoenix*, and the Coryphoid palms; yet the