Book Reviews

New Zealand Pollen Studies: The Monocotyledons. Bulletin of the Auckland Institute and Museum, No. 3. Lucy M. Cranwell. Cambridge, Mass.: Harvard Univ. Press, 1953. (For the Auckland Institute and Museum.) 91 pp. Illus. + plates. $5.00; paperbound $3.50.

To one who is not a pollen specialist the extent to which the study of this one feature of higher plants has been developed may come as a surprise. Two things which have given an impetus to this study, recently dignified with the special name "palynology," are the importance of pollen in causing hay fever and the use of fossil pollen in detecting climatic changes in prehistoric times.

As a descriptive test, Lucy Cranwell's publication is a highly competent and professional piece of work, but she does not content herself with this. For the benefit of the nonspecialists and beginners there is an introduction explaining the history, aims, and methods of the study of pollen, as well as the essential features of pollen morphology. The first parts of this are admirable examples of covering much ground and conveying much information in a short space. The part on morphology is also an excellent example of brevity and clarity, but this might have better served the purpose of orienting the beginner if it were a bit fuller. For example, the discussion of polarity leaves one wondering just what the polarity is oriented with respect to, both in the several sorts and tetrads and in the original anther sacs. This seems an important omission since the subsequent discussion involves polarity to a marked extent.

The introduction is followed by a short glossary. That this is an absolute essential, even for devotees of "palynology," is shown by the fact that practically every term in it has been used with two or more different meanings, cited with their authors in this glossary. (This tendency toward undue multiplication of meanings of technical terms seems inherent in the scientific type of mind in spite of claims to the contrary.) In at least one place, however, even the definition given in the glossary fails to clarify in the mind of the reviewer the meaning of a term which he previously thought quite clear: "Sculpturing: F. & I., p. 25, 'those elements which project beyond an imaginary surface, either the endexine in intectate pollen or an imaginary surface touching the lower-most parts of the tectum.' "

The body of the work consists of a very usable key for the identification of New Zealand monocotyledonous pollens, a detailed descriptive treatment of the pollen features of all families, most genera, and many species of New Zealand monocotyledonous plants, illustrated by clear drawings, and a beautiful series of microphotographs of pollen grains. The excellence of both the keys and these microphotographs is demonstrated by the fact that even one unfamiliar with pollen identification can usually arrive at the correct names by "keying out" the photographs. The systematist interested in the general relationships of the plant families will find the comments and discussions scattered through the descriptive text most interesting and significant. Some of them completely justify the author's opinion that taxonomists might well find in the study of pollen morphology another important line of evidence bearing on some of their problems of systematic and phylogenetic relationships.

The author is to be congratulated on having contributed an interesting paper and a fundamental tool for the use of those working on any aspect of New Zealand palynology. A companion volume on the dicotyledons and another on the fascinating New Zealand gymnosperms will be awaited with interest.

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Differential and Integral Calculus. Philip Franklin. New York–London: McGraw-Hill, 1953. 641 pp. Illus. $6.00.

This is a soundly written standard text for a first course in the calculus. The various salient ideas are introduced in an intuitive way but with emphasis on the important concepts. A more rigorous treatment is then usually given later in sections printed in smaller type. As is common in recent texts, integration is introduced early although the fundamental theorem of the integral calculus does not appear until later.

The book is written with care and consideration for the student and should also be suitable for self study. One feature is the large amount of review material from trigonometry and analytic geometry. This review material should render the book suitable for students with but little knowledge of analytic geometry, and accounts for the fact that the length of the book is somewhat greater than is usual. A chapter on vector analysis is a welcome addition to the usual offering. The final chapter is a brief but quite thorough treatment of differential equations. There are plentiful illustrative examples and numerous problems of varying degrees of difficulty.

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Industrial Wastes: Their Disposal and Treatment. Willem Rudolfs, Ed. New York: Reinhold, 1953. 497 pp. Illus. $9.50.

This book is No. 118 in the American Chemical Society Monograph Series. The policy of the Board of Editors is to confine monographs to relatively restricted areas in order that a thorough treatment may be available to those working in related fields and that further research may be stimulated.

Industrial Wastes is edited by Professor Willem Rudolfs of Rutgers University whose reputation in the field of sanitary science is worldwide. Three of the chapters are written by the editor and the remain-