

REVIEW

Twenty Years of Seed Research.—By L. V. Barton and W. Crocker.
Pubd. by Faber & Faber Ltd., London. 148 pp., 21 pl. 1948.

The local retail price of this book has not yet reached the reviewer. What it may be does not greatly matter, because for once it can truthfully be written that this is an invaluable publication. The work of the senior authoress in particular has been known for many years to all who have endeavoured to keep abreast of modern developments in the handling of seed. It is to be found in papers in many American journals, principally in the Contributions of the Boyce Thompson Institute of New York. It has possibly been better known to horticulturists than to agriculturists or foresters; but if so, the fact is not to the credit of foresters, for articles on pine seed germination and storage from her pen appeared in the American Journal of Forestry at least as long ago as 1928. Most of the work done on seed by the authors has been through control of environmental conditions with subsequent investigation wherever possible of the physiological responses thereby induced in the seed. It is work which is either complementary to, or independent of, the work on control of seed source, which has almost monopolised professional forestry attention on seed matters for the past quarter of a century.

The introduction states the position with clarity and simplicity:—"It has been possible to control environmental conditions surrounding the seed and thus determine the cause of a great many difficulties which have been encountered by seedsmen, nurserymen, foresters and horticulturists as well as amateur gardeners of all kinds. As a result of these experiments certain practical procedures can be recommended. It is the purpose of this book to set forth these findings together with their significance." But it is not claimed that all problems have been solved or that the book is encyclopaedic in its scope. It modestly disclaims any such quality. Its authors have been concerned with two phases only of the seed problem, viz. (a) "failure of seeds to grow when placed under conditions of moisture and temperature that ordinarily bring about germination," and (b) "loss of viability between time of harvest and desired planting date."

The book is in two sections based on these two phenomena, and entitled respectively "Germination" and "Storage and Life Span of Seeds." Nothing could be more simple, direct and relevant to what the forester wants to know: but in the process of unravelling problem after problem, there has been brought to light much that he certainly does not know. How many foresters for instance, have heard of epicotyl dormancy, or embryolessness (the philological aesthete may deplore the word, but its meaning is plain) or dwarfing from non-after-ripened embryos? It is almost certain that all of us have met the phenomena, but have failed to recognise them. It is more than

probable that, when we did meet them, we bluffed with vague generalities about pathogens or seed sources !

To explain these and other phenomena in a review is impossible ; because the book itself is a compressed summary to give practical results of years of work and of scores of lengthy articles. It is a masterpiece of compression and clarity. One final quotation may be permitted because of its relevance to a fashion which has had some advocates locally and which has had the support of world wide public advertisements. "Many reports have made extravagant claims for the efficacy of the so-called growth promoting or hormone-like substances in stimulating germination of seed and growth of seedlings Extensive studies made at the Boyce Thompson Institute have indicated no such favourable effects and some have shown actual reduction or delay in germination as well as harmful effects on seedlings Dormancy of seeds which normally show some delay in germination could not be broken by treatment with growth substances. On the contrary, the germination of seeds . . . which had had their dormancy broken by a period in a moist medium of 41°F. was inhibited by treatment . . . The growth substance effect was to throw certain after-ripened seeds back into dormancy." And so another current myth is exploded.

Almost needless to say, the book adds yet another to what its authors term the "perennial denials" of the veracity of the legend that wheat grains secured from the tombs of Egypt have been successfully germinated. Record collectors must rest content with a certain 160 years (and a possible 250 years) as the maximum reliable record of a life span for viable seed, the single species known to endure for this period being the Indian lotus, *Nelumbo nucifera*.

A good index and twenty-one instructive plates complete a small but scholarly volume that every forester should have on his book shelves.

C.M.S.