

with calcination as explained by the phlogiston theory unfortunately contradicts itself; the calx was regarded, not as a compound of the metal and of phlogiston set free from the fuel, but as the residuum of the metal after its component phlogiston had been expelled.

D. McKRE

BASIS OF PRESENT-DAY RUSSIAN AGRICULTURE

Principles of Agriculture

By W. R. Williams. Translated from the Russian by G. V. Jacks. Pp. 156. (London: Hutchinson's Scientific and Technical Publications, 1948.) 15s. net.

PROF. W. R. WILLIAMS, in spite of his name, was the leading communist professor of agriculture in the U.S.S.R. at the time of his death in 1939. Since that time his teachings have become more and more orthodox, until in present-day communist-dominated agricultural literature they rank with those of Michurin, Lysenko and a few others as the only sound basis on which to found agricultural research or state agricultural policies. Hence any book by Williams, such as the one under review, is indispensable for those who want to understand the trend of agricultural development behind the 'iron curtain'.

Williams spent the last years of his life as professor at the well-known Timiriazev Academy in Moscow. He was a superb lecturer and was adored by all his students, and this book will provide countless opportunities for appreciating how enlivening and how easy to understand his lectures must have been. For the outstanding characteristic in the exposition of his ideas is that there is practically no room for any trace of doubt or uncertainty; everything discussed is either excellent and usually communistic, or execrable and usually capitalistic or bourgeois, even if it is more typical of Russian than Western European agriculture. Hence there is no place in this book for any experimental proofs of the validity of his assertions; it is quite sufficient that he has made them. There can therefore be no question of considering this book as a scientific text-book—it would in medieval times have been ranked with the prophetic.

The book itself is a most extraordinary mixture of much extremely sound practical common sense, some appalling theoretical nonsense and some very out-of-date scientific theories. Naturally, Williams could not have acquired the reputation he has in the U.S.S.R. if his suggestions did not work well in practice; but this is no guarantee that the reasoning behind the methods is sound, as is only too well known to all scientific workers having to deal with successful farmers, even in Great Britain.

Williams's general thesis is that a sound agricultural system can only be built up where equal weight is given to crop husbandry, animal husbandry and soil cultivation—a contention that many people in Great Britain would consider self-evident; for the primary object of the farmer must be to maintain the tilth or structure of the soil, to ensure proper decomposition of the added organic residues, which helps to maintain the desirable structure, and to ensure adequate moisture and aeration, both for the plant roots and the soil micro-organisms. This can only be achieved by the regular use of long-term leys in the rotation,

and this demands an adequate number of livestock to consume the grass and other by-products produced on the farm which are unsuitable for human food.

Williams is therefore a great exponent of the value of ley farming, and there is little in Stapledon's teaching of taking the plough round the farm that he would not thoroughly approve of. But his exposition of ley farming is always from the point of view of the soil tilth, so he is particularly interested in the root systems of the various grasses, the kind of plough and coulter to use when ploughing under the ley, and the methods of soil cultivation that cause the desirable structure produced by the ley to break down as slowly as possible. All through this discussion, his practical suggestions are excellent, and several could profitably be tried more extensively in Great Britain; but many of the reasons he gives for these are demonstrably false.

The translation of the book appears excellent, and it reads smoothly and clearly. The book itself will amply repay careful study by all interested in ley farming and in Soviet agriculture. E. W. RUSSELL

NORTH AMERICAN ARACHNIDS

The Spider Book

A Manual for the Study of the Spiders and their Near Relatives, the Scorpions, Pseudoscorpions, Whip-Scorpions, Harvestmen and other Members of the Class Arachnida, found in America north of Mexico; with Analytical Keys for their Classification and Popular Accounts of their Habits. By John Henry Comstock. Revised and edited by Dr. W. J. Gertsch. Pp. xi+729. (Ithaca, N.Y.: Comstock Publishing Co., Inc.; London: Constable and Co., Ltd., 1948.) 35s. net.

THIS is a re-issue of the second (1940) edition of Prof. Comstock's well-known "Spider Book" of 1912. When the book first appeared, thirty-seven years ago, it received a well-deserved welcome, for at that time there was no other authoritative work describing the structure and habits of such orders of arachnids as occur in North America. For British readers its taxonomic sections had no great appeal; but the rest provided them with an admirable introduction to the biology of the Arachnida.

To a large extent this is still true, for the book contains all the 770 illustrations, in line and half-tone, which were so conspicuous a feature of its predecessor, while its survey of the scorpions, whip-scorpions and lesser orders has, I think, no serious competitor among books in the English language.

Yet Dr. Gertsch's policy—"the keynote of the revision has been conservatism"—provokes a feeling of disappointment. The study of spiders and their allies has not been unaffected by the passage of time, and, as no one knows better than Dr. Gertsch himself, there have been considerable advances in knowledge which he has elected to omit. True, he has incorporated the work of Roewer on harvestmen and of Chamberlin on false-scorpions in the appropriate pages; but, even so, one cannot but believe that an opportunity has been allowed to pass.

There may, of course, be reasons for this, not yet apparent; in the meantime, the book can be recommended as an attractive survey of the Arachnida of North America, wholly reliable within the limits just mentioned.

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