

pounded for by a final sentence ("yet who knows how many more times the stream of knowledge may turn on itself?") which could safely be trusted not to make any impression on the bewitched reader. In 1941 Prof. George Gamow wrote: "it may be hoped that in the course of the next few years a satisfactory solution of this last remaining puzzle of stellar evolution will finally be found". Now Hoyle proves that Jeans's theory is absurd and Gamow's is so baseless that "it now appears to have been abandoned even by its author".

What, then, of the future? "Is it likely that any astonishing new developments are lying in wait for us?" asks Mr. Hoyle, and he replies: "It may surprise you to hear that I doubt whether this will be so. . . . By and large I think that our present picture will turn out to bear an appreciable resemblance to the cosmologies of the future." One feels humbled in the face of such faith, beside which that of the 'fundamentalist' theologians seems child's play. Their beliefs have been held uninterruptedly for centuries and have never been disproved; why should they be tempted to doubt? But Mr. Hoyle's conviction must sustain itself wholly from within; if he looks back on history, he sees certainty after certainty discredited and finality after finality surpassed. Yet undaunted he pins his trust for ever to the New Cosmology, "having seen she shall surely abide in the end". Even Tertullian could only say "certum est quia impossibile est"; Hoyle can say, "certum est quia improbable est", and every theoretical physicist will acknowledge the greater triumph of faith over reason and experience. Nevertheless, if, as we may all hope, he is invited to broadcast on cosmology in forty years time, we suspect that it will be not only the audience that will be new.

HERBERT DINGLE

GRASSLAND FARMING IN GREAT BRITAIN

The Science and Practice of Grassland Farming

By Prof. H. I. Moore. (Nelson's Agriculture Series.) Pp. ix+166+21 plates. (London and Edinburgh: Thomas Nelson and Sons, Ltd., 1949.) 8s. 6d. net.

IT is generally agreed that, of the various ways of expanding food production in Great Britain, improved grassland practice offers the most substantial possibilities. This book comes at a very opportune moment in the national drive for higher production and brings evidence from many sources, as well as the experience and opinions of the author, to bear on the more recent and controversial developments.

All aspects of the subject are included, such as the historical background, grassland types, establishment of the sward, management, the economics of grass farming, conservation, diseases and insect pests of grassland, and finally seed production. A chapter on the constituents of grassland deals not only with the various species and strains of grasses and clovers, but also with the more desirable herbs. To many scientific workers and farmers, perhaps the most interesting chapters are those dealing with seeds mixture, the influence of the nurse crop and the correct grazing of the sward.

It is in these directions that—as well as conservation—hopes for major increases in production chiefly lie. The author brings the results of more

than four hundred trials, carried out in Yorkshire, to bear on the problem of which is the best nurse crop, and whether the seeds mixture should be sown immediately after the cereal crop or after it has braided. Flax and linseed stand out as successful nurse crops, and the advantage of sowing the grass and clover seeds immediately after the nurse crop is obvious. On the question of seeds mixtures, readers can be forgiven for losing no time in turning the pages to find the author's views on the simple, two-component mixtures, sown for special purposes, which have a few but enthusiastic supporters. The author, however, does not commit himself as to whether these should supplant the older and more complex mixtures, and we have to agree with him that accurate feeding-trials are needed before a definite conclusion can be reached.

If a fault has to be found, it is that the book may be too comprehensive for some readers. Knowing the wealth of experience possessed by the author, it is difficult not to wish that he had expanded those portions dealing with the most recent studies of the establishment and utilization of the sward, and possibly omitted others, for example, the chapter on seed production.

A SOUTH AMERICAN ANTHROPOLOGICAL SYMPOSIUM

Handbook of South American Indians

Edited by Julian H. Steward. (Smithsonian Institution: Bureau of American Ethnology. Bulletin 143.) Vol. 5: The Comparative Ethnology of South American Indians. Pp. xxvi+818+56 plates. (Washington, D.C.: Government Printing Office, 1949.) 3 dollars.

IN the first four volumes of this work (see *Nature*, 158, 769; 1946; and 162, 908; 1948) the treatment is regional, and areas and tribes are described individually. The greater part of Vol. 5 is taken up with what is called a cross-cultural survey of South American tribes, in which various subjects are treated comprehensively, both in space and in time. All the articles were finished by 1945, and intense recent activity in some parts of the field has made some of them out of date; but this has been corrected to some extent by additions to the bibliography, and a further compensation is that the two valuable articles on basketry and weaving by Prof. L. M. O'Neale were ready before she died. Many aspects of material culture, social and political life, art, religion and learning are treated by the best authorities, including Bennett, Kroeber, Lowie and Métraux, and it will be very useful to have the information in this form. The editor himself disarms one criticism by directing attention to certain omissions, which were for various reasons unavoidable but which are nevertheless disappointing in so comprehensive a work. For example, the volume arrived just when I was looking for a particular piece of information about water transport; but unfortunately that is one of the subjects which are not included.

The next two sections of the book consist of a brief account of the Jesuit missions by Métraux, and a survey by the editor of population numbers, densities and trends. Finally, the editor contributes a summary of the South American cultures under the main headings used in the first four volumes, marginal