

This is a great work, unsurpassed in its scope or accuracy by any similar work in any other country. It now appeals almost pathetically for its index volume to make it fully usable, although there is an excellent system of cross-references between correlative topics. But could not some more straightforward notation be used than one which refers the inquirer to H § 47 \* \* \* \* \* ?

C. R. S.

### Science and the Humanities.

*Plant Nutrition and Crop Production.* By E. J. Russell. Pp. ix+115+21 plates. (Berkeley: University of California Press; London: Cambridge University Press, 1926.) 12s. 6d. net.

IN a recent review in these columns of a Stationery Office publication—"Research and the Land" (Dec. 4, 1926)—attention was directed to the dangers that research workers encounter when they enter the journalistic field, a danger picturesquely expressed in the Scots' proverb that—"fules and bairns shouldna see half-dune wark." The book before us (in part an excursion in that field) is the text of a series of lectures delivered at San Francisco under the provision of the Hitchcock Trust, of which the object and purpose appear to be publicity, not (we hasten to add) in the form of belauding any one person or institution, but with the dignified purpose of creating public confidence in scientific methods and ideals generally.

The task before the lecturer in this instance has been performed with great ability. We have here succinctly expressed a complete review of the whole history of scientific research on plant nutrition from the agricultural aspect, finishing up with some account of the more recent work on the subject at Rothamsted and elsewhere. The profuse and picturesque illustrations of this book, a selection, no doubt, from the lantern-slides displayed, are of unusual interest. From a literary point of view, too, the text is excellent. Few, if any, agricultural writers can surpass Sir John Russell in his shining enthusiasm for the humanistic value of scientific pursuits, the limitations of which never daunt him. "Exact knowledge," he says, "is the only sure basis for improvements: encourage, therefore, those among you who are striving to win it. Their task is slow, painful, and often disappointing. . . . knowledge is but an approximation to a truth never to be wholly attained by man."

This, however, should be a review, not a panegyric; and one is bound to question whether enthusiasm based, as it may be, on personal

achievement, may not obscure clear vision of the field as a whole as it appears to those primarily interested in the practical application of scientific results. What, for example, has the agronomist to say to all this? For it is upon *his* achievements that the popular support of scientific research in agriculture may depend, and, scientifically, are not the gaps in knowledge many and vital?

To the doubter, there can be only one answer. It may be true that half a century of agricultural research has not yielded an adequate harvest in the form of material return to the husbandman; but even the layman must hold to the faith that the only avenue to material improvement is increased knowledge. Long ago it was said . . . "*pater ipse colendi haud facilem esse viam voluit*," and the way of the research worker is equally hard; but go the road, however hard it be, he must; if he fails to convert the common crowd to that faith, then, indeed, is the cause of applied science desperate. On this satisfying note our author aptly closes:

. . . Man's the prerogative, knowledge once gained  
To ignore, find new knowledge to press for, to swerve  
In pursuit of, no! not for a moment: attained  
Why, onward through ignorance! Dare and deserve!  
As still to its asymptote speedeth the curve.

### Our Bookshelf.

*Matter and Gravity in Newton's Physical Philosophy: a Study in the Natural Philosophy of Newton's Time.* By A. J. Snow. Pp. 256. (London: Oxford University Press, 1926.) 7s. 6d. net.

THE explanatory title of this book, namely, "A Study in the Natural Philosophy of Newton's Time," gives a good indication of the scope and nature of the contents. It is certainly desirable in these days, when science, philosophy, and religion are all recognised as important contributors to the progress of human thought, to have such an outstanding period as that of the seventeenth century and early eighteenth surveyed, especially with reference to the atomic revival which, as the author points out, is very closely associated with the name of Pierre Gassendi. The work of Robert Boyle, and also the dispute between Gassendi's and Descartes' schools of atomism, are traced in the first chapter, and the question as to the divisibility of matter is shown to have formed an important phase of the intellectual background of Newton's time. Galileo's ideas with regard to movement are also traced, and so the way is prepared for the Newtonian atomism which is discussed in the second chapter.

The objections to Descartes are dealt with at length, and it is shown how that, to Newton, the idea of God was essential. The influence on Galileo is brought out in this chapter with regard to the theory of force.

In the third chapter, Newton's doctrine of gravity is treated, and throughout what follows,