

author is not entirely devoid of bias in the interpretation of observational results. For example, in Fig. 75 a single curve could be drawn through all the points with apparently as much accuracy as the two curves suggested on theoretical grounds. Again, on p. 156 it is stated that "there does not seem to be any evidence that entirely rod-free fields have different colour vision" from those containing rods, although previously, on p. 141, one finds that, when a field subtending 20' in diameter falls on the middle of the fovea (which, on p. 27, is stated to be rod-free), then "the characteristics of colour vision correspond to a dichromatic system. All lights of the spectrum can be matched by suitable mixtures of blue light and red light." This apparent inconsistency is not, in fact, as glaring as it may seem at first sight, since there are other possible causes for the dichromacy of the foveal centre besides the absence of rods; but perhaps the point could, with advantage, have been made more explicit.

In spite of this, however, the book is well considered and clearly written, and forms an excellent introduction to the complex study of vision. The analysis of the minimum requirements of energy for the perception of light and of pattern, which incorporates much of the author's own investigation, is of particular interest.

E. N. WILLMER

## ENGLISH FARMING BOOKS IN THE EIGHTEENTH CENTURY

### More Old English Farming Books

From Tull to the Board of Agriculture, 1731 to 1793. By G. E. Fussell. Pp. ix+186+8 plates. (London: Crosby Lockwood and Son, Ltd., 1950.) 15s. net.

SOME time ago Mr. G. E. Fussell published a volume on Old English farming books covering the period 1523-1730; he has now followed this up with a companion volume dealing with the period 1730-93. The dates can be fully justified: 1731 was the year in which Jethro Tull published his famous "New Horse Houghing Husbandry" which made the successful cultivation of turnips possible and so opened the way to the Norfolk rotation, the final break with the ancient three-field system. 1793 was the year of foundation of the first Board of Agriculture, which did so much towards the development of the craftsmanship that later raised English agriculture to the highest level in Europe.

The general reader would have been helped if Mr. Fussell had begun with an outline of the agricultural history of the period in relation to what had gone before and what came after; the author preferred, however, to start right away with an account of Jethro Tull and William Ellis. Of the two, Tull was by far the more interesting personality. An Oxford student who had to abandon his studies and political ambitions for health reasons, he had taken to farming but gave up for a time to travel in the south of France and in Italy, where he saw with admiration the methods of cultivating the vineyards; on his return he set out to adopt similar methods on his farm. His efforts are described in his book; the first edition is very rare, but William Cobbett's edition of 1829 is not difficult to find, and it is made more entertaining by Cobbett's own very racy comments. Tull has always aroused interest and admiration among agriculturists for his gallant struggle against

adversity, due partly to a spendthrift son, and against sickness, working as he says "in pains of the stone and other diseases as incurable and almost as cruel".

Mr. Fussell's survey ends with Arthur Young, most famous of agricultural writers—"that wise and honest traveller" as John Morley called him—whose later years were terribly saddened by the death of his favourite daughter and by blindness.

In between Tull and Young came a crowd of much smaller people whom Mr. Fussell aptly calls the minor prophets, but who necessarily take up a considerable part of the book.

The period was agriculturally far more important for its practical achievements than for its writings. Bakewell, Townshend and Coke of Norfolk were all bringing about revolutionary changes in farming practice, but none of them wrote anything; indeed, it has been part of the irony of agricultural history that some of the best agricultural writers—Tusser, Young and others—have been very indifferent practitioners, whereas some of the best practical farmers have felt no urge to write. Some of the volumes had intriguing titles—"The Way to be Rich and Respectable", "Strictures on Agriculture", "Modern Eden; or the Gardener's Universal Guide"—but they lack the picturesqueness of some of the sixteenth- or seventeenth-century books and particularly the sonorosity of the Elizabethans, for none of the eighteenth-century publishers could approach the colophon of the 1578 Heresbach, "Imprinted at London for John Wight, dwelling in Paules Church-yarde, at the great North doore of Paules"; however, there is contained in some of them a good deal of shrewd common sense and information about agricultural practices which cannot easily be found elsewhere.

A few points might receive attention if another edition is called for. Tull's idea of tillage as a substitute for manure was developed by the Rev. S. Smith, of Lois Weedon, in the late 1840's and published by him in his pamphlets "A Word in Season" in 1849 and "Lois Weedon Husbandry" in 1856, and by 1858 the former had reached its sixteenth edition; copies of both pamphlets are in the Rothamsted Experimental Station along with other agricultural treasures. The method excited a good deal of attention, as labour was cheap and manure dear. It was tested at Rothamsted on Hoosfield during 1851-54 but found to be ineffective; the results were published in the *Journal of the Royal Agricultural Society* for 1856. Burnett's pamphlet, the only one mentioned by Mr. Fussell, was not published until 1859. The author gives the date of the first edition of William Ellis's "Modern Husbandman" as 1743; the Rothamsted copy is dated 1742, and includes only the months May-October. The Dublin edition of 1743 includes the whole year. The Rothamsted copy of the Dublin edition of Hales's "Compleat Body of Husbandry" (1757) is in four volumes, not two; the London edition of 1758-59 is also in four volumes. The London and Dublin editions differ in content and especially in arrangement. Mr. Fussell does not mention the "Continuation . . ." (1759), of which Rothamsted has a quarto edition. The second edition of Tull's "Horse Hoing Husbandry" is dated 1743, not 1740. It was the "Supplement to the Essay . . ." that reached a second edition in 1740; Rothamsted has no copy of the first, even if there ever was one.

The student of this period of agricultural history will find the volume useful; no other book deals with the subject so fully.

E. JOHN RUSSELL