

Book Reviews

EMMANUEL LE ROY LADURIE, *Les Paysans de Languedoc*. S.E.V.P.E.N. Paris, 1966. 2 vols. 1063 pp. £8.62½.

Professor Ladurie's study of peasant agriculture in Languedoc between the sixteenth and eighteenth centuries is a remarkably sustained analysis of a large province of France containing several contrasted farming regions. His work started with the discovery of parish tithe accounts giving lists of peasant holdings, and the tithes which they paid in kind, at various dates between 1500 and 1800. This rich mine of information yielded all the detail necessary to chart in individual parishes changes in the distribution of land, changes in the crops grown, and in their yields. But combined with other material, the intricate pattern of parochial detail finally gave the author a panoramic view of the whole province and of the divergent development of the farming regions over a period of eight generations. In short, this regional study yielded large generalizations on agricultural development which have already stimulated wider use of the tithe documents in other parts of France. Some far-reaching conclusions on the productivity of crops over almost the whole country have been digested and summarized in a preliminary way in a recent article in *Annales*.

Professor Ladurie's scene is set in a Mediterranean province with a wide coastal belt of cornland, vineyards, and olive groves, and a mountainous hinterland that includes the Cevennes. There was also a marshland zone at the mouth of the Rhône, but the principal contrast lay between High and Low Languedoc. High Languedoc was a country of graziers, dairymen, and transhumant shepherds who moved down to the marshes of the Camargue every winter. Little grain was grown; chestnuts were one of the substitutes for bread, and chestnut wood was used to make barrels for wine, anchovies, and sardines. Timber industries, mining, and leather-working were vital supplementary employments to agriculture. Low Languedoc was the country of corn, vines, and olives, and in addition had

the advantage of receiving before others all the novelties in agriculture which poured in during the sixteenth and seventeenth centuries from Spain, Italy, the Middle East, and the New World. But Languedoc was a relatively homogeneous peasant society, and its agricultural techniques were backward. How then did these peasant communities meet the changing circumstances of the sixteenth and seventeenth centuries?

Professor Ladurie's study offers a multitude of insights into the flexibility of their economies and the valiant efforts made to meet economic crises with original and resourceful solutions. In Low Languedoc a kind of horticultural revolution took place—a century before such a thing occurred in southern England—as melons, aubergines, courgettes, peppers, artichokes, tomatoes, maize, beans, and sainfoin were integrated into the farming system. The task was made easier because the fruits and many of the vegetables were well suited for cultivation on small holdings by peasants with little capital but ample supplies of labour. Given the social framework of peasant-farming, and the muted demands of the local market (when compared, say, with the strident demand of industrial towns in the Netherlands upon their rural hinterland to engage in commercial production) the spread of the new crops was impressive.

Meanwhile in the Cevennes the outstanding development was the revival of the silk industry under Huguenot inspiration, spurred on by the introduction of a new variety of mulberry tree. Other industries too were continuously invigorated by recruits arriving from the north to settle in the south. And as Protestantism spread in the mountains, all technical skills were kept up to date by the contacts that were maintained between the Cevennes, Geneva, and other Calvinist centres. Subsidiary farming areas turned to yet other solutions. The vine harvest was gathered some two or three weeks later in the seventeenth century than in the sixteenth, thus improving the quality of the wine and promoting sales abroad. Between

1627 and 1636 Languedoc was exporting to Italy more wine than corn. In the moorland areas of the *garrigues* between the mountains and the coast, vinegrowing was extended into places where it had not hitherto penetrated. On the marshlands much drainage was carried out between 1600 and 1640 with the assistance of the Dutch in order to make more cornland, though this enterprise lost momentum when grain prices slumped, and it virtually ceased after 1660.

Thus the sixteenth- and seventeenth-century crisis was not one long and monotonous disaster for the whole province but rather a challenge which the regions met in different ways with varying degrees of success. The chequered story of their experiences could only be fully told if the course of development in each region were separately pursued, and Professor Ladurie does not follow these divergent paths consistently enough to their separate conclusions to be able in the end to weigh the relative merits of these different farming systems. He provides no map of Languedoc (though he had every opportunity in volume II which is wholly devoted to tables, graphs, and a description of his sources); he does not clearly define the agricultural regions of the province; and he presents his evidence in terms of individual parishes when his conclusions would have emerged more strongly if he had grouped his material by farming regions. However, this is a pioneer study—in the scale of its canvas and in the breadth of its conclusions—so that many of the lessons it teaches cannot have appeared to full view until after the study was completed. Future workers will doubtless improve upon the method of analysis which Professor Ladurie has here pioneered.

What Professor Ladurie does offer is a far-ranging conspectus of changes in landholding in Languedoc as a whole, covering the thirteenth to eighteenth centuries, and assimilating evidence on population changes and price movements as well as changes in cropping systems. He sees a rhythmic development beginning in the twelfth century when populations rose, cultivation became more intensive, and vine-growing in particular was extended. These trends gave way to a less intensive

husbandry, more pasture-farming, and the consolidation of land into larger units after the plagues. Then when population rose again after 1500 the fragmentation of holdings among the smaller peasantry was resumed, sometimes as a result of land sales, sometimes through the practice of partible inheritance. Single examples of the subdivision of farms among members of one family are given, but the subject is not explored in depth, so that the relative importance of sales and inheritance customs cannot be assessed. More intensive cultivation in these years involved the spread of corn, olives, and vines, once more at the expense of stock; but as supplies of animal manure diminished, yields inevitably declined. The purchasing power of wages also fell, and the spirit of revolt manifested itself in the refusal to pay tithes—a revolt which lasted from the 1560's until 1600—and in the increasing support given to Protestantism, particularly in the pastoral districts of the mountains and the coastal marshlands. Yet things were not as bad in the sixteenth century as they were to become later. Taxes did not rise, rents remained stable, and money tithes did not keep in step with prices.

After 1600 even these resilient peasant economies failed to withstand the fresh onslaughts of war, bad seasons, plague, rising rents, rising tax burdens including a sharp increase in the salt tax in the 1640's and 1650's, and falling grain prices particularly after 1654. Small peasants and labourers were pauperized, mortality rates rose, land was abandoned, and some areas wholly depopulated. The fragmentation of holdings among the lower ranks of the peasantry continued up to 1680, but it went hand in hand with an opposite tendency in the upper reaches of society. Large farms increased in size and number at the expense of the medium holdings, and this trend became uppermost after 1680 until 1770. It then gave way to another phase of fragmentation which lasted until about 1870, but Professor Ladurie does not pursue his story beyond 1770.

The detailed analysis of the circumstances surrounding successive bouts of land fragmentation and consolidation covers the period 1500–1750. The growth of the larger farms

which it discloses has also been emphasized in other studies of east, west, and northern France in the seventeenth century, and is also a major theme in the history of arable farming regions in England at the same period. Arguing from these analogies, we may wonder whether the trend towards larger farms in Languedoc could not be more precisely traced to particular types of farmers and farming systems instead of being ascribed to the province as a whole. Similarly, we may wonder whether the fragmentation of small farms was not more conspicuous under horticultural and perhaps also pastoral systems (in the mountains but not in the marshes: Dutch drainage usually created large farms) than among the corn growers. Certainly, the evidence of new and expanding industries in the mountains, and the cultivation of a more varied selection of labour-intensive fruits and vegetables in parts of the plain, would seem to point to these two types of peasants in Languedoc as the ones who were better equipped than the rest to resist the pressures from engrossers of land. And this conclusion would coincide with that drawn from other French, Dutch, and English examples.

It will be clear by now that Professor Ladurie's book is a most exciting and stimulating study for anyone interested in exploring the social structure and economic problems of different systems of farming in the special conditions of the sixteenth and seventeenth centuries. Professor Slicher van Bath's work on west European agriculture presented many local illustrations; here are more. But this is not the sum of Professor Ladurie's contribution to agricultural history. We can see how his evidence on the dates of the wine harvests led him on to his more recent work on climatic changes and their influence on farming. Now the Sixth Section of the École Pratique des Hautes Études has assembled a group of historians to calculate total national agricultural production from the tithe records. Only the preliminary results are available, since

western France is not yet adequately represented. But the present indications are that in the three and a half centuries between 1400 and 1750, France's great spurt in agricultural production occurred between 1500 and 1550; and Toutain's suggestion that a rise of 60 per cent occurred in farm produce between 1700 and 1789 seems to need revision to a more modest estimate of between 25 and 40 per cent.¹ The total harvest to be reaped from the seeds sown by this study of Languedoc has not yet been gathered in.

JOAN THIRSK

ERIC KERRIDGE (ed.), *Agrarian Problems in the Sixteenth Century and After*. Vol. 6 of *Historical Problems: Studies and Documents*, ed. G. R. Elton. George Allen and Unwin, 1969. 216 pp. £1.75.

This is an important book, but also a difficult one for two separate reasons. It deals with a technical subject—the land law—and it attacks the late R. H. Tawney's *The Agrarian Problem in the Sixteenth Century* (1912) in such an extreme form as to undermine the reader's confidence in Dr Kerridge's objectivity. The dust-jacket announces that Dr Kerridge's research has led him to question Tawney's conclusions in their entirety and to propound four alternative propositions: (1) customary tenants enjoyed legal security in and before the sixteenth century; (2) enclosures proceeded legally and without oppression in the sixteenth and later centuries; (3) rural depopulation was less extensive than sometimes supposed; (4) that such depopulation as there was often proved economically profitable and not without social benefit. The book thus challenges not only Tawney, but also much recent work on deserted villages, especially W. G. Hoskins's study in *Essays in Leicestershire History* (1950) and M. W. Beresford's *The Lost Villages of England* (1954). However, Dr Kerridge's attempt to belittle the importance of deserted villages is too brief to carry much weight, and he reserves his heavy artillery for Tawney.

¹ E. L. R. Ladurie, 'Dîmes et Produit Net Agricole (XV^e–XVIII^e Siècle)', *Annales*, 1969, pt 3, pp. 826–32. See also Joseph Goy and A. L. Head-Koenig, 'Une Expérience. Les Revenus Décimaux en France Méditerranéenne, XVI^e–XVIII^e Siècles', *Études Rurales*, 36, Oct.–Dec., 1969, pp. 66–83, and the references therein cited.

Readers familiar with Tawney's work will, however, have noted that Dr Kerridge has altered the emphasis of the argument to suit his own purposes. He asserts that the essence of Tawney's case was the ruthless eviction of copyholders by grasping landlords to make way for large, enclosed farms, even though the copyholders held by inheritance and by *custom of the manor*; and that in making this assertion Tawney was guilty of a fundamental misunderstanding of the nature of the English law. In fact, Tawney was doubtful about the legal position of copyholders holding by the custom of the manor, and believed that the law usually protected them when custom was favourable to them. It can be argued that Tawney's main assertion was not that customary tenants were evicted in large numbers, but that they were obliged to pay higher entry fines; and that it was the commercialization of agriculture, by which the profits were transferred to landlords rather than retained by peasants, which constituted the most revolutionary agrarian change in the sixteenth century. On this problem Dr Kerridge has little to say although in an earlier work, 'The Movement of Rent 1540-1640' in the *Economic History Review* (1953) he lent powerful statistical support to Tawney's view.

It is however probably true that, although Tawney was careful to say that the agrarian changes of the sixteenth century were statistically unimpressive in relation to the whole country and that the face of the countryside was not radically altered between 1485 and 1700 (Tawney, pp. 401-2), there has been a tendency for his qualifications to be forgotten and for the agrarian changes of the sixteenth century to be unduly magnified; but whether this amounts to the tendentious misrepresentation of which Dr Kerridge complains is doubtful. It is a pity that by his attacks on Tawney's good faith he has detracted from the value of his study which otherwise makes an important contribution to our understanding of the land law in the early modern period.

Dr Kerridge's method has been to select twenty-four documents illustrative of the relations between landlords and tenants and to write a long (117 pages) and detailed intro-

duction to explain them. The documents fall broadly into two main classes—those illustrating legal support for customary tenants holding by the custom of the manor (eleven documents, mainly extracts from law books such as Bracton, Littleton, and Coke) and those illustrating the process of enclosure by agreement (sixteen documents, such as extracts from a manorial court book, enclosure agreements, and proceedings relating to enclosure in the Court of Chancery).

The introduction is divided into six sections entitled the Manor, Tenures and Estates, Security of Tenure, Enclosure, the Ratification of Enclosures, and Depopulation and Impopulation. The dust-jacket claims that Dr Kerridge "describes fully and precisely, and for the first time, all the legal ties between the landlord and tenant in early modern England," and this is certainly an exhaustive account supported by a wealth of documentary references. There is, however, some danger that it will prove to be too indigestible for the university student, for whom this series was designed, for the technicalities of the land law are hardly exciting reading; but scholars will be grateful to Dr Kerridge for his labours.

The section on the manor and its courts covers reasonably familiar ground, and there is an interesting discussion of the methods of Courts of Survey. The second section on Tenures and Estates is the most important in the book, for in it Dr Kerridge makes the distinction between the two systems of land law—the tenurial system which was feudal and the estates system which was capitalist—the distinction which he maintains has been neglected by previous scholars. The argument is technical and involved, but its essence is that by the sixteenth century the old system of tenures based on feudal relationships—either military or labour services—had become obsolete, and a new system of land law, known as the system of estates, had been superimposed on it. An estate was a property or interest in land "irrespective of the tenure by which it was held" (p. 60). If a man bought a copyhold for life, even if it was held under a customary tenure, it counted as a freehold estate and would be protected as such under the common law. Dr

Kerridge quotes Sir Edward Coke, *The Compleate Copyholder* (London 1641), in support of this: "A freehold is taken in a double sense: either 'tis named a freehold in respect of the state of the land or in respect of the law. . . In respect of the state of the land, so copyholders may be freeholders; for any that hath any estate for his life, or any greater estate in any land whatsoever may in this sense be termed a freeholder" (p. 33). On the basis of this distinction Dr Kerridge claims that copyholders were legally freeholders and in fact enjoyed complete security of tenure in the sixteenth century. As regards copyholders of inheritance, who seem to have been about half the total, this was probably true, particularly where the entry fines were fixed by custom. Where the fines were not fixed, security of tenure depended on meeting certain conditions—basically an agreement to pay a 'reasonable' entry fine. Dr Kerridge shows that the courts would usually define 'reasonable' as equal to about twice the annual improved value of the holding, and maintains that lords could not evict if tenants refused to pay an 'unreasonable' fine. He regards this as no hardship to tenants. Possibly not, but a 'reasonable' fine could still represent a considerable increase on the old customary figure, and by implication a copyholder of inheritance could be evicted if he refused to pay such a fine. Dr Kerridge is, however, probably right in his contention that copyholders of inheritance seldom were evicted in practice, and that evictions, where they occurred, took place quite legally at the expense of the various types of customary tenants who held at will, such as those with copies for years, tenancies for less than a year, and bond tenancies. In sum, Dr Kerridge argues that tenurial change was much less in the sixteenth century than Tawney implied, and it is useful to have his evidence of this widespread stability to set against the small but significant examples of breaches in the old system. The discussion of enclosure in the remainder of the book covers more familiar ground, but it is instructive to have detailed examples of the process of agreement.

If a second edition is published it would be helpful to remove the unfair personal attacks

on Tawney, who cannot answer back, and to expand the list of four books recommended for further reading at the back, especially as students will have considerable difficulty in finding their way around amongst the abbreviations in the copious footnotes, despite Dr Kerridge's hope that his system makes it possible to trace the references. The addition of the map of farming regions published in the author's *The Agricultural Revolution* (1967) would also be of assistance since the regions (as described in Dr Kerridge's personal terminology) are frequently referred to without identification. The same is also true of villages, and although there is an index of places, it does not include the counties in which the villages stand. Not every student can be assumed to have Dr Kerridge's wide knowledge of local topography.

In conclusion, this book will be of value to scholars of the early modern land system who are already basically familiar with its problems, but it is too technical for the student who is approaching the subject for the first time. It is also weakened by an over-legalistic approach which is somewhat unrealistic. The fact that the law had provisions for protecting customary tenants does not necessarily mean that they would in practice be prepared to risk the expense, delay, and trouble of opposing their powerful lords in court. The social context of the period thus also needs to be taken into account. Finally, the absence of an adequate bibliography is a serious drawback, particularly in a book designed for students. Perhaps general editors should give their contributors more guidance.

M. A. HAVINDEN

MARY D. LOBEL and ALAN CROSSLEY (eds.), *A Victoria History of the County of Oxford*, Vol. ix, *Bloxham Hundred*. Oxford University Press for the Institute of Historical Research, 1969. xxiv+205 pp. £7.35.

Bloxham hundred is one of the more distinctive parts of Oxfordshire. It lies in the far north of the county, and spans a farming countryside famous (thanks to Arthur Young) as the 'red land'. Physically quite diverse, it runs from the Cherwell valley below Banbury right to the top

of the Cotswold crest, where Shenlow Hill reaches the respectable height of 743 feet above O.D. At the upper levels the marlstone rock of the Middle Lias underlies the much-praised red land, long acclaimed for its corn yields. In the valleys of the Cherwell and its Sor Brook feeders the land is floored by clays of the Lower Lias, giving scope for fine pasture. As pointed out on the opening page of the volume under review, the physical foundations of the region are reflected in more than its vernacular architecture, where village after village is replete with seventeenth- and eighteenth-century manor houses, farmhouses, and cottages built from the honey-coloured marlstone, which is easily quarried throughout the district.

Its foundations are also evident in agrarian history. 'Uncommonly good soil' was noted here by Leland in the 1530's, and it has supported a type of mixed farming that was praised by many observers during the intervening centuries. Hence a system of convertible husbandry was found at Bloxham from as early as 1513, reflected in leys lying intermixed with the arable strips in common fields. Another characteristic of this part of Oxfordshire was the way in which the fields themselves were widely cultivated in a system of 'quarters'. For instance, at Bloxham the field structure had become reorganized into quarters by 1542 at the latest. It is not certain if there were four medieval fields at Bloxham, but the South Field was divided into its Ailcombe, Milton, Cowhill, and Ovenhill Quarters down to the Parliamentary inclosure of 1802. In the North Field, however, there were at least seven distinct quarters, and such arithmetical licence had appeared as early as the sixteenth century. The suggestion is made that they were so complex because they were meant to provide two separate rotation courses in what was a large and dispersed area. In fact ley farming was recorded between 1513 and 1552, and a peas field in 1598.

The merits and shortcomings of the *Victoria County Histories* as historical writing have been much debated in recent years (for instance by Professor Finberg on Gloucestershire in this REVIEW), and there is no need to prolong the

debate in general terms here. What is clear is that each resplendent volume is nothing if not a quarry of factual information wrested from public and private records. Under the familiar and inexorable headings—manors, local government, economic history, mills, churches, Roman Catholicism, Protestant Nonconformity, schools, charities—we are free to search for the data we wish to use. It is an authoritative and apparently exhaustive treatment, so much so that fresh young research students have been known to blench at their first confrontation with a volume, refusing to believe there may be estate plans in the Bodleian or college archives, for example, that have escaped the vigilance of the *V.C.H.* Accepting this basic function, therefore, we can still be surprised that some of its material is not more accessible and more standardized in terms of topics, issues, or problems of general importance. Let us take a case suggested for us on the opening page of the Bloxham volume.

Only in three parishes (Adderbury, Broughton, and Drayton), we are told, "was there extensive early inclosure for specialist farming." What more natural, then, than to try to discover how extensive these early inclosures were in each case? But in practice the calculations take far longer than expected, and perhaps longer than they need have done. First Adderbury: the Act of 1768 declared there were 965 acres of old inclosures, dating from between 1517 and 1717, while the Act allotted 4,310 acres of open land. Although the *V.C.H.* does not remind us of the fact, we can safely assume that the old inclosures were considered apart from the open land, but when we try to find the total acreage of the old parish (in order to calculate proportions) we have to formulate it for ourselves by adding four separate acreages. Once that is done we can say that in 1768 the old inclosures at Adderbury accounted for 18 per cent of the parish. Next Broughton, which is more difficult: we read how Sir Richard Fiennes inclosed Broughton for pasture between 1589 and 1602, but it is extraordinarily hard to fix the acreages involved. Thus in part of Broughton there were 450 acres of open field arable in 1592, and the award of 1805 allotted 513 acres of common

field and waste, so we can do no more than estimate 1,400 acres of old inclosures in 1805, or 66 per cent of the parish. Lastly Drayton, where the 666 acres of old inclosures at the award of 1802 comprised 71 per cent of the parish: here we have to add up for ourselves the acreages involved in the award.

The point is that it should be easy to make a meaningful assessment of the scale of pre-Parliamentary inclosure in areas where the process may have been part of the general course of agricultural improvement. Terms like 'extensive' are not adequate, so having done the sums for the three parishes already mentioned it seems worth doing them for the whole hundred, through each of the eleven parishes from Adderbury to Wroxton. The result is a total of about 4,375 acres of old inclosures, or 14 per cent of Bloxham hundred. The logical step then is to widen the exercise to other Oxfordshire hundreds for comparative purposes, and to test the hypotheses of H. L. Gray in his *English Field Systems* (1915): although Gray devoted over thirty pages of his pioneer work to Oxfordshire, he is not cited in the index of the Bloxham volume, doubtless because he appears only in the occasional footnote.

F. V. EMERY

J. GERAINT JENKINS, *The Welsh Woollen Industry*. National Museum of Wales: Welsh Folk Museum, Cardiff, 1969. 410 pp. £2.75.

Apart from a few articles in periodicals, there has been no study of the woollen industry in Wales, and this book is warmly to be welcomed. Its arrangement is perhaps better suited to the industrial archaeologist than to the economic historian, since the history is mainly treated by regions, so that, after having followed it in Montgomeryshire from the domestic industry of the seventeenth century to the factory system of the nineteenth, one begins again with Merioneth and so again with other regions in later chapters. The factors which affected the development of the industry in these regions were not always the same; but the varying influences which promoted the rise and decline of flannel in Montgomeryshire, of the stout

unfinished cloth known as 'webs' in Merioneth, and of the production of flannel and shirting for the mining valleys in Pembroke and Carmarthenshire might more easily be compared if they were recounted in closer association with one another. The arrangement which Mr Jenkins has chosen does, however, enable him to list in detail the mills in each district and to give many examples of the machinery they contained in the nineteenth century.

No short review could afford room for the comments which might be made on various points in this book. One of its most interesting aspects lies in the description of the domestic industry, which lingered much longer in Wales than in the rest of the country. Mr Jenkins gives a vivid picture of an almost self-sufficient society, very poor but not entirely poverty-stricken, processing the wool from its own sheep in close association with farming and supplying mainly a local market. Even after the arrival of carding and spinning machinery about 1800 the pattern remained the same. Wool was taken to the mill for spinning and woven cloth went back there to be fulled, but the local market remained of great importance though commercial production steadily increased. There is an interesting list of dyestuffs, the greater part of them to be found in the neighbourhood of the industry with only a few imported ones. As one would expect in such a community, the materials made were determined by the nature of the wool available in the locality, and there are some useful remarks about Welsh wool at the beginning of the book.

Such a situation, even to the dyestuffs used, must have existed over a large portion of the English countryside in the Middle Ages where it eventually resulted in the emergence from the ranks of the farming community of some very well-to-do clothiers. That this did not happen in Wales (except to a very modest extent) seems to have been due to the fact that Welsh farms afforded no surplus from which to accumulate capital. Sellers could not afford to wait for a better price and where they sold for wider distribution they fell victims to buyers from outside the region, as the Montgomeryshire flannel makers did to the Shrews-

bury drapers. In later days at least two agricultural societies, one in Brecon in 1755 and another in Glamorgan in the 1780's, tried to inject capital into the decaying industry around them; but neither was very successful, probably because such societies, composed of the gentry of the neighbourhood, were not sufficiently familiar with the conditions of the industry.

What impresses one in the account of the industry in the factory age is the resemblance to developments elsewhere. Manufacturers prospered or went bankrupt at the same periods and for the same reasons as they did in the west of England and in Yorkshire, and communications played the same important part, for good or ill, as they did elsewhere. Even the failure to embark on new materials or to look for new markets when old ones failed was not peculiar to Wales. Incidentally, the obligation to give twelve yards in a piece of 132 yards in length was only the customary allowance of one yard in twenty applicable everywhere to cover shrinkage, and not a peculiar burden on Welsh industry.

The illustrations are particularly good as showing the very small scale on which many Welsh mills worked; and much can be learnt about the early buildings of the Industrial Revolution by looking at them, since many never progressed beyond this stage. There are numerous diagrams showing the situation of fulling-mills in various districts, but a map of the whole Principality with some familiar place-names marked upon it would greatly assist the non-Welsh reader.

J. DE L. MANN

UCKO, P. J. and DIMBLEBY, G. W. (eds.), *The Domestication and Exploitation of Plants and Animals*. Duckworth, 1969. xxvi+581 pp. with 8 plates and numerous text figs. £7.35. The scientific tools for the investigation of subjects such as the origins and development of plant and animal husbandry have, during the last two or three decades, become much more numerous and far sharper than they were. Cytology and genetics have given far more certain insight into the ancestry of cultivated plants and domesticated animals, and thanks

to pollen-analysis we have been enabled to trace not only the former natural plant communities and their movements during the last 15,000 years, but we can also follow the progressive modification wrought upon them by man. Morphogenetic study aided by statistical analysis has given increased precision to the identification of plant and animal remains found in an archaeological context, and throughout the world radiocarbon dating now provides an invaluable common, and quasi-absolute, time-scale against which we can set the sequences both of archaeological events and the environmental changes to which they are so closely related.

This is the context in which the Institute of Archaeology in London held the 1968 conference, contributions to which from the wide disciplines of botany, zoology, ethnography, and archaeology have been assembled in the volume now edited by Dr Ucko and Professor Dimbleby. The fifty contributions are assembled under the five headings: Origins of domestication, Methods of investigation, Regional and local evidence for domestication, Studies of particular taxonomic groups, and Human nutrition.

To a considerable extent, and not surprisingly, the fields of the different authors overlap. For the near East, where research has been so active, the same basic information on the origin of cereal cultivation is presented by several authors. However, since these include many of the primary research workers themselves, e.g. Zohary, Flannery, van Zeist, and Riley, one has a very clear sense of being at the very front of advancing knowledge. All of these and others rightly acknowledge the debt owed to Hans Helbaek, whose authority in the identification of plant remains from archaeological sites is unchallenged.

D. M. Dixon shows how the history of ancient Egyptian cereals is illuminated by linguistic evidence and Mme Leroi-Gourhan foreshadows the use of fossil pollen in tracing the earliest spread of cereal cultivation. D. Zohary gives a masterly account of the ancestry of cereals in the near East, especially in ecological and genetical relationships to their wild progenitors. The significance of 'selfing',

of failure of seed dispersal, and delayed germination in the evolution of the new plant races are succinctly described, and excellent distribution maps of the wild cereal species are given. C. D. Darlington writes to stress the way in which men, stock, and crops became increasingly interdependent and indeed shaped each other's pattern of evolution. In this he contrasts the activity of evolutionary process in the grain farmers with the necessarily sluggish process in the root farmers of the tropics where vegetative reproduction and minimal cultural care prevailed. J. G. Hawkes performs a very useful service in reporting and reinforcing the pioneer views of Vavilov and de Candolle by reference to his own work and that of modern crop geneticists. He postulates three major stages in establishment of a cultivated seed crop: gathering and colonization, harvesting, sowing; the first two adventitious rather than deliberate. It seems that cultivated plants were derived from nature's misfits, mainly those of disturbed and open soils and of strongly seasonal climate: not from climax vegetation.

It is left to W. van Zeist to reconstruct the ecological environment of the near East—linking present-day ecology through palynology to conditions under which agriculture originated. He reports his own decisively important pollen-analytic study from Lake Zeribar in Iran where C^{14} dating is a vital ancillary tool, and provides a beginning for the reconstruction of the vegetation and climate of those regions of the near East where cereal cultivation began 10,000 to 8,000 years ago.

K. V. Flannery and C. Vita Finzi both stress the significance of the geological environment in conducing to early agriculture. Flannery describes the 'Broad spectrum collecting stage' and with others accepts the view that in the near East there may well have been a long period during which plant gathering and early cultivation existed side by side.

One aspect of the book, dominant in numerous accounts and secondary in others, is discussion of the evolution of new taxa of plants and animals under domestication, where new and diverse technologies have given far greater power in solution of the evolutionary problems envisaged so long ago by Charles Darwin. Some

studies of this kind relate to the near East, but they mostly concern crops from regions with less intensively developed archaeology; thus we have illuminating articles on the cultivation of yams, ground nut, chile peppers, and *Phaseolus* beans. Other contributions, such as those of M. S. Drower on the domestication of the horse, and D. M. Dixon on cereals in ancient Egypt, indicate how remarkably far back the evidence of linguistics and documentation can take us in favoured regions.

W. C. Sturtevant uses recent historical ethnographic evidence from the West Indies, on the production of tapioca, arrowroot, and other starches, to deduce principles that should be more generally applied in interpreting archaeological evidence of plant husbandry and utilization. P. A. Jewell's eye is on the future, not the past, in considering the potentialities of domestication of species, especially the larger ungulates, to exploit more effectively climatic regions of the world unsuitable to the temperate region stock so persistently introduced there.

These scattered references will give some notion of the very wide scope and interest of the symposium and of the book that has resulted from it. We are shown the remarkable impact already made by the Natural Sciences on archaeology, and in factual knowledge and conceptual approaches alike we witness the startling recent growth of our knowledge of the origins of both plant and animal husbandry.

H. GODWIN

TOOLS AND TILLAGE. *A Journal of the History of the Implements of Cultivation and Other Agricultural Processes*, ed. by Axel Steensberg, Alexander Fenton, and Grith Lerche. Vol. 1. no. ii, 1969. G.E.C.GAD. Vimmelskiftet 32, 1161 Copenhagen. \$3.00 U.S.

This is the second number of an annual. Its aims and contents (64 pp. per issue) are sufficiently described in its title. It is printed in English and German.

The first article is by Hans-Ole Hansen, and its title is 'Experimental ploughing with a Døstrup ard replica'. The work described was done from 1962 to 1968, and refers to similar experiments made in Czecho-Slovakia in

1946-7 and in England in 1956-7. The methods of trial employed were highly technical as such work must necessarily be, and are described in great and precise detail. The conclusions are set out in seventeen paragraphs, the first of which states that these trials form an improved methodical basis for further experiments. It was determined that the speed of ploughing was between 3.6 and 4.6 kilometres an hour. This seems about a normal speed for an ox-drawn plough, even of a more sophisticated type. The tractive effort exerted by the animals was 100-150 kilograms in a grass field and 100 in loose sandy loam. Much of the other information collected relates to the effect of the work on the components of the ard, and the results of using it on the soil for preparing a seedbed, if it could be so called. (I must confess that the technique of these experiments is a trifle complex.)

The second contribution is by Holger Rasmussen, 'Grain Harvest and Threshing in Calabria', and is based on personal visits made in 1953 and 1955. Although this is not commented upon, the methods described are little different from those practised in classical times. The grain is cut with a sickle, tied in sheaves with straw and heaped, not in shocks as was the practice in England, but dumped in a circle or a number of circles. Gleaning is practised apparently with rewarding results. Threshing is the work of oxen hauling a 'threshing stone' over the grain spread on a cleared site. Winnowing is by throwing the threshed grain in the air when a wind is blowing. All this is pure classicism, and the processes used are obviously very ancient.

Jiro Iinsume under the title 'The No-No-Hi-Kara-Suki of Shosoin' gives a brief résumé of the probable history of hoe culture in Japan, and the development of the plough in that country with some glances at the possible influence of Korea and China upon Japanese farming. Alexander Fenton contributes 'A Plough Type from the Outer Isles of Scotland'. In the Gaelic this was the *crann-nan-gad*. The construction of this implement is described in considerable detail, both verbally and by diagrams.

G. E. FUSSELL

ALAN GAILEY and ALEXANDER FENTON (eds.), *The Spade in Northern and Atlantic Europe*. Ulster Folk Museum & Institute of Irish Studies, Belfast, 1970. xiii+257 pp., numerous drawings, and 32 plates. £1.80 inc. postage.

This is a collection of papers read at a conference held in Belfast on 19-22 March 1968. Since there are no less than twenty contributors it is an almost impossible task to write a reasonable review of this production in brief. The introduction by E. Estyn Evans does something to remove this obstacle. He emphasizes the use of the spade as an implement of cultivation in Ireland, particularly in the so-called 'lazy bed' method of growing potatoes, but argues that "there is reason to believe that manual sod-cutting tools are of great antiquity in Ireland and other parts of north-western Europe." And again "there is abundant evidence to show that prehistoric man in north-western Europe, from Neolithic times onwards, had devised methods of cutting and severing sods for various purposes."

It is these various purposes and the various types of tool designed to make them possible with which the contributors to this symposium are concerned. Evans suggests that the ard was only used after the "solid sod" had been removed, presumably by some sort of spade, and not necessarily, nor indeed probably, as a preparatory measure.

The use of some pattern of spade (there are many) to remove the top slice of turf in order to make a 'lazy bed' for growing other crops besides potatoes, is apparently one of the primary uses of the tool. A breast plough or spade was widely used for paring and burning, and is the subject dealt with by several of the contributors. The various types of medieval spade are discussed, and other designs used for cutting turf and peat for fuel in widely spaced regions from Ireland, Wales, Somerset, and Scotland to Scandinavia fill many pages. But there is one important omission. Among the many different spades used for so many different purposes the special designs of spades used for cutting drains and ditches are not included. Drainers dug their ditches first using a wide bladed spade, the next spit with a

narrower blade, and the final cut with a long narrow-bladed spade. This process was usual when the drain was to be filled with stone or brushwood (later pipe tiles were used) and covered in again forming what was called a hollow drain. It was a very ancient system described by Palladius if by no earlier writer. This is however a comparatively trivial defect when such a mass of novel material is presented, such as has certainly never before been collected, even though Estyn Evans protests that the symposium is but a beginning of this particular branch of enquiry. G. E. FUSSELL

RAGNAR JIRLOW, *Die Geschichte des Schwedischen Pfluges*. With a Swedish summary. Nordiska Museets Handlingar 72, Stockholm, 1970. 140 pp.; 104 illus. No price stated.

The author of this work needs no introduction to students of plough history. He has been engaged upon it for nearly a quarter of a century, and has published a goodly number of studies on particular aspects of the subject over the years, but has confined his interest closely to the development of plough types in his native country, and the various designs in use there through the centuries; nor has he omitted to describe the local types developed to meet the conditions the farmers worked in.

The land surface of Sweden is difficult for the farmer except perhaps in the most southerly areas, only slightly more than half being capable of cultivation, and that in the face of serious obstacles caused by rugged scenery and stones of greater or less size. Perhaps this is why the Swedish farmers have developed a wide diversity of plough patterns. As in other countries the prehistoric form was that of the now well-known ard (*aratrum* or *araire*). It would not be possible to say that the later types of asymmetrical ploughs, some with wheels, some without, and fitted with a mouldboard and coulter, were developed from the ard, but something of this sort may have happened.

Dr Jirlow has supplied very comprehensive details of the different patterns of mouldboard plough that were used, both locally and through the centuries, and it may be said that

this book is the definitive history of the plough in Sweden. It would be a work of supererogation to attempt to summarize it in the course of a brief review for the story can only be understood by careful and meticulous reading.

G. E. FUSSELL

RAY B. WESTERFIELD, *Middlemen in English Business, Particularly Between 1660 and 1760*. David and Charles Reprints, Newton Abbot, 1969. 335 pp. £3.75.

Westerfield's book was originally published in Volume 19 of the *Transactions of the Connecticut Academy of Arts and Sciences* (1915) and hence, in its present form, appears for the first time as a separate entity. The publishers are to be congratulated on making this important work available to a wider readership.

The book falls into two parts: the first five chapters provide a close analysis of the activities and organization of middlemen in four major sectors of the economy; chapters six and seven are a more theoretical appraisal of trends in the period 1660-1760. Three of the four trades considered—corn, livestock, and textiles—are of direct interest to the agrarian historian, who perhaps too often forgets the distributive network upon which production depended. The fourth trade is that in minerals, primarily coal.

Westerfield saw as the "most prominent phenomena" of the period: freedom from governmental control; increased speculative activity; the extension of trade over a broader geographical market; the dominance of a capitalist class; and a separation of functions and divisions of the middlemen's occupation. Clearly it was not only English overseas trade which quickened during the later seventeenth century. The rapid development and improvement in agriculture in this period, recently suggested by Dr Kerridge, was accompanied by remarkable advances in distributive networks. The later chapters reinforce this impression of a revolution in the facilities and techniques of commerce in the later seventeenth and early eighteenth centuries.

Modern research has modified Westerfield's conclusions but has done little to affect his general theme. His concentration on printed

source materials led to some errors which more detailed research might have avoided. The fair was not in continuous decline in the fifteenth century but later expanded and remained a vital organ of commerce throughout the eighteenth century. Legal restraints on the activities of middlemen did not entirely disappear in this period but were enforced in many provincial towns in time of dearth of provisions. Nor is it easy to accept the rigidity of Westerfield's scheme of the specialization of functions (see diagram facing p. 328): it is extremely difficult to classify tradesmen at this period with any accuracy. Innkeepers particularly were middlemen with interests of considerable diversity. Indeed, the major criticism of this comprehensive study is its superficiality. Too often the chronology is telescoped, models are forced on to inadequate evidence, and local and regional variations subordinated to the great design. It is difficult to accept that Tudor corn policy was "dictated by the needs of London" (p. 160).

Westerfield's geography left much to be desired: a misreading of Pococke placed Bala in Ireland (p. 319); archaisms like 'Rumford' (p. 189), 'Farrington' (p. 169), and 'Guilford' (p. 319) appear with tedious regularity. In a single chapter Newbury is spelt in three different ways, and the reader is irritated by 'Warwich' (p. 206), 'Charlburg' (p. 148), and 'William of Malmesburg' (p. 345). The maps are badly located in a pocket inside the back cover, and are themselves poor, containing a curious 'German Ocean' in the place of the North Sea.

Quite apart from the errors, the text is confused and badly annotated. The footnotes are particularly poor, and in some cases misleading. Titles are never italicized, and frequently over-abbreviated. Chandler's *Essai sur l'État du Commerce d'Angleterre* never appears in full in any footnote. The bibliography is inadequate, subsuming under a single title all the primary sources and secondary materials used in the book. At its best it is untidy. One also regrets that this book has no index. The pagination is confusing, being that of the original periodical, which means that the book starts with page 111.

The enterprise of the publishers in making this work available, is to be applauded, but the reprint retains the deficiencies of the original. An annotated edition, with a scholarly introduction, would have both corrected the errors and assisted the inexperienced reader. It is perhaps symptomatic of historians' neglect of this field that this remains the most important single volume on the subject. It cannot be ignored, but must be read with great care.

J. A. CHARTRES

ALAN EVERITT, *New Avenues in English Local History*. Leicester U.P., 1970. 33 pp. 25p. Unlike the two previous incumbents in the Leicester chair in English Local History, Professor Everitt in this, his Inaugural Lecture, does not feel the need to justify his subject as a distinct branch of history. The work of Professors Finberg and Hoskins has established the discipline as respectable, though, to quote the latter, it was "the creation of generations of amateurs." To Professor Everitt, if one might put words into his mouth, we are all local historians now.

Local history has been distinguished not so much by the uniformity of its scholars' work as by the rapidity of its growth as an academic subject, by its influence, and by the excellence that the Leicester Department has set as its standard. To pioneers like Hoskins and Finberg, both distinguished innovators, Professor Everitt shows himself a worthy successor. For he too has claims as an innovator, both in fields of study and in the exploitation of archive resources: his work on market towns and his exploratory work on the Chancery cases establish this. It is therefore pleasing that in his Inaugural Lecture he writes not of the nature but of the matter of his subject.

This lecture draws together in an illuminating way many strands of thought thrown out by Professor Everitt in his earlier work. Here his special interests in Kent and Northamptonshire are demonstrated in a stimulating analysis of markets and nonconformity in nineteenth-century England. He suggests quite convincingly that the disintegrated property pattern of the 'lost market town' may have some causal function behind the growth of nonconformity.

The inhabitants of such decayed market towns chose 'to snap their fingers at the Establishment' through nonconformity. It is a fascinating hypothesis that deserves fuller exposition.

Unlike many Inaugural Lectures this has a novelty and a theme that should interest most readers of the *Review*. Taking the microscopic rather than panoramic view, and the research rather than the survey approach, Professor Everitt has at once demonstrated the virtues, and perhaps the defects, of the subject and himself.

J. A. CHARTRES

A. G. TANSLEY, *Britain's Green Mantle*.

Second edition revised by M. C. F. PROCTOR.

George Allen and Unwin, 1968. 327 pp. 50s. Dr M. C. F. Proctor of Exeter University has revised Sir Arthur Tansley's book about the vegetation of Britain. The book describes the sorts of plant communities that occur in Britain and the way these communities change. The book is a beginner's version of Sir Arthur's great work, *The British Isles and their Vegetation*, clear and easy and without too much of that ecological theory that tends to the scholiastic.

The first two chapters describe the changes that have occurred in the British vegetation over the last ten thousand years. This brief section forms an adequate introduction to this important topic and could lead on to Dr Winifred Pennington's *The History of British Vegetation*. The next three chapters describe the effect of climate, soil, and animals, including man, on the development of the vegetation. The main body of the book, twelve chapters, classifies and describes British vegetation. This follows a conventional, common-sense classification. Vernacular names are used, and the Latin confined to brackets. The types are illustrated with superb photographs, largely from Dr Proctor's own collection. The final chapter reviews and encourages work on the conservation of vegetation.

This is an excellent book to introduce a historian, with a knowledge of the countryside, to the British vegetation. My only quibble would be that it does not give sufficient stress to the effects of man on all the vegetation of Britain.

J. ELSTON

MICHAEL ALTSCHUL, *Anglo-Norman England, 1066-1154*. C.U.P., 1969. xii+84 pp. £1.75.

This is a handlist, compiled in America for the Conference of British Studies, of 1838 books and articles classified under the headings: Bibliographies; Catalogues, Guides, and Handbooks; General Surveys; Constitutional and Administrative History, Political History, Foreign Relations, Social History, Economic History, Agricultural History, Science and Technology, Military and Naval History, Religion, Fine Arts, Intellectual History. There are a few omissions. Round's criticism of an article by W. H. Stevenson, and Dr Titow's of one by Dr Thirsk, are rightly included, but there is no mention of the rejoinders by Stevenson and Thirsk. The author occasionally subjoins comments of his own. The dates 943 and 972 given for Glastonbury and Winchcombe refer to the Benedictine reform of these monasteries, not, as a reader might suppose, to the original foundation. It is startling to find Geoffrey of Monmouth, that arch-romancer, credited with "a major work of twelfth-century historiography." Occasional blemishes notwithstanding, this is a useful compilation.

H. P. R. FINBERG

R. B. WERNHAM (ed.), *The New Cambridge Modern History. Vol. III: The Counter-Reformation and Price Revolution, 1559-1610*. Cambridge University Press, 1968. xvi+599 pp. £3.

And so with only two volumes yet to appear, the New Cambridge Modern History pursues its relentless way. Cast in an old-fashioned mould, political history still dominates this volume. Reflecting his own interests, Professor Spooner's chapter on the economy of Europe is largely concerned with monetary matters and less than three pages deal with agriculture. Scattered references to cultivation or tenure appear in other chapters but some authors discussing matters where some reference to either of these topics might have had some relevance manage to ignore agriculture altogether. Is it not curious considering the importance of agriculture in the sixteenth-century European economy that so little space

is devoted to it? Even then the editorial policy of eschewing footnotes and bibliography deprives the reader of the opportunity of following up the authorities used though they may be mentioned by name in the text.

W. E. MINCHINTON

RICHARD NEVE, *The City and Country Purchaser*. David and Charles Reprint, 1969. xx+284 pp. £4.20.

This book was first published in 1703, subtitled *The Builder's Dictionary*, and was intended for the use of "Workmen". The new edition of 1726, which is used here for reproduction, contained additions making it "fit for Gentlemen's Use." Although the publisher's blurb says it was "one of the most valuable books on building methods and estate management" of the early eighteenth century, this is really going much too far. It is only a guide to "estate management" in so far as it tells the landowner about materials for building purposes and the prices he should pay. There are many useful articles, for example, those on bricks, tiles, and building, but the book as a whole is only of very marginal in-

terest to agricultural history, and is far more useful to the student of later vernacular building. The quality of reproduction is not always as clear as it might be. Indeed, though this book may have been a minor classic in its time, it is difficult to see why the publishers chose to reprint it at all. A much more valuable book to put back into print would have been Innocent's *English Building Construction*, first published in 1915, and now quite unobtainable.

W. G. HOSKINS

W. CAREW HAZLITT, *Gleanings in Old Garden Literature (1887)*. Reprinted by Gale Research Company, Detroit, 1968. 264 pp. \$8.50.

This is a reprint of 1887 which is exactly what its title implies, random snippets on the history of gardening. The publisher's leaflet claims it as a complete history of horticulture in Great Britain. This may have been true in 1887. Books such as Alicia Amherst's *History of Gardening in England* and, much more recently, R. Webber's *The Early Horticulturists* have completely superseded it.

JOAN THIRSK

NOTES AND COMMENTS *continued from page 174.*

"A Friendly Society called the North Scarle Cow Insurance Club for Mutual Assistance in case of loss by Horned Cattle" was formed in September 1870, to insure the loss of, rather than by, cottagers' and small farmers' cows of the time. The earliest remaining records show that in 1899 one member had three cows insured, 12 had two cows, and 16 had just one.

Rule 3, as revised in 1928 and again in 1960, reads: "If any member's Cow die, the Committee shall make the most they can of her, and give an account to the Society of the same; and shall receive as much money from the general stock as shall amount to eighteen shillings in the pound on the value of the beast when alive. No cow shall be valued at more than £20."

Rule 7, 1928, states: "When any illness shall happen to a member's Cow, he or she shall give

immediate notice to the Committee, who shall without delay attend such Cow and see that the best help be had as the case may require; and if such member shall neglect to give such notice, and the Cow die, he shall receive no benefit from the Society."

As far as is known, and certainly since 1899, the entrance fee to the society has always been 10s. per cow and the annual subscription 6s. per cow, at first paid quarterly. Cows registered with the society—only after inspection by the committee to see that they were healthy—were branded on the horn with a 'star' by an official brander appointed from 1900. From 1904, he received an official sixpence for his service from the owner of the cow, or a shilling if the cow were more than two miles from North Scarle. To combat the latter high cost three branders were elected in 1923, one for each of

the districts which by then had their own inspecting committees—North Scarle (Lincs.), Harby, and Girton with Besthorpe (Notts.). Branding was abandoned in 1960, because of fewer cows with horns, in favour of a register of Ministry numbers tattooed in cows' ears.

Except during the First World War and since the Second, the amount paid out for a dead cow has generally been less than the full £18—£12 or £15 being more usual—in accordance with the committee's valuation of the cow.

The society received the carcase value of the cow, including that of hides, often sold to a member, until 1929. The rise and fall of agricultural prosperity in the first third of this century can be seen in amounts received for hides—7s. in 1901, 35s. in 1919, 10s. in 1923, and 20s. in 1929 for the last sold before the modern knackers' trade became universal.

Peak enthusiasm for the society was during the First World War, with 40 members insuring 65 cows in 1914. Three cows was the largest contribution of any member until 1947, and today the largest contributors have only eight, six, and five cows registered, respectively, even though their herds are very much larger. In 1962 one enthusiast registered 14 cows.

The trough was reached in 1964 when there were only 12 members, but still with 44 cows, and a debate was raised at the annual meeting on whether "the society had outlived its usefulness." But it was agreed "that we carry on" and "all voted for it." Perhaps members were influenced by their largest cash reserves in history—over £258—at the end of the previous year.

Throughout its recorded history the society has generally paid out for between one and three cows a year. When no claims were received, as in 1962, there was a "gain on year," as it is recorded. When four claims were paid in 1947, the "loss on year" rose to £44 11s.

The many cottagers and smallholders of the district were the real beneficiaries of the society. Mr Leonard Wells, secretary for thirty-eight years, remembers 17 or 18 cows belonging to perhaps a dozen cottagers being "tented" on roadside grazings, to save the little grass at home, until after the last war. The "tenter," a youngster or a woman or perhaps an old man, would receive coppers a week from each cottager.

The 1969 Ministry returns show 22 holdings in North Scarle to have fewer than 30 acres and 32 to have fewer than 100 acres. Even though one farmer may now farm a number of holdings the figures indicate the farm structure of the past.

The district is also known for some of the poorest soil in the East Midlands, the gravel over lias produced by the uncertain prehistoric meanderings of the River Trent. It drains and dries too quickly except in a wet year and, freshly cultivated, is like a puffy beach to walk on.

So small farms on very poor soil—as is often the case—must be among the original stimuli to the formation of this Friendly Society to protect each other against the disaster of bovine loss. Perhaps also the Scandinavian influence, producing a Lincolnshire peasant more independent than his contemporaries—as suggested by the historian Maurice Barley—had something to do with it.

Why it has survived into its hundredth year, to the time when dead cows are rarely worth less than its maximum benefit, is clearly related to the wide family responsibilities still accepted in the district. To the Dixons, the Hennells, and the Slingsbys who have been members through most of the society's known history must be added the family name of Wells.

This family had 5 out of 29 members in 1899, 12 out of 25 members in 1949, and still has 6 out of 15 members in 1970.

C. DAVID EDGAR