Where was the 'Great Agricultural Depression'? A Geography of Agricultural Bankruptcy in Late Victorian England and Wales

By P. J. PERRY

OST important questions in agricultural history are also questions of agricultural geography; studies of agricultural change must commonly be concerned with spatial as well as temporal changes and relationships. So much is this the case that an historical geographer working primarily in this field might go so far as to suggest that the essence of historical geography is the concurrent application of the methods of history and geography to examine topics which cannot be studied adequately by either discipline alone.

The agricultural depression of the last quarter of the nineteenth century has been a rather neglected topic in British agricultural history. Since Lord Ernle's classic history of English farming,¹ itself a child of the depression and disaster which he witnessed in the early 1880's, the only detailed treatments of the topic have been by Fletcher, Thompson, and Coppock. Each has produced a regional study, on Lancashire, Wiltshire, and the Chilterns respectively, and a more general but by no means comprehensive treatment.² Orwin and Whetham provide a more general discussion of the depression in their book on British agriculture from 1846 to 1914.³ To some extent the depression and its scholarship have become casualties of the substantially successful attempts of two general depression during the last quarter of the nineteenth century.⁴ The value

¹ Lord Ernle (R. E. Prothero), *English Farming—Past and Present*, 6th edn, Chicago, 1961 (with introduction by G. E. Fussell and O. R. McGregor).

² T. W. Fletcher, 'Lancashire Livestock Farming During the Great Depression', Agric. Hist. Rev., 9(1), 1961, pp. 17-42; Idem, 'The Great Depression of English Agriculture, 1873-1896', Econ. Hist. Rev., 2nd ser., 13(3), 1960-1, pp. 417-32; F. M. L. Thompson, 'Agriculture since 1870', Victoria County History of Wiltshire, IV, 1959, pp. 92-114; Idem, English Landed Society in the Nineteenth Century, London, 1963; J. T. Coppock, 'Agricultural changes in the Chilterns, 1875-1900', Agric. Hist. Rev., 9(1), 1961, pp. 1-16; Idem, 'The Changing Arable in England and Wales, 1870-1956', Tidschrift voor Economische en Sociale Geografie, 50, 1959, pp. 121-30.

³ C. S. Orwin and E. H. Whetham, *History of British Agriculture*, 1846-1914, London, 1964. (Two chapters relate directly, two more marginally, to the depression.)

⁴ Inter alia, see S. B. Saul, The Myth of the Great Depression, 1873-1896, London, 1969; H. L.

and importance of their work is hardly to be disputed; it does not, however, destroy the validity of the view that British farming passed through a period of crisis and change in the last quarter of the nineteenth century.

The object of this paper is not, however, to look at every aspect of the depression in its geographical and historical context. Rather it is to use one comprehensive source to examine the extent of the depression in the early 1880's and early 1890's.

Under the Bankruptcy Act of 18691 notice of bankruptcy in the strict sense, or of the much employed alternative procedure of 'liquidation by arrangement', had to appear in the London Gazette.² The occupation of the bankrupt is always given, and his residence; it is therefore possible to map agricultural failures and the geography of depression using this source. The 1860 Act allowed no one to go bankrupt on his own petition, hence the importance of the alternative procedure mentioned above. Unfortunately this 'liquidation by arrangement or composition with creditors', as it was usually termed in the Gazette, lay largely outside the control of the courts set up by the act; it was easily entered into and there is no doubt that it was often abused as far as creditors were concerned. The Bankruptcy Act of 18833 remedied these defects and set up from 1885 the procedure which has, in broad outline, survived to the present day. The first stage in bankruptcy under the 1883 legislation was the 'receiving order'; moreover, bankruptcy on the bankrupt's own petition became possible and in fact common. It seems likely that this stricter legislation played a part in reducing the number of agricultural bankruptcies, but it should be noted that the mid and late 1880's also saw some easing of the depression. A third factor must also be remembered in this context; from the early 1880's people became aware that the depression was no ephemeral one, caused by a succession of bad seasons, but likely to be long-lasting. In these circumstances most, albeit not all, landlords were prepared to make considerable concessions to keep tenants on the land.4

The ease of liquidation or composition under the 1869 act has already been mentioned. Just over one hundred and fifty farmers did so in 1871, almost

Beales, "The Great Depression" in Industry and Trade', Econ. Hist. Rev., 1st ser., 5(1), 1934, pp. 65-75; C. Wilson, Economy and Society in late Victorian Britain', Econ. Hist. Rev., 2nd ser., 18(1), 1965, pp. 183-98.

¹ 32 & 33 Vict. c. 11. (The Bankruptcy Act 1869.) The law of bankruptcy in general and the failings of the 1869 legislation in particular are treated in the article on bankruptcy in *Encyclopaedia Brittanica*, 11th edn, 1910–11, 111, pp. 321–32.

² The set used was that of the General Assembly Library, Wellington, N.Z. A few copies are missing in most years. The equivalent Scottish publication, the *Edinburgh Gazette*, is not available in New Zealand; Scotland has therefore necessarily been excluded from consideration.

³ 46 & 47 Vict., c. 52. (The Bankruptcy Act 1883.)

⁴ The evidence heard by the Royal Commissions of 1880-2 and 1893-5 contains an abundance of references to this phenomenon, as also the Assistant Commissioners' reports and the writings of contemporary agricultural journalists, for example, Richard Jefferies.

seven hundred in 1881. This almost five-fold increase can be accounted for primarily in terms of the onset of the depression, but an awareness among farmers and solicitors that in some cases the provisions of the act could be operated to their advantage was probably an important secondary factor in this increase. By comparison most of the farmer's creditors were weakly placed; the act put the small creditor in a poor position, and most creditors were in no position to have the farmer adjudicated bankrupt (in the strict sense) because of the prior claims of the landowner under the law of distress. Farms became hard to let quite early in the depression; most landlords were therefore unwilling to bankrupt or see bankrupted tenants whom they knew to be almost irreplaceable.

Does all this invalidate the source material in terms of the historical geography of the depression? The almost five-fold increase in gazette notices under the 1869 act between 1871 and 1881 suggests not, although in the light of the discussion above it may not be inappropriate to point out that it is possible to argue either a more than five-fold or less than five-fold intensification of real agricultural failure during this period according to which of the possible complicating factors is given most weight. The 1869 act certainly favoured the liquidating or compounding creditor; it seems doubtful whether, save in exceptional cases, it encouraged farmers to liquidate or compound unless they were in difficulties. Farming was the only skill most farmers possessed; leaving the land meant leaving house and home, and at a time of depression the chances of extracting their diminished capital by giving up farming were uncertain in both legal and market terms. In looking at the geography of this phenomenon, then, we are looking at a geography of the agricultural depression, a reliable geography in the general if not in the most detailed sense. (The 1883) legislation, it should be noted, raises no such problems of an interpretative kind.)

At a more mundane level the London Gazette material is tedious and bulky to use, that under the 1869 act more so than that under the 1884 legislation, which latter is printed in a convenient tabular form. Under the 1869 procedure three or four meetings of creditors might take place over several months; there is the resultant problem of ensuring that each bankruptcy is considered only once. A more serious problem is that throughout the depression a large number

¹ This matter was raised and discussed not infrequently before the Royal Commissions of 1880–2 and 1893–5; some witnesses were inclined to think it favourable to the farmer, e.g. W. C. Little, a Cambridgeshire tenant farmer and assistant commissioner (question 46990, 27 May 1881), others the reverse, e.g. S. Rowlandson, a Durham tenant farmer and landowner (question 35651, 25 March 1881). (Questions and dates, where referred to in the footnotes, refer to the minutes of evidence of the appropriate Royal Commission. These were printed as British Parliamentary Papers (Blue Books), 1881, xv; 1881, xvII; 1882, xIV; 1894, xVI; and 1896, xVII.)

² A related problem is the occasional instance where one failure is followed by those of several possible relatives in the locality or district. These must, of course, be regarded as *bona fide* failures

of those farmers who failed also had non-agricultural occupations which might well have been the main cause of their difficulties. This group, commonly including innkeepers, butchers, and carriers for example, have been excluded from consideration; but where farming was associated with another activity closely connected with agriculture, milling, corn-dealing, and agricultural contracting, for example, the bankruptcy in question forms part of the materials of this study, together with the farmers, graziers, and dairymen. This classification is arbitrary and subjective but necessary; when it is made there remain a large number of failures for consideration. Finally, because the source is so bulky, extraction and mapping the data so tedious, this study focuses on three periods, 1871–3 as pre-depression datum; 1881–3 the latter part of the first period of intense depression; and 1891–3 the earlier part of the second phase of intense depression.

The source material allows two maps to be constructed for each of the three-year periods; the location of individual failures can be shown and a value derived for each county relating the number of failures to the number of farmers and graziers recorded at the census, the first year in each of the three-year periods being a census year. The early 1870's were the Indian Summer of 'high farming', the last years of the nineteenth century in which such methods paid well, to the extent of lively competition for farms.¹ In the most failure-prone county in the early 1870's, Essex, only one in five hundred farmers failed each year; in South Wales, Lancashire, and Devon only one in five thousand failed. The overall pattern at this period is of a higher level of failure in south-eastern England than northward and westward. The ten counties where the annual average of failures exceeded o · 16 per cent (MAP I) were all in south-eastern England, Worcestershire alone excepted.

How is this regional concentration to be explained? Contemporary commentators would perhaps have criticized the easy-going outlook and modest energy of the south-eastern farmer and his poorly paid labourer in comparison with those of the north and west.² The economic historians of the 1950's and 1960's would probably point to the declining profitability of grain crops in comparison with livestock through the middle decades of the nineteenth century as likely more seriously to affect southern and eastern England.³ The south-east was also remote from the best urban industrial markets. The higher

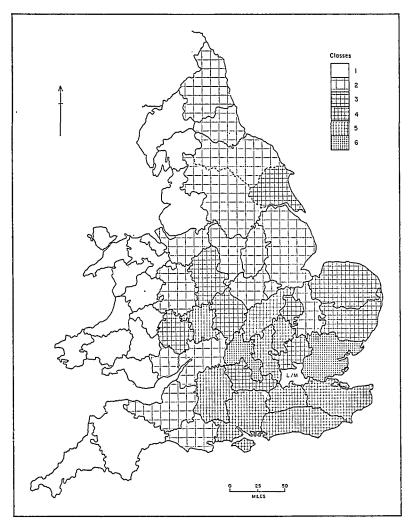
but the phenomenon suggests some degree of financial interconnection, to the extent where one failure might have wide implications.

¹ See, for example, William Sturge, president of the Institute of Surveyors, questions 3754–5, 11 March 1880: J. Dunn, a Yorkshire tenant farmer, question 33897, 18 March 1881.

² For example, Richard Jefferies, *Hodge and his Masters*, London, 1880 (and subsequent editions). This point of view is also strongly advanced by E. H. Hunt, 'Labour Productivity in British Agriculture, 1850–1914', *Econ. Hist. Rev.*, 2nd ser., 29(2), 1967, pp. 280–92.

³ For example, E. L. Jones, 'The Changing Basis of English Agricultural Prosperity, 1853–1873', Agric. Hist, Rev., 10(2), 1962, pp. 102–19.

proportion of small farmers in the north and west may also have been significant. The early 1870's saw rents reach their highest point in many areas, and for this and other reasons established tenants decided in some cases to quit; to

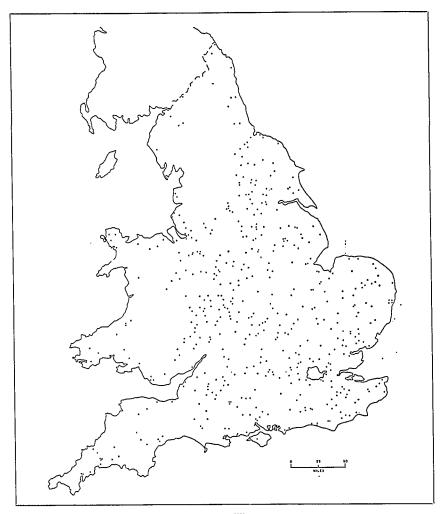


Map I

Agricultural Failure (assignments and bankruptcies, annual average by counties), 1871-3, as a percentage of the farming population in 1871:(1) less than 0.04 per cent; (2) 0.04 per cent to less than 0.08 per cent; (3) 0.08 per cent to less than 0.12 per cent; (4) 0.12 per cent to less than 0.16 per cent; (5) 0.16 per cent to less than 0.20 per cent; (6) more than 0.20 per cent; L/M, London and Middlesex.

¹ This phenomenon of the early 1870's is discussed by F. M. L. Thompson, 'The Land Market in the Nineteenth Century', Oxford Economic Papers, new ser., 9, 1957, pp. 285-308; and Idem, 'Agriculture since 1870', Victoria County History of Wiltshire, IV, 1959, pp. 92-114; also J. Oxley Parker (ed.), The Oxley Parker Papers, Colchester, 1964, pp. 128-34, with reference to Essex. The

suggest that this may relate to the higher level of failure in the south-east, an area of large estates in close proximity to the expensive and fashionable delights of the capital, is speculation, but not unduly so. These are in fact hypotheses



MAP II
Agricultural Failure (assignments and bankruptcies), 1871-3.

which await rigorous testing in the event of adequate sources being available.

The map of individual failures (MAP II) provides a more detailed but less objective view of the early 1870's. It can take no account of variations in the number and size of farms and there is reason, therefore, to believe that in certain areas, Yorkshire and the west Midlands, for example, the apparent frequency of failure is primarily a reflection of a more dense agricultural pophigh level of rents in the early 1870's was also frequently mentioned in evidence before the Royal Commission.

ulation of small farmers. Nevertheless the general impression is one which confirms that given by MAP I. More particularly the relative absence of failure in the grazing counties of the east Midlands, on the Jurassic limestone from Dorset to Lincolnshire, on the chalk, and on the lighter lands of counties where failure was relatively common, in Essex and Kent, for example, is apparent. The importance of the physical environment in this context is evident before the onset of depression.

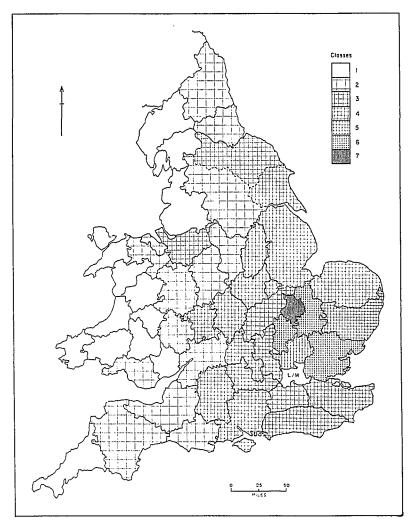
By the early 1880's agricultural prosperity had ended, albeit temporarily in the opinion of most contemporary landowners and farmers. The heartland of the early depression (MAP III) was Huntingdonshire where, on average, one farmer in one hundred and fifty failed each year; locally (as MAP IV suggests) the level may have approached one in say twenty or thirty. In East Anglia as a whole, Norfolk marginally excepted, one farmer in two hundred and fifty failed annually. The area where the annual average of failures exceeded o · 30 per cent extended from Hampshire in the south, north-eastward to the East Riding, with only Northamptonshire and marginally Surrey remaining, to some degree, islands of prosperity. The most obvious explanation of the Northamptonshire anomaly is its concentration on grazing and fattening, but this raises the problem why Leicestershire and Rutland, adjacent counties of similar reputation, were so differently affected. At the other extreme, failure remained rare in Wales and north-western England, for the most part below the o · 10 per cent level. This confirms recent work on the depression which has stressed that essentially, and especially in its early phases, arable agriculture on 'high farming' lines was most affected, but if so why not Northumberland with its tradition of expertise in this context? The relatively high level of failure in Cheshire by comparison with all but its eastern neighbours is also of interest, suggesting that livestock rearers had the edge on dairy farmers at this stage of the depression.

The map of individual failures (MAP IV) for the early 1880's makes apparent the concentrated effects of the depression on the heavy land, and thus explains, at least in part, why some arable counties were not intensely depressed. Norfolk, Lincolnshire, and the East Riding are good examples, and within them western Norfolk contrasts sharply with the centre and east, the Lincolnshire Wolds with the Fens and Trent Valley, the Yorkshire Wolds with Holderness. That a series of unusually cold and wet years exacerbated the situation on the heavy lands during this period must also be remembered, a climatic misfortune much more marked in the south and east than the north and west.² The deficiencies of such a dot map must, however, also be considered; the large

¹ C. S. Orwin and E. H. Whetham, op. cit.

² The assistant commissioner for northern England to the Royal Commission of 1880–2 was able to report that in Cumberland and Westmorland only the autumn of 1879 and spring of 1880 had been unfavourable; Cameron of Lochiel, M.P., could claim that the seasons had not been bad for sheep in the Highlands (question 43444, 12 May 1881).

number of dots in Cheshire, east Lancashire, and the West Riding more probably reflects the presence of a large number of small farmers rather than extremely intense depression.

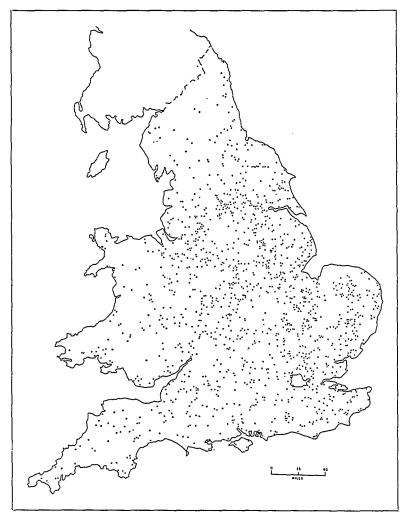


Map III

Agricultural Failure (assignments and bankruptcies, annual average by counties), 1881-3, as a percentage of the farming population in 1881: (1) less than 0·1 per cent; (2) 0·1 per cent to less than 0·2 per cent; (3) 0·2 per cent to less than 0·3 per cent; (4) 0·3 per cent to less than 0·4 per cent; (5) 0·4 per cent to less than 0·5 per cent; (6) 0·5 per cent to less than 0·6 per cent; (7) more than 0·6 per cent; L/M, London and Middlesex.

By the early 1890's the number of agricultural failures had been considerably reduced, a consequence of the legislation of 1883 and an awareness that the depression and its causes were more than ephemeral. The depression (MAP V)

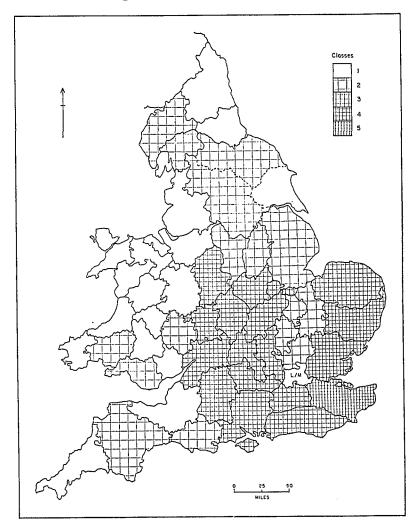
remained most intense in the south-east, Kent, Suffolk, and Essex in particular, the degree of failure diminishing northward and westward. The most interesting anomaly is the comparative absence of depression in those counties



Map IV Agricultural Failure (assignments and bankruptcies), 1881–3.

extending from London to the Wash, including those most affected in the early 1880's. The intensity of the earlier depression in this area, proximity to London, and opportunities for the development of market gardening may all have contributed to the more favourable situation of the early 1890's. Most authorities have suggested that depression became more widespread and general in its later phases; it should then be noted that in both the early 1890's and the early 1880's there were about twenty times as many farming bankruptcies in

the most affected as in the least affected counties. In the early 1870's the ratio was only ten times; throughout the depression all kinds of local advantages, of soil, skill, situation or specialization, were more rather than less important



Map V

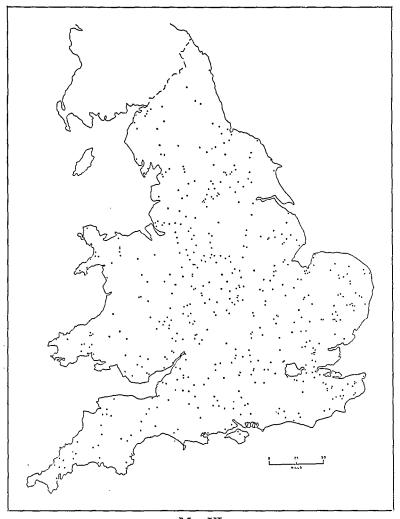
Agricultural Failure (receiving orders—annual average by counties), 1891-3, as a percentage of the farming population in 1891: (1) less than 0.05 per cent; (2) 0.05 per cent to less than 0.10 per cent; (3) 0.10 per cent to less than 0.15 per cent; (4) 0.15 per cent to less than 0.20 per cent; (5) more than 0.20 per cent; L/M, London and Middlesex.

than in normal circumstances as far as survival and even prosperity were concerned.

The map of individual failures in the early 1890's (MAP VI) presents once more a picture of which areas were at an advantage in their environment and

position. Again chalk and limestone England contrasts favourably with the Essex clays and the Weald.

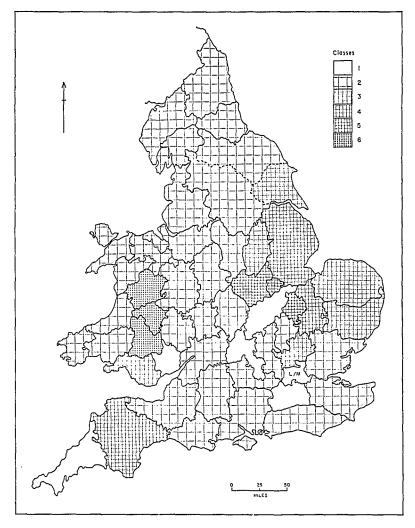
The discussion so far has taken a very objective view of the depression, and in the process a necessarily static one. This is to neglect the progress of the depression and the fact that those most affected by it, farmers in particular,



Map VI Agricultural Failures (receiving orders), 1891-3.

were prone to take a subjective rather than strictly objective attitude to their experience of adversity. Most farmers, even in a period when changes of tenancy were frequent, could better compare past and present in the one place than take a broad, instantaneous, and comparative geographical view of the situation, as the Royal Commissioners and their assistants tried to do in the early 1880's and mid-1890's. The evidence heard by these two bodies makes it clear that the depression was most intense in the arable east and south, but only

a very small group of witnesses had almost no complaint. Most farmers, dairymen, graziers, even market gardeners as well as 'high farmers' on traditional arable lines could find something to grumble at: labour costs, margins between store and fat stock prices, or railway rates. The last of the good years lay in the early 1870's.¹



Map VII

Agricultural Failures, 1881-3 (a) in relation to agricultural failures, 1871-3 (b), (a/b): (1) less than 1·5; (2) 1·5 to less than 3·0; (3) 3·0 to less than 4·5; (4) 4·5 to less than 6·0; (5) 6·0 to less than 7·5; (6) more than 7·5; L/M, London and Middlesex.

¹ For example, James Martin, a Lincolnshire land agent, claimed that farming had been unproductive for four or five years (questions 6868–6869, 20 May 1880); A. Doyle, the assistant commissioner for the western counties that arable farmers in the west Midlands had been losing money since 1874 (question 32514, 11 March 1881, but Doyle is a rather unconvincing witness in many respects).

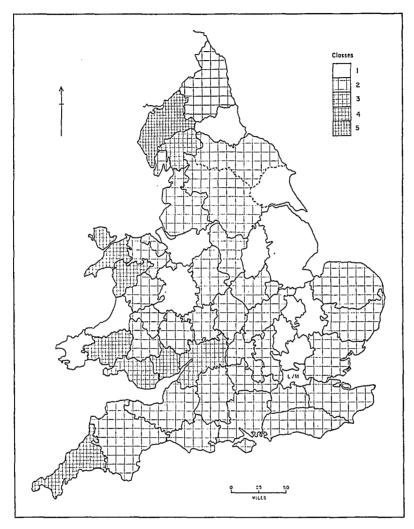
The farmer's view of the depression, and to some extent the landlord's, was then a complicated and dynamic one. A partial understanding of it in general terms can, however, be attained by comparison of the level of failure, county by county, between three year periods. Comparison of the early 1880's with the early 1870's (MAP VII) makes the counties around the Wash the focus of the 'subjective' depression, with a high degree of uniformity of experience in the rest of the country. Northamptonshire and Leicestershire/Rutland remain the most striking anomalies, the more so because they are adjacent; a substantial element in this anomaly is perhaps the very low level of failure in Leicestershire/Rutland in the early 1870's. Even more striking is the high degree of depression in Brecon and Radnorshire, a breeding and hill sheep district exceptionally severely affected by disease in the early depression period; Devonshire too was unfortunate in this respect. These counties had been used to a very low level of failure in the early 1870's, and bearing in mind that adverse seasons and disease were commonly regarded as the basic cause of the depression in its early stages it is not difficult to understand why the depression was felt to be as disastrous here as elsewhere. It might also be noted that Huntingdonshire, Cambridgeshire, and Lincolnshire, the areas most affected in subjective terms early in 1882, included much high-rented intensive arable land, particularly difficult to work and prone to flooding in wet seasons. Taking an objective view of the depression, on which MAP III is based, the most depressed county of 1881-3 had a level of farmer bankruptcy twenty times that of the least depressed; by comparison, a subjective view of the depression, relating the situation in the early 1880's to the prosperity of ten years earlier, sees the most depressed county of the early 1880's no more than six times worse off than the least depressed. This begins to explain why farmers and landowners believed that the depression was general and extensive, despite objective evidence to the contrary.

Comparison of the early 1890's with the situation a decade earlier (MAP VIII) suggests that by this date the depression was more keenly felt in Cumbria, North Wales, South Wales, and Cornwall, than most of the eastern counties. This is in part a reflection, and a confirmation, of the generally accepted view that the position of the pastoralist worsened in the later period of depression. On an objective view (MAP V) the pastoral north and west remained less depressed; in subjective terms the later depression was more keenly felt by reason of the absence of distress in earlier periods. This explanation is not, however, a wholly convincing one; this map is more complex and irregular than

¹ As noted by A. Doyle, assistant commissioner for the western counties.

² W. C. Little, assistant commissioner for the southern counties, noted that around Holsworthy the loss of sheep through disease on a group of more than one hundred farms equalled half the annual rental or more than the average annual profit.

most in this series and raises such questions as why Pembrokeshire and Cardiganshire were so much more favourably placed than north-west Wales, Lancashire¹ than Cumbria, Devon than Cornwall. The matter calls for further



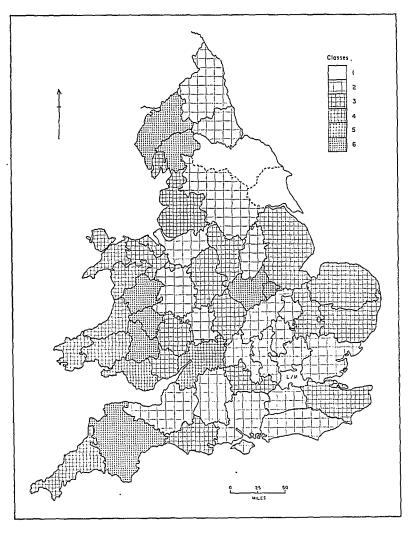
Map VIII

Agricultural Failures, 1891-3 (a) in relation to agricultural failures, 1881-3 (b), (a/b): (1) less than 0·33; (2) 0·33 to less than 0·67; (3) 0·67 to less than 1·0; (4) 1·0 to less than 1·33; (5) more than 1·33; L/M, London and Middlesex.

discussion and demonstrates the defects of visual analysis and verbal models, as well perhaps as the shortcomings and intractability of the material. It might,

¹ Fletcher's excellent work on the Lancashire situation (op. cit.) certainly seems to deal with one extreme of the spectrum of depression, just as contemporary sources may appear unduly concerned with the other.

however, be added that construction of these maps may well justify the considerable effort required in their preparation by providing a series of eventually testable hypotheses.



Map IX

Agricultural Failure, 1891-3 (a) in relation to agricultural failures, 1871-3 (b), (a/b): (1) less than 0.5; (2) 0.5 to less than 1.0; (3) 1.0 to less than 1.5; (4) 1.5 to less than 2.0; (5) 2.0 to less than 2.5; (6) more than 2.5; L/M, London and Middlesex.

To compare the early 1890's with the early 1870's is to venture on less certain ground. It raises the question of how far back the farmer looked in his judgement (and endurance) of the depression; twenty difficult years had seen new occupiers on many farms, but on the other hand was a sufficiently short

period to be within the living memory of most of those concerned. Moreover, the early 1870's were the last, and thus best remembered, of the good years. The resultant map further emphasizes the late onset of the depression in the pastoral north and west (and also grazing Leicestershire), and presents fewer anomalies in this area than comparison over the shorter period. The dairying counties, Cheshire, Derbyshire, Staffordshire, Somerset, Dorset, and Wiltshire, and the arable counties stand at the other extreme in such a longer term subjective view of the depression. This most probably reflects the stability if not great prosperity of milk production for urban markets, and in the arable counties the acceptance by landowners and farmers by the 1890's that the depression had brought about permanent changes, notably in rents. It also reflects the relatively high level of failure in these counties in the early 1870's.

What conclusions can be drawn from the use of this source material in the way outlined above? Firstly, the utility of the source itself is established in the patterns (and anomalies) which it generates, and the possibly testable hypotheses which emerge. (And this, after all, is the role ascribed to historical geography in some recent methodological writings!)1 It also suggests potentially important county studies. Secondly, there appears to be a broad similarity between the geographical pattern of failure in the period immediately before the depression and that of the depression itself, its earlier phase in particular. This in turn provides partial explanation of why farmers felt the depression to be widespread. Thirdly, the great importance of environmental factors, of the soil in particular, before, and to a greater extent during, the depression is evident, a feature of the depression which has often been suggested but never made explicit on a national scale. Finally, the widespread opinion of the farming community that it was experiencing some kind of depression, a view not everywhere substantiated by an objective view of the evidence, can be explained in part in subjective historical terms. These four observations neither explain nor explain away the depression; rather I would regard them as fingerposts for a more detailed, more complete, and more sophisticated analysis of a critically formative period in the agricultural geography of Britain.²

¹ For example, N.A.S.-N.R.C. Committee on Geography, *The Science of Geography*, Washington D.C., 1965, p. 61.

² I wish to thank the staff of the General Assembly Library, Wellington, N.Z., the library of Canterbury University and the Canterbury Public Library, Christchurch, N.Z., for their unfailing courtesy, helpfulness, and tolerance; also Miss C. Lynskey and Mrs S. M. Emanuel of Wellington, N.Z., who did most of the tedious work of extracting data from the *London Gazette*, assistance made possible through the generosity of the Research Assistants Fund of Canterbury University; also Mr J. K. Macdonald, B.Sc., Mrs C. McMichael, and Mr G. Mitchell who prepared the maps; and, by no means least, my colleagues in the University of Canterbury for providing an academic environment both stimulating and relaxed.