

Field Under-Drainage Before and After 1940*

By F H W GREEN

THE extent of under-drainage of agricultural land in England and Wales was discussed in this journal fourteen years ago by Sturgess,¹ and his contribution was commented on by Collins and Jones² and by Phillips.³ It was concluded that we did not really know the extent and distribution of under-drainage activity in the nineteenth century, or before.

It is possible to quantify the extent and distribution of drainage effort in the UK since the introduction of the present system of government grants in 1940. It can be safely assumed that the vast majority of drainage schemes since 1940 have been grant-aided, and therefore statistics based on the grant allocations omit drainage data on very little more than the few farms classified as 'charities' (eg experimental farms) which are not eligible for the subsidy. Maps have now been produced of the extent of post-1940 under-drainage.⁴

In other western and northern European countries available drainage data vary, and they cannot be exactly compared with the UK figures because either (i) they are in respect of different periods, or (ii) they refer to all

under-drainage which has ever been undertaken. Countries in the second category include Czechoslovakia, Denmark, France, and Sweden; but even in these cases the terminal dates are different, although they are within a few years of 1970.

To facilitate comparison of the UK with at least the last-mentioned countries, it was clearly desirable to attempt to assess the *total* area under-drained here. Fortunately it is now possible, as explained below, to attempt to do this.

From 1971 onwards, MAFF inspectors, when approving grants for under-drainage, have been required to fill in forms to give particulars, *inter alia*, concerning the reasons for the applications, and, where known, the past history of drainage. As regards reasons for the applications, one is 'failure of old drains', which may be taken to be pre-1939 drains. As regards drainage history, the coding is:

- (1) Old drains present but not working.
- (2) Some old drains still working and either draining part of the field or being incorporated in the new work.
- (3) No evidence of old drains.

All the coded information is fed on to magnetic tapes, but the very considerable amount of information there stored has not all been printed out. In particular, even in the very full print-outs which were made, parish by parish, for the first three years of the scheme, codes 1 and 3 are added together, although for the purpose of assessing the total amounts of past drainage, it is desirable to have 1 separated from 3.

From the 1972/73 print-outs, Fig 1 was constructed, showing, by Divisional areas, the percentage of applications in category 2.

¹ R W Sturgess, 'The Agricultural Revolution on the English Clays', *Ag Hist Rev*, XIV, 1966, pp 104-21.

² E J T Collins and E L Jones, 'Sectoral advance in English agriculture', *Ag Hist Rev*, XV, 1967, pp 65-81.

³ A D M Phillips, 'Underdraining and the English claylands 1850-58', *Ag Hist Rev*, XVII, 1969, pp 44-55.

⁴ F H W Green, 'Recent changes in land use and treatment', *Geog Jnl*, CXXXII, 1976, pp 12-26; 'Changes in artificial drainage, fertilisers, and climate in Scotland', *Jnl Env Mgmt*, II, 1974, pp 107-21.

* I am much indebted to the Field Drainage Experimental Unit (MAFF), and to the Department of Agriculture and Fisheries for Scotland for the data print-outs on which this article is based.

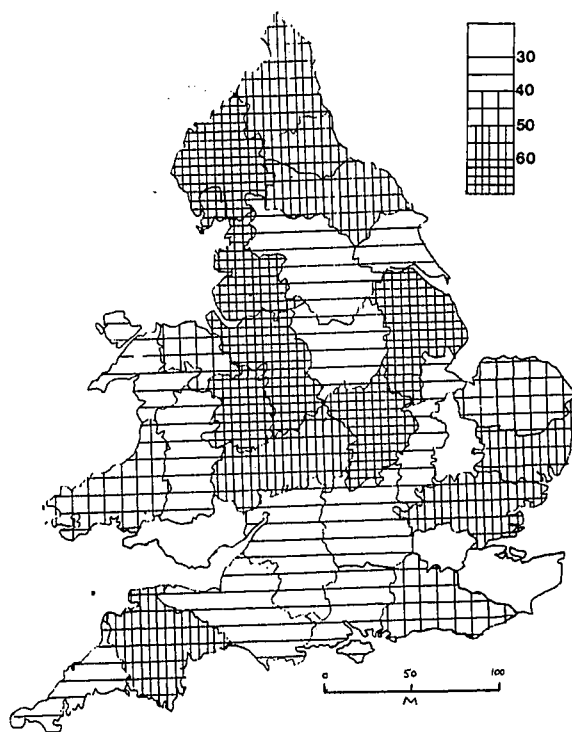


FIGURE 1

England and Wales: MAFF Divisional Areas
Applications for grants for under-drainage, 1972-73:
Percentage of the area submitted for grants in which
pre-1939 drains were reported as partly functioning.

Obviously, since category 1 was omitted, the map underestimates the proportion of areas with old drains, although this is partly offset by the fact that not the *whole* of areas categorized 2 necessarily had old drains. Where the percentage in category 2 is high, the underestimate cannot be as great as it could be in some areas where the category 2 percentage is low. In a special print-out made for Montgomeryshire, a county where the category 2 percentage is low, for each of the six years 1971/72 to 1976/77, it appeared that there was an approximately equal area in categories 1 and 2; this county is probably representative of the areas where the underestimate in Fig 1 is greatest.

A second line of approach was to map the percentage of area in grant applications where 'failure of old drains' was given as a reason for the application. This is shown for 1976/77,

in Fig 2. It shows a very similar regional distribution to Fig 1. Bearing in mind that areas in respect of which grant applications are made in any year do not, in the context of studying drainage history, necessarily constitute a random sample, it is at least encouraging to see the similarity between Figs 1 and 2. Both may tentatively be regarded as very approximately showing the percentage of land at present under crops and grass where there has been early drainage (officially pre-1939, but in fact in England and Wales, nineteenth-century or before, since it is known that very little was done between the 1880s and 1939). It amounts to about

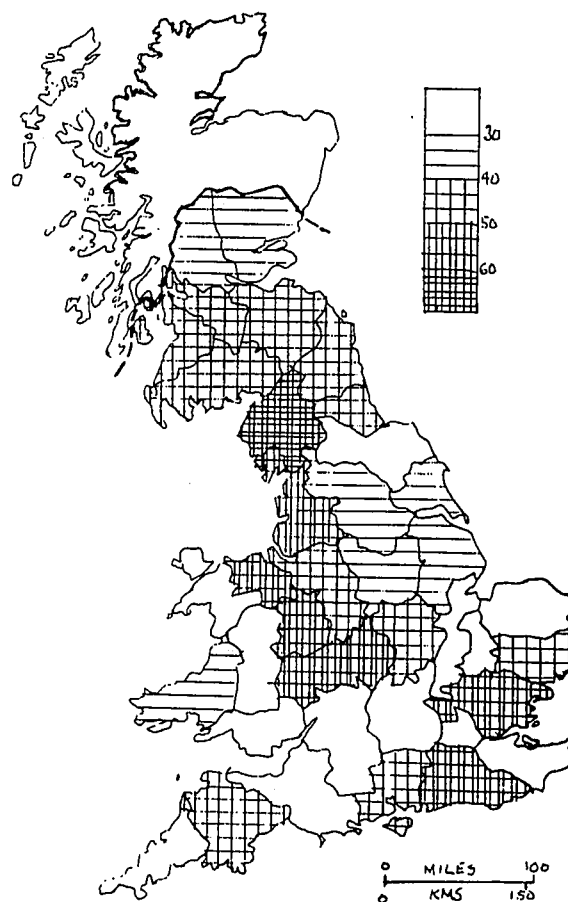


FIGURE 2

Percentage of land area under-drained in the year
1976/77 for which 'failure of old drains' was given as
the reason for grant application.

NB Data inadequate north of heavy line.

4,700,000 ha, which accords very well with previous estimates;⁵ and, in a few cases where estate records have been preserved, the similarity in area under-drained is equally striking (eg in the case of the estates of the Dukes of Northumberland, quoted by Phillips, which show very similar percentages to Fig 1).

A map had already been prepared⁶ of the percentages of land under crops and grass under-drained since 1949 (the amount between 1939 and 1949 was relatively very small), and Fig 3 was compiled by adding in the amount of under-drainage in England and Wales from 1940 to 1949; and then combining it with Fig 1. Some land has been under-drained more than once, and this accounts for percentages of over 100, on the map.

In Scotland, similar forms to those used in England and Wales, have been in use for the past three years, but relevant print-outs have been made for 1976/77 only in respect of 'failure of old drains' as a reason for the grant application. Fig 3 is, in respect of Scotland, a combination of Fig 2 with the 1949-76 map. Because of very small samples it was felt to be unwise to extend it to the north and west of Scotland. It is also more uncertain than in England because of the different course of drainage history from that of England and Wales. There is evidence that drainage activity was not by any means negligible there between 1880 and 1949, and so 'failure of old drains' must be presumed to be proportionately less significant as a reason for grant applications than south of the border; and so it is likely that the map somewhat underestimates the amount of pre-1939 drainage as compared with England and Wales.

Whatever its shortcomings, Fig 3 is the first attempt to portray the amount and distribution of all field under-drainage which

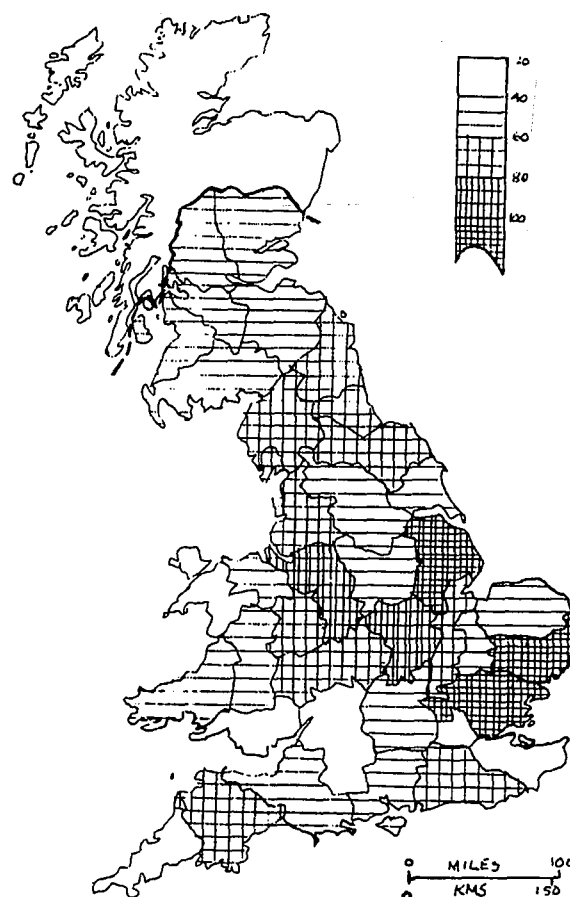


FIGURE 3

The estimated total percentages of land under crops and grass (current area) under-drained up to 1977, by MAFF and DAFS Divisional Areas.

NB (a) Data inadequate north of heavy line.

(b) Some land has been under-drained more than once, hence percentages more than 100 per cent in certain areas.

has been carried out in Great Britain. Similar data are not available for the remaining parts of the British Isles. Further work is being done on the print-out material but meanwhile attention may be directed to a few queries which are presented by the maps in this article.

It has been observed that Figs 1 and 2 are in general gratifyingly similar. But dissimilarities occur in the following areas:

(i) The proportion of grants claimed for 'failure of old drains' is considerably smaller than the proportion with drains partly

⁵ G Cole, 'Land drainage in England and Wales', *Jnl Inst Water Eng and Sci*, XXX, 1976, pp 345-61.

⁶ F H W Green, *Field Drainage in Europe: a quantitative survey*, Institute of Hydrology Report no 57, 1979.

functioning, in: Lincolnshire, Northern Yorkshire, Cheshire/Staffordshire, Leicestershire/Northamptonshire/Rutland, Norfolk.

(ii) The opposite is the case in Surrey/Sussex and Hampshire.

It is quite possible that print-outs of category 1 (above) would resolve these queries. It is also possible that the slight

discontinuity revealed in Map 3 between the two sides of the Scottish Border would likewise be smoothed out.

One thing is at least quite clear, and that is that in England and Wales more under-drainage was undertaken before the present century in the wetter west and north than has been done since 1940.

Notes and Comments

ANNUAL CONFERENCE AND AGM, 1980

The twenty-eighth Conference of the Society was held at Pantycelyn Hall, the University College of Wales, Aberystwyth, on 14–16 April 1980. Papers were presented by Dr Robert Dodgshon, 'Scottish Farming and the Sixteenth-Century Price Revolution'; Dr John Broad, 'The Cattle Plague in the Eighteenth Century'; Dr Eric Kerridge, 'The Agricultural Revolution and the Trade Cycle'; Professor Donald Winters, 'Agricultural Tenancy in the American Middle West: the Historiographical Debate'; and Dr Forrest Capie, 'The Supply of Britain's Meat between the Two World Wars'. Dr Richard Colyer presented an introduction to rural Cardiganshire, and led an excellent excursion into the countryside around Aberystwyth.

The twenty-eighth AGM was held on 15 April 1980. Professor Chaloner, Professor Mingay, Dr Collins, and Dr Chartres were re-elected as the officers of the Society. Dr John Rowe retired as Chairman of the Executive Committee and was succeeded by Professor F M L Thompson. Four vacancies on the Executive Committee were filled by the re-election of Dr Bettey, Dr Hey, and Professor Thompson, and by the election of Dr P Roebuck.

In presenting the report of the Executive Committee, the Chairman, Dr Rowe, announced that membership was stable at 825, a satisfactory position at a time when many societies were experiencing losses, and with the savings made in the production of the *Review* the Society was financially sound. The Winter Conference had again been successful in 1979, and another was being arranged for 6 December 1980, again organized by Drs Baker and Phillips. The 1981 Spring Conference was to be held in Lincolnshire, and in 1982 the Society proposed to make its first visit to Scotland. There was good news of publications, with Abel's *Agricultural Fluctuations* in the press and proof copies on display at the conference, and with Dr Raine Morgan's bibliography of theses on agrarian history in preparation. The Society proposed to keep up the pressure on the government over the proposed sale of

Laxton, seeking the help of other interested parties. In retiring from the Chair, he offered his best wishes to his successor, Professor Thompson.

The Treasurer reported on another satisfactory year in which income exceeded expenditure by over £1000, and interest on reserves of over £8000 had become a major source of income. He hoped that further improvements in the forthcoming year would enable the Society to weather future financial storms.

The Editor reported that during the year the number of articles submitted had fallen slightly, to eighteen, but that as a result there was now a shorter backlog of articles waiting for publication. Book reviews were now appearing promptly, and new articles submitted could appear in a year.

Thanks were extended to Dr Richard Colyer for his excellent work as local Conference Secretary.

WINTER CONFERENCE, 1980

The Winter Conference will be held on Saturday 6 December 1980 at the Polytechnic of Central London, New Cavendish Street, with the theme 'The Dissemination of Agricultural Knowledge'. Papers will be given by Dr Joan Thirsk, Dr Pamela Horn, Mr Nicholas Goddard, and Dr John Walton. A booking form and programme is inserted in the *Review*, and any enquiries should be addressed to Dr Dennis Baker, Christ Church College, Canterbury, Kent.

HISTORICAL ECOLOGY GROUP

A group is being formed to study the applications of quantitative ecological field techniques to the past. It seems probable that such methods may throw considerable light on the history of agriculture and be particularly valuable where documentary evidence is lacking. Members interested in forming such a group should contact Mr Adrian Cowell, 7 Holt Coppice, Aughton Green, Near Ormskirk, Lancashire.

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