

A Neglected Scottish Agriculturalist: the 'Georgical Lectures' and Agricultural Writings of the Rev Dr John Walker (1731–1803)

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THE eighteenth century witnessed many changes in Scottish agriculture. Several related components of change may be identified. New ways of managing and working the land — for example, the more widespread adoption of enclosure and use of lime, and changing practices of rotation — occurred alongside a variety of shifts in Scottish rural society involving such things as the passing of the 'fermtoun' and the move from single to multiple tenancies. These changes were paralleled by, and were, in part, the result of the active involvement of forward-thinking 'improving' landowners and farmers. These themes occurred together with an increase in the number of scientific, predominantly agricultural, 'improvement' societies, and a growth in the literature on Scotland's agriculture and rural economy.¹

The improving movement in agriculture found its first institutional expression in The Honourable the Society of Improvers in the Knowledge of Agriculture in Scotland, begun in 1723. Other bodies concerned with agricultural topics such as the Edinburgh Society for Encouraging Art, Science, Manufactures and Agriculture, the Edinburgh Philosophical Society and the

important and prestigious Highland and Agricultural Society, founded in 1784, epitomize the close links between institutionalized scientific enterprise and the development of Scotland's rural economy in this period.²

Published works on agriculture likewise mirrored the widespread interest in the local and national improvement of the land. Books and pamphlets outlining the established methods of husbandry or urging the adoption of new practices and better principles had appeared before 1700, but it was in the eighteenth century in particular, and in concert with these other elements, that changes in rural society and on the land were increasingly reflected in papers in societies' transactions and in published books.³

Important as these trends are, any appreciation of the advances made in agriculture in eighteenth-century Scotland should also consider the role played by prominent individuals whose membership of improving societies, practical involvement in land management and authorship of agricultural texts marks them as key figures in

¹ There are a number of general works on agricultural improvement in eighteenth-century Scotland, several of which are footnoted throughout the text. Recent works include M L Parry and T R Slater (eds), *The Making of the Scottish Countryside*, 1980; D Turnock, *The Historical Geography of Scotland since 1707*, Cambridge, 1982 (esp ch 4); G W Whittington and I D Whyte, *An Historical Geography of Scotland*, 1983.

² S Shapin, 'The audience for science in eighteenth century Edinburgh', *History of Science*, XII, 1974, pp 99–104.

³ A number of important works may be noted in this regard: Lord Belhaven's *The Countryman's Rudiments*, Edinburgh, 1699; W Mackintosh, *An Essay on Ways and Means for Inclosing, Following, Planting etc*, Edinburgh, 1729; F Home, *The Principles of Agriculture and Vegetation*, Edinburgh, 1757; Dickson's two volume *Treatise of Agriculture*, Edinburgh, 1770; H Home (Lord Kames), *The Gentleman Farmer*, Edinburgh, 1776; A Wight's six volume *Present State of Husbandry in Scotland*; and not least, J Sinclair (ed), *Statistical Account of Scotland*, published in twenty-one volumes between 1791 and 1799.

this period. Henry Home, Lord Kames, author of *The Gentlemen Farmer* (1776), and *The progress of flax-husbandry in Scotland* (1776), a committee member of the managers of the Forfeited Annexed Estates and of the Board of Trustees for Fisheries, Manufactures, and Improvements in Scotland, and himself an improving landlord is perhaps the best example. Less known to us now, but much involved at the time in all the areas mentioned above, was the Rev Dr John Walker.

John Walker was born in Edinburgh in 1731 and died there in 1803. He was, at various times of his life, a mineralogist, botanist, a parish minister and Moderator of the General Assembly of the Church of Scotland, and, from 1779 to 1803, Professor of Natural History in the University of Edinburgh.⁴ Throughout his life, and during this quarter-century in particular, he was also greatly concerned with the improvement of Scottish agriculture. This involvement is apparent in a number of ways. Walker was the first person in an English-speaking university to give lectures on agricultural topics as part of his natural history course.⁵ He was a candidate for the Chair of Agriculture in Edinburgh in 1790. Several of his essays on the agriculture and natural productions of Scotland appear in the early *Transactions of the Highland and Agricultural Society*.⁶ He was a medal winner of the Edinburgh Society for Encouraging Art, Science,

Manufactures and Agriculture for an essay on marls and of the Highland and Agricultural Society for an essay on peat.⁷ His lecture notes also reveal his appreciation, shared by other writers, of the practices of plantation and woodland management. Walker may also lay claim to be the principal agent behind the establishment, in 1783, of the Royal Society of Edinburgh which, in its intended plans at least, considered agricultural improvement part of their scheme for 'extending useful knowledge'.⁸ As a teacher, Walker tutored Robert Darwin (Charles Darwin's father), Tobias Smollett and Robert Jameson and several men who rose to prominence in American science in the late eighteenth and early nineteenth centuries. Among his correspondents were Linnaeus, Arthur Young and William Cullen. In addition, Walker carried on an extensive correspondence with improving landowners and farmers throughout Scotland and with several like-minded men in England. Some, like Archibald Bruce, who was both a correspondent and a student of Walker's, were themselves to produce texts upon agriculture;⁹ others, like George Drummond of Kincardine, put what they learnt from Walker to more practical use. Prominent among his contacts was Henry Home, Lord Kames.

Both Kames and Walker shared a deep interest in the improvement of Scotland's agriculture through the establishment of better principles of management and the promotion of practical advances: both were part of that scientific community in late eighteenth-century Scotland for whom agricultural improvement was the basis of national prosperity. Kames was both friend

⁴ Biographical sources for Walker include: H Scott (ed), *John Walker: Lectures on geology, including hydrography, mineralogy and meteorology*, Chicago, 1966, pp xvii-xlvi; G Taylor, 'John Walker, DD, FRSE, 1731-1803', *Transactions of the Botanical Society of Edinburgh*, XXXVIII, 1959, pp 180-203; *Dictionary of National Biography*; W Innes Addison, *A Roll of the Graduates of the University of Glasgow 1727-1897*, Glasgow, 1898, p 625; M M McKay (ed), *The Rev. Dr. John Walker's Report on the Hebrides of 1764 and 1771*, Edinburgh, 1980, pp 1-30.

⁵ H W Scott, 'John Walker's lectures in agriculture (1790) at the University of Edinburgh', *Agricultural History*, XLIII, 1969, pp 439-45. William Cullen, himself a farmer on a small scale, had given some lectures on agricultural topics on a private basis in 1758; see Shapin, *op cit*, p 103.

⁶ A Ramsay, *History of the Highland and Agricultural Society of Scotland*, Edinburgh, 1879, pp 35, 46, 449. Curiously for one so involved in agricultural affairs, Walker was not an original member of this society.

⁷ Ramsay, *op cit*, p 35; H Mackenzie, *Prize Essays and Transactions of the Highland Society of Scotland*, Edinburgh, 1803, II, pp 1-137.

⁸ S Shapin, 'Property, Patronage, and the Politics of Science: the founding of the Royal Society of Edinburgh', *British Journal for the History of Science*, 25, 1974, p 25; N Campbell and R Martin S Smellie, *The Royal Society of Edinburgh (1783-1983)*, Edinburgh, 1983, pp 41, 103, 113, 116, 118.

⁹ A Bruce, *A General View of the Agriculture of Berwick*, Edinburgh, 1794.

and patron to Walker.¹⁰ In his capacity as a commissioner to the Forfeited Annexed Estates and member of the Board of Trustees, Kames, in 1764, directed Walker to tour and report on the Scottish Highlands. Walker made six trips to the Highlands from 1764 to 1786, the most important being those of 1764 and 1771. The observations made and the material collected were important in the improvement of those areas as well as being of value to Walker as a botanist and geologist.¹¹ Moreover, the information formed the basis to Walker's two published works, both of which appeared posthumously.¹² Walker's reputation as a scientist and his observations upon Scotland's rural economy made him a valuable source of information. Several letters to Kames show Walker advising his patron on a variety of agricultural topics: on the siting and growing of fruit trees, for example, and on the climatic limitations to plant growth.

The inclusion of agricultural topics in his lecture syllabus, his correspondence on agricultural matters and his friendship with Kames and others suggest Walker to have been an important figure in agricultural circles in eighteenth-century Scotland. Yet apart from brief mention of his lectures,¹³ and an edition of his Hebridean reports,¹⁴ little attention has been paid to Walker and his agricultural work. It is the purpose of this paper to draw to the notice of a wider audience the agricultural writings and work of the Rev Dr John Walker. Three related themes are examined in this respect: the agricultural content of his Natural History lecture course and its relationship with contemporary agricultural writing in

eighteenth-century Scotland; the extent and nature of his correspondence on agrarian topics; and his friendship with Lord Kames. To understand the man and his significance as an agriculturalist, however, it is necessary to set Walker and his ideas in the wider context of scientific enterprise and agricultural knowledge in that period.

I

The improvement of agriculture in the eighteenth century was part and parcel of broader changes affecting Scotland at that time. In literature, chemistry and *belles lettres*, in manners as much as on the land, Scotland was embracing a whole variety of new 'ways of doing': ideas of 'cultivation' and 'improvement' meant modifying the native Scots language as well as bettering yields. Yet changes in farming were perhaps the most dramatic of all: as Fenton has noted, 'The net effect . . . of the general creation of farms with enclosed fields and new buildings was to give Lowland Scotland a face-lift that was probably more thorough-going than in any other country of Europe in the course of the eighteenth century'.¹⁵

Though Lord Belhaven had written as early as 1699 how 'There needs no Rhetorick to illustrate the many and great Advantages that accresce [*sic*] to a Nation by the diligent Practice and due Incouragement of Husbandry',¹⁶ the transformation of Scotland's agriculture and rural landscape was particularly apparent in the second half of the century. Donaldson, writing in 1795, expresses an opinion that had increasingly found favour during the century: 'By agriculture, barren deserts are converted into fertile fields, covered with innumerable herds and luxuriant crops, or are clothed with stately timber. The industrious husbandman not only enriches him-

¹⁰ It is uncertain when the two men were first acquainted. Walker's early essay on marls would have drawn him to Kames's attention. McKay, 1980, *op cit*, p 1 has suggested they met when Walker was at Glencorse as a minister from 1758, and there is no reason to doubt this.

¹¹ McKay, 1980, *op cit*.

¹² J Walker, *An Economical History of the Hebrides and Highlands of Scotland*, Edinburgh, 2 vols, 1808; *Essays on Natural History and Rural Economy*, Edinburgh, 2 vols, 1812.

¹³ Scott, 1969, *op cit*.

¹⁴ McKay, 1980, *op cit*.

¹⁵ A Fenton, *Scottish Country Life*, Edinburgh, 1976, p 16.

¹⁶ Lord Belhaven (J Hamilton), 1699, *op cit*, p 1.

self, but also advances the general prosperity of the community'.¹⁷ This 'utilitarian impulse' to agricultural advancement was itself part of the expansion of scientific enterprise in Scotland, most notably the development of a Scottish earth science tradition embracing geology, chemistry, mineral discovery and natural history.¹⁸ The universities, with the development of a lecturing tradition and the undoubted ability of men such as Joseph Black, William Cullen and John Walker, were an important influence behind the development of a scientific foundation to the improvement of Scottish culture and economy. And societies and cultural institutions such as the Highland and Agricultural Society and the Royal Society of Edinburgh were important agencies by which new knowledge and new techniques — in ploughing, crops, methods of nutrition and rotation — were mediated through an elite group of land-owning gentry and disseminated into principles and practice for the benefit of the nation. Shapin has pointed to a common interest in the themes of horticulture, agricultural chemistry and the scientific basis to agriculture held by those improving individuals dominating scientific societies in Edinburgh.¹⁹ As society member and university professor, Walker holds a position of special interest.

Walker was elected to the Chair of Natural History in Edinburgh in November 1779, a position he held until his death. Natural history at that time was not as we know it. The subject was based upon a strict system of order, classification, and practical observation; themes likewise apparent in Walker's works in mineralogy and botany as well as on agriculture. Walker understood natural history to be 'the arrangement, description & history of

the works of creation contained in the terrageous globe'.²⁰ The subject was divided into six branches; Meteorology, Hydrography, Geology, Mineralogy, Botany and Zoology: 'The three first, constitute the History of the Terrageous Globe in general: that is, of the *Atmosphere*, of the *Waters*, and of the *Earth*. The three last, contain the History of what are called the three Kingdoms of Nature: the *Fossile*, the *Vegetable*, and the *Animal Kingdom*'.²¹ Walker's agricultural sections fall within 'Botany' in the 'Vegetable Kingdom'. Underlying all of Walker's work and his remarks on botany, the 'vegetable kingdom' and agriculture in particular is the utilitarian philosophy of the eighteenth-century improver. Walker noted that 'The enquiries respecting the vegetable Kingdom in general will be concluded with a specific account of such plants as are possessed of any rare or remarkable properties or are useful or noxious to Mankind'.²² His treatment of natural history and, in turn, of agriculture was explicitly utilitarian. His lectures aimed at a specific audience and were set within a social and cultural context geared to improvement and economic advancement.

My leading idea in Natural History is to render it subservient to the Purposes of Life; to which great End, it is indeed eminently adapted. With this View, when I first drew out the general Plan, I was to follow in teaching; I engrossed in it three favourite Subjects; Agriculture, Plantation, and Gardening . . . I had Experimented and written to a considerable Extent, upon these Subjects and wished greatly to teach them . . . I have for some time proposed; to give a Course of Georgical Lectures upon Agriculture . . . I expected, that among the Gentlemen of the Parliament House, the Landed Gentlemen residing in Edinburgh, their Sons pursuing a general Education, and among the Intelligent Farmers in this

¹⁷ J Donaldson, *Modern Agriculture; or, the Present State of Husbandry in Great Britain*, Edinburgh, 1795, p 4.

¹⁸ R Porter, *The Making of Geology: Earth Science in Britain 1660-1815*, Cambridge, 1977, pp 147-56.

¹⁹ Shapin, 1974, *op cit*.

²⁰ *Institutes of Natural History containing the Heads of the Lectures in Natural History* J Walker, Edinburgh, 1792 MS in the Walker Collection, Special Collections Room of the Library of the University of Edinburgh.

²¹ *Ibid*.

²² Edinburgh University Library (hereinafter EUL), Ms Dc.10.33.

neighbourhood, I might find an Audience that would reward my Labour.²³

Walker appreciated that he could not treat of all agricultural themes equally.

The Topics in this Syllabus are so numerous, that they must necessarily vary much, in their Degree of Importance. Some of them perhaps, might be entirely omitted; and many of them may require to be only slightly touched. But those certainly are entitled to the fullest Illustration, which are most material to the Interest of the Country.²⁴

The following section, quoted at length from Walker's manuscripts, illustrates the material covered by Walker in his 'Georgical Lectures' and the utilitarian emphasis he gave it.²⁵ The *Syllabus of a Course of Lectures on Rural Oeconomy*²⁶ affords a more detailed picture of the structure and content of Walker's lectures (see Appendix).

As a course of Lectures of this kind should be of public as well as private utility every opportunity should be embraced that can in any way be applied to the advantage and improvement of the useful arts — and such an opportunity occurs here.

The observations to be made & the principles to be established from the several subjects now enumerated may be of great use in the several arts dependent on Georgics.

These consist of two parts

1st The Cultivation of Plants

2d The management of domestic Animals

Of Georgics the first & most important branch is Agriculture, which tho only an art in its practise may be justly considered a science in its Theory and Principles . . .

We shall treat of the nature of soils in general & of these in Scotland in particular, with their particular properties and names & distinguishing marks, & the particular plants each of them is fitted to rear.

Of the operation of Natural and Artificial Manures especially of Quicklime. Of the effects of Tillage.

Of the differences between Horse and other methods of husbandry.

Of the structure of Roots. Of the change of Species & rotation of Crops. Of the comparative merit of the different grains & other profitable crops. Of their different effects on the soil & of the nature

propagation & destruction of weeds. Of pasture & meadow lands, of the culture of Artificial grounds.

Of the discovery of some grounds & other plants not now in use, but which are fitt to be tried as Green or Dry forage.

Of the reclaiming of wild land, & to these we shall add a review of those obstacles which obstruct the improvement of Agriculture in Scotland.

There is another Agrestic Art which is nearly allied to Husbandry as depending on the Natural History of plants viz^t Gardening.

Here we will begin with observing the effects of cultivation on plants which in consequence of the variation of climate & the course of ages exhibit to us that vast variety & considerable improvement which nature may be brought to when assisted by art.

[Gardening to include] the stiles of gardening; the Kitchen & flower Garden; the management of the fruit Garden; the construction of Fruit Walls & the different sorts of shelter for Fruit Trees: the Orchard, the Shrubery, & the Botanic Garden; the Green house, the dry & Cork stoves & other conservatories for tender plants. & the propagation of valuable fruits.

We shall then bestow some observations on that higher species of Gardening the laying out of pleasure ground, an Art that not only requires an extensive knowledge of natural history but of the human heart

Lastly, we shall come to the art of planting, & this requires particular attention in a Country which like this is advancing & give way to fields & pastures We shall attempt a history of the rise and progress of plantations in Scotland with remarks on its present state, & the means of its further advancement.²⁷

Given the importance of these lectures and the social and scientific context in which they were given, it is pertinent to examine their relationship with the work and ideas of contemporary agricultural writers.

II

There is no doubt that Walker's lectures were highly regarded. The *Caledonian Mercury* carried the passage below on 3 April 1790.

LECTURES ON AGRICULTURE

On Thursday last, Dr. Walker, Professor of Natural History in the University here, concluded the first course of lectures on Agriculture, which has ever

²³ EUL, MS La III 352/3.

²⁴ *Ibid.*

²⁵ For a general review of Walker's utilitarian views in the broader field of earth sciences, see Porter, 1977, *op cit.*

²⁶ Aberdeen University Library, MS 56.

²⁷ EUL, MS, Dc. 10.33.

been delivered in Britain as a branch of Academical education. The gentlemen who attended that class invited him afterwards to an entertainment, that they might have an opportunity of expressing to him collectively their acknowledgements and thanks for the instruction they had received; and at that meeting an Agricultural Society was projected, which under his patronage and direction, may prove essential service to the practical farmer, and tend to the general diffusion of Georgical science over the country.

The Edinburgh Agricultural Society was established that year and it is through his involvement in this body that Walker engaged in correspondence with Scottish farmers (see below). But Walker was far from being the sole source of knowledge on 'Georgical science'. In his emphasis upon the 'Chymical Principles of Plants' and the 'Chymical Analyses of Soils' and on manures, Walker is of significance for his advocacy of a scientific approach to agriculture and the search for principles behind the practice, but he is also mirroring the work of others.

Francis Home's *The Principles of Agriculture and Vegetation* (1757) was a pioneer work in the scientific study of agriculture. His book considers a number of topics shared by Walker: the natural and artificial methods of providing manure and vegetable food, the effects of climate and plant diseases, farming instruments, and types of crop in relation to soil. Though the limited nature of contemporary knowledge on chemistry and plant physiology prevented him from a detailed understanding of the scientific basis to agriculture, Home's work is nonetheless of great importance in the history of Scottish agriculture.²⁸ The topics of soil fertility and sterility, the virtues of particular plough types and the chemical basis to artificial manures, particularly marls, are also important topics in the agricultural manuscripts of James Hutton.²⁹ Liming and the regular application

of artificial manures and fertilizers was becoming increasingly common in the latter half of the century.³⁰ Donaldson in his *Modern Agriculture* of 1795 noted that the subject of manures was 'of the greatest importance; for on a thorough knowledge of it depends, in no small degree, the further extension of agricultural improvements'.³¹ Lord Kames, perhaps more than anyone else, was concerned with the scientific underpinnings of agriculture.³² Like Francis Home, Hutton, Donaldson, Wight, Ure (to name only a few), and Walker, Kames recognized the virtues of what may be termed agricultural chemistry: 'To be an expert farmer, it is not necessary that a gentleman be a profound chymist. There are however certain chymical principles relative to agriculture, that no farmer of education ought to be ignorant of'.³³ Kames's *The Gentleman Farmer* reveals the author to be conversant with agricultural subjects through years of practical involvement and as a theorist. In his preface, Kames writes 'I have not mentioned a single article as certain, but what I have practised many years with success: the instructions contained in this book, are founded on repeated experiments and diligent observation'.³⁴ His aim, 'of combining deep philosophy with useful practice' in agriculture was also assisted by the scientific knowledge of men such as William Cullen and Joseph Black, both professors of Chemistry, and Walker. (Kames even tried to persuade Black to

²⁸ See, for example, R A Dodgshon, 'Land improvement in Scottish farming: Marl and Lime in Roxburghshire and Berwickshire in the Eighteenth Century', *Ag Hist Rev*, XXVI, 1978, pp 1-14. Dodgshon cites several authors contemporary with Walker, including Kames; see, for example, D Ure, *General View of the Agriculture in the County of Roxburgh*, Edinburgh, 1794, p 26.

²⁹ Donaldson, 1795, *op cit*, p 202.

³⁰ On Kames's significance as an agriculturalist and in the wider context of improvement in eighteenth-century Scotland, see G Bryson, *Man and Society: the Scottish Inquiry of the Eighteenth Century*, Princeton, 1945, pp 53-77; Handley, 1953, *op cit*, pp 140-1; J E Handley, *The Agricultural Revolution in Scotland*, Oxford, 1963, pp 39-49; W C Lehmann, *Henry Home, Lord Kames, and the Scottish Enlightenment*, The Hague, 1971; I S Ross, *Lord Kames and the Scotland of his day*, Oxford, 1972.

³¹ Home [Kames], 1776, *op cit*, p 292.

³² *Ibid*, p ix.

²⁸ J E Handley, *Scottish Farming in the Eighteenth Century*, Oxford, 1953, p 129.

²⁹ J Hutton, 2 vols *MS Principles of Agriculture*, The Royal Society of Edinburgh.

include agricultural topics in the latter's chemistry course: '... the principles of agriculture will in your hands be one of the most interesting articles of a course in chemistry'.³⁵ Kames cites Walker on the question of climatic influences on the growth and flowering of plants in *The Gentleman Farmer* and in correspondence between the two, Kames more than once seeks Walker's advice on horticultural matters.³⁶

Given the common interest in agricultural matters, it is not surprising that such writings exhibit common themes. In this respect, the *Syllabus of a Course of Lectures on Rural Oeconomy* is perhaps less important for what it reveals on the content of Walker's lectures than as a summation of the views held by like-minded agricultural writers. As we have seen, Walker was part of an intellectual community in late eighteenth-century Scotland, centred in Edinburgh around the university and scientific societies: a community whose membership was very largely made up of landowning gentry and for whom agricultural improvement, itself part of the extension of scientific enterprise, was of particular concern. Walker's agricultural lectures may thus be considered as a review of agricultural knowledge and practice in contemporary Scotland; a consensus of those topics to be considered in the improvement of Scotland's rural economy and a guide to the wider audience of the enlightened landowning and farming classes as to the best way to proceed.

III

Though his *Syllabus* also represents the culmination and synthesis of Walker's agricultural work, assessment of his signifi-

cance as an agriculturalist must also focus upon other facets of his work, principally his status as a scientist, his travels to the Highlands of Scotland and remarks on the rural economy of that region, and his correspondence with landowners and farmers. In all these areas, he was skilled and conscientious. He himself noted that 'more knowledge may be obtained by the eye than can be convey'd by the ear';³⁷ his detailed observations on husbandry in the Highlands reveal the truth of this remark. Much of this material is collected in Walker's *An Economical History of the Hebrides and Highlands of Scotland*, published in two volumes in Edinburgh in 1808, and dedicated, by his executors, to the Highland Society of Scotland and to the Board of Agriculture. This work, and Walker's other major published work, *Essays on Natural History and Rural Economy*, were the result of several trips to Scotland's north and west under Kames's patronage. These areas of Scotland were to be improved in matters of industry and trade as well as in agriculture, and several of Walker's manuscripts record the detailed way he enquired into aspects of society and culture as well as agrarian traditions and practices.

His *Queries concerning the North of Scotland*, record thirty-eight questions on the agriculture of the Highlands.³⁸ Walker enquired into such topics as 'the present manner of tillage and the succession of crops', the advantages arising from the use of the spade or *cas chrom* in the Highlands as opposed to the plough, the rents of different kinds of land, and what parts of the country might be improved by draining. His travels in the Highlands provided him with material for several of his essays on

³⁵ EUL, MS Gen 873/1/83-4; see also Gen 875/1/79F-82F.

³⁶ EUL, MS La III 352/4.

³⁷ *Lectures on Natural History given in Edinburgh University 1792*, 12 vols MSS, in the care of the Library of the Royal College of Physicians, Edinburgh.

³⁸ EUL, MS Dc 2 36, fols 13-45.

agricultural topics: on kelp,³⁹ on peat,⁴⁰ on cattle and corn in the Highlands⁴¹ and on the scarcity of grain.⁴² The Highlands had been badly affected by crop failure in 1783,⁴³ and, in 1800, much of Scotland was likewise affected by a scarcity of grain. Walker's conclusion, put forward in a paper dated 26 December 1800⁴⁴ was that the increase of pasture land for grazing at the expense of arable for grain was the chief cause of scarcity.

In his *Queries concerning the North of Scotland*, two topics were considered of particular relevance to those parts: enclosure and artificial grasses.

In what Tracts of the Country would Inclosures be most advantageous? Where they should be begun & encourag'd, and in what manner they should be executed.

In what parts should Fallowing, and the cultivation of Artificial Grasses be introduced?

Note. These are the two leading steps of Improvement, in the uncultivated parts of Scotland, & yet are unknown in many places, where they might be beneficially practis'd. They are introductory to every Sort of polish'd Culture, & urge the Farmer to inclose; not only from Interest, but through Necessity.⁴⁵

His search for the most effectual methods of improvement, in the Highlands and elsewhere, was made easier by his detailed scientific knowledge, particularly of botany.⁴⁶ In the matter of pasture grass, he

noted that 'Exact observations are much wanted, for ascertaining the Plants w^{ch} serve as wholesome Forage, to the different kinds of Cattle'.⁴⁷ He corresponded on the topic with Linnaeus who had been engaged in 'Observations of this sort'.⁴⁸ Plants were of particular interest to Walker; 'I have been from my cradle fond of vegetable life':⁴⁹ the opportunity to put his botanical knowledge to practical use was of double importance. Walker's Highland trips produced plenty of material: he refers in one letter to '... a Harvest of Plants I had never before seen, many of which have not as yet been viewed by Botanick Eyes. I have augmented my Collection of Plants even beyond what I expected'.⁵⁰ Though much of what Walker collected and observed probably had little practical value, there is no doubt that his scientific background sought utilitarian ends where possible: 'It is the task of a Botanist to discover unknown plants with a view to their future usefulness . . . It is the business of a *naturalist* to discover useful qualities in those that are already known'.⁵¹

Whilst observations 'obtained by the eye' were an important source of information to him, so too were the landowners and farmers of his audience and with whom he corresponded, before and after his lecture course. Walker's correspondence shows him as an important central figure within the community of scientifically-minded agricultural writers and improvers: to some persons imparting knowledge and counsel (disseminating principles of management) while enquiring and asking advice of others (accumulating

³⁹ 'An Essay on Kelp: containing the rise and progress of that manufacture in the north of Scotland; its present state; and the means of carrying it to a greater extent', *Prize Essays and Transactions of the Highland Society of Scotland*, 1799, pp 1-31. (This paper was delivered to the Society in 1788.)

⁴⁰ 'An Essay on Peat, containing an account of its origin, of its chymical principles, and general properties. Its properties as a manure, and as a manured soil. The different methods of its cultivation. Its usefulness in plantation and gardening, and as a soil', *Prize Essays* . . . II, 1803, pp 1-137.

⁴¹ 'On the cattle and corn of the Highlands', *Prize Essays* . . . II, 1803, pp 164-203.

⁴² EUL MS Dc 1 57, fol 101 *et seq.*; see also 'Concerning the Present Scarcity of Grain in Scotland', *Essays*, 1812, pp 617-29.

⁴³ Documents relative to the Distress and Famine in Scotland in the year 1783, BPP 1846, XXXVII.

⁴⁴ *Essays*, 1812, pp 617-29.

⁴⁵ EUL MS Dc 2 36, p 19.

⁴⁶ Linnaeus held Walker's ability as a botanist in particular in high regard; several letters to Walker from Linnaeus ask for Walker's help in securing plant specimens from the Highlands: Walker, in turn, was a devotee of the Linnaean system of classification and, in

one letter, terms Linnaeus '... a famous gentleman and Golden Knight', EUL MS La III 352/1, letters of 22 Feb 1762; 12 Oct 1762; 20 June 1763. For Walker's anticipatory advances in the classification of algae, see R K Greville, *Algae Britannicae*, Edinburgh, 1830, p iii.

⁴⁷ EUL MS Dc 2 36, p 33.

⁴⁸ See note 46 above.

⁴⁹ Quoted in his entry in the *Dictionary of National Biography*, XX, p 531.

⁵⁰ EUL MS La III 352/1.

⁵¹ EUL MS Dc 10 33.

information based on the practical experience of others).

In January 1792, for example, the Jedburgh Farmer Society asked Walker's advice on the sort of topics 'to be taken under Consideration by a Society of Country Farmers who meet here Monthly to Communicate to one another such Observations as Cast up to them in the Course of their practice'.⁵² To a request for advice from the Presbytery of Shetland in May 1790 on behalf of farmers there concerning the prevalence and treatment of sheepscab, Walker took the time to reply in two letters: the first a series of twelve questions enquiring as to the exact nature of the disease in those areas and the remedies that were currently practised; the second a recommendation to smear the sheep with tar and butter. Such a practice was, according to Walker, then unknown in Shetland; 'But I well know from long Observation, that in the South Country, its chief if not sole use is to preserve the sheep from Diseases, & especially from the Scab'.⁵³

Walker's surviving correspondence also contains letters on the draining and management of moorlands,⁵⁴ the most efficient method of weeding,⁵⁵ and the rotation of crops.⁵⁶ On this last topic, Walker communicated with several farmers and improvers. One lengthy letter from Thomas Scott, a farmer in Midlothian, documents the way Scott had, since the 1750s, varied crops to increase the yield over his farm. Scott records the annual rotations he tried, from 1752 on, in the growing of potatoes, oats, barley, hay, and wheat in a field divided into two plots 'which for

Distinction sake [I] shall call N^o 1 & 2 resolving to have Potatoes & Wheat upon them alternately, and always to dounge [dung] to the Pottatos Crop the preceding year'. He writes to Walker of how the yield increased, then, despite rotation, declined dramatically when the land was insufficiently dunged or kept in one crop too long: 'Thus [writes Scott] I found that what will appear very promising in Theory, may turn out Very Differently in practice'.⁵⁷ Scott's letter shows Walker as the gatherer of information, adding to his own experience through detailed correspondence. More usually, Walker was the source of knowledge, a role he owed to his reputation as lecturer and scientist.

George Henderson of Craigtoun near Kirkliston in Midlothian, an important farmer in the area, wrote to Walker in April 1791 over the matter of his son, Peter, attending Walker's lectures in the following year: 'Your fame for Knowledge in Natural History, One of the more usefull and Entertaining Studies, Draws on you this Trouble'.⁵⁸ George Drummond, actively involved in the draining of Kincardine Moss, wrote to Walker expressing disappointment and surprise at the news of an appointment of a professor of agriculture: 'If unfortunately this should put a Stop to the delivery of your Lectures; I flatter myself, at least, that it will not do so the Publication of them — And in all Events I trust, it will not interfere with your new Agricultural Society'.⁵⁹ William Matthews, secretary to Bath Agricultural Society, wrote to Walker in June 1790 to praise the Highland Society's work and to make Walker an honorary member of their institution given the 'high sense this Society entertains of your Abilities'.⁶⁰ To Captain Charles Williamson, who had been corresponding with Walker on the

⁵² EUL, MS La III 352/3, 4 January 1792.

⁵³ *Ibid.*, 12 May 1790.

⁵⁴ *Ibid.*, 26 April 1790 (from George Drummond on the progress of Kincardine Moss); 9 May 1790 (from John Buchanan of Cambusmae on the state of his improvements); 7 July 1790 (from Alix Blackadder on Blair Drummond Moss).

⁵⁵ *Ibid.*, 25 February 1791 (from William Brodie, Upper Raith).

⁵⁶ *Ibid.*, see especially the letters from P Nelson (2 April 1789); David Wight (5 May 1790); A Bruce (3 November 1790); J Fell (2 March 1791); Fell in his letter addresses Walker as 'Professor of Agriculture'.

⁵⁷ *Ibid.*, Letter from Thomas Scott (5 May 1790).

⁵⁸ *Ibid.*, Letter from George Henderson (11 April 1791).

⁵⁹ *Ibid.*, Letter from George Drummond (26 April 1790).

⁶⁰ *Ibid.*, Letter from William Matthews (7 June 1790).

relative merits of reaping with sickle or scythe, Walker's advice and comments were likewise highly regarded: 'The scheme you mention for advancing the knowledge of agriculture [his lecture course] is certainly the best that can be adopted'.⁶¹ These letters should be seen as an indication of the high regard in which Walker was held by the audience for scientific improvement: as an agricultural scientist of the first importance whose prestige depended both upon his own intellectual abilities and upon the social group and utilitarian context of which he was part. By the early years of the nineteenth century, however, Walker was worn out by his labours. By 1803, his sight was '... so far gone I can neither Read nor Write', and, on 31 December that year, he died.

IV

Given his involvement in Scottish agricultural affairs — as a lecturer, and practical scientist of considerable reputation, as an experienced observer in the field and as a correspondent on agrarian topics — the question may be asked why Walker is not better known to us today. No single reason may be advanced, but several clues are available which, taken together, suggest that despite being so active in agricultural and other affairs (and perhaps as a result of being so involved), Walker was dilatory in the publication and dissemination of his results and ideas outside of his lectures. In an age and social environment when published essays and works on agrarian topics were crucial sources of information, and conferred status on the author, Walker's failure to put words and notes into print was a major hindrance to any long-term recognition. Several influences combined to deflect Walker from publication during his lifetime: his travels in the north of

Scotland; his university position, particularly his curatorship of the museum; and other scientific work. To these may be added his involvement in the Church of Scotland and failure to gain the professorship of agriculture in the very year he gave lectures in the subject.

Walker's Highland journeys were costly in time and energy. In a letter of 10 December 1764, Walker informed Kames that he had sailed 1263 miles, 'rowd in open boats 280', ridden 1087 miles and walked a further 528.⁶² Much of the material collected was for the benefit of the Board of Trustees and the Commissioners of the Forfeited Annexed Estates in their management of the Highlands, but Walker noted also in the letter that he had '... materials also for a separate treatise upon agriculture, fisheries and the linen manufacture of the North, in which these subjects would be considered upon more general principles'.⁶³ The sheer amount of information, collected over a trip of seven to eight months, presented difficulties: he wrote thus to Kames;

The Hardships I met with, were greater indeed than I would have chosen, but they were what I expected, & were in most Cases unavoidable. The rich entertainment I had from the Business I was engaged in, & the surveying a sort of new World, made me even bear them with Pleasure, & I expect still more in reflecting upon them. I am now employed in preparing for the View of the annexd Board, what I have written upon my Expedition, which is a great Quantity, but it lies in great Disorder'.⁶⁴

Despite this workload, Walker could be an amusing as well as informative correspondent: Kames notes, in one letter of 1776, how 'Doctor Walker is so delightful as a literary correspondent that I could scarce wish him so near as to make writing unnecessary'.⁶⁵

But Walker could be indifferent and neglectful in his correspondence and in the

⁶² EUL, MS La III 352/1, Letter to Kames (10 December 1764).

⁶³ *Ibid.*

⁶⁴ EUL, MS La III 352/1; see also EUL, MS Dc 1 18/5.

⁶⁵ EUL, MS La III 352/4, Letter from Kames (29 July 1776).

⁶¹ *Ibid.*, Letter from Captain Charles Williamson (12 June 1790).

publication of material. In a letter of 1782, William Cullen noted how Walker seemed '... to be obstinately resolved against answering letters'.⁶⁶ Kames, in a letter of 1778, chastises Walker in similar fashion: 'you are dilatory in the affairs of other people, as well as in your own'.⁶⁷ The clearest indication of Walker's tardiness in the matter of publication appears later in this same letter, in regard to the chair in natural history then still held by the first incumbent, Robert Ramsay. In Kames's view, Walker's delay in publishing would stand against him: 'If you are disappointed, which I am afraid will be the case, blame none but yourself. Had you announced the natural history of Scotland [see note 12], and published part of it, according to my repeated solicitations, all the world would have been for you; you would not have had a single competitor. Take a hint to what is past: proceed to your publication; and then you will be prepared for what may cast up'.⁶⁸ But Walker did not thus proceed during his lifetime; even his plans to produce a general text on the botany of Scotland were laid aside, after much field work and thought, following the publication, in 1777, of Lightfoot's *Flora Scotica*.

His position as university professor involved lecturing and curatorship. The university museum had been begun in 1697 with material from Sir Robert Sibbald's collection. By 1780, there was, in Walker's words '... really nothing to keep'.⁶⁹ 'By attention and many personal Applications', as he put it in a letter of 1793, Walker sorted and improved the collection. Doing so necessitated correspondence with contacts in many countries. 'The new Professorship in which I am placed here, obliges me indeed to intrude upon every Acquaintance I have in distant parts of the

World'.⁷⁰ This work was doubtless useful to his natural history lectures, but drew him away from his agricultural writings: 'The Preparation and Preservation of the Bodies in this Collection, and recording them in a Register has for Six Years employed much of my Time'.⁷¹

Moreover, his early years in the professorship were spent while still a parish minister in the village of Moffat in Dumfriesshire. Walker had been ordained as a minister in the Church of Scotland in 1754 and given the charge of Glencorse near Penicuik in 1758. From 1762 until 1783 he was minister at Moffat and it was as parish minister that he made his journeys to the Highlands. In 1783 he was moved to Colinton parish near Edinburgh. His church duties — he was, in addition, moderator of the General Assembly of the Church of Scotland in 1790 — do not seem to have been hampered by his absence in the Highlands or the long periods he spent while in Moffat walking the local hills to search for plant specimens. His parishioners considered him a picaresque figure: his frequent botanical excursions earned him the sobriquet 'the mad minister of Moffat'.⁷² But his twin involvement as church man and utilitarian scientist, the one role demanding local residence and the other necessitating lengthy absences from parish or notebooks, meant that Walker had little time in which to pull together his manuscripts into publishable form.

Even allowing for these commitments, it is difficult to know why he was not elected to the professorship in agriculture in 1790.⁷³ His lectures were well-received; he

⁶⁶ EUL, MS La III 352/4.

⁶⁷ EUL, MS La III 352/4, Letter from Kames (2 February 1778).

⁶⁸ *Ibid.*

⁶⁹ EUL, MS La III 352/2, Letter from Walker to Robert Dundas (2 September 1793).

⁷⁰ National Library of Scotland, MS 5540, f. 34, letter from Walker to R Liston, Minister Plenipotentiary, Madrid (24 January 1784).

⁷¹ EUL, MS La III 352/2, *Ibid* (see note 69).

⁷² J Kay, *Original Portraits*, II, Edinburgh, 1842, p. 179.

⁷³ The Chair was endowed by Sir William Pulteney. The first incumbent was Andrew Coventry who held the position until 1841: Coventry's two works are themselves valuable sources for the agricultural history of early nineteenth-century Scotland; *Discourses explanatory of the lectures on agriculture and rural economy*, Edinburgh, 1808; *Notes on the culture and cropping of arable land*, Edinburgh, 1811.

had considerable status within the élite and cultured circles of Edinburgh and a reputation as a scientist. His age probably stood against him and his failure to produce a text on the agriculture of Scotland or the rural economy of the Highlands despite the knowledge and experience almost certainly did. One further reason may be put forward in regard to Walker's failure to secure the chair of agriculture in 1790 and to his being little known in the longer term. In the 1760s and 1770s, Lord Kames had set in motion a project to survey the state of agriculture throughout Scotland. Perhaps because he was absent during the planning, or engaged in other work or because Kames was trying to reduce the commitments upon his friend, Walker was not selected to undertake this work. The person who was, Andrew Wight, himself a successful and enthusiastic farmer, was initially instructed to enquire into the state of agriculture on the farms of the forfeited and annexed estates. The survey was later extended to include the remainder of Scotland. Though published over a period of years, Wight's

Present State of Husbandry in Scotland is valuable for the picture it reveals at a crucial stage in the evolution of Scotland's agriculture.

It is, of course, difficult to know whether any involvement by Walker in this project and the resultant publication would have secured for him the professorship in 1790 and whether that in turn would have guaranteed a more lasting place in Scotland's agricultural history. That Walker is not more widely known may stem quite simply from his own breadth of interests and laxness in preparing work for publication despite the patronage of Kames and the support of important cultural and scientific institutions. What cannot be doubted is that such work as Walker has left us — both published and in manuscript form — reveals him to have been, as lecturer and agricultural scientist, utilitarian philosopher and tutor to the 'improving classes', a figure of considerable significance in an important period in the history of Scottish agriculture.

⁷⁴ Handley, 1953, *op cit*, p 143; 1963, *op cit*, p 39.

APPENDIX

Syllabus of A Course of Lectures on Rural Oeconomy

I

Vegetation

- 1 Organical Parts of Plants
 - Their constituent Parts
 - The Chymical Principles of Plants
- 2 Seeds
- 3 Roots
- 4 Stems
- 5 Bark and Wood
- 6 Pith
- 7 Leaves
- 8 Fructification
- 9 Sexes

10 Nutrition of Plants

11 Vegetable Oeconomy

2

Agriculture

Introduction

- 1 Leases
- 2 Farm Buildings
- 3 Instruments
 - a Ploughs
 - b Harrows
 - c Roller

- d Fanner
- e Semoirs
- f Thresher
- g Farm Carriages
- 4 Inclosures
 - a Walls
 - b Hedges
 - c Draining
- 5 Soils
 - a Staple of Earth
 - b Chymical Analyses of Soils
 - c General Division of Soils
 - d Causes of Sterility
 - e Means to procure Fertility
- 6 Manures
 - a Animal Manures
 - b Vegetable Manures
 - c Fossile Manures
 - d Water
 - e Composts
 - f Operation of Manures
- 7 Tillage
 - a Ridges
 - b Deep & Shallow Ploughing
 - c Ribbing
 - d Bouting
 - e Prociission
 - f Sarrition
- 8 Crops
 - A White Crops
 - a Wheat
 - b Barley
 - c Oats
 - d Rye
 - B Green Crops of Grain
 - a Beans
 - b Peas
 - c Buckwheat
 - C Green Crops for Summer Forage & Hay
 - a Red Clover
 - b Rye Grass
 - c Lucern
 - d Sainfoin
 - D Grass Crops to be introduced
 - E Green Crops for Forage in Winter
 - a Turnips
 - b Coleworts
- c Turnip Cabbage
- F Roots
- G Flax and Hemp
- H Crops for Manufacture & Medicine
- I Crops for Thatch, Litter &c
- K Diseases of Crops
- 9 Weeds
- 10 Rotations
 - a Fallowing
 - b Horse Hoeing
 - c Meliorating & Deteriorating Crops
 - d Succession of Crops
- 11 Husbandry of the Romans
- 12 The Old and New Husbandry
- 13 Sowing
 - a Choice of Seed
 - b Change of Seed
 - c Steeps
 - d Season
 - e Quantity
 - f Depth
- 14 Reaping
- 15 Qualities of Grain
- 16 Preservation of Grain

3

**Management of Grass Grounds,
and of Cattle**

- 1 Hay
- 2 Pasture
 - a Pasture Plants
 - b Pasture Grounds
 - c Summer & Winter Feeding
- 3 Black Cattle
 - a Breed
 - b Fattening
 - c Stall Feeding
 - d Diseases
- 4 Dairy
- 5 Sheep
 - a Breed
 - b Food
 - c Stock
 - d Summer & Winter Feeding

- e Smearing
- f Wool
- g Diseases

5

Gardening

History

- 6 Horses
- 7 Hogs
- 8 Goats
- 9 Plants poisonous to Cattle
- 10 Rabbits
- 11 Poultry
- 12 Bees
- 13 Fish Ponds
- 14 Animals to be introduced into Scotland

4

Plantation

Introduction

- 1 Plantation in General
- 2 Culture of Trees
 - a Seminary
 - b Nursery
 - c Transplanting
- 3 Pruning
- 4 Evergreens & Perdifols
- 5 Progress of Trees
 - a Age
 - b Size
 - c Growth
- 6 Qualities of Timber
 - a Felling
 - b Duration
 - c Mechanical Properties
- 7 Products from Forest Trees
 - a Bark
 - b Charcoal
 - c Potashes
 - d Resin
 - e Tar
- 8 Management of the Forest Trees in Scotland
- 9 Fruit Trees in Plantations
- 10 Underwood
- 11 The Culture of Willows
- 12 Forest Trees to be introduced into Scotland
- 13 The Cyder Orchard

- 1 Situation — Soil — Manures
- 2 Operations in Gardening
 - a Slipping
 - b Laying
 - c Grafting
 - d Inoculation
 - e Marching
- 3 Pruning
 - a Its Uses
 - b General Principles
 - c Season
 - d Practical Directions
- 4 Caprification
- 5 Transplanting
- 6 Diseases of Garden Plants
- 7 Preservation of tender Exoticks
- 8 The different Styles of Gardens
 - a Kitchen Garden
 - b Flower Garden
 - c Shrubbery
- 9 Fruit Garden
 - a Standards
 - b Espaliers
 - c Walls
- 10 Hot Houses
 - a Peach House
 - b Vinery
 - c Pine Stove
 - d Muschrome Bed
- 11 Botanick Garden
- 12 Policy
 - a Style of Places
 - b Characters of Places
 - c Disposition
 - d Grass
 - e Walks
 - f Water
 - g Trees
 - h Buildings
- 13 Idea of an Ornamented Farm
- 14 The Formation of a Village

ACKNOWLEDGEMENTS

For permission to quote from manuscripts in their care, I am grateful to the Librarian of the Royal College of Physicians, Edinburgh; the Keeper of the Manuscripts in the University of Edinburgh; and the Keeper of the Manuscripts in the University of Aberdeen.

Notes and Comments

(continued from page 131)

ANNUAL CONFERENCE AND AGM, 1985

The Spring Conference saw a return to the College of Ripon and York St John at Ripon from 1-3 April 1985. On Tuesday Mr Richard Hoyle examined the Pilgrimage of Grace in some detail, discussing whether or not it could be classed as a peasant movement; Dr John Chapman reported some of the results of his analysis of a 10 per cent sample of parliamentary enclosure awards while later in the day Dr Brian Outhwaite speculated on notions of progress and backwardness in English agriculture during Tawney's century in a paper which succeeded in provoking its after-dinner audience. Mrs Christine Hallas led a most successful excursion into Wensleydale and Swaledale which she prefaced by a paper on Monday evening describing agricultural change in the two dales during the nineteenth century. Finally, on Wednesday, Dr Cormac Ó Gráda continued his explorations of Irish demographic history with a paper on farmers and demographic adjustment after the famine, and Dr John Perkins demonstrated how commentators are conditioned by their own experiences in a discussion of German views of British farming before 1914.

The thirty-third AGM was held on 2 April 1985. Dr Thirsk was re-elected as President of the Society, Dr Collins re-elected as Treasurer and Dr Overton re-elected as Secretary. Dr Chartres was re-appointed as Editor of the *Review*. The four vacancies on the Executive Committee were filled by the retiring members; Dr Baker, Mr Havinden, Professor Mingay, and Dr Phillips.

The Chairman of the Executive Committee, Mr Havinden, presented the Committee's report. Membership of the Society stood at 845 on 1 January 1985, a net decrease of 2 over the year during which 40 new members joined the Society. The Executive Committee had decided that Dr George Fussell and Miss Gillian Beazley be made the first Honorary Members of the Society. Once again the Society's finances were in a healthy state and no increase in subscription was necessary. Some 20,000 copies of a leaflet advertising the Society were to be distributed with *History Today* in exchange for an advertisement in the *Review*. The next Winter Conference was again to be held jointly with the Historical Geography Research Group in London

on 7 December and the 1986 Spring Conference was to be at Seale-Hayne College, Newton Abbot, from 7-9 April.

The Treasurer presented the audited accounts of the Society to the meeting which demonstrated that finances were satisfactory in that income roughly equalled expenditure. Sales of the volume on *Horses in European Economic History* had gone very well as had the bibliography, *Farm tools, implements, and machines in Britain*. The accounts were adopted and the meeting congratulated the Treasurer on his skilful handling of the Society's finances.

Dr Chartres reported that the healthy state of the balances enabled the size of the *Review* to be maintained at 112 pages for Volume 33 part 2. The flow of articles continued at a satisfactory rate and the Society would be publishing a supplement to the *Review* in due course.

At the conclusion of the meeting thanks were expressed to the staff at the College of Ripon and York St John for their hospitality and to Dr Chartres for organizing a most successful conference.

WINTER CONFERENCE, 1985

Booking forms for the 1985 Winter Conference to be held jointly with the Historical Geography Research Group of the Institute of British Geographers on 7 December 1985 at the Institute of Historical Research, Senate House, Malet Street, London WC1E 7HU, should be inserted in this issue of the *Review*. The theme of the Conference is 'Regionalism in agricultural practice and agrarian society'. Additional booking forms may be obtained from Dr A D M Phillips, Department of Geography, The University of Keele, Keele, Staffordshire ST5 5BG.

WINTER CONFERENCE, 1986

From 1986 Winter Conferences will be organized by Dr M E Turner, Department of Economic and Social History, The University of Hull, Hull HU6 7RX. The 1986 Conference will again be a joint one with the Historical Geography Research Group on the theme of 'Agricultural statistics'.