

Some Early Ideas on the Agricultural Regions of England

By H. C. DARBY

THE EARLY TOPOGRAPHIES

ONE of the features of English literature in the modern period—from about 1500 onwards—has been the development of a strong tradition of topographical writing. John Leland's *Itinerary*, compiled in the first half of the sixteenth century, consisted only of notes for a proposed "Description of the Realm of England" which never appeared. But before the end of the century, William Camden's *Britannia* provided such a description, and numerous revisions and reprints testify to the need it satisfied. There were many other topographical writings in the seventeenth and eighteenth centuries. Some were the reports of travellers like Celia Fiennes, Daniel Defoe, and William Gilpin. Others professed to give a synoptic view of the face of the realm, and were called by such titles as *England described* (1659), *The new State of England* (1691), and *England displayed* (1769); there were a lot of them, and some ran into many editions. Parallel with these general works were those that described particular counties. Some dealt largely with antiquities, like William Dugdale's account of *Warwickshire* (1656), others with natural history, like John Morton's *Northamptonshire* (1712); yet others simply called themselves "descriptions" or "surveys" or "views."

This array of topographical material in the seventeenth and eighteenth centuries contains a great deal of information about economic resources, about agriculture and manufacturing and towns. It also inevitably includes much reference to the varying face of the countryside. The following extracts from Robert Morden's *The New description and state of England* (1704) will serve to show the kind of information that is encountered. Incidentally, some of these extracts recall the corresponding accounts in Camden's *Britannia*, for there was much repetition among successive descriptions, and they nearly all contain passages obviously copied from earlier sources.

Gloucestershire: "On the East part are the Hills call'd *Cotswold*, feeding many Flocks of Sheep. On the West, beyond the *Severn*, is the large Forrest of *Dean*, between them are the rich Vales of *Glocester*, and towards the North is *Eversholme*."—p. 53.

Norfolk: "The Soil is various; in some places fat and rank, in others

light and sandy; in some places 'tis Champagn, and fruitful in Corn; in other parts Woody, and full of Heaths. Near the Sea are rich Marshes, fit for grazing of Cattle."—p. 129.

Leicestershire: "The Soil in the Southern part is extream Fruitful, the Fields yield plenty of Corn, and the rich Meadows, feed vast numbers of Cattle and Sheep, but the North part is but Barren, the earth being more Rocky and Stony, yet here upon *Bardon Hills*, are many Lime Rocks, wherewith the Natives improve the Ground."—p. 85.

The volumes dealing with individual counties also refer to these variations in the face of the countryside, some of them well-recognized and reminiscent of the *pays* of France. Dugdale's *Warwickshire* (1656), for example, drew a distinction between the area to the north of the Avon, known as Woodland, and that to the south, known as Feldon or open country. Geographical regions are rarely, if ever, separated by so precise a boundary as the line of a river, but the distinction to which Dugdale referred is borne out by earlier evidence and is reflected even today in differing types of settlement. Or again, John Aubrey, writing in 1685, drew a contrast between the south and north of Wiltshire, between the lands of chalk and of cheese.

It is not surprising that differences of soil should thus occupy men's minds in view of the great attention given to agriculture and to 'improvement' during the seventeenth and eighteenth centuries. The books of the time are full of advice about the different treatments necessitated by different kinds of soil—clay, sand, and the like; and, as the eighteenth century progressed, there emerged a clearer picture of the soil differences to be found in the various English counties. Compare, for instance, the description of Dorset given by John Coker early in the seventeenth century with that by John Hutchins in 1774. Coker's *Survey of Dorsetshire* emphasized the difference between the clayland and the chalkland, but Hutchins, in his history of Dorset, drew a much more definite picture. After dealing with the ecclesiastical and civil divisions, he proceeded to discuss another type of division.

"There is another not yet described; I mean that which nature has formed. The others are arbitrary and mutable; this is fixed and invariable. Whatever changes a country undergoes, the soil and situation are still the same: and here the down, the vale, and the heath, will be always distinct; nature has set to each its proper bounds, which it cannot pass."—p. lxx.

There follows a characterization of each of the three divisions, all written with a surprisingly modern flavour. A rather similar contrast comes out between the more general treatment of Gloucestershire by Robert Atkyns in

1712, and the clear-cut summary of regional differences given by Samuel Rudder in 1779. It is clear that by the end of the eighteenth century topographical description was losing much of its vague character and was coming to rest upon a relatively detailed knowledge of differences in soil and economy. But even the best of these later descriptions suffer from a lack of definition. They are without an adequate physical and geological background and also without a proper cartographic basis. In this connection it is interesting to note that Lucien Gallois began his account of the idea of the natural region in France by saying: "If one wishes to understand how the idea of a natural region arose in France, it is necessary to go back to the first tentative attempts to draw a geological map of our country, that is to say to study the ground (*le sol*) directly."¹ While there are many differences, there are also many points of resemblance between the development of English and of French ideas about the region in the nineteenth century. They certainly have this much in common, that the provision of a geological map was a necessary prelude to satisfactory regional division.

EARLY ENGLISH GEOLOGICAL MAPS

As early as 1683 Martin Lister read a paper to the Royal Society entitled 'An Ingenious proposal for a new sort of Maps of Countrys, together with Tables of Sands and Clays, such chiefly as are found in the North parts of England'. It set forth the need clearly enough.

"It were advisable, that a Soil or Mineral Map, as I may call it, were devised. The same Map of England may, for want of a better, at present serve the Turn. It might be distinguisht into Countries, with the River and some of the noted Towns put in. The Soil might either be coloured, by variety of Lines, or Etchings; but the great care must be, very exactly to note upon the Map, where such and such Soiles are bounded. As for example in Yorkshire (1.) The Woolds, Chaulk, Flint, and Pyrites, etc. (2.) Black moore; Moores, Sandstone, etc. (3.) Holderness; Boggy, Turf, Clay, Sand, etc. (4.) Western Mountains; Moores, Sand-stone, Coal, Iron-stone, Lead Ore, Sand, Clay, etc."²

After further describing the scheme, he concluded by saying that he left it "to the industry of future times." That Robert Plot, who wrote natural histories of Oxfordshire (1677) and Staffordshire (1686), was interested in the suggestion we may assume from a letter of 1683 written to him by a Mr Aston who said: "I received from Dr Lister two schemes of the sands and clays

¹ L. Gallois, *Régions Naturelles et Noms de Pays*, Paris, 1908, p. 7.

² *Philosophical Transactions*, No. 164, p. 739.

found in England, made by himself about twenty years since. He mentioned besides the great advantage of a map of the earths peculiar to some places and countries."¹ Lister was not the only man with these ideas, for John Aubrey, in his *Natural History of Wiltshire* (1685), observed: "I have oftentimes wished for a mappe of England coloured according to the colours of the earth; with markes of the fossiles and minerals."² But even without this, he made a tolerably good characterization of Wiltshire, going so far as to relate the character of the inhabitants to the qualities of the different soils.

The hopes of Lister and Aubrey remained unfulfilled in spite of contemporary concern with "the several kinds of the soyls of *England*," as a Royal Society enquiry of 1665 put it.³ No other attempt seems to have been made until 1743, when Dr Christopher Packe "invented and delineated," as he says, "A New Philosophico-Chorographical Chart of East-Kent," on which were shown some features of relief and land use. In the accompanying *Explanation*, he says that it was the result of "frequent or rather continual Observations, in the course of my Journeys of business thro' almost every the minutest parcel of the Country" (pp. 98-9). But interesting though it is, it is far from providing a satisfactory soil map or geological map of eastern Kent.

Before the end of the eighteenth century, the mapping of soils was revolutionized as a result of the work of William Smith (1769-1839), called even in his lifetime "the father of English geology." His profession as a land surveyor took him about the country studying the varieties of strata and of soils. He had a close interest not only in geology but in agriculture and in the practical application of geological knowledge to farming problems, and he frequently attended agricultural meetings. One agriculturalist, having heard him explain the structure of Wiltshire and its influence upon cultivation, exclaimed: "That is the only way to learn the true nature of soils."⁴ It was in 1799 that Smith coloured his first geological map, covering the country around Bath. In 1801, he coloured a small-scale map, calling it a "General Map of the Strata found in England and Wales." This was intended as a preliminary to a larger and more detailed map which at last appeared in 1815. It was on a scale of five miles to one inch, and consisted of fifteen sheets engraved and published by John Cary. Accompanying it was a short *Memoir*

¹ Printed in T. Sheppard, *William Smith: His Maps and Memoirs*, Hull, 1920, p. 93.

² J. Britton (ed.), *The Natural History of Wiltshire*; by John Aubrey, F.R.S., London, 1847, p. 10.

³ R. Lennard, 'English Agriculture under Charles II: The evidence of the Royal Society's "Enquiries",' *Economic History Review*, IV, 1932, p. 25.

⁴ *Jour. Roy. Agric. Society*, VII, 1847, p. 446.

which provided a brief characterization of the physical and geological features of each county, and also a summary of the features of each type of soil. Based on this there were other maps, a smaller one on a scale of fifteen miles to the inch in 1820, and twenty-one separate county geological maps between 1819 and 1824. The rest of the nineteenth century was to see many improvements and refinements on Smith's work, but it was he who for the first time provided a geological basis for describing and classifying the variety of the English landscape. He wrote but little, but he compiled many notes, and his ideas became generally disseminated even before the appearance of his large map of 1815. And in this connection his close interest in agriculture must not be forgotten.

THE BOARD OF AGRICULTURE REPORTS

When the Board of Agriculture was established in 1793, with Arthur Young as its Secretary, one of its first acts was to sponsor a series of county surveys.¹ It was only natural that soil differences should bulk large in reports concerned with "the cultivation of the surface, and the resources to be derived from it." The reports appeared between 1793 and 1815, and many of them were accompanied by what were frequently termed "maps of the soil." Indeed, one writer of 1822 went so far as to say that to the Board "must undoubtedly be ascribed the honour of having produced the earliest geological maps of any part of England."² This is true only in a broad sense, for the maps indicate not the stratigraphical relations of the different rocks, but the differences in their texture and utilization. It is difficult to be clear about the exact relation of these maps to Smith's work. It has been said that the information on some of them "was largely derived from the records of William Smith."³ As we have seen, Smith certainly had strong agricultural interests, and he was consulted by Arthur Young.⁴ On the other hand, it has also been said that "there is no doubt they were of guidance to Smith in his work."⁵ Whatever be the precise relationships, there can be no doubt that they expressed the general preoccupation of late eighteenth-century agriculturalists with differences in soil and in the face of the countryside.

It was, however, far from easy to procure exact information about these

¹ For an account of these see Gordon East, 'Land utilization in England at the end of the eighteenth Century', *Geographical Journal*, vol. 89, 1937, pp. 156-72.

² W. D. Conybeare and W. Phillips, *Outlines of the Geology of England and Wales*, London, 1822, p. xlv.

³ K. C. Edwards, *Nottinghamshire*, p. 450, being Part 60 of the *Land of Britain*, ed. L. Dudley Stamp, London, 1944.

⁴ *Dictionary of National Biography*, article on William Smith.

⁵ T. Sheppard, *William Smith: His Maps and Memoirs*, Hull, 1920, p. 101.

differences, and to delimit the various types of soil upon a map. Henry Holland, who wrote the account of Cheshire (1808), did not at first wish to produce a map, and only did so under pressure, after completing his report.

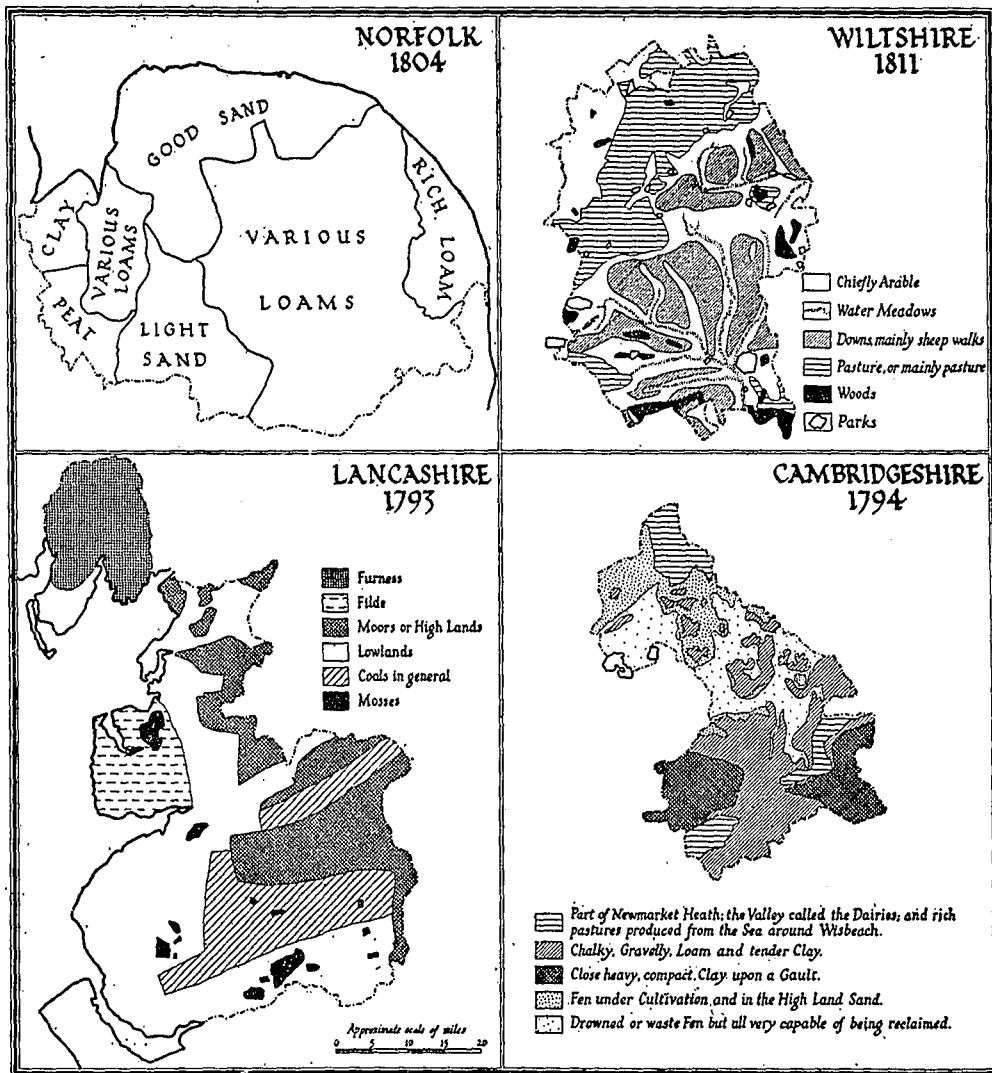


FIG. I

Representative regional maps from the Board of Agriculture Reports, circa 1800

"It was my original intention to have procured for this report, an accurate map of the soils in Cheshire; and, with this view, I sent several sketches to different parts of the county, to be filled up by delineations of the soil in each particular district. I was under the necessity, however, of relinquishing this design, in consequence of the very great intermixture of soils in

the county, which rendered it difficult, if not impossible, to obtain information sufficiently correct for their delineation in a map."—pp. 7-8.

Adam Murray also managed to produce a "map of the soil of Warwickshire" (1813), but he confessed that "the soil varies so much in all the districts of the county, (two or three different kinds of soil being often found in the same field), that any exact description cannot be expected." Other writers also confessed to the difficulty, and they frequently solved it by marking on their maps large areas of "miscellaneous" or "various" soils.

Some reporters, however, did not have to face this problem for their maps were not soil maps at all, but maps of land use or maps constructed upon some other basis. Taking the series as a whole, there was no uniformity about the basis of classification and the terminology. The four examples shown on Fig. I illustrate the different bases of classification and the variety in nomenclature. The division of Norfolk is based on differences in soil texture; that of Wiltshire on differences in land use; that of Lancashire largely upon relief and topography; and, finally, that of Cambridgeshire is a little more complicated in that its terminology reflects both land use and soil. Sometimes the division was based partly upon soil type and partly on other criteria. Thus Lowe recognized three groups of soils in Nottinghamshire (1794); A 1. Sand or gravel; B, Clay; C, Limestone and coal land. He then subdivided the first two categories to produce seven divisions in all: A 1. Forest and Borders; 2. Trent Bank District; 3. Tongue of Land East of Trent; B 1. North of Trent Clay District; 2. Vale of Belvoir; 3. Nottinghamshire Wolds; C Limestone and Coal District. A more interesting attempt was John Tuke's treatment of the North Riding (1794). His map shows two different classifications, one based upon soil, the other based on districts "each remarkable either for its climate, soil, surface, or minerals." (Fig. II.) Each district was distinguished "by the name by which it is usually known," or where, says Tuke, "names are wanting, I have given them such as are descriptive of their situation and circumstances." The boundaries of the two sets of divisions rarely agree, and most "districts" are characterized by more than one type of soil.

Soil types

1. Limestone Soil.
2. Greetstone.
3. Variety of Soils.
4. Sandy Soil.
5. Clayey Soil.

Districts

1. The coast.
2. Cleveland.
3. The vale of York, with the Howardian hills, etc.
4. Ryedale, with the East and West Marishes.
5. The Eastern Moorlands.
6. The Western ditto.

In this way did some of the Board of Agriculture reporters attempt to solve the diversity presented by soil regions, agricultural regions, and geographical regions. Whatever the defect of these maps, they constituted the first large-scale attempt to indicate the regions of England. But interesting

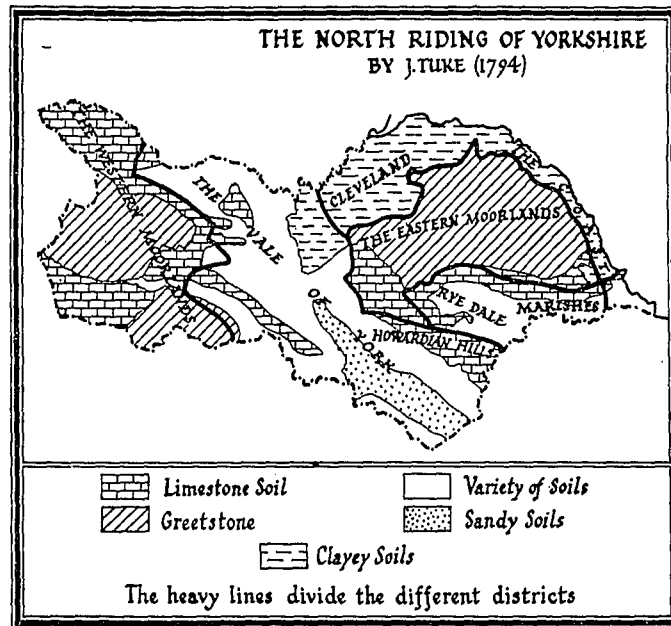


FIG. II

The regions of the North Riding according to John Tuke's *General View of the Agriculture of the North Riding of Yorkshire* (London, 1794)

as they are, an even more interesting experiment in regional division was being undertaken by William Marshall.

THE WORK OF WILLIAM MARSHALL

William Marshall (1745–1818) aimed at giving a picture of what he termed “the rural economy of England.” His *Rural Economy of the West of England* (1796) pointed at the difficulty of describing the face and agriculture of England in terms of its counties. In words that recall those of John Hutchins in 1774, it contrasted the arbitrary political boundaries of counties with those of nature, and it also drew a contrast between different bases of classification.

“*Natural*, not *fortuitous* lines, are requisite to be traced; *Agricultural*, not *political* distinctions, are to be regarded.

A NATURAL DISTRICT is marked by a uniformity or similarity of SOIL and SURFACE; whether, by such uniformity, a marsh, a vale, an extent of

upland, a range of chalky heights, or a stretch of barren mountains, be produced. And an AGRICULTURAL DISTRICT is discriminated by a uniformity or similarity of PRACTICE; whether it be characterised by grazing, sheep farming, arable management, or mixed cultivation; or by the production of some particular article, as dairy produce, fruit liquor, etc. etc.,

Now, it is evident, that the boundary lines of Counties pay no regard to these circumstances. On the contrary, we frequently find the most entire Districts, with respect to Nature and Agriculture, severed by political lines of demaraction."—I, p. 2.

Thus the dairy district of northern Wiltshire extended into Berkshire and Gloucestershire; and the cider country or "Fruit Liquor District of the Wye and Severn" included parts of Herefordshire, Gloucestershire, and Worcestershire. Marshall went so far as to say that "to prosecute an Agricultural Survey, by Counties, is to set at naught the distinctions of Nature." Obviously, he underestimated the convenience—if nothing more—of the county as a unit of study, but, in doing so, he emphasized the natural bases upon which the rural economy of the country rested.

The Board of Agriculture reports lay great stress upon differences of soil. So do the studies of Marshall, but they also emphasize other elements in regional differentiation, such elements as intensity of relief and what Marshall called "cast of surface." Those stretches of country labelled "various" or "miscellaneous" on the soil maps of the county reports now disappeared in Marshall's classifications. Relief formed the main basis of his subdivision of the three counties of Yorkshire as set out in *The Rural Economy of Yorkshire* (1788), which, it is only fair to note, appeared a few years before the earliest Board of Agriculture report. It presents an interesting example of Marshall's method.

"Viewed as a field of RURAL ECONOMY, it is divisible into MOUNTAIN, UPLAND, and VALE. The VALE OF YORK, falling gently from the banks of the Tees down to the conflux of the Trent and Humber, is Nature's grand division of the County into EAST and WEST YORKSHIRE.

WEST YORKSHIRE naturally subdivides into mountains, which I shall term the *Western Morelands*; into *Craven*, a fertile corner cut off from the county of Lancaster; and into a various *manufacturing District*: EAST YORKSHIRE into *Cleveland*; the *Eastern Morelands*; the *Vale of Pickering* and its surrounding banks; the *Wolds*; and *Holderness*."—I, p. 2.

He then proceeded to describe each of the districts, and he illustrated his description by a map indicating the differences of relief that marked one

region from another; a second map showed the subdivisions around the Vale of Pickering.

In the following year appeared *The Rural Economy of Gloucestershire* (1789), which also dealt with parts of Wiltshire and Herefordshire. The method of treatment is similar to that in the volume on Yorkshire, and it includes a map setting out what are called "the popular divisions of the county." The same general features characterize the reports on the Midland Counties (1790) and on the West of England (1796), though the maps that accompany these volumes are not very illuminating. The two maps that accompany the volumes dealing with the Southern Counties (1798) more nearly resemble those of Yorkshire in indicating "some well defined Natural Districts." This study of 1798, moreover, sets out clearly the goal to be aimed at in the delineation of natural districts upon a map. It was not his own method nor that of the county reports, but a combination of the two.

"A GEOLOGICAL MAP of England, shaded somewhat agreeably to the sketch, I have given of Yorkshire, showing, not only its *mountain, upland*, and *vale* districts, but giving an adequate idea of their *elevations*, and *casts of surface*, would, in the instant, be a valuable acquisition to science. And, whenever the government of this country shall turn their attention to the country itself, such a map, or maps pointing out, at sight, the elevation, the turn of surface, the waters, the soils, and the substrata, as they relate to AGRICULTURE, will be found to be an acquirement of considerable value."
—II, p. 358.

These regional studies did not complete Marshall's work, for between 1808 and 1817 he proceeded to "review and abstract" the Board of Agriculture reports, county by county, and the five volumes of this review were re-issued as a whole in 1818. The account of each county is prefaced by a brief summary of its natural divisions. In these summaries, Marshall points again and again to the unsatisfactory nature of the county as a unit of study. Thus, in writing of the Fenland, he says (III, p. 3): "This one, and naturally indivisible District (a well-sized County in extent) requires six *County Reports* to treat of it." The account of the chalklands was likewise split between many volumes. Indeed, the natural districts of most counties joined up with others beyond its borders. "How irrational and inscientific," he wrote (IV, p. 398), thinking of Huntingdonshire, "to prosecute an AGRICULTURAL SURVEY, by *Counties*." Very occasionally, he refrained from setting out the natural districts of a county, and for very good reasons. Thus, in introducing Suffolk, he writes (III, p. 405): "My personal knowledge of this County is not sufficient to entitle me to undertake the arduous task of analyzing its

component parts, and separating them with the required accuracy, into NATURAL DISTRICTS."

The first of these five volumes of abstracts has the great merit of including a map of the "natural districts" of the northern counties (Fig. III). When one

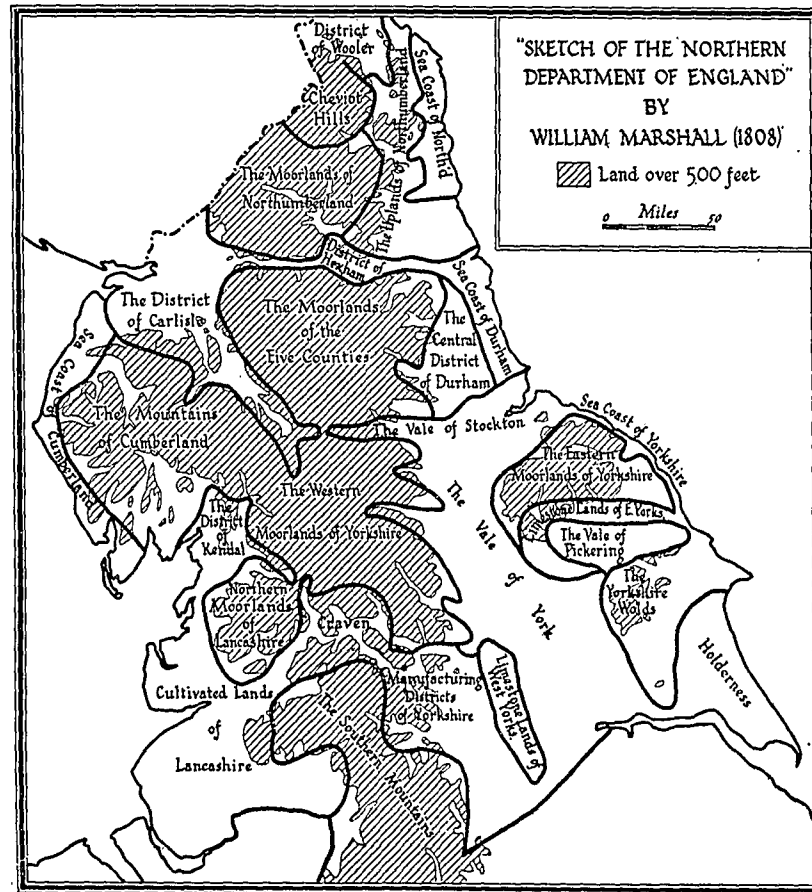


FIG. III

The "Natural Districts" of the Northern Department of England, redrawn upon a modern base from W. Marshall, *The Review and Abstract of the County Reports to the Board of Agriculture*, vol. 1 (York, 1808, reprinted 1818)

remembers the date of this map (1808), one cannot help regarding it as a considerable achievement. To subdivide the whole of the north of England cannot have been an easy task. The natural districts numbered twenty-nine. Some, like the plain of Carlisle, were "well-defined" natural districts, relatively easy to mark (I, p. 157). Others were not so easily separated one from the other, and the "sandy lands" and the "rush lands" of Lancashire were included in one unit called the "cultivated lands of Lancashire" (I, p. 243);

nothing is said about industrial Lancashire. There were other difficulties; the manufacturing districts of Yorkshire are said to be bordered "on the southeast, by the limestone lands of West Yorkshire," and a footnote is added to explain why: "The last being an *agricultural*—rather than a *manufacturing*—passage, and bearing a distinguishing natural character, I separate it as a natural district."—I, p. 326.

Unfortunately, the practice of including a map was not continued in the later volumes, and the omission is explained in the second volume:

"Prefixed to the first volume of this Work, I offered a sketch engraving of the Northern Department, to show, with better effect than the verbal descriptions could convey, the several districts into which it naturally separates. And it was my wish to have accompanied the succeeding volumes with similar sketches. But finding the attention and time which it required, and the difficulty, in a recluse situation, of getting the engravings executed, satisfactorily; and, further, being aware (as is expressed in a note, p. 1, of the Northern Department) that nothing short of an actual and deliberate survey can determine the outlines with due precision;—I have deemed it right to bestow the time and thought that, in the present instance, such a sketch would have required, in a way which, I conceive, will be more profitable to the public;—trusting that the verbal descriptions will be found to be fully sufficient, as a GROUNDWORK for the required SURVEY." p. xv.

From the verbal descriptions, however, an effort can be made to reconstruct maps showing Marshall's natural districts. Taken as a whole, his subdivision constitutes the first large-scale attempt to distinguish the regions of England. For a long time it remained the only one.

COUNTY REPORTS OF THE ROYAL AGRICULTURAL SOCIETY

The foundation of the Royal Agricultural Society in 1838 gave a great stimulus to British agriculture. Soon after its formation, the society decided to offer prizes for essays on agricultural subjects, the essays to be printed in its *Journal*. Among the various categories of essays, the ones of most general interest today are those which reviewed the state of English farming, county by county. The first of the series, that on the farming of Essex, appeared in 1845; the last was that on Middlesex in 1869.¹ Altogether, they numbered

¹ The complete list of counties is as follows: Bedfordshire 1857, Berkshire 1860, Buckinghamshire 1855, Cambridgeshire 1847, Cheshire 1845, Cornwall 1846, Cumberland 1852, Derbyshire 1853, Devon 1849, Dorset 1854, Durham 1856, Essex 1845, Gloucestershire 1850, Hampshire 1861, Herefordshire 1853, Hertfordshire 1864, Huntingdonshire 1868, Kent 1846,

thirty-eight, and besides these, there were also published some other county surveys that were not prize reports.¹ Taken together, this body of information presented the only detailed picture of English agriculture that had been drawn since the county surveys of the Board of Agriculture. Much of the material within these articles is concerned with agricultural practice, but the description of the farming of each county is made to rest upon an account of its physical circumstances. Sometimes, a summary of its geology is presented as an introduction; at other times, the article as a whole is organized on a geological basis, and the farming of each major soil division is described at length. Many of the articles are accompanied by geological maps, and the flavour of the series as a whole is distinctly geological. The work of William Smith and his followers seems to have borne full fruit, and the relatively vague descriptions of the eighteenth and earlier centuries put upon a definite basis.

The thirty-eight prize essays naturally vary a great deal both in their intrinsic quality and in their relevance to the problem of regional division. Even the least relevant contain much that is of interest, and the best frequently include interesting characterizations of what their authors sometimes call "natural districts" or "distinct divisions" or "agricultural divisions." It is difficult to select a representative sample of descriptive writing from so much wealth, but some idea of its nature may be obtained from the following introduction to the account of the Vale of Aylesbury. It was written in 1855 by C. S. Read as part of the essay on Buckinghamshire.

"There is a large district reaching from Aylesbury almost to Winslow, to various parts of which the rich title of the Vale of Aylesbury has been applied. Without wishing to be particular as to words, it might be said that the term *vale* could not properly be applied to any portion of the district. It might be described as an undulating plain, from which now and then rise patches of elevated land, which are mostly capped with the Portland stone before mentioned."

Lancashire 1849, Leicestershire 1866, Lincolnshire 1851, Middlesex 1869, Northamptonshire 1852, Northumberland 1848, Nottinghamshire 1846, Oxfordshire 1854, Shropshire 1858, Somerset 1850, Suffolk 1848, Surrey 1853, Sussex 1850, Warwickshire 1856, Westmorland 1868, Wiltshire 1845, Worcestershire 1867, Yorkshire, East Riding (1849), North Riding (1849), West Riding (1849).

¹ The total of 38 does not include R. N. Bacon's report on Norfolk. It won a prize but was so voluminous that it was published separately as *The Report on the Agriculture of Norfolk*, London, 1844. Almack's account of Norfolk was included in the *Journal* for 1845, but this was not a prize report. Nor does the figure of 38 include the prize reports on North Wales (1846) and South Wales (1850).

It is a paragraph that might well have come from the modern Land Utilization Report, and indeed there is something like it in that Report.

The nature and nomenclature of these "divisions" or "districts" vary. Some counties were divided upon a strictly geological basis. Evershed, writing on Surrey in 1853, said: "In noticing the various agricultural districts the writer will strictly adhere to the geological divisions." The result was five divisions named as follows (Fig. IV): The Bagshot Sands, The London Clay, The Chalk District, The Greensand District, The Weald. Rowley, who wrote on Derbyshire in the same year, likewise made a strictly geological division into five areas, and described what he called "the peculiar and distinctive features" of each. In 1854 and 1855, Read's two essays on Oxfordshire and Buckinghamshire also emphasized the close connection between geology and land utilization. "Most of the [geological] belts which run across one county," wrote Read in 1855, "extend into the other, and form similar kinds of soil which receive similar treatment." It is a statement that recalls William Marshall's criticism of the county as the unit of treatment.

But in most of the essays, the stratigraphical divisions are transmuted into generalizations about soil texture. In 1847, Raynbird, dealing with Suffolk wrote: "I have followed the example of Arthur Young in giving a map of the soils, believing that this will give a better idea of the distribution of the several varieties of land than any other method." To three of his soil divisions he was able to give a regional name of some standing (Fig. IV): Strong loam (Woodlands), Eastern sand (Sandlings), Western sand (Fieldings), Rich loam, Fen. Rather similar descriptive terms were used, for example, by Bearn in 1852 to denote the six divisions of Northamptonshire and by Evershed in 1864 to separate the two main divisions of Hertfordshire.

There are also counties where the soil regions were named after some dominant agricultural characteristic; Colbeck in 1847 described Northumberland under what he called "three heads": On Wheat Soil; On Barley or Turnip Soil; On Stock or Grazing Farms. These are marked on his primitive but interesting map of land utilization (Fig. IV). Rather similar to this classification is the almost identical division adopted by Dickinson for Cumberland in 1852 (Fig. IV), and by Webster for Westmorland in 1868: Land where wheat is grown; Meadow and pasture lands; Fell pasture and commons. Both their maps represent a distinct advance upon that of Colbeck.

Other writers, in their attempts at regional division, were not tied so closely to geological outcrop or soil texture, and linked up soil differences with other features. As far as nomenclature at any rate was concerned, they provided more balanced pictures of their respective counties. Legard, who wrote the account of the East Riding in 1848, faced the problem squarely.

"Its topographical features, as well as its geological construction, seem to require that it should be separated into three districts, which may be described as—1st, *The Wold district*, occupying the central high ground of the Riding; 2nd, *Holderness*, stretching out in a south-easterly direction

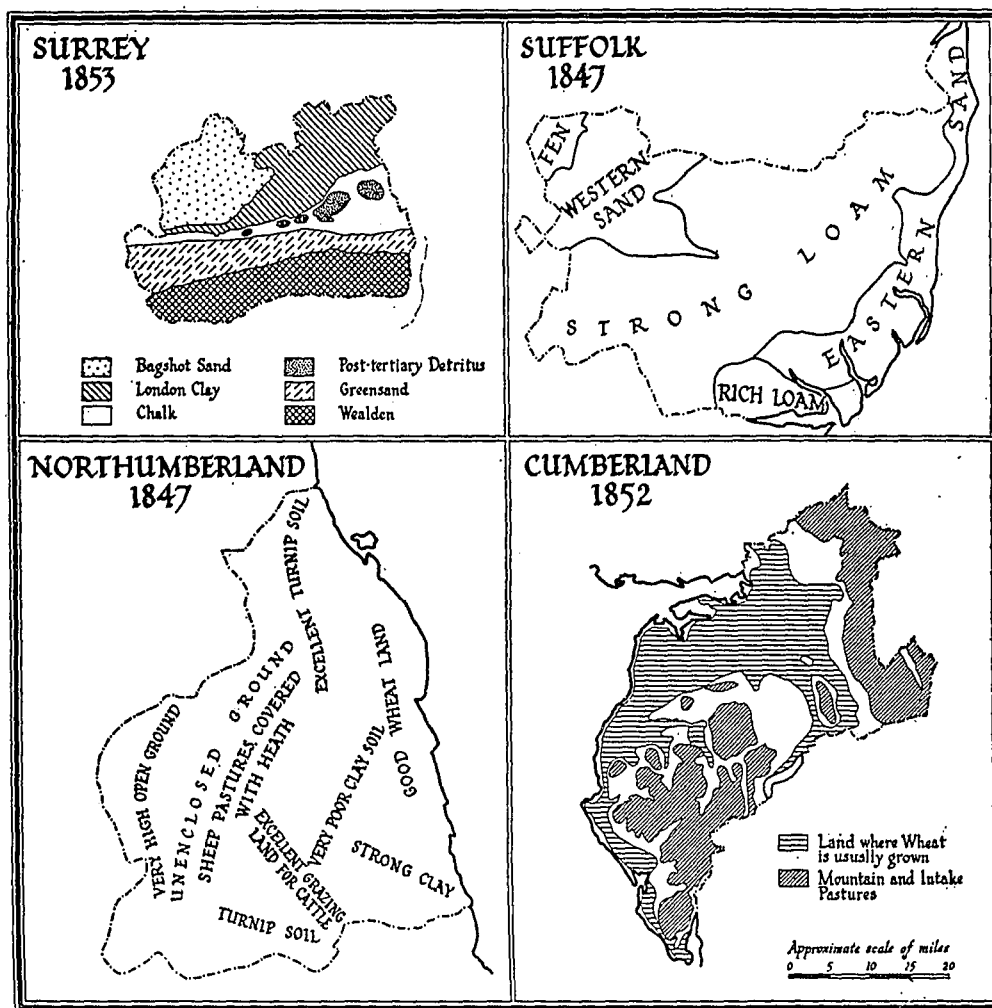


FIG. IV

Representative regional maps from the Prize Essays of the Royal Agricultural Society, circa 1850

from the Wold Hills to Spurn Point; and 3rd, *The Vale of York*, extending from the western escarpment of the Wolds to the rivers Derwent and Ouse."

He gave a clear picture first of the physical features and then of the land use

of each of the three regions. Acland, who wrote on Somerset in 1850, went a stage further. He supplied a physical map as well as a geological map, and then proceeded to expound his theme.

"If the reader will take the trouble to glance at the annexed physical map, and to compare it with the geological map, he . . . will perceive that the county of Somerset naturally arranges itself in three main divisions, viz., a *Central Basin*, draining into the Bristol Channel between *two hilly districts*, one on the west, the other on the north-east."

There follows a long account of each district: the western and middle districts are further divided into nine sub-regions, all we are told, "quite distinct in their character." It is a surprisingly modern geographical presentation, and each region is characterized in terms of its physical features, its soil, and its farming practice. Perhaps the clearest statement of the principles of regional division, however, is to be found in Garnett's account of Lancashire (1849). He divided the county into southern, middle, and northern divisions, separated respectively by the Ribble and the Lune; and he then went on to contrast these with artificial administrative divisions in words that recall the comments of John Hutchins on Dorset in 1774.

"Each of these great divisions is essentially different from the others in important points, such as the character of the soil, the climate, and the people, and I therefore would make this new division, rather than adopt either the ancient boundaries of the Hundreds or the Parliamentary Divisions, inasmuch as neither of the latter are marked by any great natural features, nor are they suggestive of any striking diversity in the soil or the inhabitants, and would not convey to the general reader any distinct idea of the districts as they are successively brought under his consideration."

Garnett noted that each of the three areas was far from being uniform in character, and he described some of the variations within each, but he made no formal division into sub-regions.

All these classifications based directly or less directly upon geology and soil raised certain perplexing difficulties, and something must be said about two groups of difficulties. In the first place, there was the difficulty of classifying soils and generalizing about their distribution. Both Raynbird writing on Suffolk (1847) and Evershed on Surrey (1853) encountered this problem. "The soils of the county of Surrey," said the latter, "are so various and unequally distributed that it would be impossible to find any very extensive tract of land of an uniform character." As we have seen, he solved the problem by adhering strictly to geological divisions. Webster, in his account of

Westmorland (1868), found the same thing: "Very often the most extraordinary variations occur in the soil in short distances, and even in the same field—very troublesome to the farmer, and puzzling to the valuer." Bennett, writing on Bedfordshire in 1857, had likewise felt the need of some generalization, and contented himself with three main divisions, although, as he said, "there are two or three sub-varieties which will require cursory notice." In the following year Tanner faced the problem in Shropshire:

"In the division of Shropshire into districts it has seemed desirable to group together such tracts of land as possess similarity of character. This, however, in Shropshire is by no means easily done, in consequence of the rapid variations in the soil. It has seemed best to notice it under three districts, which are shown in the accompanying map."

Spearing, in a similar manner, divided Berkshire (1860): "Although there are many varieties of soil, yet for the present purpose, it is not necessary to make more than three agricultural divisions." When describing Wiltshire in 1845, Little had merely presented a generalized division into south and north, an arrangement that was reminiscent of the distinction that John Aubrey drew. In 1846 Corringham bisected Nottinghamshire into east and west, and in 1866 Moscrop adopted the same plan for Leicestershire. The local variations of soil and farming practice within each division were described in a discursive manner. Palin, who wrote on Cheshire in 1845, found himself unable to generalize on a regional basis, and so described instead not regions but four types of farms: Sand-land Dairy farms, Clay-land Dairy farms, Sand-land Arable farms, and Clay-land Arable farms. The four types were intermixed geographically just as the soils were intermixed. Another device adopted for some counties was to institute a category of mixed or miscellaneous soils; this was done, for example, for Essex (1845), for the North Riding (1849), and for Warwickshire (1856). All these difficulties registered the impracticability of making a regional division based on soil alone.

In the second place, there was the problem of the geological map itself. Read, who wrote on Oxfordshire in 1854, put the matter plainly after he had described the geology of the county:

"This is a brief description of the Geology of Oxfordshire, and with the assistance of the map and the sections, may be tolerably plain to those conversant with the county. But farmers want maps which show the superficial accumulations and alluvial deposits. This is the geology—the geology of the surface, that is most useful to agriculture. . . It is to be hoped that geologists will pay the same attention to the surface of the soil as they have devoted to the substrata."

Ruegg, who wrote on Dorset in the same year, said much the same thing. After a long geological introduction and much praise of the geological map, he confessed:

“And yet even the present careful survey leaves our *geocultural* requirements still unsatisfied. It is with the rock only that the geologist cares to deal: it is in the soil upon that rock that the agriculturalist has the chief concern.”

Similar ideas appear in other of the prize essays and also elsewhere. Thus Trimmer in an article of 1851 emphasized the defects of current geological maps for agricultural purposes, and stressed the need for a soil survey as opposed to a geological survey.¹ He said that hitherto there had been only two attempts to provide such a soil map, one by himself covering Norfolk in 1847,² and the other in a map of South Wales for the Geological Survey. Some years after the last of the prize essays, Topley in his classical article ‘On the Agricultural Geology of the Weald’ was saying the same thing: “Over a great part of England an ordinary geological map is of very little use to the farmer, for there are often widespread deposits of ‘drift’ which completely cover up the rocks and determine the soil of the district.”³

CONCLUSION

The arrival of the geological map round about 1800 greatly facilitated the classification of land into what were sometimes called “natural districts.” But the new schemes of classification raised problems that are apparent both in the earlier reports of the Board of Agriculture and in the later ones of the Royal Agricultural Society. That their experiments in regional division came before the rise of formal regional geography is in itself an interesting fact. What is more, these experiments anticipated some of our problems, and are of more than historical interest to the present-day geographer and student of agriculture. Today, as at the beginning and at the middle of the nineteenth century, we sometimes find it difficult to avoid, in one and the same regional scheme, a mixed nomenclature based partly on land and partly on utilization. Today, as then, we are without a soil map of England.

¹ J. Trimmer, ‘On the Agricultural Geology of England and Wales’, *Jour. Roy. Agric. Soc.*, Series 1, XII, 1851, pp. 445-95.

² J. Trimmer, ‘On the Geology of Norfolk as illustrating the Laws of the Distribution of Soils’, *Jour. Roy. Agric. Soc.*, Series 1, VII, 1847, pp. 444-85.

³ W. Topley, ‘On the Agricultural Geology of the Weald’, *Jour. Roy. Agric. Soc.*, Series 2, VIII, 1872, pp. 241-67.