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# FARM PATTERNS IN THE STIPERSTONES MINING DISTRICT
# I. FIELD METHOD AND HISTORICAL ANALYSIS

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The paper explores the role of historical analysis in providing explanations of human geographical features observed in the field. It takes the rather special farm and field patterns of the Stiperstones mining district of the Welsh borderland as an example, and illustrates first, the scope, and also the limitations, of field study, and secondly, the nature and usefulness of the additional material in library and archive. It concludes that although a definitive interpretation of the field evidence is not always possible, a deeper understanding of the phenomena is yielded by an historical study of the antecedents of the present landscape. Part II, to be published later, will deal with case studies of enclosure on common and waste.

## Introduction

Field investigation in human geography usually reveals as many problems as it solves. It provides only a beginning to the scholarly process, and consequently can rarely be regarded as a self-contained intellectual exercise, let alone an end in itself. Fieldwork also carries the risk that, unsupported by other enquiries, it may lead to plausible, though partial, explanations of landscape features. The field sciences proceed by a number of different methods, some empirical and some deductive, some observational and some experimental, some exploring purely physical features and some concentrating upon man and his activities.

Plainly there is an historical element in all geography. Fieldwork therefore frequently needs to be supported by historical study, some of it based upon field evidence, but much of it centred upon library and archive. The difficulties of working in this way have been outlined by Darby (1953) in his classic paper on the relations between geography and history. In practice, the problem is mainly one of discovery and interpretation; of finding relevant documentary evidence, analysing it in such a way that it is capable of throwing light on the problem under investigation, and organizing the material produced into something approaching a coherent explanation of the phenomena. The process is well illustrated in this detailed study undertaken initially from the Preston Montford Field Centre and later from other bases in Shropshire and elsewhere.

## Farming Patterns in the Stiperstones District

The project began as part of a wide-ranging attempt to characterize the essential differences between the agricultural systems of highland and lowland Britain. One of the identifiable types of farming, sometimes lowland, but often upland, occurs

in many small regions of metal extraction. Often these are no longer in economic production, but they still have rural population densities higher than is normal in adjacent non-metalliferous areas and a concentration of farming settlement far in excess of what might be predicted. When mining was active, agriculture often became oriented towards the supply of local needs, and though this bias may have faded with the decay of the extractive industry, structural consequences remain in the settlement, field, ownership, and holding patterns. With these general considerations in mind, an investigation was begun into farming patterns in the Stiperstones mining district of the Welsh borderland (Fig. 1) to clarify the relationship between farm structure and mineral exploitation.

The study area was generously drawn. It included not only the mining region itself, but also tracts of land to north, south, east, and west, in which the decreasing influence of mineral working upon agriculture could be revealed, and, further out again, small areas which were presumably uninfluenced directly by extractive activity (Fig. 2). The mineral workings lie generally to the north-west of the

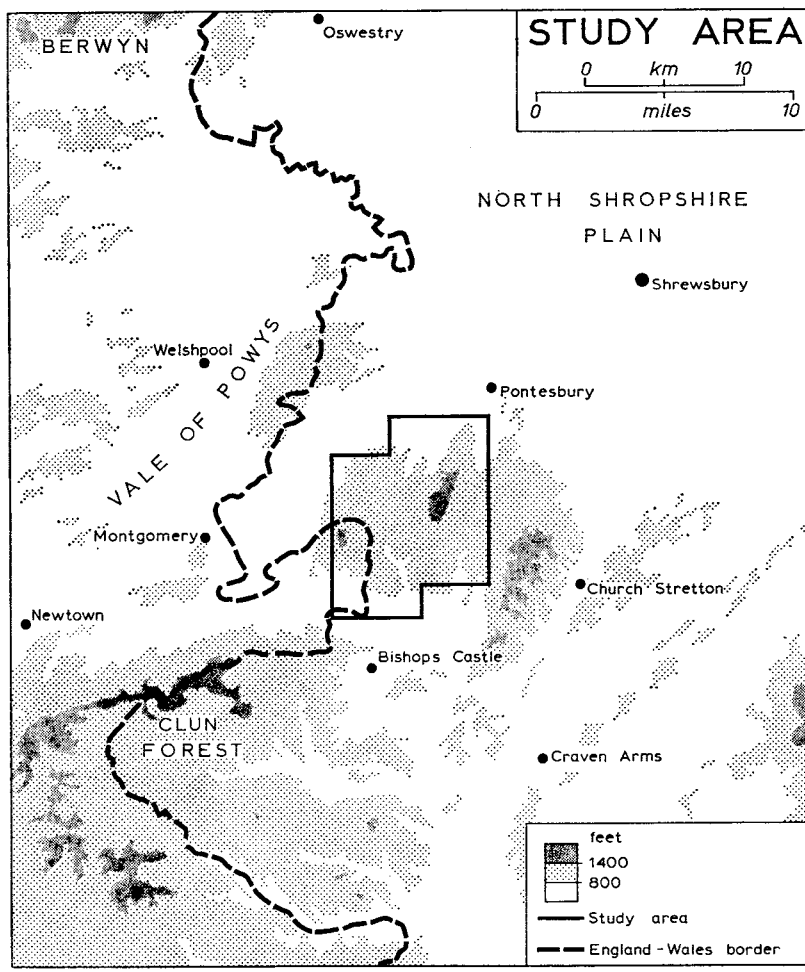


FIG. 1.
The Stiperstones study area, and its position in the Welsh borderland.

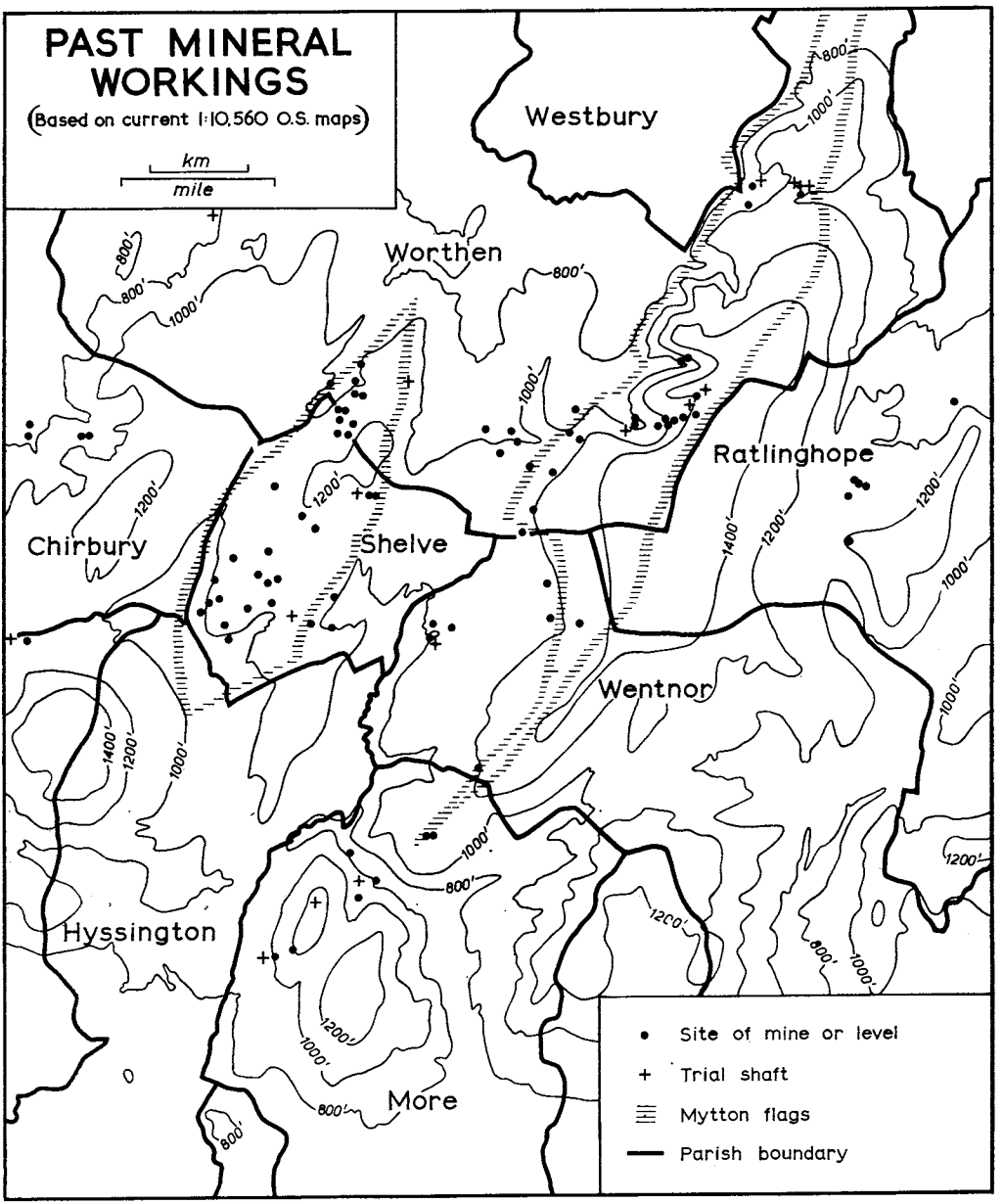


FIG. 2.

Past mineral working in the Stiperstones district, shown in relation to parishes, altitude and the outcrop of the Mytton Flags (Ordovician Arenig series).

The boundaries shown are of ecclesiastical parishes of the mid-nineteenth century; since then minor changes have taken place, especially in the case of Mucklewick, a township in the parish of Hyssington (Montgomeryshire) which has been transferred to Shelve in Shropshire.

Stiperstones ridge in an area sometimes referred to as "The Shelve district", ranging from about 800 feet to about 1,400 feet, and being closely associated with the outcrop of the Mytton Flags.

The field survey of the area fell into two parts. First, the whole area was systematically mapped to establish the land-use mix, farmstead and farm boundary disposition, and observable variations in the rural settlement pattern (as illustrated, for example, in Plate I). Secondly, a representative sample of nearly 80 farms was studied in greater detail by a questionnaire survey of cropping and stocking, tenure, farm fragmentation, non-agricultural employment, and some demographic characteristics of the occupiers.

*Systematic Survey*

In many ways the study area is representative of much of the eastern margins of upland Wales. It ranges in elevation from about 600 feet to above 1,500 feet, has an annual rainfall in the region of 40 inches, and has thin, gritty and often acid soils developed upon assorted igneous rocks, as well as Pre-Cambrian, possibly Cambrian, Ordovician and Silurian sedementary formations. In this environment, and with dairying the main farming activity, the agricultural land use was predictably dominated by grass, with arable land of little importance except for local concentrations in the lower northern and southern-most parts of the study area, well away from the mineral zones (Figs. 3 and 4).

The Acreage Return of 1801 for the Welsh parish of Churchstoke (Thomas, 1956–1958), and the extensive arable tracts shown in the Tithe Survey of the 1840s (*infra*), suggest that higher cropland acreages might have occurred close to the extractive areas, to supply arable commodities to the mining population. This tendency has totally disappeared. At higher altitudes, or upon steeply sloping land, improved grassland has been replaced by heath and rough, that is, by unimproved grazing (Fig. 5).

The distribution of non-agricultural land uses was particularly interesting (Fig. 6). The survey confirmed that not only was a high proportion of land devoted to past industry and industrial waste, but that rural settlement was dense, and highly concentrated; and that these two were remarkably closely related in space (compare Figs. 2 and 6). Further, the field evidence clearly suggested that the type of farming which had developed in association with the densely developed areas of mineral extraction was of a particular form and scale, and that the fabric of the agricultural landscape—farmsteads, field boundaries, farm boundaries, and access roads—had been produced by limited and relatively late enclosure or subdivision of already enclosed land. More recent readjustment possibly followed the decline of mineral working, but was to some degree also linked with national agricultural trends.

Further evidence supported these assumptions. Figure 7 contains the data gathered from a survey of farmsteads and farm boundaries. Areas of woodland and other non-agricultural land which lay within, or formed an integral part of a holding, have not been indicated. Clearly farms in or close to the mineral extraction areas were small-scale, in marked contrast to the size of farms elsewhere, and that in many of them field, and consequently farm, boundaries had reasonably well-defined geometric outlines, pointing to formal and comparatively late enclosure.

Historical changes in farm structure emerge from a study of the fragmented holdings isolated in Figure 8. Most of the seventy fragmented farms wholly contained

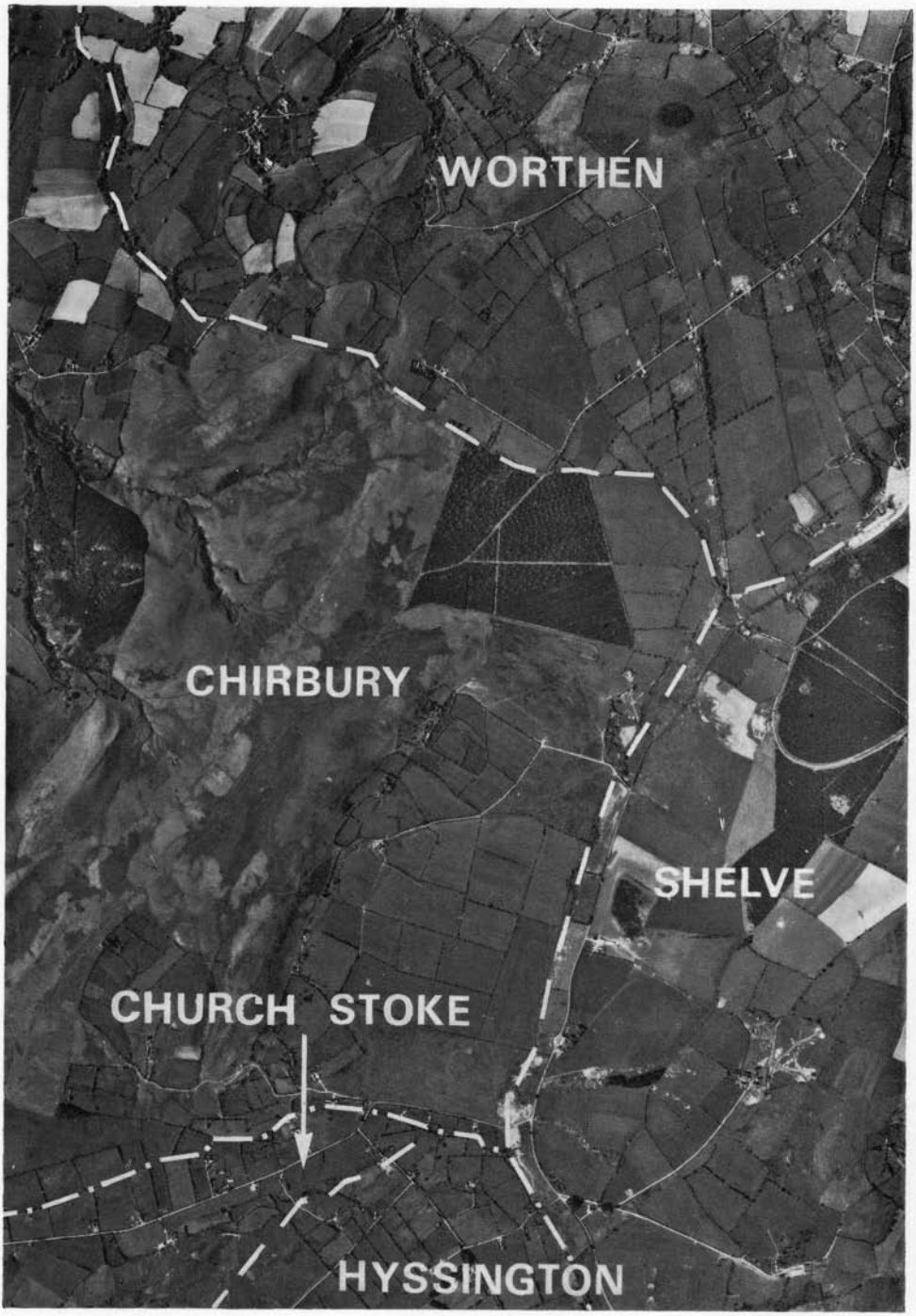


PLATE I.

Aerial photograph (1970) of the north-west corner of the study area, illustrating examples of the major categories of land use and farm pattern discussed in the survey in relation to parish boundaries.

*By permission of the Nature Conservancy. Aerial photograph by Meridian Airmaps Ltd., Lancing.*

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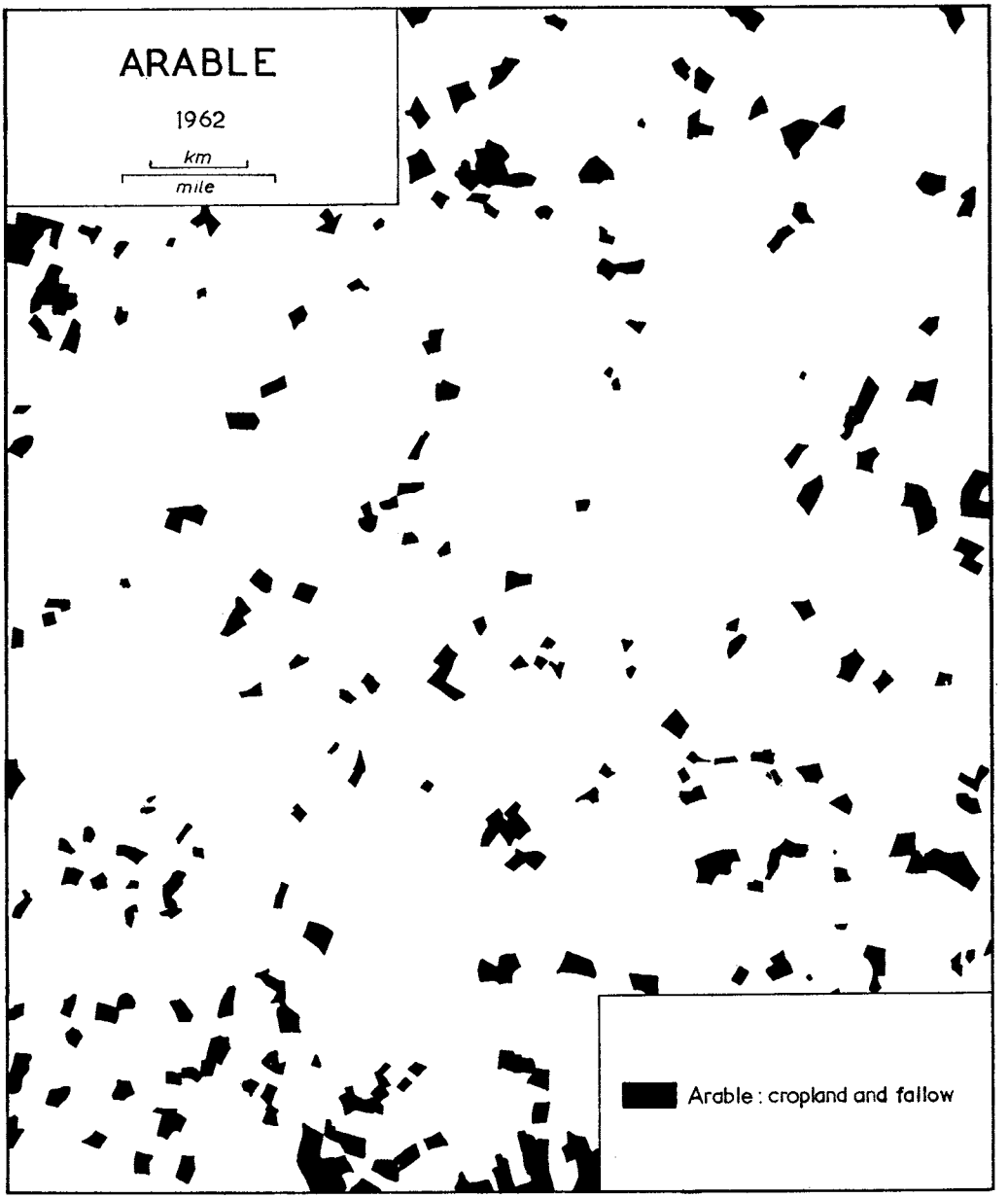


FIG. 3.
Arable in the Stiperstones district, 1962.

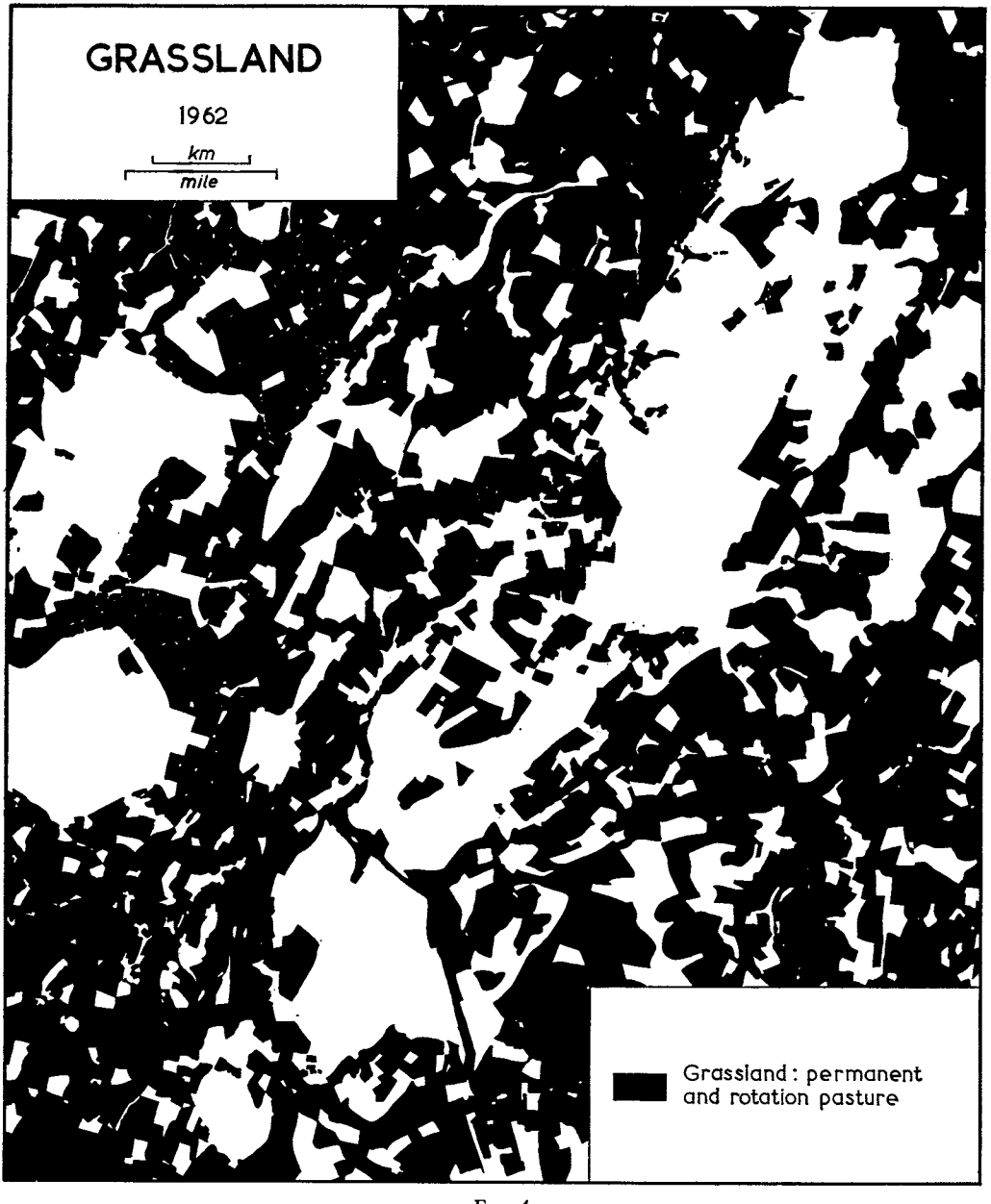


FIG. 4.
Grassland in the Stiperstones district, 1962.

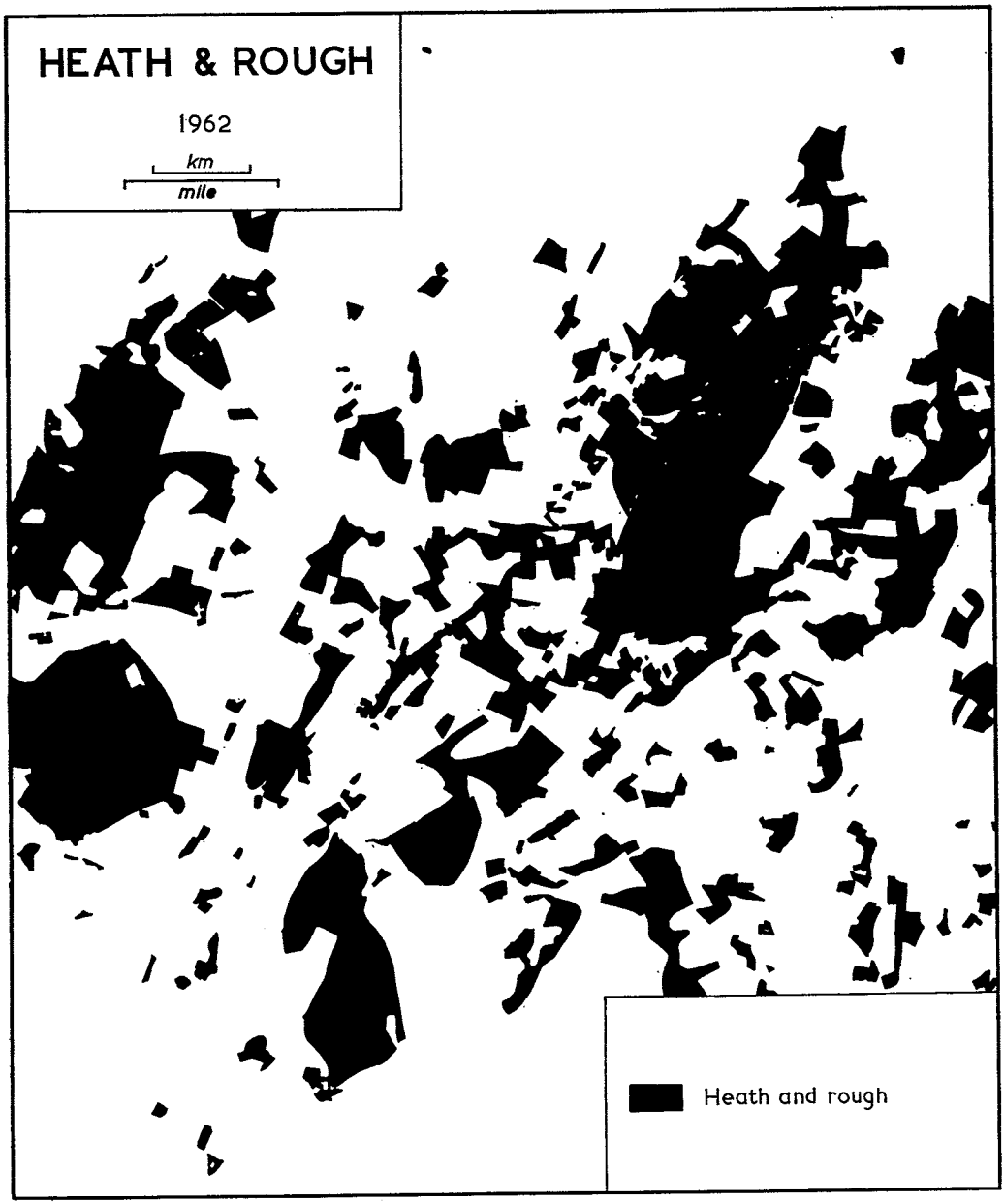


FIG. 5.
Heath and rough in the Stiperstones district, 1962.

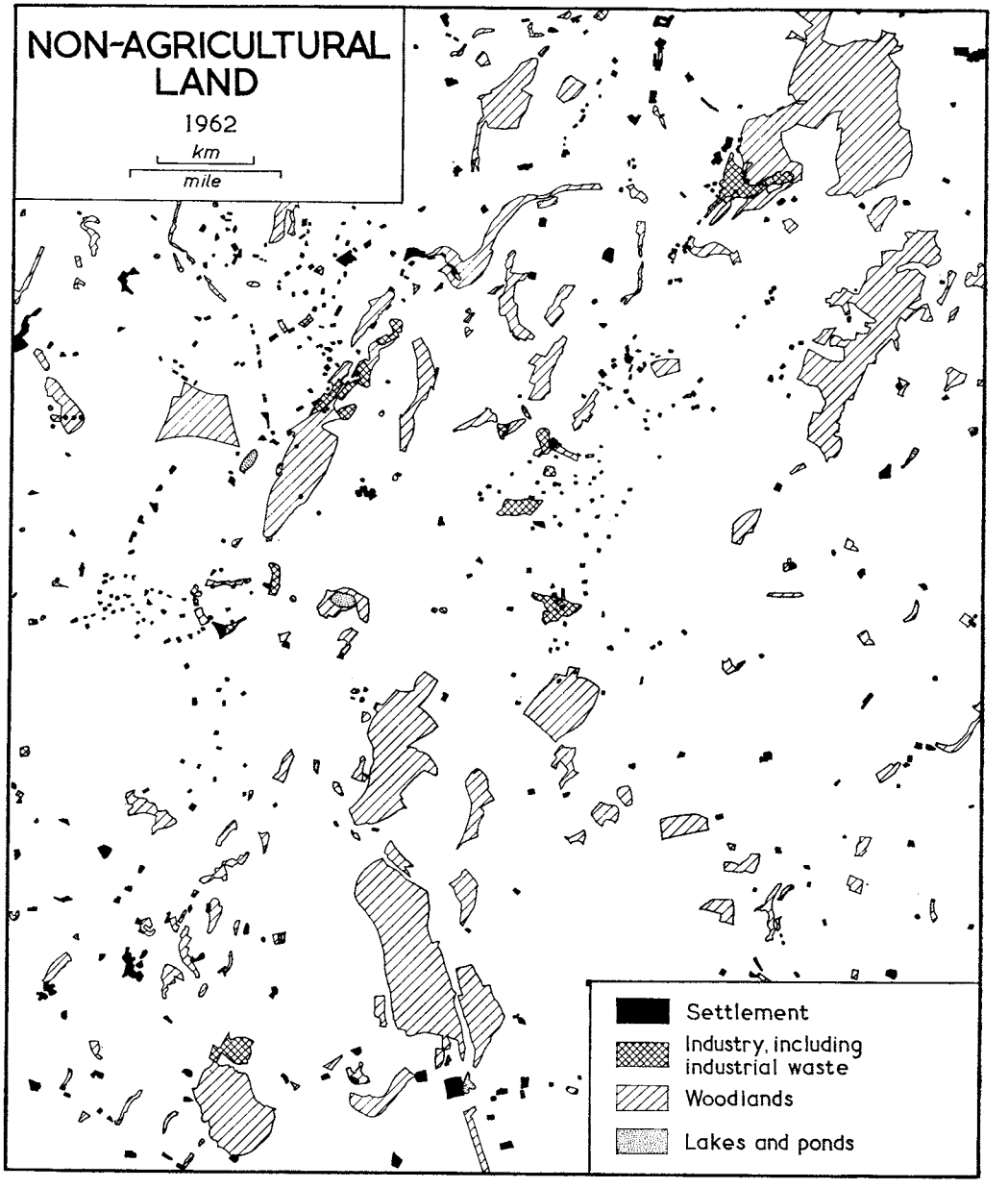


FIG. 6.
Non-agricultural land in the Stiperstones district, 1962.

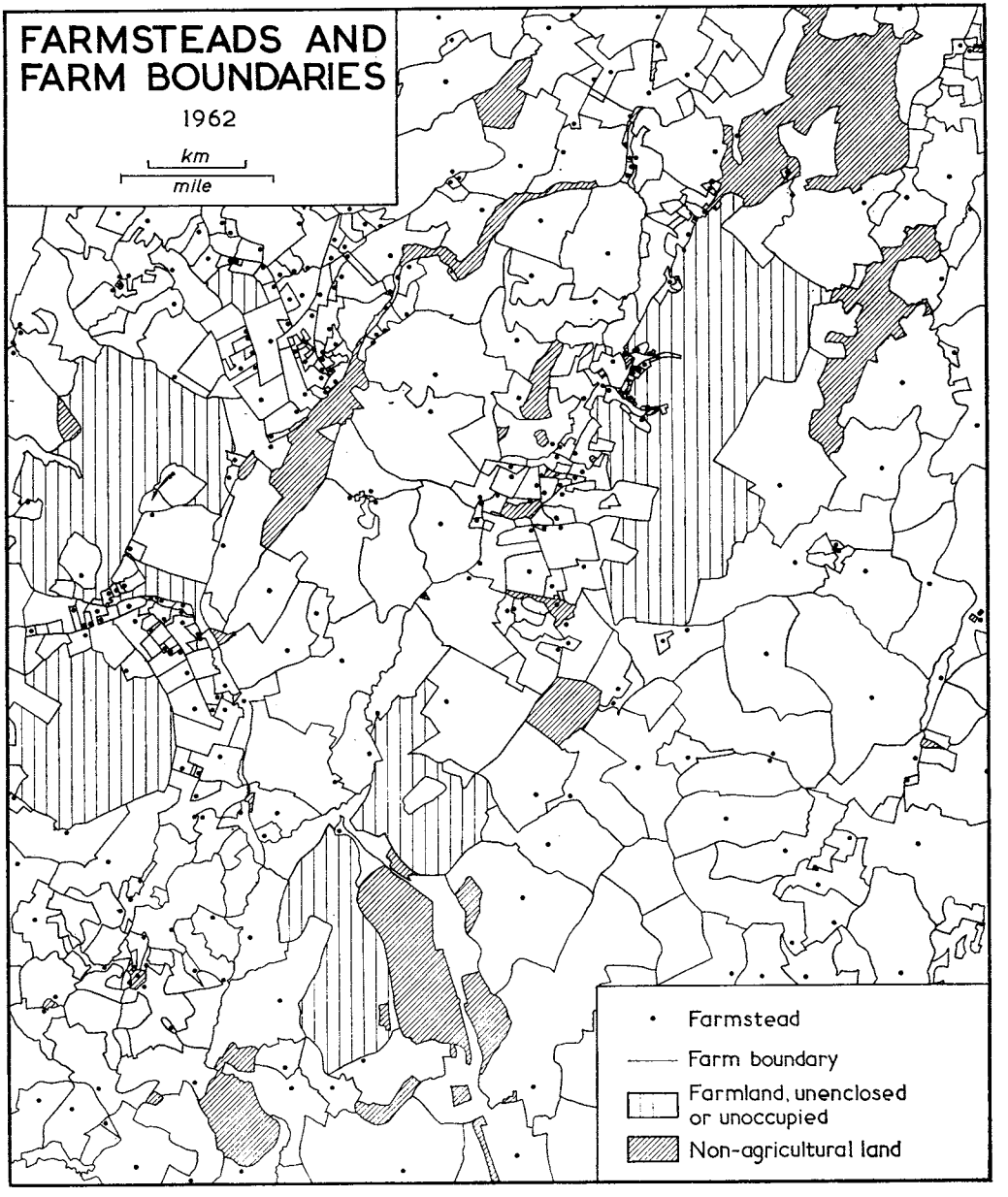


FIG. 7.
Farmsteads and farm boundaries in the Stiperstones district, 1962.

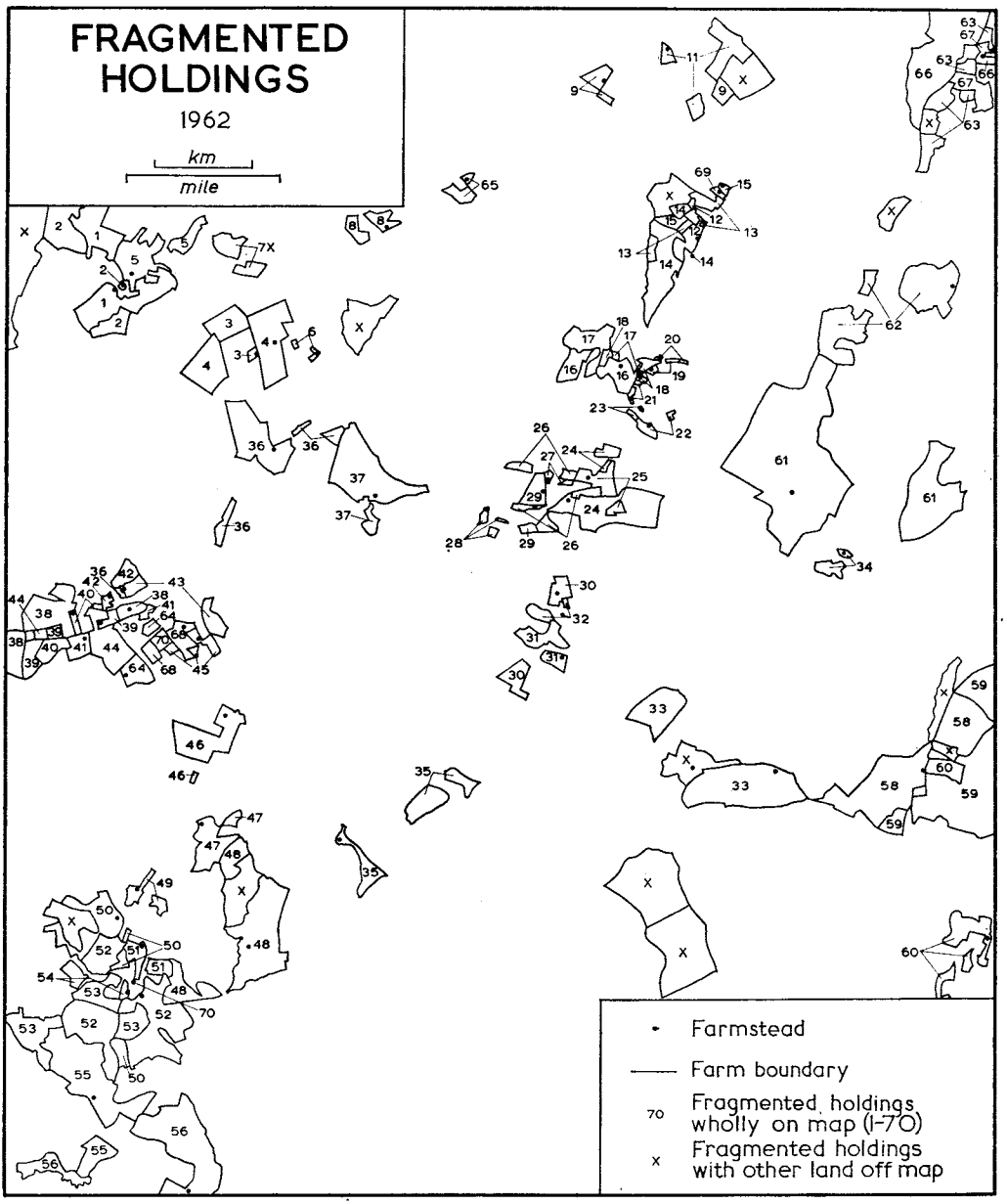


FIG. 8.
Fragmented holdings in the Stiperstones district 1962.

within the study area were confined to the same small-farm areas. Their location suggests that in the past there were even more small units and, since the area is one of declining population, that a piecemeal amalgamation of holdings had been under way leading to today's confused situation. Holdings worked from one farmstead, though in three small detached blocks, were not unusual. Note, for example, holdings numbered 11, 28, 36 and 45 in Figure 8. Holding 26 is extreme, being in five distinct but tiny blocks. The only major exceptions to the apparent relationship between extractive industry and fragmented farming were in the south-west, north-west, and north-east corners of the study area, where concentrations of fragmented parcels occurred around ancient farming hamlets and were totally divorced from past mineral working.

A further piece of the jig-saw is provided by the abandoned dwellings which often appeared within the fragmented parcels of a farm's holding. As the distribution map (Fig. 9) reveals, abandoned farmsteads and cottages were intimately associated with the higher areas of small-scale fragmented farming and mining, and absent from the fragmented village farms. The fact that many of the buildings contained evidence of their past use for agriculture supports the contention that fragmentation was a direct response to the unorganized amalgamation of small farm units. The number of derelict farm buildings gives some impression of the additional number of small holdings which must have been in use, presumably at the time of peak mining activity, and shows how the present pattern is a degraded version of one that existed previously. The largest group of these buildings occurs on and around unenclosed waste while other concentrations occur in adjacent enclosed farmland. Since most abandoned dwellings lay close to, or even above, the 1,400 feet contour of the Stiperstones ridge, they may be analogous to derelict moor-edge settlement found elsewhere in highland Britain, resulting from the changing economics of farming. Since locally they are in compact areas, with a remarkably high density of derelict settlement, the decline in mining may well have emphasized national trends.

*Sample Survey*

Seventy-nine farm occupiers selected from throughout the study area supplied information during interviews which was both complete and sufficiently precise for statistical assessment. Additional, more detailed, information reflects the rather special farming character of the mining areas.

Only 37 per cent of the farms were 100 acres and more, while exactly half of the holdings were of less than 50 acres, including rough grazing in sole occupation. Some 28 per cent of holdings were less than 25 acres. Since farms of less than 50 acres, other than specialist farms, generally show a net loss when allowance is made for the farmer's labour and capital, the rather precarious economy of the small-farm areas may be appreciated. While all with 100 acres or more were full-time farmers, well over half the occupiers of less than 50 acres, and three-quarters of those with less than 25 acres were part-timers. The smaller farms were mostly freehold, while farmers working 50 acres or more were as likely as not to be tenants.

Of the 79 farms in the sample, 27 were fragmented into two, three, and sometimes more parcels. These fragmented farms lay typically in the size range 25–99 acres, where half the total number of farm units consisted of detached blocks. It seems that most of the farms of less than 25 acres have been undisturbed by amalgamation whereas those between 25 and 99 acres were often the result of piecemeal amalgamation

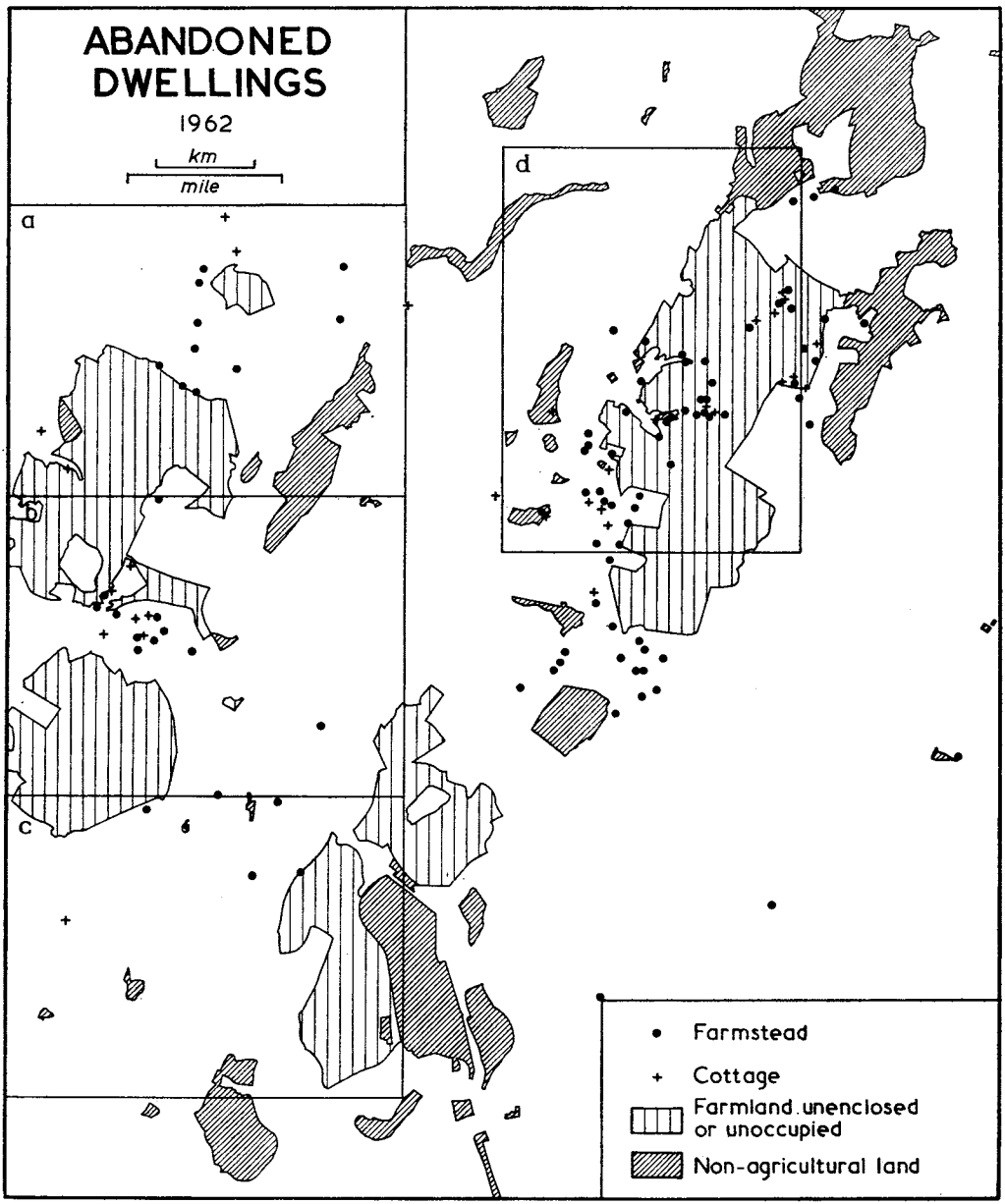


FIG. 9.
Abandoned dwellings in the Stiperstones district, 1962. The map also shows the frames of sample areas (a)–(d), further illustrated in Figs. 10–13.

on non-contiguous smaller units. On the other hand, few farms of 100 acres and over were fragmented. Sixty-eight per cent of farms in the sample had not changed in size during the occupancy of the interviewed farmer, 27 per cent had increased in size, but only 5 per cent had decreased: so amalgamation is an important and continuing process.

The economic pressures upon some small farmers were met by the outright sale of the holding to neighbours intent upon increasing the scale of their own agricultural operations; but others responded differently. Well above a quarter of all farm occupiers interviewed were in non-agricultural employment off the farm, a few of them full-time. These were almost exclusively very small-scale freehold occupiers, propping up their uneconomic farming activities with income obtained elsewhere. For some, farming was no more than a spare-time pursuit. Of those in non-agricultural work, most commuted outside the study-area (there was little employment within the area), and a daily round-trip of up to 60 miles to work in the industrial area around Wellington and Oakengates (Telford) was not uncommon.

The demographic characteristics of the farming population confirmed the other evidence that the farming was changing from an earlier system whose economy was organized in quite another way. Although even with a declining population, the area is still not able to provide economic subsistence for some who remained who tend to form a highly static remnant population. For example, of the occupiers in the sample, 64 per cent were born within the study area, and all but two of these had parents or grandparents who were also born there. A further 27 per cent of the occupiers were born within a few miles of the study area, and only 9 per cent had moved some distance into the Stiperstones district.

Despite thorough field survey techniques many questions cannot be answered without recourse to library and archive.

## Analysis of Historical Data

The study relied mainly upon material giving a comprehensive view of farming activity in the past, so that general conclusions could be drawn. Farm diaries and other very local descriptions of particular holdings or limited areas, however interesting and revealing in detail, were not widely used.

### *Review of the Literature*

A study of background material dealt generally with the man-made framework of farming—farm size, layout, and ownership, and secondly, to studies of the area which dealt usually with other facets of its history and landscape.

For example, farm sizes and their distribution throughout England and Wales were studied by Grigg (1963); changes in farm size and layout in the Chilterns were explored by Coppock (1960), who also produced an atlas (1964) showing the areal spread of many farm characteristics in England and Wales; Simmons (1964) attempted a statistical measure and an interpretation of changing farm structure based on field studies in Nottinghamshire; Locke (1962) made a sample examination of field and other boundaries; and the economics of small-scale farming has attracted many workers, including Dixey and Maunder (1958–1961) and Davies and Dunsford (1962), who paid particular attention to the relationship between field and farm size and profitability. The social implications of certain farm patterns were illustrated

by Williams (1963), who explored some of the consequences of farm fragmentation in Devon, while Ashton and Cracknell (1960–1961) studied part-time holdings, and revealed the wide variety of non-farming occupations undertaken by the occupiers of such farms. Lastly, the historical links between agriculture and industry were examined, among others, by Thirsk (1961) who considered rural industrial development in Tudor and Stuart times and by Hodgson (1969–1970), who concentrated mainly upon changes in Durham during the eighteenth century.

Studies of the local area were far fewer than those dealing with the framework, but they often gave a better clue to the chronology, and to the processes which led to the contemporary patterns. Wilkes (1961) discussed settlement origins and distribution in southern Shropshire; Staniforth (1961) considered the way of life of small-scale farmers in the south-west of the county (though not within the study area), and Howell (1941) dealt with the general land-use mix. Even so, understanding came from more narrowly historical material.

Smith and Dewey (1922), in their summary of mining in the Stiperstones area, make plain that extractive working had a long history. The extraction of lead ore (mainly galena) began at least as early as Roman times—the evidence comes largely from coins, pottery, and several datable lead pigs discovered near Roman Gravels. There is firm evidence of superficial working in the twelfth and thirteenth centuries. Deeper and more productive mining had to wait the development of mechanical drills, water pumps, and blasting charges, but it is not clear when it began. Plymley (1803) says the lead mines of the area were very productive at the end of the eighteenth century. The Bog mine was being worked to 450 feet, while the Snailbeach mine had penetrated 540 feet. Unfortunately, he had little to say about the agriculture of the area. Certainly by the 1830s most of the major mines were in production, and in 1845, when the first official statistics of output were issued, lead ore working was substantial. After that, although production of the various mines fluctuated, lead output rose to a peak between 1865 and 1885 when, in one year, 8,000 tons of lead ore were produced in the county. Towards the end of the century lead ore output fell sharply and by 1916 only two mines remained in production, yielding jointly only 32 tons of ore. Some mines continued, or were reopened specially, by switching to the production of the barytes found in shallower levels, and new mines were even sunk in the Pre-Cambrian Rocks to the east of the Stiperstones. They were not able to survive overseas competition for long, and Dines (1958) records that most working ceased shortly after the end of the First World War and the remainder after the Second.

*Documentary Material*

The comments on the farm patterns of the Stiperstones area in the several general surveys of agriculture in the critical nineteenth-century period, and by the topographical writers who covered nineteenth century agriculture in Shropshire were always too general to be useful. A reconstruction of the farm systems was needed at what were likely to be significant dates in the past, so that a comparison could be made with the present pattern. Of all the documents explored these needs were only satisfied by two—the survey material of the Tithe Redemption Commissioners of the late 1830s and early 1840s, and the maps of wartime National Farm Survey compiled between 1941 and 1943.

Prince (1959) outlined the nature and usefulness of the Tithe material. The survey

resulted in two documents: a large-scale map generally showing field boundaries, farmsteads, and other buildings, and also an apportionment, giving a list of the owners and occupiers, land use, acreage, state of cultivation, and apportioned rent charge for each tithe area or field. The National Farm Survey, the maps of which show farm boundaries, but not the operating farmsteads, has not been nearly so widely used. Together the surveys allow the reconstruction of period pictures of farm patterns at, first, somewhere near the beginning of the major mining operations, and, secondly, after major mining activity had ceased. The comparison between 1942 and 1962 gives some indication of recent trends. Four areas have been selected for special study (a–d, Fig. 9). Fortunately, both the Tithe survey (93·4 per cent coverage for Shropshire) and the National Farm Survey are almost complete for the Stiperstones area (Figs. 10–13).

Figure 10 covers the area of the long-established Gravels mines and the zone of dense agricultural settlement to the north-west of the mines themselves. The surveys which contributed the three snapshots of farm distribution were undertaken for different purposes and are of different levels of accuracy. Too much cannot be made of small fluctuations over time, but here, plain indications are revealed of significant changes. The number of farms and farmsteads in 1840 was obviously much greater than in either 1942 or 1962. The major processes of farm creation had taken place before 1840. Field boundaries, farmstead dates, place-names, road layout, and the fact that the parish line between Worthen and Chirbury forms the boundary to the enclosed farmland, all suggest relatively recent formal enclosure in the areas known as "The Park", "Hope Common", and "Gorstybank" (suggestive names in themselves). An act of 1815 authorized the enclosure of the commons of Bromlow, Meadowtown and Hope in the parish of Worthen and an award in 1820 is extant (Tate, 1947). At some later stage consolidation of holdings began and was continued in the modern period. Over the same time, further large areas of unenclosed common came into enclosed working, though not, apparently, for small-scale farming. It is remarkable how the Chirbury-Worthen parish boundary, which runs east-west in the centre of the frames of Figure 10 (and across the upper part of Plate I), has persisted as a land-use, land-quality, and land-tenure divide up to the present (Pannett, 1969).

Figure 11 covers the area of the more recent Whitegrit and Oldgrit mines, and the zone of dense agricultural settlement at an earlier stage. In 1840 the typical small-farm fringe of the mining area had not fully appeared, though it was beginning to form in the area known as "The Marsh", where some of the settlement looks suspiciously like squatting. How the majority of the farms were created is an open question. Much unrecorded, non-parliamentary enclosure in Shropshire was sometimes, somewhat euphemistically, called "enclosure by agreement". In the absence of any discovered record, whether in this case the enclosure was by legislation or by agreement, by private or by general act, by legal or by illegal means, it is not possible to say. By the modern period the pattern had matured and declined, presumably in sympathy with local mining, which achieved full production after 1850. Such an interpretation is consistent with what is known of population trends in the small parish of Shelve, of which this area is part. Numbers declined in the first two decades of the nineteenth century, remained static over the next three decades, but from 1861 onwards increased quickly. The 1881 population, the highest over the period since the Census was first taken, was nearly three times that of 1851. Numbers

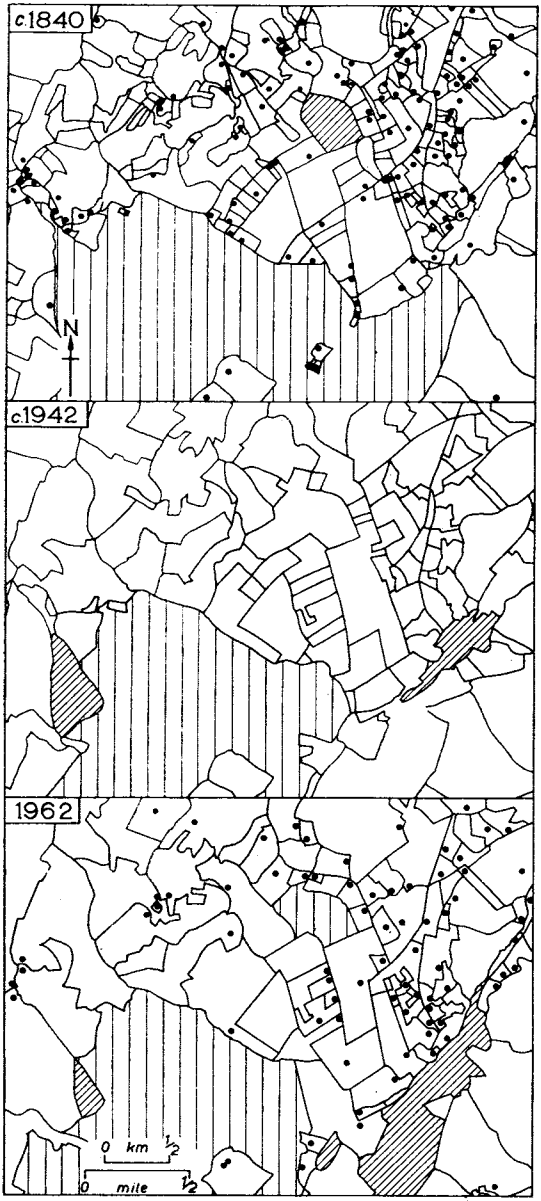


FIG. 10.
Sample area (a). Farmsteads and farm boundaries *c.* 1840, *c.* 1942, and 1962 (Key as in Fig. 7).

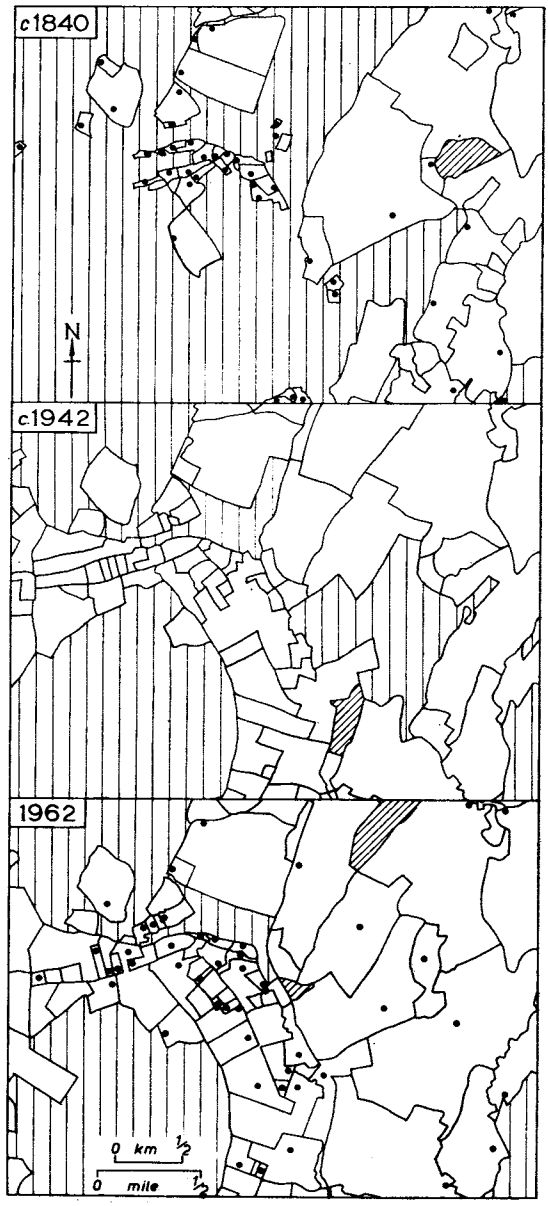


FIG. 11.
Sample area (b). Farmsteads and farm boundaries *c.* 1840, *c.* 1942, and 1962 (Key as in Fig. 7).

declined rapidly in the twentieth century and the present population is little above that of 1801. Enclosure of the upland waste continued in the post-war phase.

The third area selected for special examination, and shown in Figure 12, lies in the south-west corner of the main study area round the village of Hyssington. It attracted attention earlier because it was an area of large fragmented farms, which are not associated with mineral working. Here the pattern, basically of farm village with large outlying detached blocks of land, was already in existence in 1840 and probably represents the type of pattern reported by Plymley (1803) as a frequent defect of Shropshire farms. In the original medieval arrangement of farms in a nucleated village or hamlet, the land lay intermixed in the surrounding common arable fields and meadows, and, beyond these, common pastures occupied the remoter and poorer sites. Subsequent piecemeal consolidation and enclosure of the original arable strips generally took place in the sixteenth and seventeenth centuries in the Borderland, but still left many farms with detached blocks of land. Later intakes from the commons and formal subdivision of the remainder then completed the mosaic.

Sylvester (1956) showed that many villages and hamlets around the Vale of Montgomery once possessed a nucleus of common fields, while a similar pattern at Habberley in the north-east corner of the study area is certainly on the site of well documented common fields, surviving into the seventeenth century (*Victoria County History: Shropshire*) and still visible on the ground as ridge and furrow.

The last area, shown in Figure 13, comprises another zone of old-established mining activity stretching from the Bog and Pennerley mines in the south to the Snailbeach mine in the north, and covering the Stiperstones-Tankerville group of mines in the centre of the frame. Here it seems that the processes were chronologically the reverse of those identified in Figures 10 and 11. In the south and centre of the area, irregularly shaped farms had developed before 1840. The pattern has the appearance of piecemeal enclosure and some of it, particularly on the upland fringe of the Stiperstones ridge, was undoubtedly created by squatting. In the Snailbeach area to the north, on the other hand, while enclosure had taken place by 1840, the small geometric fields evident today, and suggested by the farm boundary pattern of 1942 and 1962, did not emerge until some time later. Nearer the present time farms were consolidated throughout the area while total acreage shrank as the small upland holdings and more marginal moorland-edge fields were abandoned and reverted to rough.

## Conclusion

The area of the Stiperstones is extremely intricate. Field study revealed lines of interest and suggested certain tentative hypotheses. An examination of the antecedents of both mining and farming has filled out the background considerably. The study has confirmed the proposition that superficial field investigation in human geography can often be misleading, essentially comparable processes sometimes yielding different landscape forms in different areas, and different processes occasionally producing similar forms. It has also given an indication of the origins and structure of farming in the area, showing the dynamic nature of the farming system, and confirming the association between mining growth and decline, and changing farm patterns. Certainly the standard relationships which generally held good between enclosure, labour supply, and industrial activity during the nineteenth

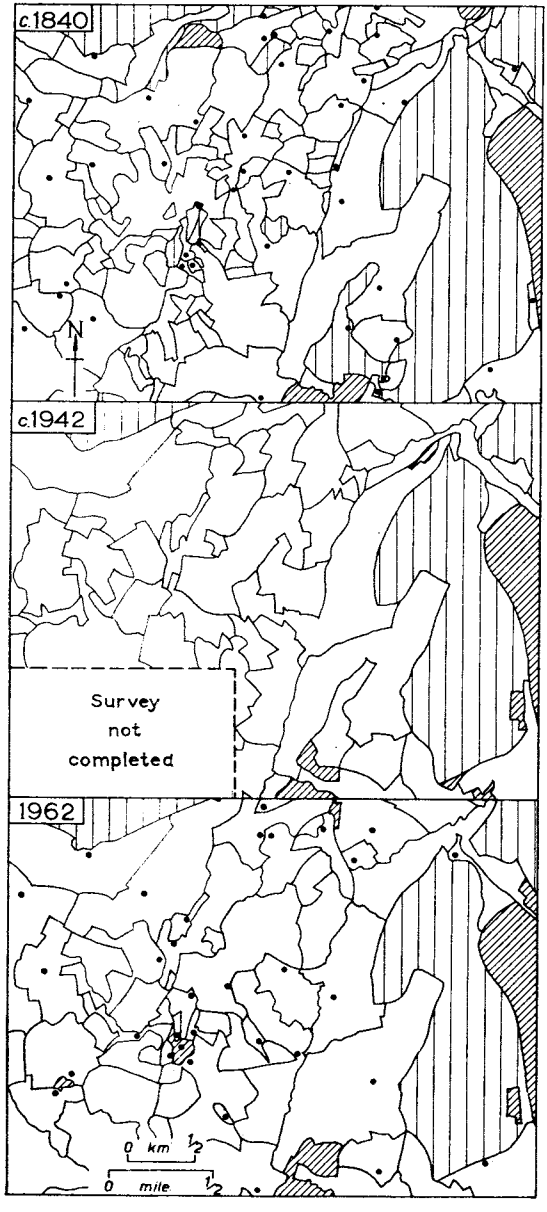


FIG. 12.
Sample area (c). Farmsteads and farm boundaries *c.* 1840, *c.* 1942, and 1962 (Key as in Fig. 7).

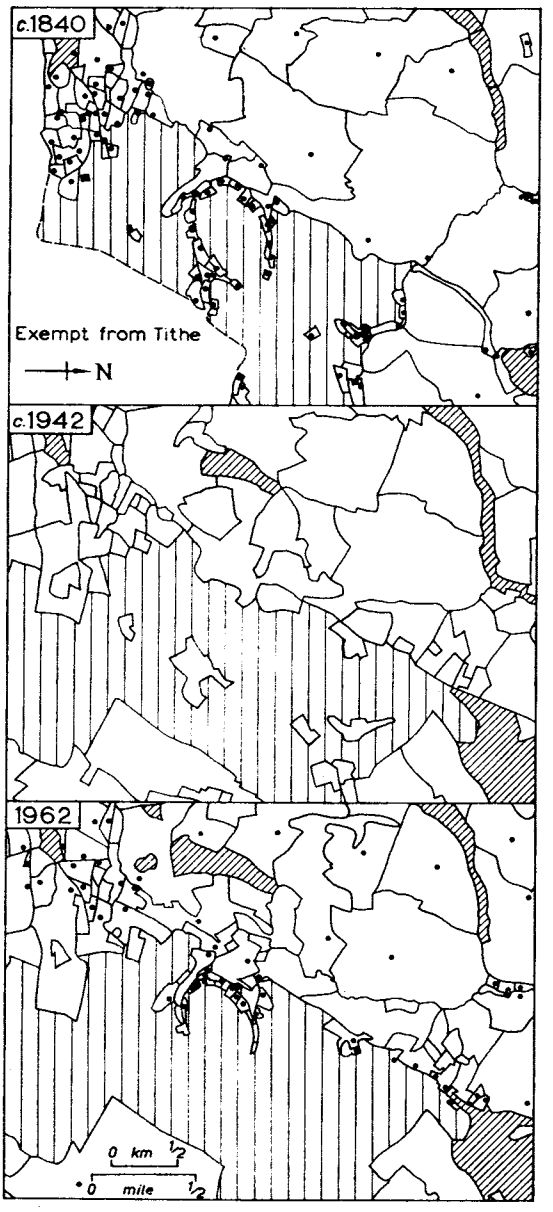


FIG. 13.
Sample area (d). Farmsteads and farm boundaries *c.* 1840, *c.* 1942, and 1962 (Key as in Fig. 7).

century, as they are discussed, for example, by Chambers (1967), did not operate in this small area. The conclusion suggested by this study is that the nineteenth century miners and small-scale farmers were substantially the same people. Material supporting this idea is fragmentary, but convincing, and certainly of a much more detailed nature than that employed so far. It must remain for another essay (part II of this paper), dealing more minutely with case studies of settlement and enclosure, to forge the final links and in particular to explore the respective roles of mine-owners and ground landlords in the development of distinctive patterns.

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