I

THE USE OF KEY SETTLEMENT POLICIES IN THE PLANNING OF RURAL AREAS

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ABSTRACT

A key settlement policy has often been regarded as a panacea for the rural ills existing both in areas of remoteness and in areas subjected to intense urban pressures. However, it has yet to be established whether key settlement policies actually achieve the results expected of them, and if so, whether the key village mechanism is best suited to the 'remote' rural or 'pressured' rural situation. This thesis seeks to answer both the physical and social aspects of these questions.

Three levels of research have been undertaken:

1. A national overview of key settlement policies and their theoretical background forms the foundation of the thesis.

2. The counties of Devon and Warwickshire were selected as being representative, respectively, of remote and pressured areas using a key settlement policy. A sub-regional analysis of policy ramifications in these counties has been undertaken by means of a postal questionnaire survey to parish clerks, which has been used to compile a catalogue of population, service, housing and employment changes in rural settlements between 1965 and 1975.

3. The third level of research has involved the local scale evaluation problems concerned with the key settlement policy. The districts surrounding Okehampton and Southam have been selected as case study areas in which ground level social and physical planning problems are encountered.

Finally, some conclusions have been drawn concerning the future role of key settlement policies in rural areas. Possible policy alterations and alternatives are also reviewed in the light of the findings of the study.

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CHAPTER 1
INTRODUCTION

"The rural planner is groping in a fog of ignorance".
(Saville, 1957, 167)

A key settlement policy has often been regarded as a panacea for the rural ills existing both in areas of remoteness and in areas subjected to intense urban pressures. Surprisingly, however, it has yet to be established whether key settlement policies actually achieve the results expected of them, and if so, whether the key village mechanism is best suited to the 'remote' rural or 'pressured' rural situation. This particular research deficiency will be better understood if placed in the context of rural planning research as a whole.

Rural areas have invariably been the poor relation in the worldwide study and practice of town and country planning. Naturally, the speed and scale of urban growth have necessitated an urban bias in planning, research and problem-solving. Unfortunately, this concentration on urban problems and their solutions has been detrimental to rural research in that the understanding of rural planning systems has been hampered by the use of diluted urban and regional planning techniques which are ill-suited to the rural scale. It is true that a recent crop of excellent texts (for example, Best and Rogers, 1973; Bracey, 1970; Cherry, 1976; Clout, 1972; Green, 1971 and Woodruffe, 1976) have provided a sound information base which is able to act as a springboard for further rural research. Also encouraging is the recent inclusion of rural planning matters into the Royal Town Planning Institute examination syllabus by many academic institutions. This augurs well for the future adoption of a more educated and sympathetic planning attitude towards the rural areas. However, until comparatively recently, geographical and planning research in rural regions has been limited both in volume and in direction, thus corroborating Saville's earlier truism that 'the rural planner is groping in a fog of ignorance'.

In the past, rural research has often taken the form of individual village studies (Ambrose, 1974; Williams, 1964) or area studies (Jackson, 1968; House, 1965 and more recently Bates and Cudmore, 1975). It is not intended to review these studies here, as little could be added to reviews already published (for example by Parsons, 1977). However, such individual case studies do provide another jumping-off point for systematic rural research even if they have not themselves specifically thrown light on individual facets of the rural planning system such as the key settlements policy. Thus any process or policy-orientated research has largely been incidental to the study of individual rural settlements and regions.

Enyedi (1975) has mirrored the sentiments of many authors in expressing regret that most items of rural research have dealt mainly with "the analysis of the past and present conditions, and do not reveal permanent processes to continue also in the future" (p.3). His call for a more systematic research attitude is echoed by Green (1971) who outlines the four major directions in which continuing research should concentrate.

These may be summarised as:

(a) The ramifications of changing rural growth trends on settlement patterns in varying social and economic circumstances

(b) The levels of investment needed in different spheres to effect a planned change in the settlement pattern

(c) The use of cost-benefit techniques to indicate methods of achieving optimum returns from rural development

(d) Thorough investigation into the factors of production and location influencing the introduction of industry into rural growth centres.

These suggested lines of enquiry reflect the changing nature of rural research since the late 1960's. The need for a fuller understanding of rural systems and processes has now assumed a greater priority than before, especially

in view of the opportunities for implementing new or improved types of policy under the new Structure Plans.

This overall pattern of changing research attitudes is apparent in microcosm in the investigation of the key settlement type of policy; an investigation which falls within Green's first avenue for future research, and is strongly influenced by the other three categories (b to d above). It is no longer feasible for planners to accept this form of rural planning without first considering the efficacy with which the policy has been implemented in the past and the denouement resulting from the policy's action on present and future rural processes and systems. Consequently, an attempt is made here to contribute to this previously barren zone on the frontier of rural research. A systematic view is taken of the changes occurring in the settlement patterns of two opposing types of rural area in terms of the key settlement policy which in both cases has been adopted as the planning solution to widely differing types of rural problem.

DEFINITION OF TERMS

Before any discussion of rural settlement patterns is commenced, the thorny problem of "what consitutes a rural settlement?" must be paid heed to, even if it is not to be completely grasped. Best and Rogers (1973) referred to a small settlement as one of under 10,000 population, this being the standard definition adopted by the Department of the Environment; but the use of any population threshold to differentiate between rural and urban settlements is unlikely to attract universal application. Thorburn (1971) also rejects a functional definition of rural settlements on the grounds that a village can have a similar residential function to that of an urban suburb. He prefers to name a village as "any place which most residents think of as a village" (p.2), but there are obvious difficulties in the interpretation of this definition so as to select certain areas in which to study rural planning processes.

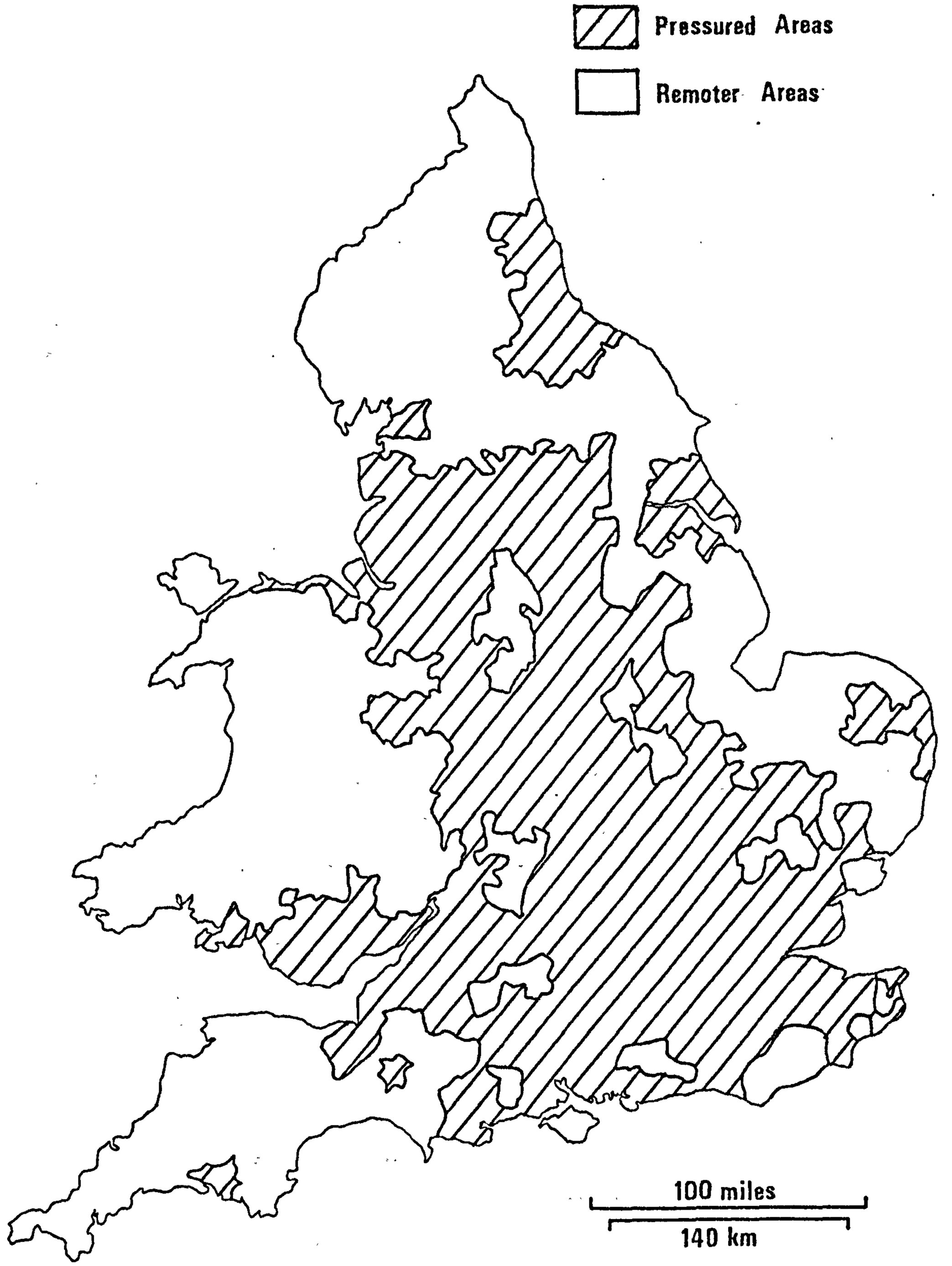


Fig. 1·1 Pressured And Remoter Areas In England And Wales

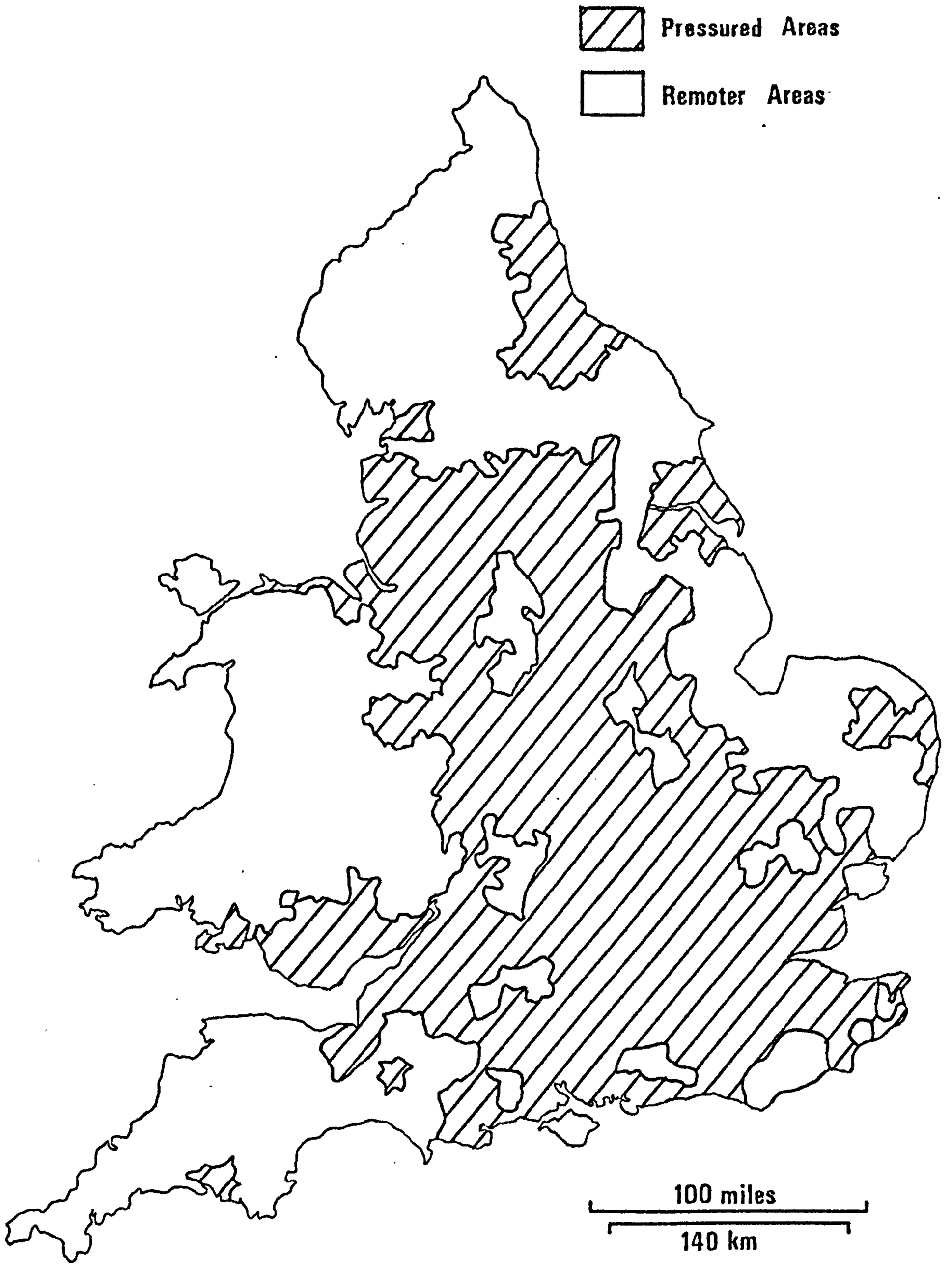


Fig. 1·1 Pressured And Remoter Areas In England And Wales

Of more help to planning research is Green's (1971) suggestion that:

> "a truer division between urban and rural seems to lie at a regional level, between rural regions and conurban regions, in their social, economic and demographic characteristics and problems, and in the planning policies applicable to them." (p.4).

The question of the optimum size for a rural settlement is dealt with in Chapter 2 in connection with small scale growth centres, but as a general rule this study defines rural settlements as those occurring in areas which are treated as rural by planners for the purposes of development or structure planning. These areas are usually the administrative Rural Districts (as defined prior to local government reorganisation) along with their associated lower order country towns. Robertson (1961) has questioned the validity of treating Rural Districts as strictly defined rural areas, but so far as this study is concerned it is felt that only by accepting the planners' definition of 'rural' can rural planning decisions be effectively monitored.

Having established this working definition it is immediately necessary to subdivide these chosen rural areas into two basic situations. The terms 'pressured' and 'remote' will be used throughout this study to describe the two standard types of rural area, the basic difference between them being a function of their distance from major urban centres. Several attempts have been made to draw the line between pressured and remote areas using single parameters such as distance from urban centres or rates of population change (see, for example, Thorburn, 1971; Hall, 1973 and Ministry of Housing and Local Government, 1967). However, a multivariate definition of rurality has now been produced (Cloke, 1977A) which gives a more comprehensive indication of the distribution of remote and pressured areas. Chapter 4 includes a detailed account of the construction of this index of rurality, but the index scores are summarised in Figure 1.1. This shows the dividing line between, on the one hand, the 'extreme

rural' and 'intermediate rural' categories which demonstrate the tendency towards remoteness, and the 'extreme non-rural' and intermediate non-rural' categories which are most susceptible to urban pressure. Therefore, the use of the terms 'pressured' and 'remote' will conform to the definitions arrived at by the rurality index.

CHANGES AFFECTING RURAL SETTLEMENT PATTERNS

(a) Pressured Rural Areas

In his discussion of the urbanisation of the British countryside, Clout (1972) suggests that "in less than a quarter of a century since Britain entered the motorway age the country will have experienced possibly the greatest social upheaval since the Industrial Revolution" (p.46). This social upheaval will have been brought about by the rapid spread of urban influences into the countryside, contributory factors to which are:

> "the extending system of motorways, greater use of private cars, rising level of real income and leisure, and the improved servicing of villages with water, electricity and other basic services, bringing these amenities up to the standards hitherto found only in towns". (Ministry of Housing and Local Government, 1967, 3).

The most marked result of this process is the level of population increase both in rural and country districts (Table 1.1) and in the small towns and market centres which were an integral part of the previous rural settlement pattern (Table 1.2).

Table 1.1 Population in Rural and County Districts

in 1000s	1951	1961	Change 1951-61 (per cent)	1971	Change 1961-71 (per cent)
England	7,428	8,176	+ 10.1	9,730	+ 19.0
Wales	766	778	+ 1.6	838	+ 7.7
Scotland	1,475	1,472	- 0.2	1,527	+ 3.8
Total	9,669	10,426	+ 7.8	12,095	+ 16.0

Table 1.2 Population in Small Towns

in 1000s	1951	1961	Change 1951-61 (per cent)	1971	Change 1961-71 (per cent)
England	1,493	1,664	+ 11.5	2,079	+ 24.9
Wales	297	304	+ 2.6	334	+ 9.8
Scotland	533	546	+ 2.4	596	+ 9.2
Total	2,323	2,514	+ 8.2	3,009	+ 19.7

After Woodruffe (1976)

Such growth is not a new phenomenon (see Ashby, 1939). Indeed the search for residential space by the affluent and the lure of cheap housing for the less affluent have been two essential components in the outward spread of urban areas over the years. However, the scale of urban diffusion has increased with heightened personal mobility to the extent that rapid urbanisation of previously rural areas has brought about many urgent problems for the planners.

The arrangement of these pressured rural areas is more complex than might at first be imagined. Generally the intensity of commuting appears to fall with increasing distance from the urban centre in question, but as Masser and Stroud (1965) have highlighted, specific local factors are able to modify small-scale commuting patterns. Planning policies play a major role in the determination of these patterns. Restrictive policies such as the imposition of a green belt (see Thomas, 1972) can curtail residential growth in certain areas whilst other policies (for example the Warwickshire Interim Settlement Policy, 1966) have been more sympathetic towards estate development within commuter zones. Personal residential selection procedures will also mould the local distribution of pressured rural areas. It is inevitable that some villages will be perceived as more fashionable than others and so will attract a greater demand for housing (Humphreys, 1974). Kendall (1963) has shown that the attitudes of landowners can restrict growth in rural settlements, and

the reverse can also be true if substantial amounts of land are made available at one time. Other factors such as varying lines of communication, the internal workings of residential information systems and policies for the decentralisation of employment will also modify the degree of pressure exerted on any particular rural area.

The very complexity of these patterns has resulted in a divergence of approach to the study of pressured rural areas. Amongst others, Ambrose (1974), Connell (1971), Crichton (1964), Leach (1974) and Lewis (1967) have all undertaken detailed studies of particular pressured areas, while a more general overview has been presented by Ashworth (1964), Coppock (1964), Green (1959) and Lee (1963), as well as by the basic rural planning texts mentioned above. These and other studies have been fully reviewed elsewhere and so comment will be restricted to those factors which have a bearing on a problem-solving approach to pressured rural areas. A more detailed analysis of the situation in one particular pressured area is made in Chapters 6 and 7.

Table 1.3 shows the results of a survey by Hampshire County Council and Mass Observations Ltd. (1966) concerning the reasons for moving to Hampshire villages.

Table 1.3 Reasons for Moving to Hampshire Villages

Reason	% of respondents (who preferred village life) giving that reason
More natural	8
More peaceful	55
Community life better	27
More privacy	7
Countryside beautiful/ enjoyable	21
Countryside healthier/ cleaner	22
More to do	1
Others	6

After Hampshire County Council and Mass Observation Ltd. (1966)

This highlights the fact that urban pressure on the countryside originates not only from commuting newcomers, but also from people with retirement in mind and from the requirement of some workers for proximity to the various types of employment which have a rural location. However, urban pressure also arises from changes within the village community (Emerson and Compton, 1968). With the decline in agricultural employment, "there has been a gradual switch of the workplace of manual workers from village to town, so that it is now normal to find that half the manual workers in a village are working in towns" (Thorburn, 1971, 27). This movement has meant that rural communities were themselves in a fluid state even before the integration of newcomers became a serious problem. Together, these changes have upturned several rural sub-systems.

In the housing sub-system, for example, increased demand from 'outsiders' has had to be accommodated both by the building of new dwellings and, to a lesser extent, by the conversion of agricultural workers dwellings. At the same time demand from local people has often led to the building of new council estates, and so a social split has been created between new and improved private housing on the one hand, and the council housing occupied by 'local' people on the other (Scott-Miller, 1976). In a wider context, the decision has also had to be made whether to allow growth in all pressured settlements or whether some are more suitable than others to accommodate the influx of 'urbanites'.

Strong arguments have been advanced (for example by Fairbrother, 1970) for the conservation of high quality rural settlements, but should such reasoning result in policies of no growth in certain settlements, then those settlements would immediately become residentially desirable, property prices would increase, and eventually the settlement would be liable to 'gentrification' by the affluent (see Wibberley, 1972). Furthermore, smaller properties which might have been suitable for younger, less prosperous families have tended to be bought up and used as second homes (Saville, 1966 and Bielckus et al, 1972).

The balance of the rural social sub-system has also been upset. Pahl (1965A) in his classic study of commuter settlements in Hertfordshire concluded that

> "the traditional world of a small, established middle-class with a large working-class population has been invaded by a new middle-class commuting element so that now the middle-class is numerically the greater." (p.49).

The middle-class newcomers have tended to maintain all their contacts outside the settlement and so integration into the existing community has been slow, and in some cases has not been attempted at all. Thorns (1968) contrasts this pattern of social linkage with that of farmworkers in peri-urban areas who are very closely orientated around their own village. Social activities within the village reflect this social conflict in microcosm, with the traditional organisations and events which revolve around church and pub in rural communities being shunned by many newcomers in favour of more middle-class pastimes such as the badminton club or the drama group (Frankenburg, 1966).

Social segregation in pressured rural settlements is often given geographical expression through the tendency both by developers and by local authorities

to group houses of equal value or rent together. In this way, clusters of socio-economic groupings are formed which serve to further impede social integration in these settlements. Segregation is also manifested in other directions. For instance, Clout (1972) recognises that "an invasion by middle-class commuters can produce varying social changes linked to differences in characteristics of the status and leadership structure within the village" (p.53). Very often such institutions as the Parish Council or Meeting become the domain of the vociferous newcomers who having furnished themselves with their own dwelling in a rural environment take it upon themselves to ensure that this environment is not spoilt by an influx of additional new housing into the settlement.

The in-depth investigation into the unbalancing of the rural social sub-system, conducted by Pahl (1965B, 1966), concludes that

> "the introduction of a certain type of middle-class commuter, seeking a meaningful community, by its presence helps to destroy whatever community was there." (1966, 998).

A situation such as this presents the planner with several planning issues, not least of which is the question of whether a settlement should be planned to attain a particular social balance. If so, the optimum balance for a particular settlement would have to be defined and this is a task that has so far evaded planning methodology. However, Thorburn (1971) makes the point that "any idea of balance pre-supposes that the total number of people in each class who live or want to live in villages accords with the balanced position sought, and there is some evidence that this is not the case" (p.29). In this instance, the only foolproof method of maintaining social balance in rural settlements is to assume control of house occupancy, and as yet planners have not seen the problem of social imbalance in villages as meriting such a radical solution.

Changing demographic structure has also upset the

equilibrium in pressured villages since the turn of the century (Johnston, 1965). The numbers of middle-aged and elderly people in rural settlements have tended to increase in locations where estate development of low cost housing has not occurred. Where such estates have been built, large numbers of younger families have arrived with the consequent prospects of a first generation boom in the birth rate.

These changes in themselves are not seen as pressing rural problems, but in recent years the rate of change in pressured rural settlements has accelerated, often without the benefit of positive planning action to cushion the effects of increased pressure. The provision of services and infrastructure, for example, is at best a steady rather than immediate process, and the sudden influx of new population into the pressured areas has created severe problems for educational and sewage disposal building programmes. Thus the pressured rural areas have suffered problems which individually would not have been too problematical but which collectively have caused an accelerating imbalance in the physical and social milieu of the rural settlements involved. It is this speed of change which has forced planners to discard the 'adhoccery' which is so deplored by Pahl (1966) in favour of more positive planning policies in general, and one such policy in particular.

(b) Remote Rural Areas

Although the national trend has been one of growth in rural areas, Woodruffe (1976) provides evidence that "almost a third of all (rural) districts are continuing to lose population" (p.11). Generally these are the areas situated at some distance from centres of urban population and which are therefore unaffected by most of the pressures of urbanisation described above. Consequently the processes of decline both in agricultural employment and in the rural social structure have not been superceded by in-migration of urbanites, and so the planning problems posed in such areas are largely distinct from those occurring in pressured rural areas.

The major urban influence in the remote areas is that of second home ownership and of the gentrification of villages of high environmental quality. However, this very selective form of in-migration does little to solve the basic socio-economic problems caused by remoteness.

The actual extent of these remote rural areas has been the subject of some debate (see Cloke, 1977A). A standard picture is gained from an investigation of population densities, such as that by H.M. Treasury (1976), but again the distribution of extreme rural and intermediate rural areas asdesignated by the rurality index (see Figure 1.1) is to be preferred because of the multiplicity of variables taken into account by this method. Whatever definition is used, it is evident that major tracts of rural land in Britain may be described as remote rural areas, and certain characteristics may be detected which are common to all or most of these areas.

Principal among these characteristics is the occurrence of rural depopulation, which may be viewed as both the initiator and the end product of the social and economic ills of rural areas. Rural depopulation itself has been studied in great detail (notably by Saville, 1957 and Mitchell, 1950), and so comment here will again be restricted to the general conclusions which can be drawn about the factors influencing this phenomenon and the problems resulting from it. A case study in Devon (Economic Committee of the Community Council of Devon, 1969) has highlighted the complex urban-rural relationships which contribute to rural out-migration.

> "Two of the major contributory factors have been the 'push' from employment in rural areas and the 'pull' of employment in urban areas, The 'push' was started by the availability of cheap imported food and animal fodder which followed improved methods of communications. Farmers tried to cut costs and increase output by substituting machinery for labour. The demand 'pull' has been the higher wages offered by manufacturing industries in urban areas in order to attract workers from rural areas because of the shortage of labour." (p.7)

Further evidence of the declining agricultural workforce is presented in Table 1.4 which is perhaps an appropriate reminder that some of the problems associated with remote rural areas are not as recent as is sometimes imagined.

Table 1.4 Agricultural Workforce in Thousands, 1921-1966

	England and Wales	Scotland
1921	869	127
1931	717	112
1941	650	110
1951	708	104
1961	535	82
1966	430	58

After M.A.F.F. (1968)

A second factor to be considered in this context is the nature of the settlement pattern itself. With the decline in traditional rural manufacturing industries and the corresponding awareness of the economics of industrial centralisation, a scattered distribution of villages and hamlets designed for self-sufficiency has become a liability in terms of the provision of transportation services to urban employment. Thus those settlements beyond commuting range of the nearest employment centre have lost their residential attraction to many groups of working people. It is not only transport which has become uneconomic in this way. Other services, notably in the areas of education and retailing have followed the trend towards centralisation while rural areas still lag behind their urban counterparts in terms of the basic infrastructure of piped water, electricity and mains drainage facilities. These factors have some importance in the explanation of rural depopulation, but they should not be overemphasised. Both Bracey (1958) and Mitchell (1950) have produced case studies which found little evidence of any strong connection between lack of services and depopulation.

A third contributory factor in the process of

depopulation is the apparent belief that the standard of living in urban areas is far greater than in the rural settlements. Bracey (1970) lists several urban attractions which have some bearing on rural out-migration, these being: better shopping facilities, a greater range of social amenities, better housing, improved welfare, better transport, better education facilities and a wider range of social and intellectual contacts. Similar 'pull' factors were emphasised by House (1965) in a case study of rural North-east England. However, Green (1966) while noting the propensity for young people to move out from remote rural areas, makes the point that "those who are left behind do not appear to be a demoralised immobile population unaffected by changing social conditions and technological advances" (p.29). He concludes that in terms of living standards and services "the country dweller demands little less than the townsman, although he accepts, but not always with good grace, that some services must be less conveniently situated" (p.29).

Rural depopulation often produces an imbalance in the age and class structure of a remote rural area. In a situation where employment is lacking it is generally the younger age groups who will move away to seek jobs elsewhere. Thus a residual rural community is formed which is over represented by very young and ageing members. Similarly the balance of class structure will be tipped towards those people who can meet the financial requirements connected with second home ownership or long-distance commuting, and also towards those people who do not have the required affluence or personal mobility (or indeed the inclination) to move out of the remote rural areas once they are established there.

Wallace and Drudy (1975) see the combined forces of rural depopulation as a 'vicious circle'. Following a theory originally proposed by Myrdal (1958), they note that

> "As a result of the decrease in population fewer services are demanded and these in turn contract. For this reason the economic attractiveness of the area in question is reduced further and the vicious circle is complete". (p.17)

The social aspects of this circle are emphasised by Winter (1971) who considers that a threshold point is reached in a declining population where service facilities can no longer be supported, thus leading to a decline in living standards and further incentives towards out-migration.

Until the late 1960's, rural depopulation was recognised as being an ever-present feature of remote rural areas (see Lowenthal and Comitas, 1962). Gillette's (1923) prognosis that rural villages and towns would decline and eventually disappear was always seen as a distinct possibility. More recently, however, the future scale of this phenomenon has been questioned, particularly in the context of models of the future urban and rural form which tend to emphasise rural growth at the expense of conventional cities (see Sarre, 1972 and Cloke, 1977B). The Government Inderdepartmental Group report on rural depopulation (H.M. Treasury, 1976) concurs that "there are some reasons for thinking that things may be changing and that the problems of these (remote) areas, or at least some of them, will be less serious in the future." (p.2). This optimism is based on the fact that out-migration was slowed in some remote rural areas during the 1960's. However, this loss of momentum may have been caused at least in part by high levels of unemployment on the national scale and so this evidence cannot be fully accepted. In any case, it is clear that rural depopulation, along with its cause and effect relationships with social and economic rural subsystems, continues to be the major planning concern in many, if not all, of the remote rural areas in question, and planners will continue to be faced with the problem of finding workable policies for these areas.

THE KEY SETTLEMENT SOLUTION

The prime concern of this study is to evaluate the efficacy with which one particular policy - namely the key settlements policy - has been used as the planning solution to the problems outlined above. This policy revolves around the fundamental concept of

concentrating rural resources into certain selected centres. However, other policies also include some forms of concentration and so it is essential at this stage for the term 'key settlement' or 'key village' to be strictly defined.

In the past these terms have been coined to cover a multitude of different rural policies and two examples from recent research serve to demonstrate that discrepancies in terminology continue to exist within the study of rural planning. Parsons (1977) in a case study of village planning in Norfolk and Nottinghamshire defines key village policies as those "which propose the concentration of rural facilities into selected centres but do not extend concentration to the location of development" (p.19). Alternatively, Rawson and Rogers (1976) see a key settlements policy as one "where certain villages will gain new housing" (p.16). However, if these definitions are taken at their face value then they could be applied to any rural planning policy operational in Britain as there will invariably be some element of housing and service concentration in planned rural areas.

What separates a key settlements policy from other forms of rural planning is not only that a comprehensive function in terms of housing, services and employment is attributed to the growth centre itself but also the fact that a key settlements policy incorporates an overview of the settlement pattern as a whole and lays special emphasis on the relationships between the key settlement and the other settlements served by it. It is argued in Chapter 3 that key settlement policies in the planning context evolved from an emphasis on service provision, through housing development priorities, to a broader consideration of the functional status and potential of settlements, the economic environment and the operation of the settlement structure in general. This being the case, the key settlement approach forms a distinctive planning method as shown by its use in counties such as Cambridgeshire, Devon, Durham and Warwickshire at various intervals over the last 25 years.

(a) Origins of the Concept

It is important to the overall study of key settlements to gain an initial understanding of the circumstances and environment in which this type of policy was conceived. In fact the conception of the key settlement form of planning can be traced back to two dominant personalities of the inter-war and immediate post-war period. Harold Peake came to the forefront of rural planning affairs at the end of the First World War. His major concern was to plan for the future of English rural settlements at a time when it was not generally realised that villages needed to be planned at all. Peake was perhaps one of the first to accept that "we cannot bring to life an organism which has died a natural death" and that "it is scarcely worth while to re-create it on its own model" (1922, 220). Consequently, he turned his thoughts towards an ideal village form, which would be of sufficient size to overcome basic service thresholds.

> "All the everyday requirements of health, education and recreation, needed by most of the inhabitants would be found within the village itself, while the population would be sufficient to command reasonable transport facilities to the neighbouring town, where they could satisfy their rarer needs." (p.232)

Peake's contribution is greater than just providing the academic germ of the key settlement concept. He prophesied the changes that were about to take place in rural areas, and demanded planned action at an early stage so that rural imbalances could be accommodated on a gradual day-to-day basis rather than in retrospect. This planning need was recognised to be broader than a series of simple village plans. Peake emphasises that "if the remodelling is to be a success it must be the result of regional not merely village planning, or scraps will be left over which cannot readily be united with others." (1916-18, 249).

Little has been written of Peake and his far-sighted endowments to the field of rural geography and planning. Accordingly, it is fitting to quote the final paragraph

from his book "The English Village" (1922) which presents a situation which bears an almost frightening resemblance to the conceptual problems tackled by researchers up to the present day.

> "Now is the time to act. Our local authorities are busy with the erection of thousands of cottages, 100,000 in England alone, and when one thinks of the condition of most of those still existing, we realise that this number will have to be multiplied by five at least during the course of the next few years, Now is the time, while all our country cottages are being replaced to re-plan our villages upon some well-considered model. Let us not "muddle through" this as we have done through so many important crises of our past history, lest we stereotype a system which has outworn its usefulness, and fail to seize the opportunity which is now offered to us to construct villages capable of sustaining a community life in keeping with modern conditions" (p. 236).

While Peake may be viewed as an academic whose ideas have far-reaching conceptual relevance to modern day rural planning concepts, Henry Morris went one stage further and was able to put his ideas into practice in the contemporary rural planning context, (Ree, 1969). During his period of office as Chief Education Officer of Cambridgeshire (1922-1954) Morris, through the medium of having to provide educational services to a dispersed rural settlement pattern, came to a fundamental understanding as to the direction in which the overall planning of rural areas should go. He soon realised that "the village has ceased to be an independent social unit" (Morris, 1942, 18) and that "the only alternative to the complete subordination of the country-side to the town is the adoption of the rural region as a cultural and social unit, parallel to that of the town" (p.19).

Ree (1973) expands the two basic ingredients of Morris's solution to the problems of the rural areas. Firstly he said of Morris that

> "he insisted that the vision of planners should extend to a far wider horizon than was usual. They should be concerned not merely with economic efficiency, not merely with sewers and roads and housing, but with the total scene" (p.19).

The second half of the Morris philosophy was that "we ought to see our way to the organic provision of education for the whole adult community" (p.20). A combination of these two beliefs led Morris to propose and instigate his plans for "the village college" (Morris, 1925) which was to be the centralised secondary school for a number of contributory villages by day, and a centre for adult education and for social functions outside normal school hours. The idea of a centralised focal point for a rural area was one which paved the way for a broadened key settlement concept. Moreover, twenty village colleges were actually built, more than half of these being situated in Cambridgeshire.

Henry Morris the man has been the subject of some criticism in recent times. Poster (1969) suggests that his ideas were indebted largely to the experience of the Danish folk high-school movement and to the writings of an American educational philosopher called John Dewey. However, Henry Morris the figurehead and administrator is to be esteemed in that he was the first agent of successful concentration in rural planning and as such prepated the path for the ensurng key settlement type policies.

(b) <u>Key Settlement Objectives</u>

Out of the creative vision of individuals such as Peake and Morris emerged the concept of selective concentration in rural planning, which was further expanded and augmented both by the theorising of academic planners and geographers (see Chapter 2) and by the monitored use of the policy in the practical planning field (Chapter 3).

In pressured rural areas the key settlement type of policy has been used as an efficient method of controlling rural growth. Two basic objectives are expected from the policy in this context. Firstly, the concentration of residential development into certain selected centres enables a similar polarisation of infrastructure and services, and this tendsto be the

optimum economic pattern for the provision of such facilities. The second justification for the policy's use concerns the ability of a settlement to accept residential growth. A key settlement policy (in theory) allows the conservation of settlements whose environmental quality is such that further large-scale growth would be inappropriate. Moreover it should be possible to ensure that those settlements selected as growth centres are environmentally and socially capable of receiving the designated expansion. Key settlement policies in pressured rural areas are therefore an exercise in channelling growth and as such are in theory more easily workable than in areas where growth has to be attracted.

Key settlement policies in remote rural areas have been used in situations where little current growth exists and so the policy provides the framework for an exercise in the promotion of growth. Contiguous with this objective is the stemming or even reversal of rural depopulation. The designation of key settlements where employment is either on hand or within easy travelling distance creates a location for intervening opportunities within the depopulating settlement hierarchy. In this way it is hoped that migration will be limited to internal rural movements from the remotest settlements to the holding points provided by the key settlements. Two further reasons have been called upon to justify the use of key settlements policies in remote rural areas. Firstly, this type of policy is seen as the most efficient and economic means of servicing a scattered settlement pattern. In addition, the policy is a discriminating vehicle through which available resources can be concentrated on those growth centres which are situated in areas of greatest need. All in all, the remote rural areas present more difficulties for the successful operation of a key settlements policy, and success will very often depend on concomitant policies for the attraction of additional employment and facilities within the area concerned.

(c) The Study of Key Settlements

It has been suggested that the key settlement type of policy forms an entity within rural settlement planning. The policy may be set apart from others both because of its detailed conceptual origins and because of the objectives expected of it. However, it is also essential to offer some explanation and even justification of the importance of key settlements to the rural planner. Green (1971) suggested the general direction in which rural research should be undertaken but the question must be posed as to why key settlements should be singled out for special study, and what practical conclusions will accrue from this study that are of use to the rural planner.

Much of the planning research to come out of universities has been regarded with scepticism. Valentine (1971), for example, in describing the Northumberland village of Stocksfield loses no time in making his point about the lack of practicality of two groups of researchers.

> "In fact the village is just the sort of place on which social workers and university planners might choose to descend, take a survey and then write a report to say what should be done. An overspill housing area for Newcastle? The site for a new motorway, for a new light industrial complex, for some monstrosity to be put up by either the Gas or the Electricity Board?" (p.94).

In answer to such criticisms, this study attempts to take a systematic view of policy, not place, and although the principal source of information concerning the key settlement policy will arise from the collection of data in areas where is is in use, the overriding consideration is to assess the universality and efficacy with which the key settlement concept has been applied in rural areas. Thus the study should embody an essential degree of practicality in that an evaluation of the performance of key settlement policies in different situations will inevitably result in some suggestions for the improvement or even replacement of this planning concept.

The key settlement policy itself has been the largest single strategic influence in the post-war planning of rural areas in this country. As such it might be expected that a considerable degree of research resources would have been directed to the study of this phenomenon. This, however, has not been the case. Most of the collection of data concerning the key settlements policy has been done by individual counties with respect to their own policy formation, and consequently there has been a tendency towards fragmentation of conceptualisation, with each county restricting itself to its own parochial methods and aims (see Chapter 3). The same is true of the Development Plan monitoring process where individual counties have naturally been most anxious about individual problems rather than the policy as a whole. This inward looking processing of information has presented great difficulties in the overall assessment of the policy, and so published material on the subject of key settlements has largely been confined either to academic studies of a rural area where the policy happened to be in use (for example Baird, 1976) or to planning expositions, notably from the Norfolk school, which have filtered through to become standard information sources on the subject of key settlements (see, for example, Cambridgeshire County Council, 1966; Green, 1966; Green and Ayton, 1967; and Jay, Fines and Furmidge, 1965). These studies have expounded the need for, and the implementation of, the policy but have not been in a position to publicly monitor key settlement progress.

More recently, attempts have been made to expand the information available on this subject. Shaw (1970), in a case study of the Peak District National Park, analyses the success of the settlement policy in the context of pressure and decline. Although much attention is devoted to the key settlement type of policy which is operational in the Peak District, it is inevitable that settlement studies within a National Park will be greatly influenced by considerations of siting, design and external appearance of new development. However,

Shaw's examination of planning permissions does offer some interesting insights into the workings of the key settlements policy, and these results will be fed into the policy analysis in later chapters.

The work of Parsons (1976) is also extremely relevant in this context. He has carried out village surveys in Norfolk and Nottinghamshire and his results reflect upon the key settlement policies operating in these counties. Once again the approach used in this case is less policy-orientated than would have been ideal from the point of view of studying key settlements, but some of the information concerning the study villages may usefully be added to the later analysis chapters.

Bearing in mind the importance of the policy and the scale at which it has been applied, there would still appear to be a vast amount of work to be done before a full understanding is gained of the mechanics and the ramifications of key settlements in differing rural situations. In the past, the key settlements policy has been adopted as the cure for all rural ailments, without taking full account of the difficulties, particularly in the social context, which inevitably arise from growth centre implementation. It would be unfortunate if this situation were allowed to continue, and so the need for further study of key settlement policies both by planning departments and in academic circles is paramount.

A further reason for the study of this type of policy is that the social impact of certain sectors of the key settlement concept is often not considered, or at least is held as subservient to economic considerations. The only occasions when these social factors receive their due attention are the extreme cases which are popularised by the media. Two examples where this has occurred are the public interest stirred up over "hot-cross bun" villages of South-east England and Durham's "D" villages (see Chapter 3). However in any situation where growth is allocated in one settlement but prevented in another, the same human problems exist,

if on a smaller scale. Despite the fact that there have been several recent criticisms of the neglect of small outlying settlements under key settlement policies (e.g. McLoughlin, 1976; Ash, 1977) no major research projects have been undertaken to look closely at these social problems, and so further study of key settlement policies is essential in order at least to highlight some of the social difficulties involved.

It is true to say that much of Saville's "fog of ignorance" has been cleared since the 1950's. Rural planning has achieved respectability if not the emphasis which it deserves. Nevertheless some of this fog continues to surround the concept and operation of key settlement policies and this study will hopefully contribute to the increasing fund of knowledge on this subject. A step-wise progression of scale will be followed, beginning with a national overview of the conceptualisation and usage of this form of rural planning. Following this, the policy will be viewed at a regional scale, taking examples from both pressured rural areas and remote rural areas which have adopted the key settlements approach. This stage of the analysis is designed to discover whether the policy effectively fulfils the objectives set before it at the regional and sub-regional level. Finally, two localised case studies will be presented which will highlight the problems arising from the policy at the level of individual settlements.

The study does not set out with a list of hypotheses, but rather attempts an impartial examination of evidence and information concerning this particular type of policy. However, it is inevitable that hypotheses will arise both from the discussion of the policy and its planned use in various areas and from the detailed analysis of the two selected county policies. As these points have either a policy or factual derivation, they can and should be posed without compromising the unbiased nature of the study.

Finally, it is appropriate at this point to recognise what perhaps is the greatest pitfall in a study of this kind. In pure science, experimentation without accom-

panying controls is often worthless, and yet in the social sciences where control is more difficult, changing circumstances are often attributed to one factor alone with any reference to the possibility that such change might have occurred for some other reason and that the influence of the factor under observation could in fact be negligible. Similarly, it would be easy to perceive changes in rural areas and to ascribe these variations solely to the key settlements policy which was in use at the time, However, it is possible that some, if not all, of these changes would have taken place whatever planning policy was operational.

Originally, it was intended to study two similar pressured rural and two similar remote rural counties, one of each being planned by a key settlement policy and the other by some less comprehensive planning policy. By this method, changes occurring under the key settlements policy could more confidently be credited to the key settlement concept. Despite the fact that time did not allow this approach to be used here, it may well be that a more satisfactory representation of the efficacy of certain planning policies would be gained using this method at some time in the future. However, so long as this difficulty is acknowledged and taken into consideration, the contribution of this study to the understanding of a very important part of rural planning should not be invalidated.

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CHAPTER 2

THE CONCEPTUAL BACKGROUND TO KEY SETTLEMENT POLICIES

The original ideas of Peake and Morris have been widely adapted and augmented by other theoretical considerations in the rural planning field, and the key settlement policy as defined in Chapter 1 has been moulded from a configuration of these various concepts. A basic paradox is apparent here, in that the very concepts from which the key settlement notion was originally developed, have also been used to provide a retrospective and independent justification for key settlement policies already in use. Consequently, growth centre theory, central place theory, threshold analysis and the like play a very important part in the evolution and the continued use of the policy. The application of each individual theory, or group of concepts, to key settlement policies in rural areas will be examined below. Growth centre theory is given major emphasis simply because little previous attention has been paid to the question of small scale growth centres whereas other theoretical aspects of this question have attracted attention elsewhere.

GROWTH CENTRE THEORY

At first glance, the theory of growth poles and growth centres offers an ideal solution to the planning problems eccountered in remote and pressured rural areas. This is particularly true of the popularised growth pole model which illustrates two opposing forces governing the movement of economic prosperity (Robinson and Salih, 1971). The first of these forces is that of 'backwash' (Myrdal, 1957) or 'polarisation' (Hirschmann, 1958) which concerns the tendency for central nodes to attract factors of production, be they entrepreneurial skill, labour, raw materials or savings, from their surrounding areas. Backwash appears to lend itself as a neat model for the

planning situation where economic and population overspill into a rural district needs to be controlled and channelled into the reception centre (or centres) most suited to accept such growth.

The second force associated with the growth pole model is that of 'spread' or 'trickle down', where economic development and prosperity are transmitted from a centre to its periphery, for example by the transfer of income earned in the centre to the service sector of surrounding settlements. Similarly, this spread effect is a convenient analogue model on which to base the planning of remote rural areas, with their problems of lack of employment opportunities, difficulties in infrastructure and service provision and resultant depopulation.

At first sight then, growth pole theory would appear to give ample justification for the concentration of growth into key growth centres in pressured rural areas and the rationalisation of growth into key centres in remote rural areas, thus taking advantage of backwash and spread effects respectively. However, the growth pole model has evolved through investigation at the regional and national scale, and the question of whether the model is equally operational in microcosm remains unanswered.

(a) Small Scale Growth Centres

As outlined in Chapter 1, the term 'rural settlement' in the context of this study is taken to define those settlements which are regarded as rural by the planners and thus are subject to distinct rural policies, such as the key settlement policy, under the Development and Structure Plans. However, in any theoretical discussion of small growth centres, the scale inherent in the key rural settlement idea must be further defined so that the size of a key settlement may be equated with the minimum size of a centre which would be able effectively to carry out the different roles of a growth centre.

Richardson (1973) notes that "the arbitrariness of all attempts to delimit cities casts some doubt on the value of the concept of city size" (p.5). This is equally true of the quest to give numerical expression to the difference between an urban and a rural settlement. For example, Smailes (1944), Bracey (1952) and Smith (1968, 1970) have all embarked on classifications of the settlement hierarchy but have not given theoretical population ranges to their different classes. Correspondingly, Berry (1967) has studied discontinuities in the settlement hierarchy and has grouped settlements according to how many functions they perform. Thus a town performs between 28 and 50 functions, whereas a village ranges between 10 and 25. However, it is again noticeable that no population figures are placed on these groups.

There are, of course, multitudinous problems in delineating a threshold between 'rural' and 'urban' settlements especially when it is considered that settlements in reality form a continuum between the two extremes. Also, regional and functional differences will distort any numerical expression of such a threshold. However, it is useful to summarize the attempts that have been made in this direction. Table 2.1 shows the maximum settlement population that is defined as rural by certain researchers.

Table 2.1 Suggested maximum sizes for a rural settlement

1000	Everson and Fitzgerald (1969) - Village
1500	Stirling (In Green, 1971)
2500	Everson and Fitzgerald (1969) - Country town
	U.S. Bureau of Census (1966)
5000	Green (1971) - Village
5000–7000	Best and Rogers (1973)
8000	Thorburn (1966)
10,000	Town Map Threshold
15,000	Green (1971) - Country town

For example, the figure of 15,000 is seen by Green (1971) as the maximum population of a country town, whereas Best and Rogers (1973) suggest that a small settlement will begin to take on the type of service functions which are characteristically associated with larger settlements, at about 5000-7000 population. A group of planners led by Thorburn in 1966 suggested that 8000 was the optimum size for a village, and inherent in this statement is the idea that a village of this size is still a village. At the other end of the scale, Everson and Fitzgerald (1969) see the maximum population of a country town as 2500. No attempt will be made here to select one threshold population figure to divide rural and urban settlements. Rather, the body of opinion sampled above will be held as a standard against which the various facets of growth centre theory may be measured.

It must be remembered that Perroux's (1950) original conceptualisation was of a growth pole in <u>economic space</u> (see Bone, 1973) and that if this initial growth pole theory is to be of any use to the planner (except as an analogue model) then it must be translated into <u>geographic space</u> whereby development is polarised around 'growth centres' (Darwent, 1969). Therefore, the growth centre concept can be seen to have detached itself, at least in part, from the theory which gave it birth, and this has led to growth centres themselves being variously defined with each definition placing more or less emphasis on the question of scale. One widely used definition describes an urban core (and its surrounding area) which is capable either of spontaneous population and economic growth, or of potential growth which could if required be stimulated by government intervention (E.F.T.A., 1968). This definition would seem to offer some scope for growth centres at the rural scale. Other researchers, including Nichols (1969), Morrill (1973) and Hermansen (1972) are less liberal in their defintions. For example, Hermansen argues that geographical growth centres must incorporate growth pole firms. Definitions in this vein are, however,

so strict as to preclude all but the biggest urban nodes from the requirements of a growth centre.

Given the E.F.T.A. definition, growth centres appear to offer themselves as tools for planning policy which are suitable in size, form and composition as well as in the goals and objectives that are required. At the same time it is important to note that experience in this field has shown that, although the normative value of the growth centre concept, especially to planners, is considerable, the explanatory value is limited and should not be overemphasised. Even the normative value is more heuristic than specific. Darwent (1969, 21) points out that such ideas as "it is better to concentrate investment in centres than to scatter it around" and"bigger centres will be better than smaller ones in the amount of growth produced from a given level of investment" abound in the literature, without any concrete theory to justify them.

Despite this conceptual uncertainty, growth centre policies are practised at both national and regional scales in a variety of forms for a variety of reasons. Moseley (1974) summarises the four principal growth centre mechanisms as economics of infrastructure and service provision, economics of agglomeration, the spread of development to peripheral areas and the introduction of intervening opportunities in areas of depopulation. Whether these mechanisms may be adapted to serve the needs of rural areas is again determined by questions of scale. Can small towns and large villages fulfill the polarizing role which has so far been identified only in the larger urban centres, and if so what forms of public and private investment are needed to secure the success of this role? So far, few detailed answers to these questions have been offered, and to do so requires a systematic investigation of each of the growth centre components, in relation to the minimum size at which they might continue to operate efficiently.

(b) Economies of Infrastructure and Service Provision

The notion of rationalizing the provision of infrastructure and services so as to take advantage of economies of scale is an integral part of the growth centre concept. Thus the building of one big school or high capacity sewerage scheme is economically more acceptable than building several smaller schools or sewerage systems. The same applies to the provision of services by the private sector. Several small retail outlets with scattered clientele are less viable than one or two larger shops with all their customers within easy reach.

It would seem that a small scale of operations does not create any difficulty in this case, for in any given situation a concentration of service provision will give greater economic viability than a dispersal. Unfortunately there are several distorting factors involved here. The above statement would be true if a new settlement pattern was being created from scratch; but as it is, present settlements represent large investments the value of which may only be realised by their continued use. Settlement viability thus becomes "a matter of the relative cost of providing residential and other settlement services from the existing pattern or producing these services from some other pattern" (Whitby et al, 1974, 165). This relative costing is perhaps best achieved using a cost-benefit analysis approach as was used in the South Atcham Study (Warford, 1969).

Other research on the question of service provision has taken the form either of village surveys (for example Northumberland County Council, 1968) to assess the quality and quantity of service provision, or of threshold analysis (Jackson and Nolan, 1971, 1973) which looks at the clientele needed to justify the provision of a service. The threshold analysis approach is examined in further detail below. Economic thresholds in service provision are reasonably straightforward but, when social thresholds are considered, the optimum settlement pattern becomes a question of policy rather than of the economic range of a good.

In remote rural areas, population levels are often below many of the economic thresholds and thus services such as public transport and food distribution facilities cannot be viably maintained. Therefore, there seems little doubt that economies can be achieved by concentrating the provision of infrastructure and of economic services. However, this does not take into account the hardship that would be inflicted upon the non-mobile elements of the rural population should concentration of services into growth centres also apply to social services such as those dealing with public transport, education and health needs. In pressured rural areas the service threshold is usually more easily attained and there is a strong case to be made for concentrating additional services and infrastructure into key growth centres in order to take advantage of economies of scale. Social policy would also point in this direction so as to avoid the externalities incurred by additional growth in settlements the environments of which were not capable of accepting such growth.

So theoretically the growth centre concept of centralisation of service provision is equally applicable to rural areas as it is to larger regions. However, by the same token, the brake of a planning policy designed to serve the needs of the people must be applied to prevent the idea of concentration being applied throughout the settlement hierarchy and thus allowing larger and more urban settlements to replace rural growth centres of smaller scale (Weatherston, 1975).

(c) Economies of Agglomeration

Growth pole theory places great emphasis on the pole firm or industry being able to "stimulate, by means of the external economies which it generates, the growth of a large number of other firms to which it is linked" (Moseley, 1974, 90). Such agglomeration will also produce internal economies of scale accruing from expansion of output within the new site, and transfer economies due to linkage with and proximity to buyers and suppliers.

It has been argued, for example by Thomas (1972) that these three types of economy are all needed to maintain the self-sustaining growth that is vital if the growth centre is to promote the desired spread or backwash effects. Apparently, then, the best method of achieving these economies is to concentrate all growth investment into a key centre or centres.

Pressured rural areas by definition offer the advantages of location near to urban centres and labour sources, and a higher quality of transport and site infrastructure than their remoter counterparts. Indeed, such pressured areas may wish to control the spread of industry rather than attract it. The effects of scale are more far-reaching in the remoter rural areas. Experience in Mid-Wales where relatively few jobs have been created but very high unit costs have been incurred (Howes and Law, 1973; Garbett-Edwards, 1972) suggests many difficulties for industry at the rural scale in assuming the role of the regional growth pole. It seems unlikely that the type of industry attracted into rural areas can set up linkages so as to take advantage of external, internal and transfer economies. Much rural industry is either very small, or consists of branch factories which link to higher order urban centres, or has pre-existing linkage to the agricultural output of the area. Self-sustained growth as defined by the presence of industrial linkages accompanied by an upward curve of investment or production cannot take place in the rural environment because the sheer mass and number of production units involved will only agglomerate successfully when surrounded by urban population and infrastructure. Barry (1970) and Shackleford (1970) put the threshold for self-sustaining growth at roughly 250,000 population.

If self-sustaining growth is defined in less rigid terms then the concept might again be applicable to the rural scale. For example, Moseley (1973B) has shown that firms in individual small towns in East Anglia derive some advantage from industrial growth in nearby

expanding towns. At even smaller scale, it is feasible that self-sustaining growth can be achieved by all-purpose cooperatives run by small communities such as Llonelhaearn in North Wales which has a population of 250. Here, such a cooperative has funded a small pottery industry, cottage knitting activity and the creation of an industrial site containing two advance factories with prospective occupants. In many respects self-sustaining growth of sufficient scale for the community involved has been attained here.

However, in the terms laid down by growth centre theory, rural areas are at the bottom end of the growth hierarchy and a clear correlation exists between size and probablity of further growth. The only slight indication to the contrary has been found by Moseley in Thetford and Haverhill, which have populations of around 13000. Links between industries in these towns and local suppliers in the periphery and in the centres have been established to some extent here, and this may serve as an example to other rural areas with similar problems. At present, rural industrial growth is very often government-sustained (rather than self-sustained) through a continuing system of grants, loans, tax relief and other government pressures. Despite criticisms of this policy (for example by Cameron, 1970) it may well be the only way in which this aspect of growth centre theory can be fulfilled even in a small way in rural areas, and again public policy must balance social benefit with the economic cost needed to achieve the necessary growth.

(d) Spread of Development to the Periphery

Whereas a growth centre's ability to attract factors of production from its hinterland has not been seriously questioned, the ability of the centre to spread development and prosperity centrifugally is not so definite. This aspect of growth centre theory is crucial to the solution of planning problems in remote rural areas for two reasons. Firstly, the opinion is

often expressed, as by Nichols (1969) and Boudville (1966), that unless such a spread effect capability is discernible in a given area, the area in question cannot be included in growth centre theory. Secondly, it is implicit in many public planning policies that growth centres do spread development to their peripheries, and the political acceptability of these policies relies on this concept of spatial impact.

It is obvious that the balance between the backwash and spread mechanisms is of great importance. In theory, the labour force attracted by the employment of the growth centre, will, in part, be drawn from the periphery as commuters, in which case these workers will return some of their increased prosperity to the location where they live (Robinson and Salih, 1971). It is also possible that decentralisation of capital will occur in the form of branch plant establishment, this theoretically being a result of either economic or government forces. Finally Richardson (1969) outlines a socio-economic spread from growth centres whereby a demonstration of new values in the centre erodes the conservatism of the periphery and thus acts as a stimulus to economic growth.

The work of Lucey and Kaldor (1969) in Ireland, Moseley (1973B) in East Anglia and others (for example Bertrand, 1970 and Kotter, 1962) indicates that the spread of development to the periphery is only applicable to the rural scale in very limited circumstances. Spread by industrial linkage will not occur unless frequent contact with suppliers is required by growth centre firms. It is more likely that any industry in rural key growth centres of large village or small town scale will be the supplier for, or even branch factory of, larger growth centre firms, and so linkage will take place up the settlement hierarchy rather than down into the periphery. Nevertheless, spread will be indirectly brought about by the change in the economic and perceptive position of the commuter and his influence on the area in which he lives. For example, local service provision may then be enhanced over and above the strict

threshold of the settlement concerned.

The strength of these changes is difficult to assimilate. Berry and Neils (1969) and Moseley (1973A) delineate a spatial surface of development around their studied growth centres. Both agree that a growth centre needs a minimum population of 25,000 to have any "appreciable impact" (Moseley, 1974, 145) on this surface. There is some doubt as to whether this figure should be taken as definitive, as there is not theoretical justification for this threshold and more proof is needed than can be supplied by two case studies. Indeed Moseley (1973B) in East Anglia and Bertrand (1970) in Brittany have produced results which indicate that small growth centres with populations of between 5000 and 15000 have a clear impact on the development surface through their employment opportunities. Also, little research has been carried out into the impact of the dispersal of ideas and attitudes which would not be portrayed by the development surface technique.

There is no theoretical reason, therefore, why small scale growth centres cannot spread small scale benefits to their peripheries, especially if they are of sufficient size to attract firms which are willing to use local suppliers and local labour. However, in practice several doubts are cast on the ability of small centres to exert centrifugal forces. Certainly, even if employment is provided for 50 to 100 people then the benefits are spread at least indirectly to the periphery; but in terms of the generation of linked economic activity, which is the dictum of growth centre theory, the backwash effect is more in evidence than the spread effect.

(e) Growth Centres and Depopulation

The ability to stem depopulation is, in effect, a measure of the success of the growth centre concept as applied to remote rural areas. If private and public sector services and infrastructure are improved; if employment opportunities are provided which in turn

spread prosperity into the hinterland; then a situation is brought about whereby an area previously undergoing depopulation will have more to offer the population living there, and so will begin to stabilize its population if not in the periphery settlements then certainly in the growth centre itself.

In pressured rural areas it is hoped that the spread and backwash effects will be so balanced as to attract any population growth to the key centres, this being achieved by severe restrictions on housing development elsewhere. Thus growth needs to be controlled and channelled rather than initiated, and it is clear that planners have had more experience and success in the controlling of growth than in starting it. Therefore, it is the remote areas which look to the growth centre concept to help in problems of depopulation. Bracey (1970) outlines seven reasons why rural dwellers might migrate to urban centres. These are: better shopping services and facilities, better transport, more and a wider range of social amenities, superior educational provision, better housing, improved welfare facilities and a wider range of social and intellectual contacts. In theory, then, growth centres would have to cater for many if not all of these needs to prevent migration.

Both House (1965) and Hannan (1969) emphasise that a lack of employment opportunities is the most important reason for migration. In answer to observations such as these, the planners have turned to the introduction of small-scale industries in the hope that these will be a sufficiently powerful attraction to stem the depopulation process. The example of Mid-Wales shows that the capability of remote rural areas to attract the right type of industry is limited. Garbett-Edwards (1972) concludes that "in Mid-Wales the scatter and sparcity of population precludes the attraction of industry at the speed and scale necessary to stem depopulation" (p.69). He does, however, allow that the provision of employment opportunities is the answer to depopulation

problems and that the general development of Mid-Wales is inextricably linked to industrial growth. This opinion is borne out by the fact that the integrated management of the Highlands and Islands is beginning to counter the regional outward drift of population (Grieve, 1972), although much of this stabilization seems to have been brought about by the magnetism of Inverness, a town of 35,000 population, as a stopping-off point for migrants.

In fact, the ability of growth centres to stem depopulation is rather an unknown quantity, and it is one of the aims of this study to cast a little more light on this subject. In terms of employment provision, the small rural growth centres are at a great disadvantage as they lack the sheer size needed to attract growth pole type firms. Nevertheless, the remainder of Bracey's migration "push-factors" can be dealt with to a certain extent by the increased provision of a range of services and an adequate physical infrastructure which can be provided in the growth centres because of scale economies. These improvements of opportunity may well have some impact on the depopulation process provided that suitable employment is present within commuting range. Outside this journey-to-work threshold, depopulation is likely to be exacerbated by additional out-migration to the growth centres themselves.

(f) Limitations of Rural Growth Centres

It is an interesting summary of the question of scale in growth centres to compare the maximum size approximations for rural settlements (given in Table 2.1) with the estimates for the minimum population size at which growth poles are said by different sources to function either in part or as a whole (Table 2.2). This comparison shows that, even accounting for the difficulties involved in placing a numerical value on a vague concept such as a village or a town, a key rural settlement cannot perform theoretical functions of the growth pole and centre.

Table 2.2 Suggested minimum sizes for growth centre attributes

250,000	BERRY (1970)	
	SHACKLEFORD (1970)	Self-sustaining growth
	FOX (1966)	
200,000	MOSELEY (1974)	Migration interception
70,000	ECONOMIC ASSOCIATES LTD. (1966)	Self-sustaining growth
50,000	MISRA (1972)	Investment spread
30,000	ALLEN AND HERMANSEN (1968)	Employment linkage
	MOSELEY (1974)	Infrastructure provision
25,000	LEWIS AND PRESCOTT (1972)	
	BERRY AND NEILS (1969)	Development spread
	MOSELEY (1974)	
15,000	CAROL (1966)	Infrastructure provision
13,000	MOSELEY (1974)	Employment linkage
5,000	GREEN AND AYTON (1967)	Service provision
3,000	MOSELEY (1974)	Service provision

For example, empirical investigation suggests that agglomeration economies promoting sustained industrial growth are not attained without a threshold population of at least 25,000 and that a fully functional growth centre needs a population of 250,000 before achieving self-sustained growth. The only dissenting note from this evidence is instanced by the study "A New Town For Mid-Wales" (Economic Associates Ltd., 1966) which suggested that a centre of 70,000 population would be sufficient to promote self-sustaining growth and to spread development and prosperity. This suggestion was finally shelved in favour of a number of smaller growth points, but there is a case for arguing that some of the more successful English and Scottish new towns do function as fully-fledged growth centres, and these have populations of well under the quoted 250,000 threshold. Indeed, their present population is often no more than 50,000.

Few case studies have been carried out concerning the role of small towns and large villages as growth

centres. Moseley's (1973B) is often referred to simply because it is one of very few such studies in the British context. Another relevant example is the Small Towns Study in East Anglia (East Anglia Consultative Committee and Planning Council, 1972). This report sees growth centre theory as having only a tenuous relationship with the problems facing the planners in East Anglian small towns. "In particular, the scale of growth in population, employment and infrastructure investment implicit in growth centre theory is very much greater than that which would be envisaged for the small towns, even in the long term context" (p.40).

In view of both theoretical and empirical evidence, we can draw the general conclusion that key rural settlements are not of sufficient scale to provide a full range of growth centre attributes. However, it is important to question whether this full range of regional scale attributes are needed in a centre in order to cope with rural scale problems. It is apparent that small-scale growth centres cannot bring about industrial agglomeration economies and linkages; but are these necessary at the rural scale?

It is possible to recognise two tiers of rural growth centres which are a workable part of the growth centre concept. The higher in the settlement hierarchy is the substantial rural town with a population of up to, say, 15,000. A population base of this size would allow a good deal of employment growth, especially if government help was enlisted. Some spread effects would then be exerted by the centre at least to those parts of the periphery within commuting range. These effects, although indirect, are recognisable parts of the growth centre concept and yet have considerable impact at the rural scale. This larger centre would have the capacity for high order provision of services (both economic, social and cultural) and physical and social infrastructure, and these facilities along with the increased employment opportunities go some way towards removing the causes of rural depopulation (as seen around the

East Anglian towns).

A second tier rural growth centre would have a population between 3000 and 5000 and this settlement would function principally as a centre for service and infrastructure provision, although some small-scale employment could also be provided. Such a centre would service the mobile peripheral population as well as those employed in agricultural and related industries. This centre would also have the capability of acting as a stopping-off point for out-migrants. The introduction of some industry is important. Saville (1957) notes that without key rural settlements offering some employment, the process of out-migration will continue to create communities with disproportionately old population structures. Encouragement in this respect comes from growth centre policies in Northern Sweden (Bylund, 1972) and Newfoundland (Courtney, 1972) where depopulation is beginning to be stemmed by the intervention of small-scale growth centres of less than 3000 population.

In pressured rural areas there should be little difficulty in setting up either tier of rural growth centre as outlined above. Backwash effects are promoted by planning restrictions on growth outside the centres and incentives for growth within the centres. Problems of scale are not so acute in this context, and the location near to larger urban centres often means that the rural areas are themselves within the commuting periphery of higher order urban growth centres and so receive spread benefits from this source.

There are more problems involved in setting up growth centres in remoter rural areas. For one thing, it is difficult in such a situation to deny growth to any settlement merely on the grounds that it is not a planned growth centre. In this case, development potential must be recognised as well as present suitability for growth. However, the numbers of growth centres selected must be balanced against the need for sufficient size or potential to ensure that the desired objectives are met. Too many centres will spread growth too thinly

while too few will exclude peripheral rural areas from any prosperity emanating from the growth centre spread mechanism.

The lack of theoretical justification for small-scale growth centres does not necessarily mean that growth centre themes should not be implemented in rural areas. Lemon (1973) notes that the Development Board appear to have been preoccupied with the growth point concept in their dealings with Mid-Wales and the Highlands and Islands, where the concept seems out of scale with the problems to be solved. If this is so, then other countries are equally guilty in this respect. Growth centres in rural areas are widely used, for instance in the Appalachia region of the United States (Ryan, 1970) and in Ireland (O'Riagain, 1971). Despite this criticism, there certainly is a case for applying the growth centre concept to the small rural scale, providing that the expectation of results from the policy does not exceed the small-scale answers that small-scale growth centres are able to produce. It is difficult to conceive of any other settlement policy that offers the problem-solving capabilities that are given by the growth centre concept, and if a system of growth centres is adopted, then individual rural patterns can be specifically treated within this sympathetic planning framework.

CENTRAL PLACE THEORY

If the growth centre concept is able to give some tentative theoretical justification for the promotion of rural key settlements, then central place theory has an equally important contribution to make in terms of an understanding of the relatively unplanned settlement hierarchy that has developed over the centuries in rural areas. Christaller's (1966) original postulation of a hexagonal service area surrounding each settlement paved the way for a recognition of a nested hierarchy of settlements, with the ranking of an individual

settlement in this hierarchy being dependent on the size of the settlement and its level of service provision (see Losch, 1938).

The theoretical recognition of a universal settlement hierarchy proved to be a significant progression in geographical and planning conceptualisation. Christaller produced evidence of a sequence of marketing centres of differing levels in Bavaria and there followed a series of attempts to measure and define the settlement hierarchy in developed countries such as Britain and the United States. In fact the first of this series, by Dickinson (1932) in East Anglia, was independent of and concurrent with the work of Christaller. Dickinson attempted to prove the existence of a hierarchy of settlements by introducing the concept of a nucleated settlement which acted as a focus for the servicing of a surrounding tributary area. He undertook detailed surveys of the sphere of influence of each of these nucleated service settlements and concluded that four categories of centre could be detected in the East Anglian hierarchy, ranging from the fully-fledged town to the small village (Dickinson, 1942). Similar methods were used by Smailes (1944) to delimit urban fields and the urban hierarchy in England and Wales. In this case emphasis was placed on retail outlets and what Smailes regarded as urban facilities such as hospitals and secondary schools. This work was included in some of the early Development Plans.

(a) <u>Measurement of Centrality</u>

The early research of Dickinson and Smailes highlighted the importance of centrality measurement to the planner. It was realised that it is easier to build upon a 'natural' settlement hierarchy than to substitute a more artificial order of service provision. Therefore, the accurate measurement and classification of the centrality of various settlements was seen as a high research priority, particularly in the rural setting where minimum service thresholds were deemed as critical in

the retention of rural populations. Brush and Bracey (1955) note that

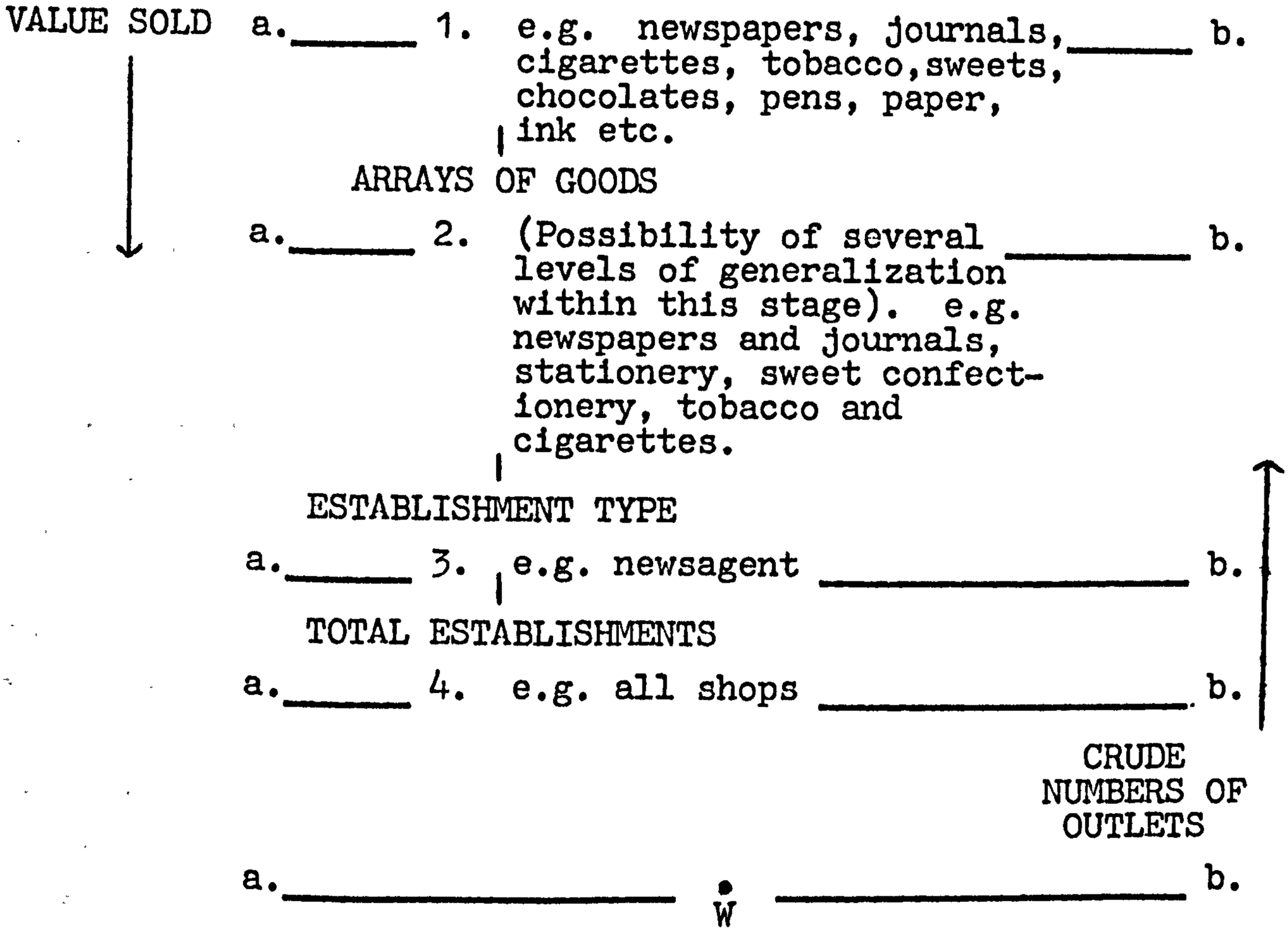
> "The role of a place as a trade centre, or its centrality, may be ascertained by either of two methods: (a) assessment of the business and services existing in the centre or (b) measurement of the area dependent on the centre for goods and services. In other words, one may ask: Is there a given kind of retail store or service in the centre? Or alternatively: Where do the people live who go to the centre to obtain a certain commodity or service?" (p.562)

The first method is that used by Dickinson and Smailes and it is interesting to note that various service indicators have been used by other researchers in this context. These indicators are summarised by Everson and Fitzgerald (1969) who construct a simple fourfold classification of settlements and then attribute various retail, administrative, social and cultural facilities as being typical of each settlement level. However, the measurement of centrality by this method presents the researcher with many difficulties. For example, Carter (1972), in a discussion of the Smailes method points out that

> "The grounds on which the criteria were selected were nowhere made explicit and the choice can only be interpreted as arbitrary. Even with this arbitrary basis no attempt is made to justify the definition of the grades; again it is not demonstrated that they emerge from the data used." (p.92)

Such criticism has led to considerable methodological changes in this first method of centrality measurement. This progression of technique has been studied by Davies (1965) in Figure 2.1 who points out the variation in results obtained by the acceptance of either the number of retail outlets, or the number of retail functions, or the value of goods sold as indicators of centrality. He suggests that any measuring technique should be capable of being tested, of comparable utilisation in differing circumstances, and of incorporating all the central functions of a place (Davies, 1967).

Figure 2.1 Stages of generalization in the approaches to the study of retail areas



• W. Possible weights applied to (b) to arrive at an estimation of (a) e.g. floor space ratio, assistant ratio etc.

After Davies (1965, 222)

An example of the type of study which strives to satisfy these requirements is that by O'Farrell (1968) in Co. Tipperary. Because of the predominance of the multi-purpose shop in provincial Ireland, he adopts a basis of measuring functional units and calculates a centrality value for each function from a simple formula:

$$Ca = K\ (10Ta)^{-1}$$

where Ca = centrality value of a particular function 'a'
Ta = number of functional units of 'a' in the area
K = total number of functional units in the area
10 = processing constant.

This process results not only in a centrality value for each centre, but also in a value for each central function (Table 2.3) which offers interesting inter-regional comparisons of the importance of various central place functions.

Table 2.3 Centrality values of central functions in rank order

Central Function	Total Number in Area	Centrality Value
Theatre	1	398.6
Private Bus Company	3	132.9
Chain Variety Store	3	132.9
Photographic Studio	4	99.7
Weekly Newspaper	4	99.7
Travel Agency	9	44.3
Chain Store	13	33.2
Insurance Office	14	28.5
Cinema	14	28.5
Hospital	16	24.9
Dental Surgery	16	24.9
Supermarket	16	24.9
Dance Hall	17	23.4
Dry Cleaner	18	22.1
Jeweller	23	17.3
Hotel	28	14.2
Secondary School	29	13.7
Bakery	33	12.1
Bank	35	11.40
Gents Hairdresser	40	9.77
Furniture	41	9.72
Cycle Dealers	41	9.72
Veterinary Surgeon	43	9.27
Turf Accountant	45	8.86
Gents Outfitter	49	8.13
Solicitor	55	7.25
Radio/T.V.	56	7.12
Ladies Outfitter	57	6.99
Cafe	64	6.23

Ctd./.....

Central Function	Total Number in area	Centrality Value
Electrical Goods	66	6.04
Ladies Hairdresser	69	5.78
Chemist	70	5.69
Doctor	73	5.46
Hall	82	4.86
Footwear	94	4.24
Butcher	101	3.95
Drapery	139	2.87
Primary School	144	2.77
Hardware	187	2.13
Newsagent	236	1.69
Filling Station	242	1.65
Public House	633	0.63
Grocer	1024	0.39

After O'Farrell (1968, 23)

Many similar studies have now been completed making use of the complex machinery of present-day quantification (see Carter, 1972) but it must be remembered that analytical progress by the use of intricate quantitative methods is wasted if the original data are not of a representative nature.

It is for this reason that the second method of centrality measurement - namely the delineation of hinterland areas which are supported by individual centres - has been used as an alternative approach to the one outlined above. An interesting starting point for this approach can be seen in the work of Green (1950) and subsequently of Carruthers (1957) and Johnston (1966). Green was concerned with the concept of flows between town and country and argued that the analysis of country bus services provided an accurate representation of these flows. From such an analysis, he divided England and Wales into areas which he called the 'hinterlands' or 'spheres of influence' of towns, and classified central places into five orders from capital

city down to local village centre. Carruthers enhanced this work by detailing the best fit of English and Welsh centres into these five settlement orders, while Johnson constructed an index of accessibility from bus service data and ranked the rural centres according to their index scores.

In many ways, the study of flows forms a bridge between the centre-based and hinterland-based methods of measuring centrality. Indeed, Nystuen and Dacey (1961) argue that

> "a hierarchy of cities may be reproduced to an abstract network of points and lines. The points represent the cities while the lines represent the functional associations. Though a myriad of lines exists in the network, there is present a basic structure of strongest associations which creates the nested nodal regions and the hierarchy of cities." (p.31)

Although bus services are now an outmoded measure of functional associations, flow research has continued notably using telephonic communication data (Davies and Lewis, 1970) although this line of research has tended to stop short of the rural scale.

The hinterland-based method of measuring centrality was pioneered by Bracey (1952, 1953, 1956). Initially, he surveyed each parish in the county of Somerset, and gathered information concerning regular visits by the rural populace to other settlements in order to satisfy their need for 15 different services. These services were grouped under the headings of clothing shops, household goods shops, medical services and other professional services, and each parish was allocated one point per service which was attributed to the relevant higher order settlement visited. Equal divisions of one point were allocated if more than one centre was used. These points were then totalled for each central place to give an indication of centrality. In addition, Bracey was able to outline three spheres of influence controlled by each centre, and to detect three grades of central place attraction.

> "The central zone, where most services are used on most occasions, may be termed the 'intensive' area and defined as the area where all parishes take at least five shopping and five professional services from the centre and no other. The zone of partial affiliation, where most services are used on some occasions, may be called the 'extensive' area and defined as thatwhich uses the centre for at least five shopping and five professional services but also uses other centres. Any parish taking less than five services may be assigned to the 'fringe' zone of minor affiliation where some services are used on some occasions." (1953, 99-100)

Although Bracey's findings are extremely interesting, his study uncovered three basic difficulties in this method of measuring centrality. These problems concern the objective collection of meaningful data, whether these be from one representative person for each parish or from asample population; the determination of what is a suitably standard array of goods and services to be measured; and the definition of personal perception as to the regular location of services and facilities visited. Certain studies, for example by Rowley (1967) and Davies and Lewis (1970), have used data collected from selected respondents who kept an accurate diary of quantity and cost of purchases in various centres. Although such data are less easily obtained than previously used information, they are capable of accurate conversion into isopleths depicting the attraction of each settlement on its hinterland. However, it is again clear that whatever complex quantitative methods are used in centrality measurement, the accuracy of the final result will depend on the significance of the data input, and for these reasons the search continues for more meaningful techniques of measurement.

(b) The Relevance of Central Place Theory to Rural Key Settlements

Thus far, the discussion of central places and centrality measurement has been in terms of the overall settlement hierarchy, although much of the pioneering research has been carried out in the rural context. The theory does, however, appear to have a particular relevance

to the planning of rural areas. An appropriate vehicle for the examination of this relevance is provided by Bracey's (1962) investigation of the English central village, a phenomenon which he defined as "the village with more shops and services than one would expect for its size which is operating services for neighbouring villages and hamlets" (p.170). Three orders of central village were listed from an analysis of the distribution of retail and service outlets in Somerset. Settlements were designated first-order central villages if they had 20 shops or more, second-order central villages if 10-19 shops were present and third-order central villages if 5-9 shops were available. Furthermore, the spheres of influence of these various central villages were measured in terms of the range and extent of mobile services emanating from the centre and serving smaller settlements in the rural hinterland. Themethodological difficulties of centrality measurement are equally applicable in this case, particularly Bracey's emphasis on retail units rather than functions, but his findings are demonstrative of several areas in which central place theory can be applied to rural key settlements.

Firstly, the initial realisation that 'natural' centres did exist within hierarchies of settlements was an important influence on the early Development Plans. The original central place research of the 1940's and 1950's corresponded with a formative period in planning history and it is certainly the case that at least one county, Wiltshire, made direct use of Bracey's research in its Development Plan (Wiltshire County Council, 1953). It is also likely that the stipulated procedures for Development Plans concerning the mapping of services and facilities in the various rural centres (see Chapter 3) reflected the general atmosphere of the current central place research findings. However, the relevance of central place theory transcends the mere recognition and cataloguing of rural centres. At the time of the Development Plans, planners perceived a logical

progression from the identification of existing rural centres to the continuing support of these centres as the focus for investment in rural areas. In effect, many planners were attempting to build up certain key rural settlements into the ideal central village model whereby additional service provision on one central location would benefit a wide rural hinterland. The early Development Plan's emphasis on existing central places thus not only set the pattern for trend planning in rural areas, but also had some considerable bearing on the introduction of key settlement policies which stress the importance of a centre's ability to service its surrounding area.

This link between rural planning and central place notions has continued, especially after early doubts as to the accuracy of the hierarchy concept had been dispelled by Berry and Garrison (1958). As Chapter 3 reveals, planned support has tended to be given only to the highest one or two grades of central place in the rural settlement hierarchy, rather than to the three or four categories proposed by Bracey. However, Newman (1967) in a study of the Irish rural settlement pattern affirms that "regional planning, if it is to be planning for genuine regional development must mean the promotion of a hierarchy of central places" (p.69), and it is apparent that central place theorisation has provided a framework and a data base from which key settlement type policies have evolved in rural areas.

A second important feature of the central place concept concerns the changing nature of the settlement hierarchy over time. Clawson (1968) forsaw that

> "A great many of the small rural towns will wither greatly, and some will die and disappear by 2000. Some have already died and disappeared in farming areas. The process within and between such towns will be cumulative, in a downward spiral. As their business volume declines they will be less able to offer services that will attract farmers, who will gradually go to larger towns at farther distances." (p.287)

The understanding of change in the settlement hierarchy and of the subsequent planned solutions to the problems arising from this mutation, has been considerably enhanced by the study and conceptualisation of the variations in central place hierarchies (see Rikkinen, 1968 and Fuguitt and Deeley, 1966). One particular planning problem - depopulation - was studied by Johnston (1965) who concluded that "the settlement pattern, particularly village size has influenced the degree to which an area has retarded depopulation" (p.292). In a more general context, Hodge (1966) highlights the characteristics of declining small settlements in North America. He found that it was the smaller settlements that were suffering a deterioration of status because they were not able to offer a wide range of goods and services. This was particularly the case when these settlements were located within the range of larger towns. Furthermore, two levels of successful central place were detected. Many small-scale centres were present serving purely local needs while a few larger-scale centres with higher order facilities remained to service wider areas of the rural hinterland. Trends such as these are of particular significance to the planning of rural areas. As Clout (1972) explains

> "Country planners in many parts of the world have attempted to pay due attention to these 'automatic' trends as they formulate policies for future service provision in the countryside. Such policies in a given rural area involve selecting a limited number of settlements where population numbers may be increased and therange of service provision extended, and designating the remainder for future stability or even contraction." (p.140-1)

Once again, it is noticeable that the influence of central place theory in rural areas has given impetus to the key settlement concept.

A final example of how the changing central place hierarchy is of relevance to selective rural planning is afforded by the experience of creating primary settlement patterns on Dutch polderland recently reclaimed from the sea (Constandse, 1972). For instance, the East

Flevoland polder was originally designed to be served by 12 rural growth centres, but experience from previously settled polders (notably the North East) has shown that a more concentrated pattern is required (Thijsse, 1968). Consequently, only four growth centres, each with increased population targets, are now proposed (Van Hulten, 1969). The rural planner's ability to keep pace with increasing personal mobility and its consequent outworkings in the rural settlement pattern, will depend to a considerable degree on a constant monitoring of the central place hierarchy. The general trend, however, is clearly one of higher levels of settlement concentration and so, at least from this point of view, the concept of key settlements is becoming increasingly relevant.

Finally, central place concepts have been extensively used in the selection of rural key settlements. Bracey (1962) noted that "a distance of some five or six miles usually separates a central village from the nearest urban centre or the next central village" (p.176). This distribution bears a remarkable resemblance to the pattern of selected key settlements in Devon (see Chapter 8) and is equally similar to the planned growth centre distribution in many other rural counties (Chapter 3). What is more, it has been suggested in Chapters 5 and 8 that central place functions or even sheer population size have been the dominant factors in the selection of individual key settlements. If this is to be the case in the future then O'Farrell's (1968) assertion that "a conceptually sound methodology and an objective technique for quantifying the centrality of functions and centres is the only valid basis upon which to make meaningful comparisons" (p.32) assumes a greater relevance in the comparison of two settlements in order to choose one for key status.

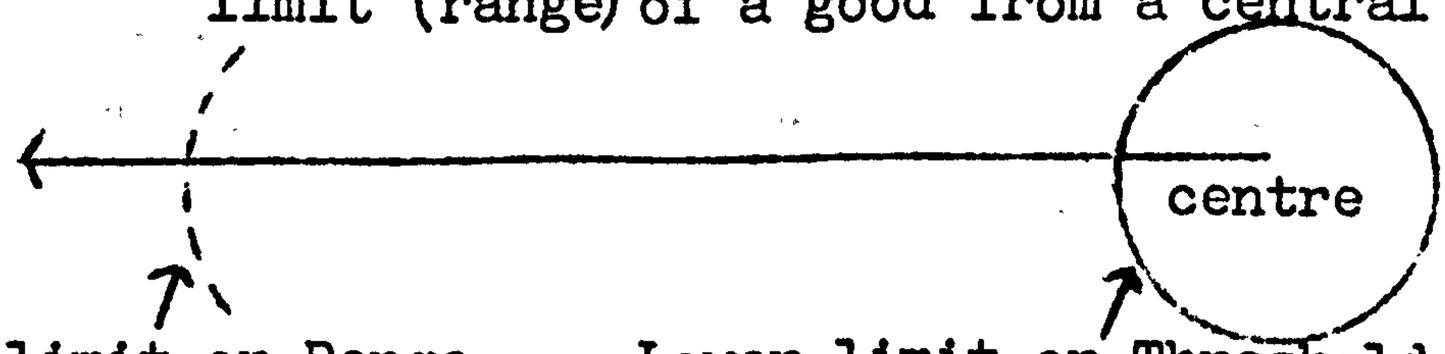
Thus far the theorisation of central places has been seen to offer a major contribution to the planning of the remote rural areas, but little has been said of the pressured areas where settlement hierarchies have

more complex linkages with urban centres. However, the conceptualisation of thresholds and the range of a good has some implications for pressured rural areas, although planning ramifications of thresholds and ranges are again predominant in the remoter rural areas where threshold minima rather than maxima are encountered, These concepts are sufficiently discrete to warrant separate consideration, but they should be viewed as one limb of central place theory, the whole body of which has been seen to be making a particular contribution to the use of key settlement policies in rural areas.

THRESHOLDS AND THE RANGE OF A GOOD

The theorisation as to market centres and the hinterlands which they serve gave rise to two concepts which have assumed considerable significance in the planning of rural areas. A threshold is "the minimum population that is required to bring about the offering of a certain good for sale or to sustain any service", while the range of a good has been defined as "the maximum distance over which people will travel to purchase a good or derive a service offered at a central place" (Carter, 1972, 71). The relationship between these two notions is shown by Figure 2.2 and this linkage formed the basis of Christaller's theoretical central place system. However, thresholds and the range of a good, particularly the former, have been widely adopted per se in the decision-making process for service provision in rural areas.

Figure 2.2 The lower limit (threshold) and the upper limit (range) of a good from a central place.



Upper limit or Range. At this point journey to centre is not worth while in relation to need for good or service. Cost or inconvenience outweigh need or alternative centre becomes available

Lower limit or Threshold. A population of this size (area x density of population) is required to sustain a good or service

As Green (1971) points out, "there is a growing conflict between the expectation of each hamlet and village to be provided with a wide range of service and facility, and the organisation of those services and facilities into larger units of distribution" (p.20). Early Development Plans took note of this conflict by measuring the rural thresholds for various services. For instance, Cambridgeshire County Council (1968) was able to identify five broad groups of rural settlement according to the services and facilities present (Table 2.4).

Table 2.4 Rural settlement categorization according to services

	Population Range	Facilities available
Grade 1	170 - 600	Public House, Post Office General Store, Village Hall
Grade 2	600 - 1100	As above, plus Primary School Playing Field, Garage
Grade 3	1100 - 1800	As above, plus Police House/ Station, Butcher, Ladies Hair-dresser, Resident Doctor
Grade 4	1800 - 3000	As above, plus Electrical Goods Shop, Licensed Club, Hardware Shop, Gents Hair-dresser, Bank
Grade 5	3000 +	As above, plus Secondary School, Chemist's Shop

After Cambridgeshire and Ely County Council (1968, 88)

A considerable amount of research was also carried out by Norfolk County Council in order to ascertain the viability of certain services and facilities in the rural areas of that county (Green, 1966; Green and Ayton, 1967). Table 2.5 shows the threshold approximations for a list of such services and it follows from these observations that

> "If it is accepted that methods of retail are changing in favour of larger catchment populations, that some degree of competition is desirable, and that a chemist is a necessity, the minimum population to support an acceptable range of retail

shopping may be 8000 or even more" (Green and Ayton, 1967, 4).

Table 2.5 Typical service thresholds in Norfolk

Population	Service
300	Grocery shop
2000	Butcher
2000 - 2500	Single Doctor
2500	Draper
2500	Household Goods
3000	Baker
4000	Chemist
5000	Home nurse
5000	Primary school
6000	Three doctor practice
8000	Health visitor
10,000	Secondary school

After Green and Ayton (1967, 4)

There has been much debate as to the minimum size for a viable rural service centre. Covering the entire rural planning spectrum, Green and Ayton (1967) consider that "a minimum population of 5000 is needed to support a reasonable range of local facilites" (p.1), whereas West Suffolk County Council (1968) suggest that 1500 is the maximum figure beyond which a rural settlement becomes socially unmanageable. Views on this subject have changed over time. In the early 1950's there was general agreement that 500-600 population represented a viable rural settlement (see, for example, Bonham-Carter, 1951 and Mitchell, 1951) and the First Review of the Devon Development Plan (Devon County Council, 1964) continued this strand of thought when it concluded that "a village with a population of 500 and over was definitely a local centre with a fairly well balanced community" (p.45). However, the increasing use of service thresholds as indicators of settlement viability has led to the acceptance of the need for higher levels of population

to create viable rural settlements and this in turn suggests the requirement for "a policy aimed at the expansion of a few selected villages and the acceleration in decline of the remainder", (Green and Ayton, 1967, 1). Thus it is apparent that the study of rural service thresholds has directly influenced the concentration of rural settlement patterns and the use of key settlement policies (see Thomas, 1972).

Thresholds and the range of a good have been put to specific use in two stages of the rural planning process as well as at the general level of policy formation discussed above. Firstly, the range of a good has been encorporated into the determination of threshold levels for the provision of various goods and services. By adding an element of physical distance, the threshold population required for economic viability may be made up of either the growth of a single centre or the demand from a centre and its hinterland, or indeed from a series of linked centres and their hinterlands. The concept of the range of a good is contributory to the size and distribution of the various key settlements which form the basis of a settlement concentration poiicy.

A second specific application of these notions has resulted from the conceptualisation of threshold theory, which was pioneered by Malisz (1969) and brought into the regional planning context by Jackson and Nolan (1971, 1973). One of the difficulties in the implementation of key settlement policies is the programming of growth, particularly in the pressured rural areas. Very often, the development of a key settlement is concerned with indivisible units of investment such as a sewage treatment plant or a new school. Jackson and Nolan (1971) point out that

> "The population of a settlement can grow satisfactorily only up to the time when it meets its next threshold limitation. In this respect, the optimum growth of a settlement is to be seen not as a continuous process but as a succession of steps caused by the indivisibility of certain basic investments essential for growth" (p.288).

In the context of programming development at the rural settlement scale, the authors cite the example of Lytchett Matravers in Dorset, which had a population of 1500 in 1965 but which has been designated for expansion to 5500 by 1981 (Dorset County Council, 1965). The application of threshold analysis (Dorset County Council, 1972) especially with regard to the need for a new school, new road surfaces and new drainage systems, is reported to have optimised the investment programming system and minimised the disruptive periods of basic infrastructure and services. These are the very difficulties currently being experienced in several pressured rural areas, for example the expansion of Southam in Warwickshire, and consequently it would appear that threshold analysis could be of particular value in the programming of key settlement development. On the other hand, several dangers are inherent in the singular use of the threshold concept. It has been noted that this approach encourages the planner to plan for the least number of threshold violations so that the returns from large scale fixed investments may be optimised. Accordingly, the concentration of services and facilities has been advocated on these grounds. However, the economic analysis of thresholds is merely one part of a planning process in rural areas which also involves social and other non-economic considerations that have to be accounted for. Consequently, thresholds alone should not be allowed to dictate rural planning policy.

It must also be remembered that thresholds are not universally applicable. Any threshold is specific to one service or facility in one area with one settlement pattern at one point in time, and although certain thresholds are fixed by the public sector (for example, school catchment areas), it would be unwise to treat thresholds as immutable phenomena. Nevertheless, if these difficulties are heeded, the study of thresholds and the range of a good will continue to play an important role in the planned concentration of rural settlement patterns and in the phasing of key settlement development.

OTHER RELATED CONCEPTS

In any discussion of the conceptual background to key settlement policies, mention should be made of three concepts and techniques which bear an important relationship to the notion of concentration in rural planning. The first of these is directly linked to the use of threshold analysis as described above. One of the major disadvantages of thresholds is that they do not take account of social and other non-economic factors, and consequently the use of cost-benefit techniques has been advocated to replace, or at least to complement, the study of thresholds. As Clawson (1966) insists

> "The essence of an enquiry into optimum settlement patterns is the consideration and the synthesizing of all relevant factors, yet one has to start somewhere, taking up each factor in turn and interrelating the others to it, and summarizing the whole into some form of balance sheet, monetary and otherwise." (p.290).

Thus, it would seem that the cost-benefit approach does afford a mechanism which is able to account for non-economic variables as well as quantifiable costs and benefits in the decision between various planning alternatives.

Perhaps the best known use of cost-benefit analysis in the rural context was contained within the South Atcham Study (Warford, 1969) which attempted to cost the various factors involved in alternative water supply proposals. However, other important contributions have been made in this respect. Gruer's (1971) research is particularly interesting because her results from a cost-benefit analysis appear to oppose service concentration, which is traditionally supported by the concept of economies of scale. In this case, the alternative policies for the provision of outpatient clinics were compared and it was found that if the cost of loss of labour and the cost of travel are included in the analysis then "the cost of consultants travelling to peripheral clinics was invariably less than the costs to the community of outpatients travelling to centralised services" (p.390).

Unfortunately, the harsh realities of rural planning have tended to supercede the idea that what is good for the consumer of a service will also benefit the supplier of that service. Shaw (1976) outlines four possible future policies for Norfolk's rural settlements as being

1. to concentrate growth in the largest settlements
2. dispersal by allowing a standard rate of growth in all villages
3. dispersal by making use of any spare service capacity, taking account of physical constraints
4. development of dispersed villages of 500-800 population.

A cost-benefit analysis on these alternatives would presumably aid the selection of an optimum policy direction for Norfolk from the point of view both of the supplier and the consumer of services. Clearly, the recognisable physical costs of supplying services have in the past weighed more heavily in the policy-making process than have any intangible social costs and benefits. However, the Norfolk County Council (1976) case study of the North Walsham area has attempted to rectify this situation by assessing social and non-monetary costs as well as economic costs. The conclusion is reached that both the capital andrevenue costs of servicing the dispersed settlement patterns advocated by policies 2 to 4 are extremely high compared with the costs involved in a policy of concentration, and that

> "The non-monetary costs generally favour a strategy of Concentration with the exception of only two factors: a Concentration Strategy does nothing to reduce the risk of school closure or to stimulate community groups activity." (Shaw, 1976, 137).

Shaw argues that these two factors, coupled with the additional freedom of a greater choice of residential location in rural areas, are sufficient to warrant the acceptance of the higher service costs inherent in policies of dispersal.

It may well be that social costs and benefits have not been noted sufficiently in the planning of rural

areas, and if this is so, the application of the cost-benefit technique (itself by no means infallible) may sponsor a wider perspective in rural policy formation. However, in these times of economic stringency, restraint on public expenditure will invariably nullify the practical application of cost-benefit analysis in rural areas so long as established planning attitudes predominate. This being the case, cost-benefit analysis may be more usefully employed in the understanding of certain specific parts of the rural system, for example the mechanics of depopulation (see Speare, 1971).

Hudson's (1969) analogue model comparing the location of rural settlements with the process of 'competition' in plant ecology also offers an interesting vista on the development of key settlements. He describes three stages of change in rural settlement distributions: colonization, where the occupied territory of a population expands; spread where density increases and small-scale dispersal of settlements occurs and competition where the smaller settlements are weeded out in favour of larger service centres which are able to serve more extensive hinterlands because of increases in personal mobility. If it is accepted that "unless geographical explanations (or predictions) have a theoretical justification, the recognition of spatial regularities is of little value" (Hudson, 1969, 366) then this model goes some way towards explaining the 'natural' evolution of planned key settlements.

Finally, the importance of settlement morphology must be noted. In the past, the existing internal pattern of development has often regimented the way in which a settlement has been planned, and has supported the practice of trend planning in rural areas. Morphology has thus hindered the overview of the entire settlement pattern which key settlement policies have sought to engender. It has, however, aided the cause of conservation for those settlements not suitable for designation as growth centres, and, at a broader level, it is claimed to be able to "augment the process of policy-option exploration and heterogeneous global settlement". (Christakis, 1975, 463). The science of ekistics has made many such claims

but thus far the practical application of morphology has been at a very basic and local level.

All of the above concepts have, to a greater or lesser degree, played some part in the inception and development of the key settlements policy. However, it would be prudent at this stage to remember that of at least equal importance in this process was the planners' need for a definitive and seemingly innovative policy from which it was evident that the problems of the rural areas were being tackled. The key settlements type of policy was presented as a convenient blue-print at the right point in time and even had it no acceptable conceptual background then it is likely that one would have been manufactured in order to give this popular policy some credence. Whether or not this has, in fact, happened is difficult to assess. Some of the above-mentioned conceptual works are tentative, while others appear to be firm. What is clear is that this policy has been clouded in economic rather than social theory and this may account for many of the difficulties which have been encountered in counties where the policy has been used.

CHAPTER 3

THE EVOLUTION OF KEY SETTLEMENT POLICIES IN THE PLANNING FRAMEWORK

EARLY LEGISLATION AND PLANS

Prior to 1932, planning legislation had concerned itself with the problems of housing and public health in built-up areas, but the Town and Country Planning Act of that year gave first recognition to the need for planning in rural areas. This rather perfunctory and 'inadequate' Act (Cullingworth, 1964, 21) made provision for rural areas which were being developed, or which were under threat of development, to produce a planning scheme with the object of

> "controlling the development of land comprised in the area to which the scheme applies, of securing proper sanitary conditions, amenity and convenience, and of preserving existing buildings or other objects of architectural, historic or artistic interest and places of natural interest or beauty, and generally of protecting existing amenities." (Section 1)

Any scheme produced required the co-operation of at least 75% of landowners involved, and this clause alone was instrumental in the bypassing of many of the above objectives in order that some form of planning scheme might eventually be produced. However, the very production of such schemes caused local authorities to take note of some of the problems occurring in rural areas. The Warwickshire Joint Planning Committee (1935) recognised the practice of large-scale residential building in the countryside "regardless as to whether essential services are available or not" (p.2). They also noted that this scattering of development had resulted in financial and constructional problems in the provision of essential public services.

The scheme prepared for the Durham region (Durham County Council, 1932) outlined the loss of employment due to pit closures and suggested that some contraction of villages might be necessary as a result of their decline. However, the plan took no action to put this suggestion into operation.

It is evident that the regional planning schemes of the 1930's contained certain essential elements, not least the difficulties of servicing an outmoded settlement structure, which indicated the need for settlement rationalisation in general and the designation of key settlements in particular. Indeed, one county took practical steps towards the concentration of rural services and facilities. The Cambridgeshire Joint Planning Committee (1934) planned for the grouping of villages around a key settlement which was to provide educational and social facilities for the cluster, and these plans were carried out incorporating William Morris's idea of village colleges in the key settlements.

Fifteen years passed before the next major planning legislation, but the interim period contained several ancilliary Acts which had a significant bearing on the settlement policies to follow. For example, the various Housing (Rural Workers) Acts between 1926 and 1938 led to the building of new dwellings for agricultural workers by local authorities; the Rural Water Suppliers and Sewerage Act, 1944, enabled local authorities to make a basic provision of these services to rural areas; and the Education Act of 1944 required local authorities to produce a plan for building, expansion or closure of schools in its area. The locational decision-making process associated with education contraction or expansion, the siting of new agricultural dwellings and sewage disposal and water provision schemes, forced local authorities to consider the whole question of contentrating service provision (and to some extent residential development also), so that investment arising from this legislation might be optimally utilised.

Perhaps the official cradle of the key settlement concept can be found in the evidence to the Second Report of the Minister of Health's Rural Housing Sub-Committee in 1937, which recommended that new rural housing development should only take place in villages so as to economise on service provision, preserve the countryside and maintain the social advantages of

community life. The key settlement concept was also mentioned in the Scott Report (1942) and the Fourth Rural Housing Report (1944).

A crop of key settlement policies appeared under the auspices of the Town and Country Planning Act of 1947, which was the basis for post-war rural planning procedure. The Act dictated that "every local authority shall carry out a survey of their area and submit to the Minister a report of the survey together with a development plan" (Section 1). What is more, plans produced in this manner were backed up by the ruling that planning permission had to be obtained before any material land use alteration could be carried out.

Rural settlement policies contained within the development plans often enacted ideas which had previously been expressed in the regional planning schemes, but the form in which these ideas were presented was regimented by certain ministerial circulars. Ministry of Town and Country Planning Circular 40 (1948) for example, advised that surveying in rural areas should be concentrated on the social and economic functions of the larger settlements. Therefore, the major surveying effort associated with the development plans in rural areas was restricted to a cataloguing of educational, health, medical and other social and retail service provision, while a settlement's capacity for residential development, for example, was understandably given little attention as this was perceived as an urban problem at this time.

Circular 59 (1948), from the same ministry, required the planning authorities to map "the location of other centres intended as centres for social, educational and health services" as a circle divided into quadrants (a "hot-cross bun"), each quadrant indicating where a certain service existed or was planned for that centre. East Sussex (1953), for example, identified centres where educational and public health facilities were to be maintained or established. In fact, the development plans contained considerable variation in hot-cross bun

coverage. Some counties, including Nottinghamshire (1959), Shropshire (1960) and Staffordshire (1960) illustrated the majority of settlements with this notation. Other counties (for example Huntingdonshire, 1954) used it solely to identify key settlements. In many ways the hot-cross bun maps were the first physical manifestation of the ensuing key settlement policies and as such sparked off a good deal of controversy both from villages whose inhabitants felt that village vitality would be impaired by not being selected as a growth point, and from the selected villages where inordinate growth and consequent loss of community life were feared. Such reactions have been an inevitable and consistent consideration in the enforcement of key settlement policies over the years, and have become increasingly important with the advent of greater public participation in planning.

Government advice continued to give support to policies of settlement rationalisation even though such policies were of a controversial nature. For instance, an advice note on the 'Siting of New Houses in Country Districts' (Ministry of Town and Country Planning, 1950) suggested that the economic provision of services in rural areas could only be brought about by the selection of certain villages for expansion. It was also conceded that in certain extreme economic conditions, the only course open to planners was to "demolish and clear the village and resettle the inhabitants in new centres where employment, houses and services can be provided".

THE DEVELOPMENT PLAN POLICIES

With this background of legislation and advice it is not surprising that the rural settlement policies contained within the development plans varied only as to the number of settlements selected rather than whether selection should take place at all. Because of the apparently similar nature of selective settlement policies, it is necessary at this point to distinguish between two main categories of policy:-

(1) a policy which dictates that new development will be channelled into larger villages. For example, Kent (1958) classified settlements simply into villages suggested for moderate expansion and villages which are not suggested for any expansion. This type of policy tends to take an inward-looking view of the planning of each settlement and the hallmark of this group is that formal government advice appears to have been accepted without too much local innovation.

(2) a key settlement or 'king village' or 'rural centre' policy which is ideally far broader in scope than (1) in that it takes account of the functional status and potential, the economic environment and the operation of the settlement structure in general. Thus, the key settlement policy may be distinguished by an outward-looking view of how the key settlement will serve the rest of the settlement pattern. It is this type of policy which is the major concern both of this review and of the entire study.

Generally, key settlement policies were favoured more by counties with problems associated with a high level of rurality than by peri-urban counties whose policies were simply geared towards development control.

However, the key settlement policies themselves vary considerably from county to county, particularly in terms of the detail in which the policy is presented, the scale of the policy, the chosen role of the key settlements and the planning of settlements not selected as growth centres.

(a) <u>Detail of Policy Presentation</u>

The key settlement policies included in the original development plans exhibit a good deal of variation in detail, although there is a uniform choice of the county areas as the areal policy basis. The Hampshire (1955) policy merely isolated certain settlementswhere development would be favoured and indicated that applications

for development elsewhere would be considered on the merits of the individual case. The Cambridgeshire written statement (1954) was similarly vague. On the other hand, Somerset (1958) produced a more detailed fourfold classification of settlements.

A. Towns and main villages which act as local centres.
B. Settlements showing evidence of developing, and which from their position and circumstances might become main villages.
C. Settlements, which although not showing evidence of developing, could serve as local centres for areas not now enjoying good facilites.
D. Other settlements.

Perhaps the most detailed of policies accruing from the development plans is that of Durham (1954) which detailed the amount of development that would be permitted in each individual settlement, and so left little room for manoeuvre in the face of public outcry against the policy (Blowers, 1972).

This variation in policy detail should not be confused with the strength of a policy, nor with a policy's ability to fulfil its chosen objectives. There are some situations where a detailed policy might prove detrimental to the selected planning goals, and others where a more vague policy is at least as efficient as a detailed one. For example, Lindsey, Lincolnshire (1955) selected a large number of rural service centres with the intention of engendering development, but Jones (1975) in a study of rural settlement policies, indicates that the detailed policy provided too many options for too little growth in the remoter areas of the county. Moreover, the same policy applied to villages adjacent to the major towns in Lindsey was inadequate to deal with the increase in demand for commuter accommodation, and failed to 'contain' the pressure. Again, where there has been little expansion of housing in some remoter rural areas, a vague policy statement can prove as adequate as a more detailed statement in that neither could

do more than the other to increase the prevailing levels of growth.

It is clear that when studying the impact of a key settlement policy in a particular area, the written presentation of the policy is not as important as the manner in which the policy is perceived and operated by the planners concerned.

(b) Scale of the Policy

Less variation is apparent in the numbers of key settlements selected by different counties than was found in the detail of their policy presentation. It has already been noted that key settlement policies were principally drawn up by the more rural counties such as Cumberland (1955) and Northumberland (1956), and the settlement pattern prevailing in these counties was one of numerous small villages. Plans for settlement rationalisation tended to reflect this settlement pattern by selecting large numbers of key settlements.

There are several reasons behind the choice of so many growth centres in each county. Firstly, the concept of rural growth centres (or at least rural service centres) was pioneered by these development plan policies, and so with little previous experience of such policies to draw on, planners were not able to predict with any accuracy the effectiveness and dynamism of rural centres of various size categories. Selection of key settlements according to threshold populations for various services led to an emphasis on the minimum size for a growth centre almost without regard to the numbers of settlements attaining that minimum size. Associated with this factor of inexperience was the inherent novelty of the key settlement concept. Jones (1975) notes that the prevailing attitude of the time would appear to be one whereby the selection of a village as a key settlement was like the touching of a talisman, after which the planners could sit back and wait for the flood of applications.

When these considerations are coupled with the political pressure exerted by each settlement to gain

'key' status, and the planners wish for an even geographical spread of key settlements, then it is not surprising that the early key settlement policies opted for maximum coverage of these key centres. Thus Cheshire (1959) proposed 41 village centres as well as 12 rural centres, and Durham envisaged the investment of considerable capital in 70 centres.

(c) Role of the Key Settlement

The classic role of the key settlement in the development plan policies is summed up by the policy for parts of east and south-east Somerset.

> "There is need for a long-term programme to increase rural facilities in this belt and in this connection it is suggested that little would be achieved by dissipating public money on services widely elsewhere, instead it would be better to select a few villages which from their size, position and communications, appear to have some likelihood of developing as main villages to act as small centres for their surrounding rural areas." (p.55-56)

The major emphasis on concentration of service provision can be explained on three counts. Firstly, the legislation and government advice on which the development plans were based was almost entirely concerned with the cataloguing of existing services and planning for the fulfilment of future service requirements. Secondly, little consideration to the planning of residential development in rural settlements was thought to be necessary, as "the demand for private housing in rural areas was not very strong in the early fifties and essential housing needs were satisfied by the building of local authority houses." (Woodruffe, 1973, 116). Finally, one of the major causes of concern in the remoter rural areas was that of continuing depopulation. The rural counties believed that the provision of well serviced key settlements would act as a stopping-off point and therefore would help to stem the tide of depopulation (House, 1965).

The planning of residential development was restricted in most counties to recognising the lack of modern

utilities and proposing to remedy the situation in most villages as and when finance and labour were available. In fact the rural areas nearest to major urban centres, which were most likely to incur demand for residential development, received little attention at this time. The key settlement policy adopted by Nottinghamshire was the exception to a situation where few counties went as far as to formulate rural settlement policies on the basis of the rural community structure surveys contained in the development plans.

One interesting deviation from the stereotyped service provision role of key settlements is afforded by the Cheshire policy. In this case 'urbanised villages' are recognised, these being rural settlements of considerable population size situated adjacent to towns or settlements which have become extensions of the built-up area. Increases of population in these settlements were deemed undesirable although services of urban standards were to be provided.

Cheshire also provided as early example of the bifurcation of key settlement functions. 12 settlements of above average population and yet situated away from any urban node were selected as 'rural centres'. Service provision in these settlements was to be brought up to the standard of that in a small town so that the rural centre could service a considerable rural hinterland. Significantly, the policy also sought to attract industry and employment into these centres, a task also undertaken by Northumberland for their key settlements. In addition to the rural centres, 41 second tier villages were selected to act as localised service centres. This division of the key settlement role into two tiers was one which found favour with later key settlement policies.

One further variation in the role of key settlements is apparent from the reports of survey presented by East Sussex and Nottinghamshire. Both reports suggested that service provision and facilities could be shared amongst a close-knit group of villages (or village cluster).

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However, in neither case was this suggestion taken up in the written policy statement, although the village cluster concept has been resurrected several times since (e.g. McLaughlin, 1976).

(d) Role of Non-key Settlements

It would be easy to concentrate solely on the role of the key settlement itself when tracing the development of key settlement policies in the planning of rural areas. Indeed, the charisma of a key settlement policy revolves around the ability of the selected settlement to fulfil certain specified aims and objectives. Yet much of the emotion and political outcry engendered by this type of policy concerns the plight of those settlements which are not selected for specific service investment and therefore were often not viewed as viable centres for further growth. Such settlements were paid little attention in many of the initial development plans. Cambridgeshire, for example, merely indicated that every application to develop in non-king villages required individual determination in the light of local circumstances. This vague type of policy was also adopted by Hampshire. On the other hand, several counties were more ready to apply the rationalisation process to both poles of the rural settlement continuum. It is clear that a policy designed to rationalise an outmoded settlement pattern in rural areas experiencing little or no growth will selectively channel initial prosperity into the key settlements at the expense of other, less priveliged, communities. Indeed, population flows from small village to key settlement were encouraged as an answer to rural outmigration. Only in the long term could non-key villages expect to receive a backwash of investment and perhaps prosperity.

Durham was the county which gave fullest commitment to a policy of total settlement rationalisation. A four-fold classification of settlements was augmented by detailed accounts of the investment projected for each category. It is worth recording these four categories in detail, if only because of the huge public

outcry which resulted from that part of the policy concerned with the 'killing-off' of the Category D villages, which were usually mining villages associated with pits that had closed down (Barr, 1969). The four settlement categories were:-

A. Those settlements in which the investment of considerable further amounts of capital is envisaged because of an expected future regrouping of population, or because it is anticipated that the future natural increase in population will be retained.

B. Those settlements in which it is believed that the population will remain at approximately the present level for many years to come. Sufficient capital should be invested in these communities to cater for approximately the present population.

C. Those settlements from which it is believed that there may be an outward movement of population. Sufficient capital should be invested to cater for the needs of a reduced population,

D. Those settlements from which a considerable loss of population may be expected. No further investment of capital on any considerable scale should take place. This generally means that when the existing houses become uninhabitable they should be replaced elsewhere, and that any expenditure on facilities and services in these communities which would involve public money should be limited to conform to what appears to be the possible future life of existing property in the community.

In fact Cumberland also designated 'D-villages' where "development is unlikely to occur", but less opposition was raised to this policy.

The range of attitudes towards non-key settlements from allowing suitable development to taking positive steps to relocate the settlement's population in a more rational location, appears to be associated with the nature of the county involved. The more remote rural

counties, generally with a larger number of key settlements, tend towards a restrictive attitude where non-key settlements are concerned, even though this usually takes the less controversial form of preserving the status quo rather than an embargo of further investment. By contrast, the counties adjacent to centres of urban population have more growth anddevelopment to allocate and so are able to adopt a less strict viewpoint on the question of suitable development in non-key settlements. Even this attitude is questioned in later policies.

DEVELOPMENT PLAN REVIEW POLICIES

Only very limited government advice in rural settlement planning was given to local authorities between the appearance of the initial development plans and the submission of the early reviews. However, two new items were introduced to the rural settlement planning agenda during this period. In 1955, local authorities were encouraged to establish green belts, with the consequence that villages within this new designation were to be prevented from further development other than by infilling or rounding off. The second new influence in the rural settlement planning context was the Town and Country Planning Act of 1962 which merely consolidated the 1947 Act and had little effect on the form of development planning (Ratcliffe, 1974). Development plan regulations were amended in 1965 so as to discontinue the use of 'hot-cross bun' symbols on County Maps, but information still had to be submitted about service centres in the rural settlement pattern.

However, when the development plans were first reviewed, many counties found it necessary to make extensive revisions to their previous rural settlement policies. In this instance, the revisions were not dependent on detailed government advice but rather were a reflection of the fluctuating conditions and problems in rural areas. Alterations in policy were forced upon some authorities due to a rise in demand for rural

housing, principally from urban workers. Moreover, "residential development application in certain villages and locations brought up the questions of future size, form and structure of these settlements" (Woodruffe, 1973, 117). Indeed a system of informal, non-statutory plans evolved in many counties in order that development control and revisions in county policy could keep pace with the rapidly changing situation.

Several general observations may be made concerning the key settlement policies contained within the development plan reviews. Certain counties made no changes to their initial development plan policies (e.g. Huntingdonshire, 1959). Others made extensive policy alterations due in part to unstable external factors and in part to being given the opportunity to rethink or at least spend more time on the development plan policies. These changes can usefully be discussed under the headings used in the discussion of initial development plan policies. In this way, inter-county variation may be monitored while a concurrent analysis may be made of the major differences between the policies of the initial development plans and the development plan reviews.

(a) Detail of Policy Presentation

A much greater degree of detail was incorporated into the key settlement policies of the reviews than had previously been the case. Frequently the previous division between key settlements and others was replaced by a three or four-fold classification of settlements. On the other hand, Somerset (1964) in fact produced a policy using fewer settlement classifications than before but it is interesting to compare the three detailed village schedules with the less detailed initial development plan policy quoted above. The schedules were as follows:-

(1) Villages intended as centres for social, education or health services. Favourable consideration to be given to satisfactory proposals for the development of these villages. Amounts of development will depend on the character of the village, local physical features, accessibility and the need for economy in the use and provision of public services.

(2) Centres considered suitable for more limited development in the form of infilling consistent with the established character of the village and with such essential public services as exist or can reasonably be anticipated.

(3) Small villages and hamlets. Development is not precluded in these settlements. The local planning authority will give sympathetic consideration to development needed for the livelihood of any established rural community.

Very often the overall policy was supported by a series of informal village plans and maps (e.g. Cornwall, 1969) which were prepared in order to complement previous survey work, and to facilitate the planning of individual key settlements. The use of plans such as these became an increasingly frequent second stage in key settlement policy planning. With this trend towards local planning within the county policy system, the later reviews were able to include estimates of the amount of population growth to be permitted in the various settlement classifications. Huntingdonshire (1972) for example, budgeted for an increase of at least 1000 persons in its major growth villages. It must be stressed, however, that many other counties deliberately omitted the inclusion of population increase estimates so that developers could not point to written planning policy as a justification for development which might be deemed unsuitable in planning terms.

Generally, the key settlement plans of this era give more detailed explanation to the background of their policies than previously. This is particularly evident in the consideration of residential development as well as service provision. In some cases, the review stage is the first in which counties have considered it necessary to give a formal statement of a key village policy. Such was the case with Lancashire (1962) which was preoccupied with urban matters in the initial development plan, but residential pressure in rural areas compelled a consideration of rural matters in the review and the

formulation of a key settlement policy resulted. This policy was justified at length:-

> "In order that the rural economy may be sustained, the amenities of the countryside preserved and the social and other facilities improved, it is considered that development in rural areas should be carefully controlled while provision will be made where appropriate for the consolidation of the existing settlement pattern by the influx of new population." (p.79).

Two general evolutionary trends are highlighted by the Lancashire policy. In the first place it attempts to portray a comprehensive picture of rural settlements and their needs rather than looking at the problem from one particular aspect. Secondly, the concept of settlement 'consolidation' in pressured rural areas (as opposed to settlement rationalisation in remote areas) is introduced whereby major emphasis is placed on the individual settlement's ability, on physical, social and aesthetic grounds, to cater for new residential development.

Devon (1964) was obliged to produce a definitive rural settlement policy for entirely different reasons. The high level of rural depopulation taking place in the county was not forecast in the initial development plan, and the review proposed a strict key settlement policy, orientated mainly around service provision, to counteract these out-migration trends.

(b) Scale of the Policy

Very few counties altered the number of key settlements provided for by their original plan. Indeed, the policy introduced by Devon at the review stage designated more than sixty key settlements, and so it would appear that the preference for a large number of rural growth centres was maintained in the reviews. Even Huntingdonshire, despite its being such a small county, was able to name eight major expansion settlements and nineteen minor expansion settlements. The only exception to this rule appeared in the Northumberland (1966) review where the Education Authority's decision to halve its programme of primary school provision led to a drastic

amendment of the key settlements policy so that only those villages with primary education facilities were fostered as rural growth centres.

Apart from such specific alterations in the pattern of essential service provision, there would seem to be very little reason for any change in the scale of key settlement policies at this time. The 1961 Census followed immediately after the formulation of the initial development plans and the mid-term 10% Census was not able to supply detailed information of the progress of the rural areas. Therefore, it was the 1971 Census which in many cases provided the first opportunity for a detailed review of all aspects of key settlement performance. Even those counties who produced further detailed surveys on their own account found that the early reviews came too soon after the often delayed instigation of the initial rural settlement policy to enable a positive judgement as to the optimum number of growth centres in the county.

(c) Role of the Key Settlement

The function of key settlements designated under the development plan reviews was appreciably wider than in earlier policies. Perhaps typical of the policies applied by the remoter rural counties was that of Devon which designated key settlements in order to

- provide the best environment for the countryman
- encourage the setting up of new activities and sources of employment in the country
- secure the most economic distribution of public utilities ..... and social services
- make an adequate system of public transport services in rural areas a practical objective
- preserve the rural landscape
- maintain a convenient distribution of readily accessible village centres, particularly in areas of rural depopulation.

The introduction of new employment into the countryside and the concern about transport linkage between settlements were objectives which were introduced or re-emphasised by most of the key settlement policies in remoter rural areas.

In addition to these widening criteria for concern in the reviewed policies, the guidance and control of residential development assumed major importance in the role of key settlements. Amounts of development to be permitted depended on the character of the village, local physical features, accessibility and the need for economy in the use and provision of public services. The requirement for greater detail in the consideration of individual settlements partly arose from and partly gave rise to an emphasis on the development of informal local plans. In fact, local planning was given formal impetus with the circulation of Planning Bulletin 8 (Ministry of Housing and Local Government, 1967) which suggested a staged process of policy formulation and settlement plan preparation in the light of information currently available. Stage three of this process, following initial appraisal and county policy formation was the preparation of plans for small towns and villages.

For those rural counties experiencing urban pressure, the introduction of green belt legislation led to the imposition of severe restrictions on settlements within the green belt area. Few key settlement policies came under the influence of green belts at this time, although it is possible that the severe green belt restrictions imposed within counties such as Warwickshire may have led to the adoption of key settlement policies in order to channel any development which is forced to leapfrog the green belt into settlements which are capable of accepting such growth. The few key settlement policies operative in peri-urban counties were little altered at the review stage, although Hampshire (1969) revealed a possible separation of service and residential development roles in stating that "certain villages will be selected

to serve as local service centres for the rural area around them, although this will not necessarily imply further growth." (p.2).

The development plan reviews thus gave important impetus to the requirement for a more comprehensive role for key settlements. An increased demand for residential development in the countryside often necessitated the detailing of how much residential growth was acceptable in each key settlement, and factors such as conservation, public transport and employment opportunity provision became increasingly apparent as part of the key settlement function.

(d) Role of the Non-key Settlements

The trend towards rural policies in the form of a three- or four-fold settlement classification enabled counties to attribute a more specific function to those villages not selected as key settlements. A case in point is Cornwall whose classification of non-key settlements consisted of

B. Centres which are suitable for a smaller amount of development depending on the extent and capacity of existing or proposed services.

C. Centres which are suitable only for the location of a very limited number of additional dwellings.

As in the initial development plans, different counties adopted differing tolerance levels towards development in smaller settlements. Somerset, for example, takes a sympathetic viewpoint:-

> "The policy set out above does not mean that development in small communities will not be permitted; the Local Planning Authority will be prepared to give sympathetic consideration to development needed for the livelihood of any established rural community." (p.3).

This leniency towards smaller settlements was certainly not a standard attitude amongst counties as a whole, as many, including West Suffolk (1963), found it necessary to include at least one category of village where growth

would be inappropriate because of the situation and structure of the existing settlement.

In general though, there was a softening of the strict attitude adopted in some of the initial development plans towards the non-key settlements. In some cases, settlements were upgraded in the light of changing social trends. Increased growth in coastal districts resulted in the upgrading of several Cumberland (1964) mining villages which had been previously scheduled for abandonment. Elsewhere, a softening of written policy on non-key settlements came as a result of adverse public reaction to the previous plan. The Durham policy, which attracted much public antagonism was extensively revised (1964). The former D category was discarded in favour of a less harsh categorisation of settlements in which new capital investment was to be limited to the social and other facilities needed for the life of the existing property. Again some upgrading of settlements took place so that an increased number of small villages were able to receive small amounts of public investment. It is necessary to add a note of caution at this point. There is often a suggestion of window dressing in this flexible attitude towards the smaller settlements in that there are cases where little difference can be detected between the operation of the rigid development plan policies and the seemingly more flexible review policies.

One exception to the trend of increasing flexibility was the new policy presented by Devon (1964) which indicated that in villages other than key settlements, "residential developments should be restricted, and only permitted after regard to ..... availability of public utilities and social services, the adequacy of approach needs and public transport together with their location in relation to key settlements and urban centres." (p.166).

It is important to reiterate that the detail in which a policy is presented does not always reflect the strength of that policy when in operation. Much

depends on the planner's interpretation of a particular part of the policy at any one time. If, for instance, a rural key settlement is flourishing in terms of population, service and perhaps even employment growth, then the planner may feel able to allow some growth in surrounding smaller settlements. If, however, the key settlement is not attracting growth, or if matters of village conservation are paramount at that time, then a less favourable attitude will be taken towards peripheral development. In this way an apparently flexible policy may be subject to strict interpretation and vice versa.

Having said this, it is clear that the key settlement policies outlined in the reviews had progressed from the earlier policies. Progress is particularly evident in the more comprehensive roles afforded to the key settlement and in the policy changes effected in the light of ten years experience of key settlements, particularly the steps taken towards local planning and public participation.

STRUCTURE PLAN POLICIES

The Town and Country Planning Act of 1968 was an attempt to remedy the deficiencies of previous legislation. Under its auspices, the development planning procedure was replaced by a two-tier framework for planning involving the formulation of structure plans and local plans, both of which were able to overlap local authority boundaries if necessary. The statement of large-scale policies and proposals contained in the Structure Plan was to provide the backcloth for the detailed working out of these policies in the smaller-scale local plans. These considerable changes to planning methodology were put into operation by the Town and Country Planning Act, 1971 (Amended 1972). However, it is important to note in the rural planning context that, although the new plans were required to relate to such topics as population, employment and housing,

there was no obligation to include the planning of rural settlements per se.

The time lapse between the approval of the first development plan reviews and the formulation of the structure plans has in many cases been so long that the reviewed rural settlement policies have themselves become outdated and in need of further review prior to the submission of the structure plan. Several interim settlement policies (notably Norfolk, 1974, Leicestershire, 1971 and Nottinghamshire, 1966-69) have been produced together with many more informal reviews of policy. The importance of these interim statements is such that policies outlined in them have not been revised to any great extent in the ensuing structure plans.

Thus far, relatively few structure plans have been produced, especially for those counties where the problems of the rural area are a major concern. Inevitably these are the very counties whose limited resources do not allow rapid progress of the involved structure plan procedure. However, sufficient rural settlement policies incorporating the key settlement concept have appeared to permit some tentative discussion as to the nature of this new breed of key settlement policies. These are best discussed in terms of the type of county involved, as the relatively narrow base of published structure plans does not allow such a rigorous systematic review as was possible under the headings used above.

(a) <u>Pressured Rural Areas</u>

Perhaps the most striking feature of this latest series of policies is the increasing number of urbanised counties which have adopted the key settlement concept. This trend was foretold by a series of interim settlement plans detailing the problems of rural areas experiencing urban pressure. Nottinghamshire produced a series of such reports, each dealing with the particular problems of individual rural regions, but each offering a similar

settlement policy solution to these problems. The reasoning behind the selection of a key settlement policy is explained in the plan for East Retford Rural District (1966, 18).

> "As it becomes necessary to consider population additional to that already capable of being accommodated within 'committed' areas, certain villages can be selected as 'strong' growth points ....
> It is considered preferable to expand a limited number of communities, carefully selected, rather than to attempt to spread development somewhat evenly over a large number of villages. In this way the new growth will be concentrated so as to permit the provision of schools and public services on an economic basis, and to ensure that the selected communities are conveniently located to employment."

In this way, the key settlement acts as a centre for service provision, residential development, conservation of other settlements, and also serves as an important node in the journey-to-work network. Similar key settlement roles were adopted by the Leicestershire (1966) interim policy, although this involves a more complex five-fold classification of settlements.

It is not surprising then, that to date urbanised counties such as Staffordshire (1973), Warwickshire (1975) and Leicestershire (1973) have included key settlement policies akin to the one quoted above in their structure plan documentation. Staffordshire's policy attempts both the channelling of growth in peri-urban areas and the stimulation of growth in rural areas which are more remote from the urban centres. The plan names the selected key settlements and outlines the amount of population growth planned for each. Further innovation has been introduced in the form of the planning of a new village to act as one of the growth centres.

No uniform level of detail is displayed in this group of policies. The Warwickshire policy, which is discussed in detail below, again names its selected key settlements, but gives less detail as to the permitted levels of growth in each centre. The strength and the

weakness of the Warwickshire policy is the detailed indexation process entered into in order to select the growth centres. Development potential, land constraints and existing commitments are all given detailed analysis for each settlement but there is a suspicion (Leach, 1974) that parts of the index are misleading and others are superfluous.

The policy for Leicestershire differs again from those discussed above. Following a survey of existing commitments, population distribution and the service role of villages, it was decided to simplify the interim policy, which consisted of five rural settlement categories, and to classify settlements into one of three groupings.

1. Potential Expansion
2. Restraint
3. Local Needs.

The first grouping is a fairly standard classification which incorporates those villages and small towns from which the key growth settlements will be selected. It is stressed that the village plans for these settlements will be the final arbiters of the growth levels which are acceptable in a particular instance.

Of more interest is the restraint village category which groups together the remaining villages, apart from those where growth will be restricted to the needs of the local community. The scale of growth in these restraint settlements will be strictly dependent on existing commitments and local environmental conditions and services. Included in this category are some villages which were designated as key settlements in previous policies but which have reached a stage of expansion where it is considered that environmental conditions dictate the restriction of further growth. This demotion in the settlement hierarchy raises a very important question in the use of key settlement policies in peri-urban counties; namely the long-term decision as to whether key settlements are to be permitted to grow ad

infinitum and so become settlements of urban size and character, or whether after a certain period of growth, the key settlements are to be allowed a period of consolidation during which the onus of residential growth is shifted to other settlements. If the latter solution is accepted, as it has been by Leicestershire, then there is a risk of a gradual urbanisation of the countryside as each settlement is allowed to accommodate its growth potential. Preferably, some compromise can be reached between these two extreme situations, but the dangers of neglecting the long-term ramifications of a rationalisation policy in rural growth areas should not be ignored.

(b) Remoter Rural Areas

Few rural counties have as yet submitted their structure plans but there is evidence of interesting policy variation both from submitted plans and from the many preliminary publications (e.g. Kent, 1975) which form part of the public participation process. One such publication has been produced by Rutland (1975) outlining the possible settlement policies and their compatibility with other aspects of planning (Figure 3.1). It is noticeable that those policies (4, 5 and 6) which do not encompass the key settlement concept are almost entirely inconsistent with the aims of other planning policies. Therefore, it is not surprising that Rutland, together with other counties in the same situation, are seen to favour the key settlement solution to problems pervading the remoter rural areas.

The form of key settlement policy adopted again varies from county to county. Worcestershire's policy (Hereford and Worcester County Council, 1973) merely states that substantial growth over and above existing growth commitments in rural areas will be generally confined to a limited number of selected villages. The plan for Herefordshire (Hereford and Worcester County Council, 1976) however, favours the restriction of growth

Figure 3.1 Settlement Policies Compared with Choices for Other Policies

	Settlement Policy	Population	Employment	Housing	Movement	Recreation	Finance
1.	Concentration (Concentrating further growth in no more than 4/5 centres).	✓	✓	✓	Inconsistent with concentration on roads as would encourage congestion i.e. car's advantage is freedom of movement.	Inconsistent with policy of major development which would encourage more broadly distributed growth.	Trend possible but some new investment required and change in service priorities may be necessary.
2.	Concentration/new village. (As above but with much of the growth going to a new village).	Difficult if growth restricted because of limited amount of development to distribute.	✓	✓	✓	As above.	Trend unacceptable - considerable new investment especially private required, or larger proportion of County budget.
3.	Sub-Centres (Development in a number of medium-sized villages rather than the larger settlements).	Difficult to implement if population growth restricted as amounts of growth allowed in each sub-centre small.	Inconsistent with increased commuting i.e. limit job growth to existing firms not in sub-centres. Current pattern difficult for same reasons.	✓	Inconsistent with private transport extreme as some public transport would be needed to serve these centres.	✓	Trend probably unacceptable - limited new investment required; change in service priorities and more private investment likely.
4.	Quality areas (Careful development in conservation villages to create an attractive environment for new homes).	Difficult if growth encouraged as scale of development makes sensitive approach difficult, as does no population control as growth levels uncertain.	Inconsistent with job balance and reducing commuting i.e. employees scattered and job growth unacceptable in many villages. Difficult to attract sufficient jobs.	More Council housing could help the effective control of development standards.	As above.	Inconsistent with restricted or limited development around Resorvoir i.e. quality area. Difficult to implement if major recreation development is encouraged.	Trend probably unacceptable - limited new investment required - change in service priorities necessary and some more private investment.
5.	Dispersal (Would seek to disperse development among a large number of villages).	Incompatible with restricting population growth and probably difficult to achieve unless population growth encouraged.	Incompatible with job balance and reduced commuting; inconsistent with population/job match because labour and facilities scattered.	Inconsistent with increasing Council housing as this group has lower mobility i.e. negates advantage of dispersal.	Unacceptable with either public transport choice.	Incompatible with restricted development or limited development as dispersal would encourage development in a large number of villages.	Trend unacceptable - considerable new investment likely to be needed, particularly from private sector.
6.	Social policy (Concentrate most growth in the larger settlements but allow some small developments in declining villages for social reasons).	Incompatible with encouraging population growth which would make the social element hard to implement.	As with Quality Areas policy.	Reduction incompatible and trend unlikely as more council housing might be needed to implement the social policies.	Probably incompatible with either private transport choice as reasonable bus services would be essential.	Inconsistent with major development as this would make social element difficult to fulfil due to general growth pressures.	Trend may be acceptable but change in service priorities probably required.

to the larger market towns, with village development being confined to settlements where the necessary services and facilities exist or can be economically provided.

An important stage in the development of key settlement policies is marked by the publication of the Norfolk Draft Structure Plan (1976). The problems facing Norfolk are perhaps typical of those affecting a number of rural counties and so the proposed solutions to these problems in the Norfolk context may give some indication of the format of many future key settlement policies.

The criteria dictating policy selection in Norfolk were those determining

1. the appropriate balance in the attraction of development and the allocation of resources between the major urban areas and the Rural Areas.
2. whether, within the Rural Area, the small towns or the villages should receive the greater emphasis.
3. whether, within the Rural Area, general assistance should be offered to all areas, or whether resources should be specially allocated to selected areas with the greatest need or potential.

As with most counties, the choice of policy in Norfolk is severely compromised from the beginning by the high level of outstanding investment commitments, particularly in urban areas, and so the encouragement of investment in rural areas, especially in employment provision, can only be viewed as a long-term venture. Apart from the factor of existing commitments, the policy response to the aims and opportunities outlined above was heralded by the Interim Settlement Policy (1974) whose advice had been largely carried over into the settlement policy outlined in the draft Structure Plan (Figure 3.2). Several departures from the conventional form of key

Fig. 3.2 Norfolk Structure Plan Settlement Policy

	Outer Norwich Area	King's Lynn sub-area	Great Yarmouth sub-area	Rural Area
Six Market Towns selected as "Growth Centres"	–	–	–	Fakenham, North Walsham, Swaffham, Diss, Downham Market, East Dereham.
Twelve small towns and large villages	Loddon/ Chedgrave, Long Stratton, Wymondham.	–	–	Attleborough, Aylsham, Cromer, Harleston, Hunstanton, Holt, Sheringham, Watton, Wells.
26 Village Service Centres	Acle*, Lingwood*, Wroxham/ Hoveton	Dersingham, Grimston*, Terrington St. Clement, Watlington,* West Winch*	Martham, Ormesby St. Margaret, Belton*	Ditchingham, Docking, Feltwell*, Harling, Heacham, Hingham, Marham, Mattishall, Melton Constable/Briston, Methwold, Mundesley*, Necton*, Reepham*, Shipdham*, Stalham/ Sutton*, Upwell/Outwell.
14 Village Minor Service Centres	–	Tilney St. Lawrence	–	Blakeney, Brancaster, Burnham Market, Castle Acre, Foulsham, Gt. & Lt. Massingham, Gt. & Lt. Walsingham, Hilgay, Litcham, N. Elmham, Pulham Market & Pulham St. Mary, Stoke Ferry, W. Walton.
6 Villages for "Small Groups" of Housing	–	–	–	Ditchingham, Gillingham Hilgay, Sculthorpe, Sporle, Mundford.
Other villages with substantial existing housing commitment (For 100 or more houses)	Tasburgh	Gayton, Snettisham, Terrington St. Clement	Hemsby, Hopton.	12: Beetley/Gressenhall, Brancaster, Briston, Burnham Market, Dicklesburgh, Docking, Heacham, Hickling, Langham, Mattishall, Saham Toney Weeting
(For 50 99 houses) (not listed in Draft Written Statement)	7: Brooke, Buxton, Coltishall, Hempnall, Marsham, Reedham, Salhouse,	Middleton.	–	15 Ashill, Cawston, Garboldisham, Gt Ellingham, Gt Massingham, Griston, Harling, Hingham, N Elmham, Old Buckenham, Pulham, St Mary, Shouldham, Swanton Morley Wimbotsham

Housing Policies	Employment Policies	Services Investment Policies
Residential allocations made in Local Plans, phased to ensure an adequate supply (4.5.52)	Serviced industrial land provided by Local Authorities. Industrial liaison and publicity service to promote growth. (4.5.51).	High priority for road improvements, education, and utility services (particularly sewerage). Initially, Fakenham, North Walsham and Swaffham to receive special priority. (4.5.53). Public transport for work and shopping journeys to these towns (4.5.51) Middle Schools and High Schools to be provided. (4.5.51). Priority over villages for investment in facilities (e.g. schools, community centres, recreational facilities). (4.5.56).
No further allocations (except small scale local needs)(4.5.55)Allocations at Holt and Loddon/ Chedgrave to be reduced. (4.5.55)	Existing industrial allocations retained but no further allocations (4.5.55). Further permissions only in accordance with phasing. (4.5.55).	Medium priority for investment in services or infrastructure for existing deficiencies and for growth at a gradual rate (4.5.55). Middle schools and High schools to be provided (except Holt Middle School only). (4.5.55). Priority over villages for investment in facilities (schools, community centres, permanent libraries). (4.5.56).
*Residential development phased according to Local Plans (4.2.40, 4.3.41, 4.5.57). Other centres Presumption against further permissions, except for individual dwellings or small groups. (3.4.27).	Primarily related to urban employment centres. Workshop scale industries may be allowed (3.3.20).	Medium priority for investment in services (schools, public transport, health services) (4.2.47, 4.3.49, 4.3.52, 4.5.57.) High Schools at Acle, Hoveton, Dersingham, Terrington St Clement (4.5.57). Middle Schools to be provided as and when resources permit (4.5.63). Unconventional public transport to link surrounding villages to service centre (4.5.64). Sheltered housing schemes (outside towns) to be in those centres (4.5.65). Priority over other villages for investment in community and recreation facilities. Other authorities to recognise these centres when providing services (particularly health services) Regular child health clinics, playgroups, private nursery facilities and any relevant social service facilities to be encouraged. Public Transport to the nearest small town (4.5.68).
As above (individual dwellings etc.)	As above (workshop scale industries)	The last four investment policies above also apply to these centres (4.5.68).
Permission for small groups of houses, phased over the Plan period. (4.5.58).	As above (workshop-scale industries	Medium priority for investment in essential services (4.5.58).
Presumption against further permissions (3.4.27) Expiring permissions for estate development not renewed if serious overloading of facilities or services is detrimental to village character (4.5.61)	As above (workshop-scale industries).	Priority for investment will not be given except to resolve existing difficulties or deficiencies (4.5.61).

settlement planning are to be found in the Norfolk scheme. Perhaps the most marked innovation concerns the apparent division of key settlement roles so as to form a nested hierarchy of rural centres, each differing in scale and functional priority. Previously, functional bifurcation in key settlement policies had amounted to a basic twofold division between major and minor growth centres. The Norfolk policy retains the major/minor distinction but applies it to three differing types of centre (Figure 3.2).

1 and 2. growth centres (major) and town centres (minor) with priority on investment for employment opportunities.

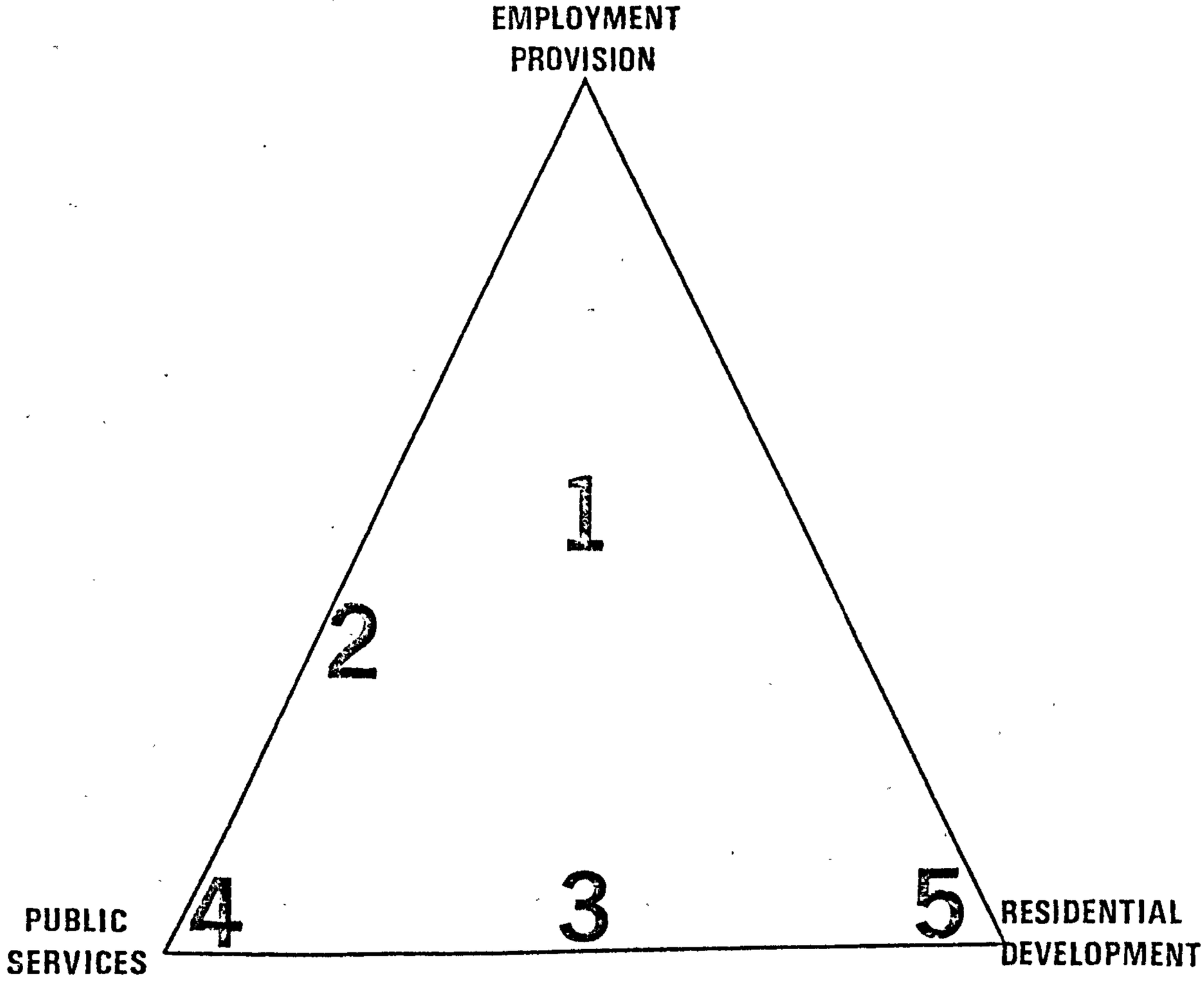
3 and 4. village service centres and minor village service centres attracting investment in public services and community facilities.

5, 6, 7 and 8. villages for various scales of residential development. Category 5, the thirteen villages for Residential Estate Development formed part of the textural policy (Para. 4.5.61) but was omitted from the summary schedule: hence the addition to Figure 3.2.

There is a high incidence of overlapping between each settlement category, as might be expected from a policy which aims to provide economies of scale in service provision and residential development. Thus, all but one (Stalham/Sutton) of the thirteen villages scheduled for residential development (Category 5) are also named as villages service centres. Alternatively, 16 of the 25 village service centres are earmarked for residential development at one scale or another. The pattern which emerges from this confusion of details is summarised in Figure 3.3. Apart from the all embracing growth centres, each category gravitates towards a certain functional point or an axis between two such points.

Besides the extreme detail of presentation and an apparent splitting of the key settlement roles, at least

Fig. 3·3 Functional Differentiation Between Norfolk Rural Centres



1. Growth centres
2. Town centres
3. Village service centres selected for residential growth
4. Other service centres
5. Centres selected for residential development without service upgrading

in policy formulation if not so much on the ground, the Norfolk policy exhibits other interesting variations on the key village theme. For example, great emphasis is placed on the existing stock of planning permissions, and the inevitability of their restricting the range of policy choice available to the planner. Trend planning has become an integral part of all rural settlement plans, but in this case (as in the Leicestershire plan) some attempt has been made to recognise past mistakes. Expiring planning permissions in unsuitable settlements will not be renewed, and in extreme cases the costly process of the revocation of planning permissions is being considered. Another example of this trend planning is the planned acceptance of residential development in commuter villages which possess only a minimum of services and facilities.

The Norfolk policy, in naming the settlements selected for residential or service development, by the same act isolates the 300 or so villages which can expect no improvement in the level of services or infrastructure. In these cases, there will be a presumption against further housing development permissions, except some minor infilling and individual houses which enhance the form and character of the village. It is interesting to note that counties using a key settlement policy for the first time do tend to adopt a strict no-growth attitude towards the non-key settlements. Counties such as Devon and Northumberland appear to have gradually relaxed this strict attitude as their experience of key settlements has lengthened. The Norfolk plan does make some provision for the spread of new housing apart from in key settlements. However, public opinion will inevitably be mobilised against the strict policy towards the smaller settlements in Norfolk, and it will be interesting to see whether other counties include such a definitive statement of no growth for unselected settlements and whether the Norfolk plan is softened in the light of adverse public opinion.

CONCLUSIONS

It would be unwise to draw too many premature conclusions about the continuing evolution of key settlement policies within the structure plan framework. The policies published so far indicate a good deal of variation between counties, as has been the case throughout the history of key settlement planning. Planners appear to have used the structure plan preparation as an opportunity of promoting individual preferences of presentation, flexibility and to some extent policy, despite the fact that freedom of policy choice is severely compromised by commitments carried over from previous policies.

However, there is already a marked increase in the use of key settlement policies in pressured areas. This is directly associated with a rapidly increasing demand for housing in rural areas, along with a concern for the conservation of certain settlements whose environments are not suitable for the acceptance of further growth. So long as these two factors remain of importance to pressured rural areas, then it is probable that key settlement policies of one form or another will continue to be adopted as part of the settlement consolidation process.

The current economic situation adds to the likelihood that the remoter rural counties will also turn to policies that will enforce some form of concentration and rationalisation of the rural settlement structure. Again, the conservation of growth for economic reasons is linked with the wish to conserve the most attractive parts of the rural environment.

It would, therefore, appear that the key settlement type of policy will continue to play a major role in the planning of rural settlements at least until the end of the current structure plan period and probably beyond that time, especially if the present emphasis on trend planning continues. Although considerable variation has

occurred in the presentation and detail of the various policies, and no doubt this pattern will continue in the following plans, there is also considerable variation in how rigidly and how successfully the key settlement plans are implemented in different areas. It is to this aspect of key settlement policies that the forthcoming chapters are devoted.

CHAPTER 4
AN INDEX OF RURALITY FOR ENGLAND AND WALES

The selection of suitable rural areas in which to study the operation of key settlement policies was determined by two main criteria.

1. A fairly typical key settlements policy should have been used in the planning of the areas involved.
2. The areas themselves should be typical of what have been described in Chapter 2 as 'remote' and 'pressured' areas.

The first criterion has been surveyed in Chapter 3, but to find the best fit between a typical policy and a typical rural area also involved some objective assessment as to the nature and extent of rurality.

It might well be argued that the definition and measurement of rurality is superfluous for the selection requirements of this study, since there are only a limited number of rural counties using key settlement policies and therefore a subjective estimate of rurality would suffice in this case. However, this argument is rejected for two reasons. Firstly, the selection of representative study areas should be as objective as possible so as to enable (so far as this is practicable) the measurement of variations caused by using a key settlement policy, rather than those caused by the individual nature of the areas in question. Secondly, any device for the calculation of rurality could be constructed so as to be widely applicable to further socio-economic studies in the rural context. To these ends, an attempt has been made not only to pin down the nebulous concept of rurality but also to measure differences in the degree of rurality to be found in England and Wales.

DEFINITION OF RURALITY

Until recently, planners have leaned heavily on sociological theories of rural and urban relationships. Two basic models have been invoked in this context. The original idea of 'rural' and 'urban' as two poles of a dichotomy was soon found to be unrepresentative of the real world situation (Stewart, 1958). As Sorokin and Zimmerman (1929, 16) pointed out, "in reality the transition from a purely rural community to an urban one .... is not abrupt but gradual." Realisation that the extremes of the dichotomy were easily recognised but that the threshold between their respective influences was not readily identifiable, led to the conceptualisation of the rural- (or folk-) urban continuum pioneered by Redfield (1941). Support for this concept came from investigators such as Queen and Carpenter (1953, 38) who noted a 'continuous graduation in the United States from rural to urban rather than a simple rural-urban dichotomy'.

However, the continuum model has also been seen to be unrepresentative in that it is both oversimplified and misleading (Mitchell, 1973). By way of compensation increasing complexity has been introduced into the theory of rural-urban relations. Pahl (1966, 327) argues that the continuum concept might be replaced by 'a whole series of meshes of different textures superimposed on each other, together forming a process which is creating a much more complex pattern.' A natural progression from this idea is outlined by Bailey (1975, 117-118) who argues that 'the crux for the sociologists is that the defining parameters of social problems are the same for rural as for urban areas.' Thus the treatment of the rural-urban distinction in sociology has changed from the study of two extremes to the recognition of common social variables in these extremes, which allow a unified field of study, and preclude the separation of 'rural' from 'urban'.

When faced with a fluid conceptual framework such as this, it seems likely that an inductive approach might yield more positive and useful results when attempting a definition of rurality for use in the planning of rural areas. This approach inherently accepts some form of continuum model, and rightly so, for planners are not yet ready to follow sociologists into a non-spatial view of rural and urban as a unitary area, simply because of the vast differences in scale, resources and environment between the two extremes.

An inductive approach suggests that certain selected variables may be measured to ascertain whether an area inclines toward the rural or urban pole. The definition of rurality is therefore inherent in the choice of these variables, and so it is necessary to include some test of significance to ensure that the selected variables are indicative of rural or urban (and therefore non-rural) inclination. Schnore (1966, 135) warns that all such definitions incorporate a degree of arbitrariness. "In this case, the major difficulties stem from the fact that the characteristics which have been singled out for attention ... are literally variables, i.e. they exhibit differences in degree from place to place and time to time." However, these difficulties would appear to be advantageous in the construction of an index. Areal variation is necessary to gain a widespread pattern of the distribution of rurality, and variation over time is likely to offer an interesting insight into the changing nature of rurality.

In 1971, the Department of the Environment (1971 and 1972) reported on an investigation into the nature of rural areas and small towns in England and Wales. Incorporated in this study was the measurement of three variables, discussed later, to define rurality, and the calculation of an index by which degrees of rurality could be measured. This study pioneered the inductive approach in this field and it was the need to update the results and to improve the rurality definition by

the introduction of multivariate statistical techniques that led to this present work being initiated.

DATA BASE

Most of the details used in the indexation procedure were extracted from the population census of England and Wales. A statistical data input was required to prevent any subjective valuation of variables, and the census provides a convenient and concise compendium of such data. This source also allows continuity of data over time, thus presenting the opportunity of historical comparisons of rurality using the same basic variables and techniques for two census dates. It may even be possible to continue this comparison into the future, although the reorganisation of local government boundaries has complicated any moves in this direction.

Census data for rural administrative areas are provided at civil parish and rural district levels. Neither is an entirely satisfactory areal base for the measurement of variation in rurality. The parish offers a small-scale view, but 10% sample census data can be unacceptably unrepresentative at this level. On the other hand, there is a risk that some significant internal variation in levels of rurality will be ignored if the rural district is used as a base. This risk is greatest where a sizeable town is included within the boundaries of the rural district thereby distorting the overall measurement for the district. However, the use of multivariate analysis in the calculation minimises this risk of misrepresentation to a certain extent in that the aggregation of a number of significant variables will give a better overview of rurality than will the calculation of fewer individual variables in which internal variations are less likely to be counter-balanced. Moreover, a town or large village is often reflected through its level of service and employment magnetism in the rural areas which surround it, and thereby internal variation in such cases is not as important as it first appears. For these reasons, the rural district was chosen as the areal base for the index.

SELECTION OF VARIABLES

Generally, the selection of variables was dictated by the expectation that each one chosen would vary appreciably with changing rurality, some increasing and some decreasing. The study of rurality by the Department of the Environment (1971, 3) used three variables as indicators and from them constructed an index. The three indicators were:-

1. Population density.
2. Percentage of males working in the area employed in primary rural industries.
3. Percentage of the resident occupied population working in another local authority area.

However, just as the original use of three all-embracing indicators (social rank, urbanisation and segregation) to distinguish variation between urban social areas (Shevky and Bell, 1955) has been replaced by multivariate analysis (Herbert, 1968) and factorial ecology (e.g. Murdie, 1969), so the measurement of variation in rurality can be improved by the wider scope of significant variables.

A total of sixteen variables was measured for each rural district in England and Wales. The three variables used in the Department of Environment study were included, these being traditional, if selective, pointers to the extreme rural position of low density, high involvement in rural primary industries and a consequent low level of commuting to employment outside the area. To these items were added several demographic variables in order to attain greater depth of definition than was present in variables concerned only with employment and density. Age structure is a particularly important indication of rurality. Jackson (1968, 51) emphasises that "depopulating areas are likely to have a disproportionate number of elderly persons", this being a major problem in the planning of extreme rural areas. Conversely, an age structure biased towards the 15-45 age group indicates non-rural trends. Three age-group variables are used in the index calculations. Of

these, one measures population over the age of 65 and the remaining two illustrate the proportions of men and women present in the 15-45 age group. Variables for both men and women were included to monitor the misleading effects of changing institutional populations, and only the more significant of the two was used in the final index.

A measure of population change was included to add a dynamic quality to the index. Consequently, the index is able to isolate those rural areas under greatest urban pressure and can also give some indication as to the direction of change which is taking place in a given rural district. Similarly, certain migration variables were also thought to be worthy of inclusion. Originally, both the 5-year and the 15-year in-migration census categories were used in the primary calculation, but as the 15-year variable was not included in the 1971 census, it was eventually discarded from the index calculations so that continuity and comparability could be maintained between the two index dates. Thus, high in-migration is likely to be inversely correlated with rurality and, whilst an out-migration variable was also used, it is unfortunate that the census only records out-migration for the year prior to the census date.

Fletcher (1969, 111), in a case study of rural housing in Tiverton rural district, highlights the problems caused by sub-standard household amenities in rural areas. A low level of household amenities in a rural district is seen as indicative of the rural extreme, this warranting the inclusion of this variable. Alongside this factor, two occupancy rate variables were used to test the hypothesis that areas at the rural end of the scale have lower occupancy rates than those suffering urban encroachment.

Finally, the distance of each rural district from urban centres of various size categories was used in the calculation. This reflects the fact that remoteness and rurality are usually closely linked and indeed it is apparent that many of the problems of planning rural

areas stem from this remoteness. Measurement of these variables was from maps, and again it was only the most significant of the group that was finally included in the index.

The definition of rurality inherent in these variables embraces employment, population, migration, housing conditions, land use and remoteness. These variables reflect the socio-economic and planning viewpoints for which the index is intended. Other, non-census, variables such as proportions of agricultural land or built-up area in the rural district might be included at a later date if the index is to be used for a different purpose from the one outlined here.

SELECTION OF INDEXING VARIABLES

Values of the 16 variables listed in Table 4.1 were obtained for each rural district in England and Wales from the 1961 census.

Table 4.1 Variable list

Variable Name	Census Data
1. Population density	Population/acre
2. Population change	% Change 1951-61, 1961-71
3. Population over age 65	% Total population
4. Population men age 15-45	% Total population
5. Population women age 15-45	% Total population
6. Pccupancy rate	% Population at 1½ per room
7. Occupancy rate	Households/dwelling
8. Household amenities	% Households with exclusive use of (a) Hot water (b) Fixed bath (c) Inside W/C (1971)
9. Occupational structure	% in socio-economic groups 13. Farmers-employers and managers 14. Farmers-own account 15. Agricultural workers
10. Commuting out pattern	% Residents in employment working outside the Rural District
11. In-migration	% Population resident for less than 5 years
12. Out-migration	% Population moved out in last year
13. In/out migration balance	% In/out migrants
14. Distance from nearest urban centre of 50,000 population	---
15. Distance from nearest urban centre of 100,000 population	---
16. Distance from nearest urban centre of 200,000 population	---

No single variable is able to distinguish accurately between areas of differing type, but in combination they reinforce each other and may provide a good discrimination. The best combination for discrimination is that which separates the areas as definitely as possible with the more urban areas at one end of the scale and the more rural areas at the other. This combination is the principal component of the data; that is the longest axis through the multidimensional space of the data, or the linear combination of the variables with a greater variance than any other.

Any linear combination for the jth rural district can be written as

$$C_j = a_o + a_1x_{1j} + a_2x_{2j} + \ldots a_{16}x_{16j}$$

or $$C_j = a_1'x_{1j}' + a_2'x_{2j}' + \ldots a_{16}'x_{16j}'$$

where x_{ij} is the value of the ith variable in the jth rural district,

$$x_{ij}' = \frac{x_{ij} - \bar{x}_i}{S_i}$$

is the standardised value of the ith variable in the jth rural district, and a_i and a_i' are corresponding coefficients. The coefficients (a_i') of the standardised variables are called their loading scores. Numerically, large loading scores indicate the most important individual variables in the discrimination. This procedure was put into operation using principal components analysis. Some authors (e.g. Sweetser, 1965) have considered the use of factor analysis in similar situations, but this would not be appropriate in this case as the emphasis is on the measurement of observable characteristics to comment on the general concept of rurality, rather than the formation of a factor called rurality in order to explain the groupings of individual variables.

The first component, unrotated, accounted for 35.8% of the total variance in the 1961 data. Table 4.2 demonstrates the loading scores for this combination. It is clear that the variables with large negative loading

Table 4.2 *Variable loading scores for 1961 index*

Variable	*Loading Score*	*Revised loading Score*
Population change 1951–61	0·73984	0·77151
Household amenities	0·73780	0·73826
Population, women 15–45	0·72098	0·76131
Commuting out pattern	0·68591	0·73575
In-migration (5 years)	0·64610	0·58545
Population density	0·59345	0·66164
In/out migration balance	0·49956	—
Population, men 15–45	0·39421	—
Occupancy rate (household/dwelling)	0·30663	—
Occupancy rate (persons/room)	0·08919	—
Out-migration (1960–1)	0·05655	—
Distance from 200,000 urban node	−0·59700	—
Population over 65	−0·61408	−0·60623
Distance from 100,000 urban node	−0·67039	—
Distance from 50,000 urban node	−0·71716	−0·67525
Occupational structure	−0·78833	−0·81771
Percentage of current variance explained:	35·8%	50·8%

Table 4.3 *Index scores, 1961 and 1971*

	1961	1971
Bedfordshire		
Ampthill	0·6988	4·4914
Bedford	1·9144	3·7394
Biggleswade	0·5897	2·1929
Luton	11·6273	6·8183
Berkshire		
Abingdon	6·5077	5·7856
Bradfield	6·6922	7·3569
Cookham	5·6880	5·3871
Easthampsted	11·7899	9·9822
Farringdon	0·4807	0·4284
Hungerford	−0·7495	−0·3519
Newbury	3·5804	3·6060
Wallingford	5·7601	4·4123
Wantage	2·4180	3·9912
Windsor	9·0195	5·3882
Wokingham	8·2088	10·5329
Buckinghamshire		
Amersham	7·0822	6·0811
Aylesbury	2·1335	2·5193
Buckingham	−1·7877	−0·8992
Eton	11·7495	6·9045
Newport Pagnell	−0·7103	1·5571
Wing	0·6011	3·1988
Winslow	−1·3123	2·2328
Wycombe	5·3604	7·9875
Cambridgeshire & Isle of Ely		
Chesterton	2·1966	3·2119
Ely	−2·9132	−1·3781
Newmarket	−1·0855	0·0761
North Witchford	−4·0556	−6·8375
South Cambridgeshire	0·1191	2·6724
Thorney	−4·5925	0·7040
Wisbech	−2·9395	−3·3464
Cheshire		
Bucklow	6·2466	4·0406
Chester	5·1617	5·5272
Congleton	1·9365	4·0029
Disley	5·0330	6·1867
Macclesfield	5·2152	3·0612
Nantwich	0·4752	2·2620
Northwich	4·7187	2·4054
Runcorn	4·4865	4·2548
Tarvin	−1·4142	1·7223
Tintwhistle	2·1353	−3·3464
Cornwall & Isles of Scilly		
Camelford	−6·2822	−5·7325
Kerrier	−4.9445	−5·9776
Launceston	−6·1507	−6·6312
Liskeard	−4·1135	−4·3728
St. Austell	−4·0087	−4·0095
St. Germans	−2·9986	−3·7017
Stratton	−8·0768	−8·5380
Truro	−3·8827	−4·5117
Wadebridge & Padstow	−3·0528	−4·3575
West Penwith	−7·8719	−7·5260
Isles of Scilly	−7·2634	−6·5789
Cumberland		
Alston with Garrigill	−4·6434	−5·5824
Border	−0·6799	−2·4301
Cockermouth	0·7937	−1·2227
Ennerdale	−0·4122	−2·5844
Millom	0·9032	−2·1726
Penrith	−2·7501	−3·8019
Wigton	−2·3361	−3·4675
Derbyshire		
Ashbourne	−2·9301	−2·0388
Bakewell	−1·3353	−2·6932

Table 4.3 *continued*

	1961	1971
Derbyshire (contd.)		
Belper	4·7833	1·3536
Blackwell	4·8827	1·3975
Chapel en le Frith	−0·7063	−1·4716
Chesterfield	6·8317	2·6005
Clowne	2·9967	−0·8432
Repton	3·9705	1·2319
South East Derbyshire	7·9231	3·7974
Devon		
Axminster	−3·7733	−5·5277
Barnstaple	−2·5061	−1·6271
Bideford	−6·8705	−7·3603
Broadwoodwidger	−4·9852	—
Crediton	−2·9482	−2·9176
Holsworthy	−8·0555	−6·4811
Honiton	−4·5556	−3·2835
Kingsbridge	−3·5270	−3·2754
Newton Abbot	−1·2451	−1·4956
Okehampton	−6·2182	−7·8254
Plympton St. Mary	3·6099	0·6676
St. Thomas	0·6166	−0·7890
South Molton	−7·5281	−7·0558
Tavistock	−1·8262	−1·8951
Tiverton	−3·0783	−3·7734
Torrington	−6·6319	−6·7611
Totnes	−1·6967	−1·9595
Dorset		
Beaminster	−5·0028	−5·2938
Blandford	−0·7905	1·5933
Bridport	−4·6616	−5·7425
Dorchester	−2·1628	−2·0108
Shaftesbury	−2·7306	−2·8895
Sherborne	−2·7849	−0·4442
Sturminster	−2·4115	−2·6909
Wareham & Purbeck	1·1248	1·0482
Wimbourne & Cranbourne	2·0009	3·8115
Durham		
Barnard Castle	−0·6319	−3·3216
Chester-le-Street	5·0634	5·2153
Darlington	10·8569	6·7452
Durham	4·9666	4·1817
Easington	5·7910	2·3998
Lanchester	0·9169	−0·4947
Sedgefield	2·4183	−1·2770
Stockton	3·7748	7·5618
Sunderland	10·6189	—
Weardale	−4·6117	−5.9890
Essex		
Braintree	0·9369	1·7666
Chelmsford	4·7902	7·6366
Dunmow	0·9094	1·1677
Epping & Ongar	4·4998	4·1399
Halstead	−3·9244	−1·1091
Lexden & Winstree	−1·0880	4·2885
Maldon	−1·8226	2·9327
Rochford	7·1770	6·5697
Saffron Waldon	−1·7561	1·5274
Tendring	−1·3287	0·4416
Gloucestershire		
Cheltenham	5·2845	4·5445
Cirencester	−0·9974	1·2713
Dursley	0·4667	0·6839
East Dean	−0·1322	−1·6072
Gloucester	5·3916	3·1891
Lydney	0·7814	0·7378
Gloucestershire (contd.)		
Newent	−2·6016	−1·0653
North Cotswold	−1·3610	−2·2145
Northleach	−0·9944	−3·2862
Sodbury	4·4021	6·9448
Stroud	1·8161	1·1904
Tetbury	0·5629	−1·2048
Thornbury	2·9172	5·4821
Warmley	13·4983	8·9019
West Dean	−0·0931	−1·5041
Hampshire		
Alton	0·9602	1·6108
Andover	1·2760	1·8081
Basingstoke	2·4765	4·0117
Droxford	0·4698	0·8130
Hartley Wintney	2·9803	10·1267
Kingsclere & Whitchurch	4·5375	3·7846
New Forest	4·1657	2·6356
Petersfield	2·2198	3·8194
Ringwood & Fordingbridge	−1·1805	−1·8061
Romsey & Stockbridge	1·3984	2·7986
Winchester	3·3116	3·4691
Herefordshire		
Bromyard	−4·6490	−3·8049
Dore & Bredwardine	−5·1801	−5·6632
Hereford	−1·1368	−1·4143
Kington	−7·0529	−9·8148
Ledbury	−4·4543	−4·9695
Leominster & Wigmore	−6·2572	−5·6429
Ross & Whitchurch	−4·0403	−4·5272
Weobley	−5·4753	−5·2645
Hertfordshire		
Berkhampsted	1·9642	1·4871
Braughing	−1·6867	3·1005
Elstree	14·2878	6·5672
Hatfield	10·8344	6·2499
Hemel Hempstead	4·5434	4·9081
Hertford	4·2025	4·7994
Hitchin	1·9179	2·9868
St. Albans	8·2179	6·3703
Ware	1·7939	2·1460
Watford	13·8896	8·9395
Welwyn	8·2091	7·8899
Huntingdonshire		
Huntingdon	2·7561	2·5739
Norman Cross	1·3777	5·2666
St. Ives	1·2849	4·0722
St. Neots	−1·6631	4·0222
Kent		
Bridge-Blean	−1·2962	1·6601
Cranbrook	−1·5523	−2·1370
Dartford	9·2130	6·8723
Dover	0·0445	2·7196
East Ashford	−1·8934	0·2830
Eastry	−1·9326	−2·2106
Elham	−2·1498	−1·2228
Hollingbourne	−1·0630	3·1635
Maidstone	1·8233	5·6066
Malling	3·1425	4·9159
Romney Marsh	−1·0790	2·4857
Sevenoaks	3·7267	1·9025
Sheppey	7·1684	—
Strood	6·0751	7·1330
Swale	0·3107	0·6632
Tenterden	−1·7830	−1·8386
Tonbridge	1·2676	3·3088
West Ashford	−0·4853	4·8399

Table 4.3—*continued*

	1961	1971
Lancashire		
Blackburn	5·9035	6·7934
Burnley	0·5276	1·9975
Chorley	2·5964	5·1804
Clitheroe	−0·1906	−1·1936
Fylde	3·2006	3·1756
Garstang	−0·1958	0·4857
Lancaster	0·3965	−0·2669
Lunesdale	1·7697	1·5421
North Lonsdale	−2·2934	−1·0907
Preston	5·7802	4·3568
Warrington	4·9992	11·7249
West Lancashire	10·1018	6·0339
Whiston	10·8848	14·8817
Wigan	7·5625	9·7234
Leicestershire		
Ashby de la Zouch	1·6470	0·2831
Barrow upon Soar	5·5469	4·0754
Billesdon	13·3226	5·4360
Blaby	9·8006	9·7165
Castle Donnington	2·6195	3·1320
Lutterworth	0·1469	2·2738
Market Bosworth	1·0656	2·0340
Market Harborough	−1·0210	2·0438
Melton & Belvoir	−1·2942	−1·3380
Lincolnshire–Holland		
Boston	−1·6178	−1·7773
East Elloe	−5·2524	−7·3870
Spalding	−3·2567	−3·6287
Lincolnshire–Kesteven		
East Kesteven	−1·3028	−0·0061
North Kesteven	2·9591	5·0952
South Kesteven	−1·4580	1·6631
West Kesteven	−0·0882	0·3592
Lincolnshire–Lindsey		
Caistor	−2·2192	−1·3919
Gainsborough	0·1216	−0·1270
Glanford Brigg	1·9579	1·2317
Grimsby	5·6002	9·8194
Horncastle	−3·7217	−2·2388
Isle of Axholme	−1·2473	−1·1872
Louth	−1·6166	−1·6667
Spilsby	−4·6276	−6·4887
Welton	2·5168	5·4731
Norfolk		
Blofield & Flegg	1·7041	1·5748
Depwade	−4·4767	−1·6505
Docking	−3·6124	−6·8900
Downham	−3·1923	−2·5039
Erpingham	−5·2717	−6·1348
Forehoe & Hemstead	1·4207	3·5631
Freebridge Lynn	−2·5185	−0·3732
Loddon	−2·8564	−0·6498
Marshland	−2·5254	−3·4330
Mitford & Launditch	−4·3322	−3·1344
St. Faiths & Aylsham	4·1996	4·8531
Smallburgh	−4·7438	−2·1295
Swaffham	−2·9581	−1·3995
Walsingham	−3·6133	−5·6942
Wayland	−3·8009	−2·9538
Northamptonshire		
Brackley	0·1670	2·0726
Brixworth	0·2677	1·1209
Daventry	−0·0861	0·8290
Kettering	0·9550	0·9928
Northampton	5·8481	6·0847
Oundle & Thrapston	−1·0758	−3·0325
Towcester	−0·0016	4·6609
Wellingborough	1·0349	5·1362
Northumberland		
Alnwick	−2·0114	−3·9543
Belford	−3·7850	−5·6113
Bellingham	−3·5268	−6·4775
Castle Ward	5·1179	6·9725
Glendale	−4·7862	−7·2164
Haltwhistle	−3·5400	−4·9575
Hexham	−1·2450	−3·0288
Morpeth	−0·2120	−1·1010
Norham & Islandshires	−5·8182	−6·7511
Rothbury	−5·1986	−6·3275
Nottinghamshire		
Basford	5·4814	4·2357
Bingham	3·4006	7·0896
East Retford	−0·7813	−0·8902
Newark	3·1567	3·3870
Southwell	3·6808	2·2701
Worksop	3·2578	3·0199
Oxfordshire		
Banbury	−0·7443	0·6753
Bullingdon	5·4395	6·4271
Chipping Norton	−0·5453	1·0292
Henley	3·4607	7·0108
Ploughley	4·2763	4·1460
Witney	1·8740	5·3068
Peterborough		
Barnack	5·3936	8·6341
Peterborough	2·5653	4·4394
Rutland		
Ketton	−0·5053	0·5471
Oakham	1·9643	2·5658
Uppingham	−3·0574	−0·7263
Shropshire		
Atcham	0·4084	0·3549
Bridgnorth	−3·0508	−0·3884
Clun	−7·1753	−8·4606
Drayton	−0·8587	−4·9721
Ellesmere	−7·0939	−0·7018
Ludlow	−4·2935	−3·3754
Oswestry	−1·7825	−2·8254
Shifnal	1·6359	3·5403
Wellington	1·9400	3·3490
Wem	−1·5494	—
Somerset		
Axbridge	0·3561	1·7254
Bathavon	3·0999	2·3196
Bridgwater	1·0870	1·3450
Chard	−2·1182	−3·5392
Clutton	−0·4574	1·6422
Dulverton	−4·4871	−6·5450
Frome	−0·8279	0·5276
Langport	−3·0964	−2·0939
Long Ashton	4·8083	6·8885
Shepton Mallet	−1·8305	−1·9244
Taunton	0·6543	0·8959
Wellington	−1·0237	−2·1814
Wells	−2·4073	−2·7256

Table 4.3—*continued*

	1961	1971
Somerset (contd.)		
Williton	−4·3084	−4·0426
Wincanton	−3·2808	−4·1051
Yeovil	1·1395	0·8957
Staffordshire		
Cannock	6·4056	8·0565
Cheadle	3·0042	2·0385
Leek	2·4079	−1·4692
Lichfield	2·7966	7·7789
Newcastle-under-Lyme	2·1022	3·0215
Seisdon	10·3833	6·0610
Stafford	1·6637	5·3106
Stone	3·6636	3·7852
Tutbury	4·5399	6·8824
Uttoxeter	−2·2920	−1·2187
Suffolk (East)		
Blyth	−4·5897	−5·9129
Deben	1·1275	−0·6489
Gipping	−2·7072	1·7604
Hartismere	−6·3382	−6·5349
Lothingland	−0·8070	3·2791
Samford	−1·2630	1·9715
Wainford	−4·5567	−2·0741
Suffolk (West)		
Clare	−3·5779	−1·5927
Cosford	−2·0088	−2·4018
Melford	−1·6652	3·4044
Mildenhall	0·5447	1·3991
Thedwastre	−2·7303	−2·2540
Thingoe	−1·0000	0·6512
Surrey		
Bagshot	5·0123	6·6790
Dorking & Horley	5·9292	3·5347
Godstone	5·5721	3·6565
Guildford	6·1585	4·9461
Hambledon	1·9798	2·8407
Sussex (East)		
Battle	−3·1537	−2·2147
Chailey	1·0222	2·7227
Cuckfield	3·5703	2·6882
Hailsham	−1·2595	−2·0657
Uckfield	−0·8849	1·6571
Sussex (West)		
Chanctonbury	−0·2535	−0·0761
Chichester	1·5634	1·0029
Horsham	1·6330	4·2233
Midhurst	−1·0752	−1·2217
Petworth	−2·0216	−0·8252
Worthing	2·0367	1·4312
Warwickshire		
Alcester	1·1324	2·4317
Atherstone	3·7993	4·6992
Meriden	9·6190	14·7064
Rugby	3·7567	3·3100
Shipston-on-Stour	−2·7729	−1·1638
Southam	1·2054	5·0972
Stratford-on-Avon	1·8296	2·3357
Tamworth	4·0972	—
Warwick	6·5683	5·8099
Westmoreland		
North Westmoreland	−4·4332	−5·8712
South Westmoreland	−2·8137	−3·1096
Isle of Wight		
Isle of Wight	−1·7807	−2·2746
Wiltshire		
Amesbury	0·8135	3·4492
Bradford & Melksham	0·2757	4·9574
Colne & Chippenham	0·1178	0·8685
Cricklade & Wootton Bassett	3·0910	5·0218
Devizes	−2·2035	−0·5538
Highworth	4·7479	10·2997
Malmesbury	0·1565	0·2972
Marlborough & Ramsbury	−1·5765	−1·5105
Mere & Tisbury	−3·6013	−4·3784
Pewsey	0·0496	3·2100
Salisbury & Wilton	−0·0640	1·2776
Warminster & Westbury	−2·6742	0·6785
Worcestershire		
Bromsgrove	7·1738	4·4844
Droitwich	1·3042	1·9251
Evesham	−0·4380	−0·8462
Kidderminster	2·2162	2·4188
Martley	−0·5037	0·2638
Pershore	0·3341	0·8199
Tenbury	−3·1025	−1·4758
Upton-upon-Severn	−2·2855	−1·3991
Yorkshire (East Riding)		
Beverley	1·5012	5·3066
Bridlington	−3·4831	−5·0866
Derwent	0·7514	4·3815
Driffield	−2·6074	−4·3072
Holderness	−0·0637	1·8198
Howden	−2·9032	−3·1120
Norton	−5·1602	−5·8049
Pocklington	−2·5086	2·8059
Yorkshire (North Riding)		
Aysgarth	−7·0687	−8·8636
Bedale	−0·3226	−1·1796
Croft	−0·9876	−1·1880
Easingwold	−2·3616	−2·1653
Flaxton	9·1756	6·6934
Helmsley	−4·3976	−6·5050
Kirkbymoorside	−4·7426	−5·9747
Leyburn	−3·9523	−4·1087
Malton	−4·6222	−5·1336
Masham	−6·5555	−8·1694
Northallerton	−1·4495	1·7954
Pickering	−6·2201	−5·2459
Reeth	−8·7134	−11·1006
Richmond	0·1172	2·4560
Scarborough	−4·3988	−0·9424
Startforth	−3·4572	−9·0993
Stokesley	5·6034	2·5854
Thirsk	−0·7514	−1·6358
Wath	−1·5629	−2·1678
Whitby	−4·8011	−3·7584
Yorkshire (West Riding)		
Bowland	−3·1917	−2·4183
Doncaster	6·7856	5·5014
Goole	−0·6060	−0·6293
Hemsworth	5·1212	1·8515
Hepton	0·0260	−2·2010
Kiveton Park	3·3538	6·5262
Nidderdale	1·1069	−0·2117
Osgoldcross	1·9996	2·0814
Penistone	1·8271	1·1810
Ripon & Pateley Bridge	−3·1868	−2·0690

Table 4.3 *—continued*

	1961	1971
Yorkshire (West Riding) (contd.)		
Rotherham	10·2163	7·1192
Sedburgh	−5·2773	−5·7638
Selby	1·0752	5·1780
Settle	−2·8043	−4·9501
Skipton	−1·6166	−1·5979
Tadcaster	2·1869	3·8721
Thorne	5·2355	2·9050
Wakefield	5·3346	5·8334
Wetherby	3·4977	4·6572
Wharfedale	5·1013	2·2104
Wortley	5·6167	2·4303
Anglesey		
Aethwy	−6·8966	−3·7412
Twrcelyn	−8·3026	−5·2737
Valley	−5·2510	−3·2033
Breconshire		
Brecknock	−6·0344	−6·2776
Builth	−7·1669	−9·0386
Crickhowell	−0·9359	−0·4221
Hay	−5·3708	−5·2868
Vaynor & Penderyn	3·2065	0·1157
Ystradgynlais	0·8880	−3·1597
Caernarvonshire		
Gwyrfai	−5·6134	−6·6632
Lleyn	−9·5482	−10·9616
Nant Conway	−5·0409	−7·6967
Ogwen	−5·3930	−3·1195
Cardiganshire		
Aberaeron	−8·5928	−4·8836
Aberystwyth	−6·3754	−5·5626
Teifiside	−6·7975	−0·3070
Tregaron	−10·5027	−8·7149
Carmarthenshire		
Carmarthen	−3·2997	−9·0150
Llandeilo	−2·3121	−5·3910
Llanelli	3·3887	−6·9626
Newcastle Emlyn	−7·5328	−11·7423
Denbighshire		
Aled	−1·9134	−4·7393
Ceiriog	−2·3203	−4·6850
Hiraethog	−8·4933	−8·4569
Ruthin	−4·3980	−6·3243
Wrexham	1·2645	−0·7520
Flintshire		
Hawarden	2·8147	−5·7499
Holywell	−1·0666	2·7182
Maelor	−5·2013	0·8988
St. Asaph	−0·7632	−5·7499
Glamorgan		
Cardiff	6·8399	8·3637
Cowbridge	2·0849	4·8427
Gower	1·5645	3·3275
Llantrisant & Llantwit Fadre	4·5483	6·9173
Neath	1·8727	−1·0103
Penybont	5·9479	5·0804
Pontardawe	1·6319	−2·3595
Merionethshire		
Deudraeth	−5·0973	−7·2109
Dolgellau	−7·8247	−8·8609
Edymion	−5·3979	−5·5878
Penllyn	−6·9546	−10·0365
Monmouthshire		
Abergavenny	−1·3202	0·0849
Chepstow	1·4417	3·0638
Magor & St. Mellons	6·1022	2·9005
Monmouth	−4·5173	−2·8884
Pontypool	14·4459	5·3104
Montgomeryshire		
Forden	−5·0740	−6·0257
Llanfyllin	−6·8561	−10·4203
Machynlleth	−9·7260	−11·0400
Newtown & Llanidloe	−7·9965	−8·1660
Pembrokeshire		
Cemaes	−6·5548	−9·3203
Haverfordwest	−3·1480	−4·1061
Narberth	−5·9676	−5·4034
Pembroke	−4·5268	−2·8299
Radnorshire		
Colwyn	−7·2584	−5·1010
Knighton	−11·1467	−11·0331
New Radnor	−8·4781	−11·6030
Painscastle	−7·5493	−11·1780
Rhayader	−7·6153	−8·3058

Table 4.4 *Variable loading scores for 1971 index*

Variable	*Loading Score*	*Revised loading score*
Population, women 15–45	0·81910	0·83468
Population change, 1961–71	0·75264	0·78473
Occupancy rate (household/dwelling)	0·70324	—
Commuting out pattern	0·69741	0·72182
Household amenities	0·63919	0·65360
In-migration (5 years)	0·60671	0·61294
Population density	0·59169	0·62476
Population, men 15–45	0·53790	—
In/out migration balance	0·32784	—
Out-migration (1970–1)	0·12379	—
Occupancy rate (persons/room)	−0·19560	—
Distance from 200,000 urban node	−0·56135	—
Distance from 100,000 urban node	−0·68744	—
Population over 65	−0·70138	−0·69705
Distance from 50,000 urban node	−0·76455	−0·71370
Occupational structure	−0·79594	−0·82194

scores are those which correspond with characteristics which are evidently rural, such as a high level of agricultural employment. Similarly, variables with large positive loading scores are identified with more apparent urban characteristics, such as high levels of population increase.

Variables with small loading scores between -0.5 and +0.5 contribute little to the differentiation between areas, and were discarded. In addition, the less important of the demographic and distance variables were discarded to reduce autocorrelation. Nine variables remained, for which a new principal component was determined, accounting for 50.4% of the current total variance. These revised loading scores are also shown in Table 4.2.

INDEXATION PROCEDURE

An index of rurality for 1961 was calculated for each rural district by evaluating the reduced principal component value for each district; that is by substituting the values of the nine variables in the principal component equation. This produced index values between -12 and +15 (Table 4.3). A highly negative index value denotes an extremely rural area, because that value is produced by high scores in those variables directly correlated with rurality (Table 4.2) and lower scores in thos variables which are inversely correlated with rurality. On the other hand, a highly positive index value has been brought about by a bias towards those variables which are inversely correlated with rurality and so extreme non-rural tendencies are indicated.

It is important to note that the index was calculated to four decimal places solely for use in the quartile classification process and in the measurement of inter-censal change. This degree of accuracy should not be used when differentiating between two areas. Indeed, rural districts which differ by less than one unit of the index may be considered as showing very similar rurality characteristics.

The same procedure as above was used to calculate a comparable index using data from the 1971 census (Table 4.3). Loading scores for the 16 variables and for the revised subset are shown in Table 4.4. 39.3% of variance in the data was explained by the original 1971 rurality principal component and 52.8% of current variance was explained by the revised principal component.

Two basic operational difficulties arise from the comparison of the 1961 and 1971 indices. The first of these stems from the fact that the nature of rurality is changing over time as can be seen from the variation between the two sets of loading scores. Although an analysis of the loading changes exhibited by each individual variable is tangential to the aims of this chapter, such an analysis would provide an interesting insight into the reasons behind the varying contributions of different variables to the principal component of rurality. For example, there has been a marked decline in the contribution of the household amenities variable between 1961 and 1971. The level of these amenities in the most rural of districts is gradually being brought up to the standard of the more urban of districts, and so this variable has decreased in value as an indication of rurality distribution. Other variables have shown increases in differentiation over the incensal period. These opposing trends have tended to counterbalance each other and have had little overall effect on the index. In any case, it was felt that the index should indicate the changing nature of rurality itself, as well as the spatial manifestation of this change.

One notable departure from the 1961 loading scores is the high value of the loading score of the occupancy rate variable of households/dwellings in the 1971 calculation. This is largely due to a change in the census definition of these terms. Consequently, this variable was excluded from the index calculation in order to retain the continuity provided by a nine variable subset, and to avoid the artificial weighting that would have been necessitated by the inclusion of a

further variable. Furthermore, the occupancy rate variable was found to be significantly associated with the individual variables comprising the nine variable subset. The occupancy rate variable would, therefore, seem to have little to add to the index, and so in view of the potential distortion in the inclusion of an additional variable, it is concluded that the omission of this variable from the index is justified.

The second difficulty in comparing the indices for 1961 and 1971 arises from the administrative boundary changes which took place during this period. A few rural districts, at both ends of the scale of rurality, have disappeared altogether. Broadwoodwidger (Devon) and Sunderland (Durham) are examples of this. More frequent is the situation where a rural district loses territory and population to cater for the growth of adjacent urban administrative areas, or where the withdrawal of urban area status for a town situated within the bounds of a rural district produces a consequent increase of territory and population to that district.

It is evident that any analysis of the changing rurality of a specific rural district should take account of such boundary changes, and indeed these alterations are well documented and readily available in the census county volumes. However, this should not nullify the usefulness of an index of rurality, which, when used in time series comparisons, is designed merely as an indicator of rural trends and this should only be used as a preliminary to more detailed study of any specific rural area. Moreover, it can be argued that many boundary changes may be viewed as an integral part of an upward spiral model of rural change and as such should be included in the indexation of rurality. Therefore, despite these difficulties, it is believed that the index provides a useful look which is able to give an insight not only into the static distribution of rurality, but also into the processes of rural change over time.

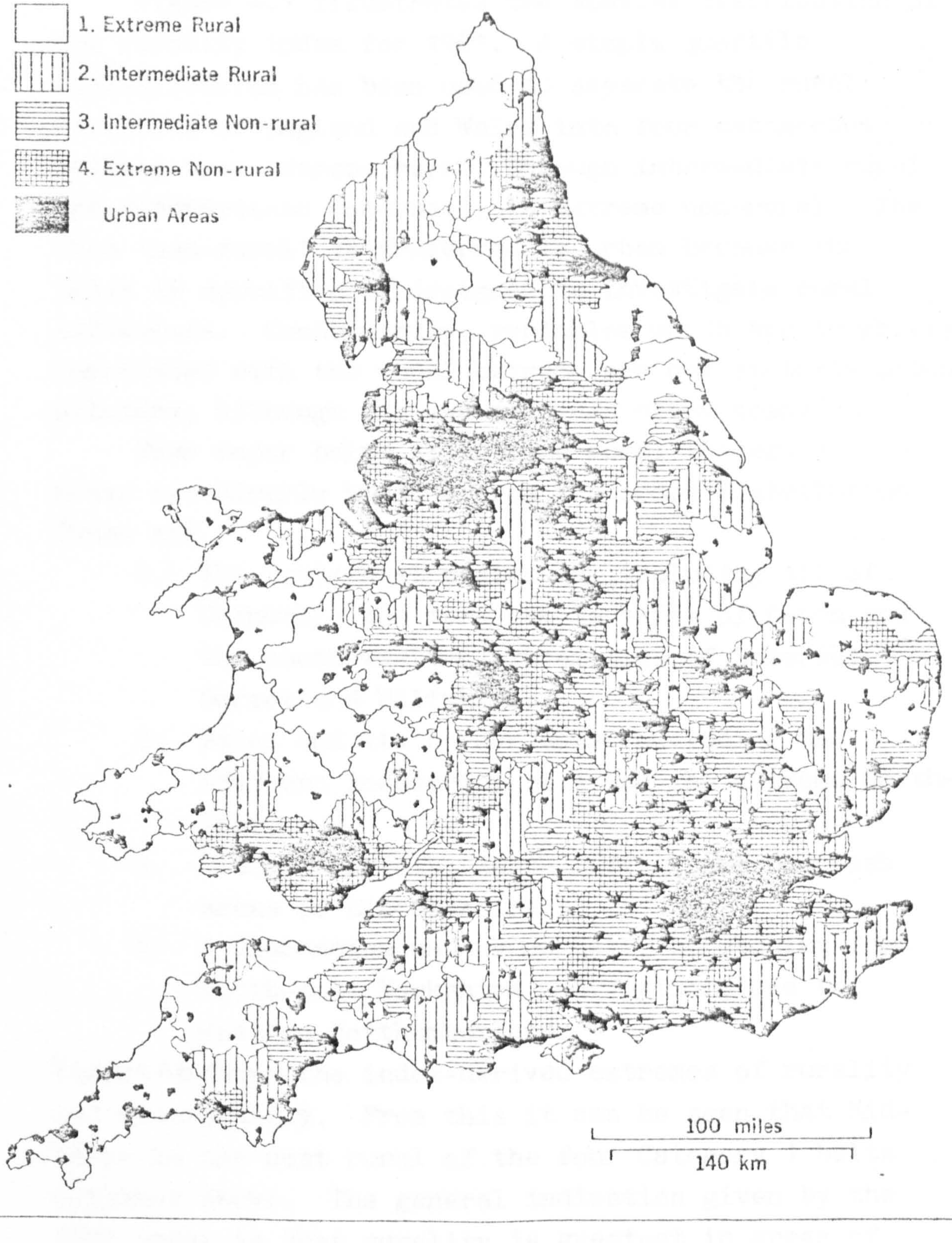


Fig. 4.1 Rurality In 1961

RURALITY IN 1961

Figure 4.1 illustrates the spatial distribution of the rurality index for 1961. A simple quartile classification has been used to separate the rural districts of England and Wales into four categories ranging from extreme rural, through intermediate rural and intermediate non-rural, to extreme non-rural. The term 'non-rural' is preferred to urban because the index is specifically designed to investigate rural indicators. Consequently, variables which are inversely correlated with the rural extreme are not strictly urban pointers, although the two meanings often coincide.

Four major belts of extreme rural (Category 1) areas are clearly visible from the index distribution. These are

1. The South-west peninsula, including all of Cornwall, the more remote parts of Devon and the south-western extremities of Somerset, Dorset and Wiltshire.
2. Wales and its borderlands, excluding the southern industrial belt and the extreme north-east.
3. Most of Norfolk, north Suffolk and the Wash areas of Lincolnshire.
4. A discontinuous Pennine belt, stretching from north-east Yorkshire and Westmoreland to western Northumberland.

Figure 4.6 shows the index-derived extremes of rurality and non-rurality. From this it can be seen that Mid-Wales is the most rural of the four Category 1 belts outlined above. The general indication given by the 1961 index is that rurality is greatest in areas of remoteness (c.f. Ministry of Housing and Local Government, 1967), and in particular the upland remote areas.

The distribution of intermediate rural areas (Category 2) falls into two distinct zones. These areas are much in evidence adjacent to the upland Category 1 belts, for example in south and central Devon, south

and north-east Wales, and bordering much of the Pennine belt. Category 2 is also indicative of lowland agricultural areas such as those surrounding the Norfolk Category 1 belt, and those in localised patches, examples of which are to be found in the Kent/East Sussex and Worcestershire/Gloucestershire border areas.

Category 3 districts are classified as intermediate non-rural. Many districts in this category are to be found on the periphery of urbanised lowland England, demonstrating in some cases the outermost spread of urban pressure exerted on the rural environs both by the London conurbation, and by the Central Urban Region (as defined by Osborne, 1964) with its outliers in south Wales and Durham. Elsewhere, districts of this category denote the influence of smaller scale urban centres such as Hull, Cambridge and Exeter.

Rural districts showing extreme non-rural tendencies are found in Category 4. As expected, these areas (with the exception of the Peak District) form well-defined rings around the conurbations of the Central Urban Region, with the exception of the north-west conurbation where the ring is only partially formed. Table 4.5 highlights the fact that the areas around London are well represented among the most extreme non-rural districts.

Table 4.5 Extreme rural and non-rural districts

Extreme Non-Rural

1961		1971	
Pontypool	14.4459	Whiston	14.8817
Elstree	14.2878	Meriden	14.7064
Watford	13.8896	Warrington	11.7249
Warmley	13.4983	Workingham	10.5329
Billesdon	13.3226	Highworth	10.2997
Easthampsted	11.7899	Hartley Wintney	10.1267
Eton	11.7495	Easthampsted	9.9822
Luton	11.6273	Grimsby	9.8194
Whiston	10.8848	Wigan	9.7234
Darlington	10.8569	Blaby	9.7165

Extreme Rural

1961		1971	
Knighton	-11.1467	Newcastle Emlyn	-11.7423
Tregaron	-10.5027	New Radnor	-11.6030
Machynlleth	- 9.7260	Painscastle	-11.1780
Lleyn	- 9.5482	Reeth	-11.1006
Reeth	- 8.7134	Machynlleth	-11.0400
Aberaeron	- 8.5928	Knighton	-11.0331
Hiraethog	- 8.4933	Lleyn	-10.9616
New Radnor	- 8.4781	Llanfyllin	-10.4203
Twrcelyn	- 8.3026	Penllyn	-10.0365
Stratton	- 8.0768	Kington	- 9.8148

Indeed, only London has exerted sufficient pressure to extend this ring beyond those rural districts immediately adjacent to the urban administrative area. Here, a definite growth axis of Category 4 districts are also found away from the main conurbations. These districts illustrate the urban influence of more peripheral urban nodes such as Plymouth, Bristol, Norwich and Grimsby.

The overall picture of rurality in the rural districts of England and Wales in 1961 is one of a rather fragmented gradation from non-rural to rural. Generally, remoteness would appear to be highly correlated with rurality, but the rural districts in central England form a more diverse pattern of overlapping urban spheres of influence. There are very few examples, the best perhaps being to the south of Bristol, where a perfect continuum of rurality can be viewed in the form of a well-ordered concentric gradation of the four categories of rurality. The uneveness of the gradient from extreme non-rural to extreme rural is emphasised by the contrast between the gradual westward slope of increasing rurality from London, and the abrupt change from Category 4 districts in the West Midlands (particularly in the Seisdon area) to the Category 1 extreme rural areas of Shropshire. It is apparent from this change that distance is not the only factor which explains the spread of urban pressure, and a study must be made in particular of agricultural land use and the effects of planning restrictions in order to understand the complexities which complicate any continuum that might exist.

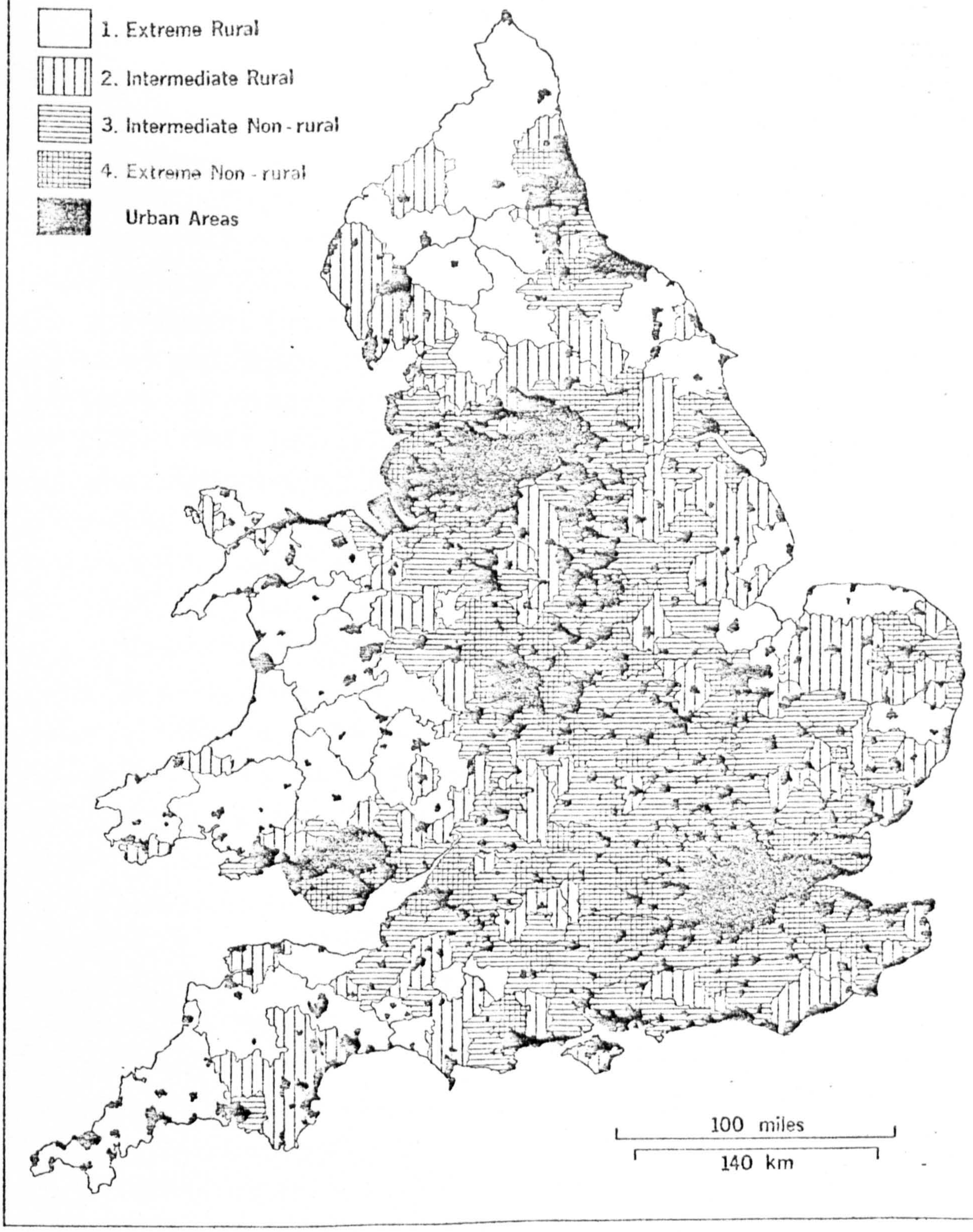


Fig. 4.2 Rurality In 1971

RURALITY IN 1971

A similar basic pattern of rurality is displayed in the 1971 distribution (Figure 4.2). The four principal belts of Category 1 extreme rural areas remain but of these only the South-west peninsula retains a virtually unchanged position. Those districts bordering the South Wales conurbation appear to have assumed an increasingly rural nature, while elsewhere in Wales, the peripheral urban centres of Milford Haven, Cardigan, Holyhead and Bangor appear to have exerted greater urban influence on their surrounding areas than was the case in 1961. This has resulted in a decrease in rurality in these districts. The number of extreme rural districts comprising the Pennine Category 1 block has increased, whereas a decrease in rurality may be noted in north Norfolk.

These observations comply with the general hypothesis that lowland areas are increasingly being subjected to urban pressures, causing a decrease in rurality, whereas in upland areas rurality appears to be self-sustaining. Once again Table 4.5 shows that Mid-Wales is the most extreme Category 1 area. Intermediate rural areas have a similar distribution to that of 1961 except that in several areas this category has been eroded by intermediate non-rural districts, as the pressure from urban centres has increased, or where green belt policies have caused certain urban pressures to leapfrog to more peripheral rural districts. This erosion can be clearly seen in the northern parts of Kent.

At the other end of the scale, the intermediate and extreme non-rural classifications both appear to have spread outwards from the major urban nodes, especially in south-east England. The western axis of urban pressure from London, visible in 1961, has been consolidated and extended almost to Bristol, while a similar axis has developed north-westwards from London. In central England generally, the model of an urban hour-glass

(Smailes, 1961) or dumb-bell (Best, 1965) linking the London and Central Urban regions is mirrored very clearly in the pattern of surrounding rural districts which are indexed as intermediate or extreme non-rural. It is interesting to note that although Champion (1974, 69) in his work on the changing extent of urban land, recognises a "clear separation of the two regions by the only weakly urbanised belt extending from Wiltshire to the Wash", the 1971 rurality distribution demonstrates a substantial erosion of this separation. The indications are that these patterns of urbanisation are possibly evolving more towards Hall's (1973, 302) projection of "Megalopolis England", although there are evidently pitfalls in the use of this terminology.

Also noticeable from the 1971 distribution is a spatial devolution of urban pressure away from the conurbations, and London in particular, towards the more provincial urban nodes such as Peterborough, Lincoln and Grimsby. Table 4.5 demonstrates that the London area is less well represented in the list of the most extreme non-rural districts than in 1961, and this gives further proof of increased urbanisation elsewhere in England and Wales. An exception to this trend is evidenced by the observation that the south-west cities of Plymouth and Exeter have suffered a relative decrease in their influence over their rural hinterlands.

Generally, the relationship between rurality and urbanisation in 1971 follows the broad pattern outlined by Best and Champion (1970) in their study of the conversion of agricultural land to urban use. However, two significant departures from their findings are apparent from Figure 4.2. The first is that the 'rural gap' (p.22) between the London and Central Urban regions is shown to be rapidly closing. Secondly, and perhaps more important, the 1971 distribution of rurality shows a significant spread of urbanisation from the London conurbation, both westwards towards Wiltshire and north-eastwards towards East Anglia. Neither of these trends are highlighted in the calculations of conversion of agricultural land, but nevertheless could be important pointers to future growth areas.

SELECTION OF STUDY AREAS

The capacity to express rurality in numeric terms is invaluable in the search for representative study areas from among the general patterns outlined above. For example, four belts of extreme rural (Category 1) districts are visible from Figures 4.1 and 4.2, and from these it is possible to select a conformable remote rural area in which to study the ramifications of a key settlements policy. Table 4.6 shows the aggregated rurality scores for each county within these four Category 1 belts.

Table 4.6 Aggregate scores for extreme rural (Category 1) areas

		1961	1971
1.	South-west peninsula		
	Cornwall	-5.3314	-5.6307
	Devon	-3.6011	-3.8350
2.	Wales and the Borders		
	Anglesey	-6.8167	-4.0727
	Caernarvonshire	-6.3989	-7.1102
	Cardigan	-8.0671	-4.8670
	Herefordshire	-4.7807	-5.1377
	Merioneth	-6.3186	-7.9240
	Montgomery	-7.4131	-8.8815
	Pembroke	-5.0493	-5.4149
	Radnor	-8.4096	-9.4442
3.	East Anglia		
	Lincolnshire - Holland	-3.3760	-4.2643
	Lindsey	-0.3595	0.3804
	Norfolk	-2.4385	-1.7900
	Suffolk - East	-2.7335	-1.1657
	West	-1.7396	-0.7938
4.	Pennine Belt		
	Northumberland	-2.5005	-3.8453
	Westmoreland	-3.6234	-4.4904
	Yorkshire - East Riding	-1.8092	-0.4996
	North Riding	-2.5734	-3.1854

It could be argued that the aggregation of district scores to county level is misleading in that county boundaries often transcend the borders of 'natural' rural areas. However, selection in this case is restricted by the fact that planning policies are enacted at county level and so will often have to include the planning of some non-rural areas within a rural county. The aim of this study is to investigate the key settlements policy as an entity within the planning process, and so a county level approach is required.

It can be seen from Figures 4.1 and 4.2 that the Category 1 belt consisting of Wales and its borders exhibits higher aggregate scores than do the other three extreme rural groups. However, the Welsh counties were considered unsuitable for this study on two counts. Firstly, the rural planning policies used in these counties are not typical of the key settlement type of policy as defined in Chapter 1. Linked to this objection is the fact that these counties do not conform either to the other Category 1 belts or to the other patches of remote rural land considered by the index. The scale of remoteness in the Welsh case dictates the use of a higher order of growth centre policy than is offered by the key settlement solution, and so this area should be subject to specialised study on its own account.

Thus, a county representing the remaining Category 1 belts is more likely to be typical of the key settlement approach to remote rural problems. Taking into account the policies used in these remaining counties, the suitable size limits for a study area (thereby excluding, for example, Westmoreland) and the extent to which the policies in certain counties have been subject to previous study (e.g. Norfolk), the county of Devon was selected as the remote rural study area. Devon displays the highest aggregate index score for a county planned by a definitive key settlements policy, and the county also encompasses a variety of terrain which makes it representative of many rural situations in Britain.

Within the county, Okehampton Rural District was selected for special emphasis (see Table 4.3). This area, bordering the Dartmoor National Park, contains some interesting internal variation of terrain and settlement type, but is not so dominated by the tourist industry as are some other remote rural areas in Devon.

The selection of a pressured rural study area was governed by the relatively small number of peri-urban counties which operate a specialised key settlement type policy. Also, there are no visible belts of extreme non-rural districts as was the case with extreme rural districts. Pressured rural areas are by definition more densely used and far less expansive than their remote rural counterparts. Furthermore, the complex intermeshing of urban spheres of influence has tended to fragment the extreme non-rural areas. Therefore, the choice was restricted to individual counties rather than representatives from homogeneous groups of counties. Durham, Essex, Leicestershire, Nottinghamshire and Warwickshire were all possible candidates which included expanses of pressured rural areas (Table 4.7).

Table 4.7 Aggregate scores for shortlisted pressured rural counties

	1961	1971
Durham	3.9163	1.6691
Essex	0.8394	2.9362
Leicestershire	3.5371	3.0730
Nottinghamshire	3.0327	3.1853
Warwickshire	3.2483	4.6533

Warwickshire, with high aggregate index scores and a definitive key settlements policy has not been the subject of previous study in the rural planning context, and so was selected as the county for investigation. The choice of district for small-scale study fell upon Southam Rural District, which had the highest index score of those districts not under the distorting influence of a green belt policy.

One further specific function of the index was to have been its use as an aid to finding counties and districts of similar rurality to those selected as study areas but which were not planned using a key settlements policy. This would have enabled some form of 'control experiment' which might have highlighted differences between the respective areas which could be directly attributed to the workings of a key settlements policy. Unfortunately, the resources available to this study did not permit this additional level of investigation to be undertaken at this time.

THE INDEX IN A WIDER CONTEXT

The construction of an index of rurality for England and Wales is an attempt to formulate previously subjective ideas into one concise statement of rural-urban differentials. Statistical indexation techniques have been used in order to introduce as much objectivity as possible into the classification of different types of rural district. As such, neither the index nor its resulting distributions encompass innovative thinking, but are rather a rephrasing of current theoretical developments into a more compact and workable framework. A numerical interpretation of rurality, and consequent differentiation between varying districts provides a fundamental and necessary starting point for research involving contrast or comparison between rural areas.

It might be argued that an index of rurality based on administrative rural districts is of limited use to the planner of rural areas, who is chiefly concerned with problems at the smaller scale. Recently, however, counties such as Devon and Norfolk (Ayton, 1976) have entered into lengthy investigations to discern the most problematical rural areas in their counties, which deserve special planning attention under the new structure plans. In cases such as this, the index can be a useful resource-saving contribution to the process, especially when time-series analysis is used. The formulation of rurality data for two dates enables the

measurement of inter-index changes in degree of rurality, and offers the capability of measuring rurality trends in rural areas at different scales. It will be possible to measure changes in rurality between 1961 and 1971 in order to determine whether the mechanics of rural change are translated into any recognisable spatial problems which might give the planner some indication of the direction of future rurality movement.

Another important theme has arisen from the construction of the index, which is not dealt with in any detail in this chapter. The use of principal component loading scores as weighting coefficients in the indexation procedure affords a valuable insight into the changing nature of rurality itself over time, as defined by the chosen variables. Differences in the importance of certain variables as indicators of rurality are clearly shown by Tables 4.2 and 4.4 and such calculations are able to act as important monitors of change in rurality definition. It is hoped, therefore, that the index of rurality, and the spinoff accruing from the data formulated in the indexation process will be useful tools in the study and planning of rural areas.

CHAPTER 5

THE WARWICKSHIRE KEY SETTLEMENTS POLICY

The county of Warwickshire forms part of a national growth region in which people and jobs have increased four times as fast as in England and Wales as a whole since 1931. A major proportion of this growth has been accommodated in the urban areas, but as these have become increasingly congested, a strong demand has developed for growth in the substantial rural areas adjacent to the major conurbations of Birmingham and Coventry.

The superimposition of this growth on to an established rural population, existing around market towns and their rural industries, has led to a growing awareness of the need for planned management of the rural area. This need was recognised in the inter-war planning scheme (Warwickshire Joint Planning Committee, 1935) but the ensuing development plan (Warwickshire County Council, 1956) was preoccupied by the problems of the urban areas and so little attention was paid to the planning of rural settlements at that time. However, the build-up of demand for rural housing in the rural areas was such that an Interim Policy Statement was produced in 1966 which brought Warwickshire's villages under stricter planning control. The Interim Policy in effect marks the beginning of "key settlements" thinking by Warwickshire planners, and the strategies contained therein were responsible for the trends which led to the acceptance of a fully-fledged key settlements policy under the auspices of the Structure Plan.

In the Interim Policy it was noted that the strongest pressure to develop in the rural areas of the county was experienced in the area covered by the proposed Green Belt, within which development was severely restricted. Consequently, certain settlements were set aside as being suitable for "limited expansion" and "limited infilling" respectively.

Additionally, the policy was far-sighted enough to plan for growth in certain villages beyond the outer edge of the Green Belt, thereby anticipating the leap-frogging movement of housing demand over this restrictive planning area. Again, the Interim Policy indicates "the settlements to which development could be guided and those in which it is the intention of the local planning authority to permit only single dwellings or very small groups where they are related to local needs" (p.6). Little development was expected to take place elsewhere in the rural areas.

It is important to note that the idea of guiding or channelling development into certain settlements plays a major role in this Interim Policy. Taking the county as a whole, 33 settlements were considered suitable to receive limited growth, while 63 settlements were adjudged as being at least capable of residential infilling of one scale or another. Having adopted this type of policy (which itself cannot be termed a key settlement policy because it deals only with residential development) it was a logical progression for Warwickshire's planners to opt for further concentration of resources when next the problems of the rural settlements were reviewed. This review took shape under the Coventry-Solihull-Warwickshire Sub-Regional Planning Study (Coventry City Council et al, 1971) which recommended that:-

> "urban growth in the next twenty years should be less fragmented than in the recent past and rural building should be further restricted by the County Council's policy of selective restraint on village expansion." (p.4)

Strategies other than growth restraint were considered for the rural areas. However, the possibility of a more even spread of growth was turned down on economic and conservation grounds. Settlement selection provided the most economic means of service provision, while localised centralisation of growth would protect those settlements considered unsuitable for further development. For these reasons the population increase proposed by the study for the rural areas was to be no more than 40,000.

RURAL POPULATION GROWTH RATES

The suggestions contained within the sub-regional study were largely accepted in the basic tenor of the Structure Plan (Warwickshire County Council, 1975). Substantial population growth had occurred in the rural areas during the decade preceding the preparation of the Structure Plan, to the extent that if similar rates of growth had been allowed to continue unchecked, population growth in rural Warwickshire would be more than 70,000 during the Structure Plan period. Consequently, the Structure Plan policy planned to accommodate the principal share of population growth into urban growth areas, while growth in rural areas was to be further restricted to 25,000-30,000 additional population, compared with the Sub-regional Study's figure of 40,000. This level of growth was seen as "sufficient ... for the needs of the rural community ... although this would not be substantially greater than the expected natural increase of the rural population" (p.13).

The use of "natural increase" as a standard for the desirable level of increase of the rural population has met with some criticism both formally and informally. The Structure Plan states that:-

> "What is most important is that those who are brought up in a village and wish to continue living there, or those who find employment in a village and wish to live nearby should be able to do so" (p.13)

Yet it is admitted that new development on the scale proposed "will not always go to local people" and again that "often at present the new houses being built are of types too expensive for the young local families to purchase" (p.13). Little indication is given as to the planning measures to be used in meeting this demand from local people for local housing. Problems of this nature are encountered wherever restrictive settlement policies are administered and the vague offer of plentiful available housing in the nearest key settlement is not always sufficient to relieve this important localised

problem. Several parish clerks, when asked for their opinions of the key settlements policy (as part of the questionnaire survey to parish clerks, see Chapter 6) gave mention to the problems associated with the scarcity of local housing opportunities. This would seem to indicate some groundswell of local opinion against such a restrictive rate of population increase in rural areas.

Conversely, it might be argued that the relatively small rate of increase in rural population augurs well for the long term survival of rural areas in Warwickshire. A rural settlement policy of this scale is not likely to swamp the countryside with new development, thereby compromising any future plans for preservation and conservation. 61 Conservation Areas are at present designated in the rural areas and this emphasis on conservation of settlement structures goes a long way towards explaining the reticence to allow little more than natural increase population rates, which the Rural Settlements Supplementary Report to the Structure Plan (Warwickshire County Council, 1973) considered "the minimum needed to satisfy local needs" (p.7).

THE KEY SETTLEMENT POLICY

Given the selected rates of population increase it is clear that

> "not every settlement is capable of accommodating growth even when it is restricted to the level of natural increase. Neither is it always desirable for growth to occur in a settlement even though it is physically capable of absorbing it" (Warwickshire County Council, 1975, 13).

Therefore, the Structure Plan fell back upon its previous policy of channelling growth into suitable settlements. This policy decision was partially enforced by the level of commitments in previously selected growth centres. However, the planners also saw the opportunity to create a more comprehensive and all-embracing settlements policy whereby all facets of planned rural systems could be co-ordinated around the growth settlements. Two tiers

of key settlement were designated. 11 first tier settlements were named as being suitable and having growth potential for "moderate expansion" of more than 1000 population by 1986. In addition, eight second tier key settlements were selected as being suitable for "modest expansion" of a total of 100-500 persons by 1986 (Table 5.1).

Table 5.1 Key settlements named in the Structure Plan

1. Moderate Expansion (1000+ population)
   - Alcester
   - Arley
   - Atherstone
   - Balsall Common
   - Bidford-on-Avon
   - Kingsbury
   - Polesworth
   - Shipston-on-Stour
   - Southam
   - Studley
   - Wellesbourne

2. Modest Expansion (100-500 population)
   - Bishops Itchington
   - Coleshill
   - Curdworth
   - Dordon
   - Hockley Heath
   - Kineton
   - Stretton-on-Dunsmore
   - Wolvey

These key settlements were given the role of absorbing the growth pressures of their hinterlands, thereby relieving pressures on other minor settlements. It is important to note that the Structure Plan also intended that key settlements should act as service centres for their hinterlands and it was the stated policy to encourage as wide a range of facilities as possible within each settlement. Manufacturing and

service industry were not generally encouraged in the rural context, these again being principally zoned for urban areas. However, where appropriate industrial developments were proposed, these were also to be located in the key settlements. The Supplementary Report on Rural Settlements took the almost unprecedented step of defining the hinterland of each key settlement and this gives emphasis to the fact that the Warwickshire key settlement policy with its coverage of the residential, service, employment and conservation needs of the rural area goes a long way towards a comprehensive consideration of the rural settlement hierarchy as a single system.

Of course, with any policy of settlement selection there are those settlements where growth will be severely restricted in favour of the selected key settlements. The Structure Plan policy was clearly stated in this respect.

> "In general, new developments will not therefore be encouraged outside the key settlements, but there may be exceptional circumstances where individual dwellings or very small groups of dwellings could be justified." (Warwickshire County Council, 1973, 14).

In fact there were a number of objection to this part of the rural settlements policy at the public participation stage. It was felt by many that an inflexible application of the rural settlements policy could lead to the stagnation of the smaller non-key settlements. In response to these fears, the Secretary of State, in paragraph 27 of his letter of approval, modified the draft policy so as "to provide for reasonable flexibility in the operation of the rural settlements policy." In the draft structure plan, part of paragraph 4.3(i) concerning non-key settlements allowed that

> "in certain circumstances, where the nucleus of social and public utility services exist, development on a limited scale - i.e. single houses or very small groups of houses - may be permitted on the merits of the case" (p.37)

This was modified by the Secretary of State to read

> "in certain circumstances, where the nucleus of social and public utility services exist, development on a limited scale - i.e. single houses or very small groups of houses and where it is required to meet the needs associated with the agricultural economy to support the viability of a village or in other circumstances when there are particular local requirements - may be permitted on the merits of the case." (p.41-2).

Although the modification was designed to create greater flexibility, it may well have had the opposite effect. Whereas previously any development in non-key settlements could theoretically take place where service levels were of the required standard, the modified policy dictates that development can take place only when needed in order to provide a specific local need - either social of economic - and then only in a settlement where services are sufficient. Therefore, it is more difficult for the planners to accept development in small settlements than before the modification. Consequently, the policy towards growth in non-key settlements would seem to be very restrictive, and it will be interesting to discover whether this strict attitude is translated into the relative levels of planning permissions and refusals in these settlements.

The Structure Plan attaches considerable importance to the need for constant monitoring of the key settlements policy. If such monitoring is carried out with sufficient regularity and depth, situations of unsuitable growth in key settlements or of local needs unfulfilled in non-key settlements are able to be resolved without the creation of trends which might cause lasting damage to the social or physical environment. Prior to the advent of structure plans, insufficient resources have been available for the upkeep of a constant monitoring service in the rural areas of Britain. It remains to be seen whether the monitoring of rural settlements is given any greater priority in resource allocation under the new strategies.

SELECTION OF KEY SETTLEMENTS

The positive steps taken by the overall key settlements policy in Warwickshire towards economy of service provision and conservation of settlements which display an unsuitability for growth have met with general approval and have served as a standard in the preparation of structure plans for other, similar counties. However, the success of any key settlement policy will depend in part upon the selected growth settlements and whether these settlements are best able to serve the needs of their hinterlands. The method used by Warwickshire to select the specific key settlements on which the overall policy is based has been the subject of much critical discussion, notably by Jones (1974) and Woodruffe (1976). This selection procedure is worthy of further discussion for two reasons. Firstly, the key settlement is the kingpin of the entire Structure Plan policy for the planning of rural Warwickshire. Therefore, if key status is apportioned inappropriately, the policy for the settlement structure as a whole will suffer. Secondly, the selection procedure was hailed as an innovative process of selecting the constituent key settlements in what might become a standard rural settlements policy in 'pressured' rural areas. The Structure Plan Supplementary Report on Rural Settlements (Warwickshire County Council, 1973) details this selection procedure.

In this report, the question of an acceptable level of rural population growth is discussed prior to the selection of the key settlements. Therefore, we may assume that the number of growth centres selected was based roughly on how much growth was to be accommodated. All rural settlements with a population of 200 or above, and a few with less population but possessing good facilities, were analysed to see which were most suitable for growth. In all 154 settlements were considered and three sets of analysis were undertaken, these bearing the general headings of development potential, land constraints and commitments.

(a) Development Potential

This analysis owes much to the Development Potential Analysis included in the Sub-regional Study. Indeed it may well have been a wish for the upkeep of the statistical innovation initiated in the Sub-regional Study that motivated this particular type of selection process. 14 variables were used for each settlement:-

1. Landscape
2. Townscape
3. Residential Visual Environment
4. Pollution
5. Health Services
6. Primary Schools
7. Secondary Schools
8. Job Accessibility
9. Shops
10. Farmland
11. Sewerage
12. Road Access
13. Bus Access
14. Rail Access.

No explanation is given as to why 14 variables were chosen or whether further variables were tested and then discarded as being unsatisfactory. In this case, variables such as the presence of a village hall or a childrens playground have a considerable bearing on the life of a settlement and thus might have been included as part of the measurement of growth suitability. However, the 14 variables selected would give a fairly comprehensive picture of a settlement's potential if it were not for the unsatisfactory nature of the measurements adopted to represent some of them. For example, sewerage and sewage disposal facilities were measured by spare capacity whereas educational facilitites were measured by distance from schools of certAin sizes, and no mention was made of whether these schools were under capacity. Invariably, no development would be permitted unless there was spare capacity in accessible educational establishments.

It is also noticeable that certain unproven formulae were used in the measurement of accessibility. Road access was measured by dividing the number of lanes on the nearest motorway or 'A' class road by the distance from the settlement to that road. Furthermore, rail access was measured using the formula:-

$$\frac{L}{2}\ (5 - D) \quad + \quad \frac{C}{2}\ (10 - D)$$

where L = number of local trains in the evening peak hour
C = number of inter-city trains in the evening peak hour
D = distance in kilometres to station.

It is extremely doubtful whether these measurements give a meaningful reflection of access. Perhaps of more importance to a settlement is whether it can be reached by all forms of road transport; whether the immediate access road is overused; and whether a by-pass is likely to be needed in the near future. As far as rail access is concerned, the distance to the nearest station added to some measure of the future viability of the line concerned might be a more informative measure, for it would be unwise to plan substantial development based on good rail access only to find that particular line closed in the next round of spending cuts. It may be considered that the points raised here are minor ones, but when considered in toto it does seem that the involved nature of this measuring procedure might prove to be misleading.

Scores for the 14 variables were standardised to a range of 0-5. These scores were then weighted according to four strategies: the first giving the highest weightings to the conservation of good farmland and the availability of sewerage; the second to good townscape and landscape; the third to residential environment and general accessibility; and the fourth to conservation and residential environment. Again, no reason for each particular weighting is given in the report. The 40 highest ranking settlements for each strategy were listed (58 in all) and then those appearing in the 40 highest in either three or four of the strategies were shortlisted (a total of 33 settlements). This shortlist was then carried over to the next stage of the analysis.

(b) Land Constraints

The land constraints stage sought to assess the scale of development which could be absorbed by each settlement both by spreading outwards in the four cardinal directions and by infill. Scores of 0-10 were recorded according to the presence or absence of physical barriers which might hamper development. However, the report admits that "the subjective nature of this study meant that it had to be applied with caution" (p.21) and that "a thorough survey of each settlement would have been necessary to do this (assessment) adequately and available resources did not permit this" (p.20). It would seem, them, that as this stage was only used to further refine the shortlist produced by the development potential stage, it might have proved more productive to have carried out thorough surveys of the shortlisted settlements rather than concentrate on the less detailed analysis for all 154 settlements.

(c) Existing Commitments

In 1972, existing planning permission or local plan development area commitments amounted to some 7,500 dwellings in rural Warwickshire, or 22,500 persons assuming an occupancy rate of three persons per dwelling. The report stressed that "it was necessary to establish whether these commitments were in appropriate settlements and whether their distribution around the County was satisfactory. Four categories of commitments were outlined.

1. Ten settlements with commitments of around 1000 persons or above.
2. One settlement (Polesworth) with commitments for 600-700 persons.
3. Ten settlements with commitments for 120-300 persons.
4. Numerous smaller commitments in other settlements.

The final selection of key settlements depended on a combination of the above three analyses. An additional

factor was also considered:-

> "since key settlements are intended to absorb the natural increase of their hinterland population, it was important to geographically disperse them throughout the County and not to concentrate them into certain areas." (p.23)

In fact the eleven settlements selected as first tier key settlements were the eleven settlements with the highest existing commitments. All of these settlements figured in the development potential shortlist although they displayed considerable variation in land constraints scores. Of the ten settlements with commitments of 120-300 persons, four were discarded with low development potential; Henley-in-Arden, despite its high development potential, was discarded because it was decided that further development would be detrimental to the town's important historical and architectural character; the rejection of Wolston is not explained in the report; and the remaining four, having high development potential were selected as second tier key settlements. A further four second tier key settlements of lower existing commitments were added in order to effect an adequate geographical spread of growth.

A vast amount of resources was used in the compilation of the Rural Settlement Report, but despite this deployment of time and manpower it is admitted in the report that

> "it was only possible to make a very general assessment of each settlement's suitability for growth. The results of this analysis, therefore, can only be regarded as reliable where wide differences between settlements are indicated." (p.2).

Therefore, it is valid to question the use of this time-consuming yet imprecise technique in the selection of rural growth centres. This is far from being a general criticism of the careful application of urban and regional planning techniques to the smaller rural scale, which is an encouraging and fruitful trend. It is merely thought appropriate to question the particular application of this technique. If the selected key settlements prove to be the most able to fulfil the aims and objectives of

the Structure Plan then the technique will have been vindicated. However, several questions do arise from the selection of certain settlements and the rejection of others which point towards a need for detailed individual surveys in a fewer number of settlements.

The report was compromised in the first place in that the target for reduced growth in the rural areas had to be equated with the level of outstanding planning commitments. Therefore, the report was largely reduced to the role of a retrospective examination of the appropriateness of planning decisions which had already been taken, in regard to individual settlements and their distribution around the County.

Jones (1974) noted that the entire selection procedure omitted the measurement of population or any other direct assessment of settlement size. Consequently, he undertook an analysis of the 33 shortlisted settlements in relation to population. The results of this analysis are summarised in Table 5.2.

Table 5.2 Shortlisted Settlements

	INTERIM POLICY STATUS	PARISH POPULATION 1971	EXISTING COMMITMENTS (PERSONS)	MEAN DEVELOPMENT POTENTIAL	LAND CONSTRAINT SCORES	STRUCTURE PLAN STATUS
ALCESTER R.D.						
Studley	1	5950	1092	130	4	K1
Alcester	1	4657	1752	135	3	K1
Bidford-on-Avon	1	2822	1137	118	5	K1
ATHERSTONE R.D.						
Atherstone	-	7708	4500	127	3	K1
Polesworth	1	7395	654	123	2	K1
Kingsbury	1	6011	1572	114	3	K1
Dordon	1	3337	240	131	1	K2
Mancetter	-	2510	--	114	1	-
(Ansley)	-	2314	231	110	4	-
Baddesley Ensor	2	2165	--	118	2	-
Baxterley	-	342	--	110	4	-

Continued/...

Table 5.2 continued

	INTERIM POLICY STATUS	PARISH POP-ULATION 1971	EXISTING COMMIT-MENTS (PERSONS)	MEAN DEVEL-OPMENT POT-ENTIAL	LAND CONST-RAINT SCORES	STRUCTURE PLAN STATUS
MERIDEN R.D.						
Coleshill	-	6297	240	147	2	K2
Balsall Common	1	4058	1740	135	8	K1
Water Orton	-	3505	--	141	4	-
Arley	2	2933	1200	122	5	K1
Meriden	1	2433	--	134	4	-
Middleton	-	691	--	110	8	-
Curdworth	-	653	231	117	4	K2
RUGBY R.D.						
Binley Woods	1	2964	--	122	4	-
Ryton-on-Dunsmore	2	1941	--	140	3	-
(Wolston)	1	1819	189	113	3	-
Wolvey	1	1351	--	113	6	K2
Stretton-on-Dunsmore	1	1204	--	116	8	K2
Brinklow	1	1184	--	108	6	-
Shilton	1	689	--	108	3	-
Brandon	-	660	--	119	2	-
SHIPSTON-ON-STOUR R.D.						
Shipston-on-Stour	1	2773	1083	123	5	K1
SOUTHAM R.D.						
Southam	1	4506	918	135	5	K1
(Harbury)	1	2380	--	104	6	-
(Long Itchington)	2	1890	180	104	4	-
(Bishop's Itchington)	1	1840	--	100	5	K2
STRATFORD-ON-AVON R.D.						
Hockley Heath	1	3507	--	131	8	K2
Wellesbourne	1	3215	2100	116	6	K1
(Tanworth-in-Arden)	1	3193	--	83	6	-
Kineton	2	1806	123	124	3	K2
Henley-in-Arden	2	1577	273	141	2	-

Continued/...

Table 5.2 continued

	INTERIM POLICY STATUS	PARISH POP-ULATION 1971	EXISTING COMMIT-MENTS (PERSONS)	MEAN DEVEL-OPMENT POT-ENTIAL	LAND CONST-RAINT SCORES	STRUCTURE PLAN STATUS
WARWICK R.D.						
Bishop's Tachbrook	2	1679	--	112	4	-
Baddesley Clinton	-	181	--	109	4	-

Existing commitments were less than 40 where not indicated.

After Jones (1974)

1971 Census data for parish population was used, and although one settlement, Hampton Magna, could not be approximated by a parish of the same name, this made little difference to the results as this settlement was stated in the report to be "too closely linked with Warwick for it to adequately fulfill the role of a key settlement." (p.25). It is immediately evident that not only were the largest settlements being generally selected as key settlements, but also that there was a high coincidence between key settlement selection and settlements designated for limited expansion under the Interim Policy Statement of 1966.

In order to test the significance of population size, Jones calculated contingency coefficients for the relationships between population and the 14 development potential variables. 11 of these variables were found to be significantly associated with population, indicating that in these variables a high population was associated with a high development potential score and a low population with a low score. He concluded that

> "the Development Potential analysis by using factors which merely reflected the existing situation regarding services and facilities, and environmental factors which were not independent of settlement size, simply resulted in the largest settlements being indicated as the most suitable for growth." (p.19)

Table 5.3 also offers a valuable insight into the efficiency of the final selection of key settlements in the various rural districts.

Table 5.3 Calculation of development potential in Southam Rural District

VALUES GIVEN BY THE RURAL SETTLEMENTS REPORT

	STRATEGY 1	STRATEGY 2	STRATEGY 3	STRATEGY 4	MEAN
Bishop's Itchington	94	105	89.5	111.5	100.0
Harbury	94	98	119.5	103.5	103.8
Long Itchington	100	100	106.5	108.5	103.8

TRUE VALUES ACCORDING TO FACTOR AND WEIGHTING SCORES GIVEN IN THE REPORT

	STRATEGY 1	STRATEGY 2	STRATEGY 3	STRATEGY 4	MEAN
Bishop's Itchington	94	105	89.5	105.5	98.5
Harbury	94	99	95.5	103.5	98.0
Long Itchington	104	102	106.5	108.5	105.3

The example taken here is Southam Rural District to which special attention is paid in Chapter 7. Southam itself was the only settlement in the rural district to appear in the shortlist, and with existing commitments of 918 it was selected as a first tier key settlement.

It was also decided that this area was under-represented in terms of future growth and so Bishop's Itchington was selected as a second tier key settlement despite its low development potential and few commitments. The report suggested that Harbury was considered as an alternative to Bishop's Itchington but was finally excluded on the

grounds that its recent growth (73% in 1961-1971 compared with 55% in Bishop's Itchington) would justify "a period of slower growth to settle down again" (p.25). A high level of development had previously been commited to Long Itchington (120 persons) but this settlement was thought to be unsuitable for key status because of its lower development potential.

However, investigation of the calculation of development potential scores from the constituent factor and weighting scores reveals that the report was inaccurate in several instances. The mean development potential assigned to Harbury was 103.8 whereas in fact this should be 98.0; the 103.8 score for Long Itchington should read 105.3; and Bishop's Itchington's 100.0 should be 98.5 (Table 5.3). Thus, Long Itchington generally out-scored its two rivals in development potential, although none of the individual scores ranked highly in the overall County pattern. Therefore, to discard Long Itchington because of its low development potential is misleading.

This example demonstrates the intricacy of granting key settlement status between various contenders. It is important to remember that on this decision depends the growth pattern of these various settlements up to 1986. As it is, Long Itchington will now presumably be limited to the pre-committed growth of 180 persons whilst Harbury, a settlement which many local planners recognise as being better able than its competitors to fulfil the function of a key settlement, will be limited to small-scale growth according to local need.

POLICY IMPLICATIONS

The incongruities and theoretical doubts concerned with the selection procedures discussed above are likely to have a marked effect on the effective employment of the key settlements policy. In all fairness the first tier key settlements almost select themselves whatever selection procedure is utilised. Planning trends initiated under the interim policy statement must be honoured under the Structure Plan policy and so it seems sensible

that these pre-conceived growth centres should retain their role. However, the selection of second-tier key settlements is more dubious especially in cases where more than one settlement appears to be suitable for growth, such as was seen in Southam Rural District. Here, a more thorough local survey of the settlements in question might have aided the selection process. Jones concludes that

> "the use of a development potential index which is so clearly related to existing settlement size but which does not explicitly include some measure of size, such as population, is an unsatisfactory means to attempt an assessment of the suitability for development of a group of settlements" (p.19).

Therefore, there does remain a doubt that in using this technique with its admitted low degree of sensitivity, the decisions made as to the designation of certain key settlements (especially of the second tier) may have been wrong ones, thereby introducing growth into certain settlements when other settlements in the area may have a greater suitability for such growth. Where this has happened, planners may find it difficult to resist the pressures for growth in the more suitable settlement and, any compromise, however small, in this direction could lead to the eclipse of the designated key settlemtnt. Again, it will be interesting to test this wrongful designation hypothesis in relation to information concerning housing, services and industry which is analysed in later chapters. It will also be an important indication of the monitoring of the policy to see whether any such wrongful allocation of growth is detected and righted before lasting social or environmental damage is done.

THE KEY SETTLEMENT POLICY AND PUBLIC SERVICES

The Warwickshire key settlement policy has been described above as a comprehensive and all-embracing policy whereby all facets of the planned rural system can be co-ordinated around the growth settlements. The stated purpose of this study is to evaluate whether such

a policy can actually be made to work effectively when it is translated from the pages of the structure plan into local scale planning decisions. Therefore, the policy can only be judged in the light of the key settlement selection decisions that were made, although the question of whether or not these decisions were appropriate will necessarily be revived in the detailed analysis of the policy (Chapter 6).

In order to realise the comprehensive aims of the key settlement policy, extensive co-operation between different County department policies is necessary. After all, the multiple roles in areas of housing, employment and services which have been attributed to the key settlements according to the Structure Plan are dependent on the concomitant planning of public resource allocation to services and infrastructure. In effect, the strategies drawn up for the provision of these services form an integral part of the key settlement policy. An attempt is now made to assess the integration of the various public services with the key settlement policy. This assessment was executed by means of a questionnaire sent to three public bodies which represent examples of such services. Questionnaires were sent to

a. Warwickshire County Council Education Department
b. Severn-Trent Water Authority
c. Warwickshire Area Health Authority.

Education and sewage disposal services were selected for investigation since a lack of these services will invariably result in an embargo on further growth in that particular settlement. The investigation of health service policy represents an attempt to monitor the co-operation between public and private resources in the provision of this facility.

(a) <u>Education Policy in Rural Warwickshire</u>

Education is perhaps the least flexible of the public services provided in rural areas in that children of school age are compelled to attend an educational establishment whatever its location. Because of the rigidity of this system, the Warwickshire policy for

replacement of new schools is dependent strictly on there being a demonstrable need for school places within a certain catchment area. Therefore, education policy is only allied to the key settlements policy in so far as most future growth in rural settlements will fall in the key settlements and so it is more likely that new or replacement schools will be sited there. This is not to say that a required new school will automatically be built in a key settlement rather than a non-key settlement. Indeed, the need to provide educational facilities for isolated groups of villages may be more desirable at any one time.

Any discussion of the link between education policy and key settlements must concentrate on present and future policy since the established pattern of educational facilities precedes the Structure Plan key settlements policy. Indeed, the selection procedure for key settlemts took account of the presence or absence of primary and secondary schools as a major contributory factor in the suitability of a settlement for further growth. Therefore, it is likely that the selected key settlements will be well endowed with educational facilities. In fact, all 19 key settlements have primary schools and 13 also offer secondary education facilities. By contrast, only Wolston and Henley-in-Arden of the non-key settlements have secondary schools.

Future education policy would seem to revolve around a combination of population thresholds and distance barriers. The County Education Department report that there is no cost difference in the building of new schools in key and non-key settlement sites, but there is obviously a locational bias in the decision where to build in that a suitable demand for school places must be proved to exist within the selected settlement and its catchment area. The Manual of Guidance Schools No. 1 (Ministry of Education, 1960) recommends that primary school children should travel no more than six miles, and secondary school pupils no more than ten miles to school. These limits are followed

in Warwickshire, with a few exceptions caused by school closures, although travelling times of 45 and 75 minutes respectively are found to be more realistic travel parameters.

Within this framework, the ideal population size to warrant a primary school has been found to be 4,500-6,000, although units of half this size are satisfactory. The minimum population warranting a secondary school is theoretically 10,000-12,500 although again this is not always achievable within the above travel parameters. Theoretically, then, the entire educational needs of the rural areas could be served by the key settlements, since there are very few rural settlements in Warwickshire which are more than six miles distant from a key settlement. Obviously, this would be an extremely undesirable situation, not only from the point of view of the wastage of present school buildings in the non-key settlements and of the unacceptable level of school transport necessitated by such a policy, but also because of the social function that a school often adopts at the centre of a rural community. Primary school units serving catchment populations of 2,500-3,000 have been found to be suitable in rural Warwickshire, and such a threshold can easily be met by the grouping of non-key settlements into one catchment area.

All in all, little fundamental change can be expected in the provision of educational facilities under the recent key settlements policy, even taking the conversion to first and middle schools in primary education into account. Certain closures of the smaller undersubscribed primary schools have been taking place and no doubt will continue to do so in the future as larger units become increasingly desirable. Education policy does not conflict to any great extent with the objectives of the key settlement policy and does offer one avenue whereby the smaller rural communities can maintain a social base. However, it is to be expected that future education policy will be more closely related to the channelling of population growth into the key settlements,

even though this may lead to school closures in the non-key settlements. Despite this, the fact that new school building, extension or replacement projects are based on the premise of need should ensure that the non-key settlements will be adequately provided for.

(b) Sewage Disposal Policy in Rural Warwickshire

The new strategy for the planning of rural Warwickshire was similarly presented with an ongoing policy for sewage disposal provision, although the provision of this facility requires a continuous locational decision making process and so priorities for resource allocation are more easily diverted to meet new policy requirements, at least in the medium term. In that the provision of sewerage and sewage disposal is not statutory, a decision has to be made as to where available resources should be allocated. As demand invariably exceeds supply in this case, the decision is made on a Benthamite basis of the greatest good for the greatest number.

Section 16 of the 1973 Water Act allows that property owners, developers or local authorities may requisition sewerage but not sewage disposal facilities, but the Severn-Trent Water Authority has adopted the standard policy whereby it will normally only consider the provision of first time sewerage in rural areas on receipt of a requisition from the appropriate local authority. Therefore, the planners might expect some degree of control over the locational decision-making process for the provision of this utility service. Ultimately, however, the financial constraint is the overriding one.

In fact, the water authority clearly states that its policy for programming sewage works extensions is dependent on factors other than development proposals. Very often such factors are concerned with the maintenance of particular effluent standards. Therefore, the allocation of this service is, as was education, based principally on the relative urgency of particular situations. No priority treatment is given to key settlements merely because of their planning status, neither is there

any cost differential in the building of new sewage disposal systems between key and non-key locations. Theoretically, then, if the sewage disposal system serving a key settlement reached its capacity but did not contravene the critical effluent standards, a sewage embargo on further development could be imposed on that settlement while more pressing problems in non-key settlements could be dealt with.

This situation is unlikely to occur for three reasons. Firstly, the selection procedure for key settlements took particular note of sewage disposal facilities, and those settlements with spare capacity in their systems scored highest in that part of the development potential index. Consequently, the selected key settlements were likely to have sewage disposal systems with some spare capacity of varying degrees, although Southam was an exception. Secondly, it is likely to be the larger centres of population and settlements with high rates of population increase where the major problems of sewage disposal in the rural area will occur, and so effort may well be concentrated on the key settlements in this respect. Finally, more benefit in terms of population served can be perceived from the less expensive process of expansion of existing schemes rather than the financially crippling process of building entire new systems, and again the key settlements are favoured in these terms. Moreover, a local authority is unlikely to requisition new sewage disposal systems in non-key settlements when development in key settlements is held up by a sewage embargo.

The general future policy for the provision of sewerage and sewage disposal facilities would seem to be in line with the key settlements policy. Once the awkward stage of policy transition has been accounted for, it seems likely that existing works will be improved to provide acceptable effluent standards and as far as possible to meet the needs of planned development. The limited amount of finance which is likely to be available in the forseeable future will lead to an inevitable

selection of areas for priority treatment and the recommendation that development be restricted in those areas where treatment facilities remain inadequate. Certainly the outlying houses, farms and hamlets at present using cesspools and septic tanks have little hope of obtaining mains drainage unless substantial pollution occurs, although there is no apparent reason for refusing the development of a few houses with septic tanks in these non-key areas.

Although there is no cost variation between key and non-key settlements as locations for new works, it is presumably the case that the marginal cost of sewerage decreases with increasing population size and so it will be more economical to provide sewage disposal facilities in larger units. For this reason, investment in new sewerage is likely to correspond with new housing development in the key settlements while non-key settlements will receive only residual investment for the improvement of sewage treatment. Thus, so long as short term phasing problems can be ironed out and full co-operation is maintained between plannnng and water authorities, then there seems to be little reason why the strategy for provision of sewerage and sewage disposal facilities should in any way hinder the key settlements policy.

(c) Health Services Policy in Rural Warwickshire

Health service provision policies, other than those concerning hospitals, are quite different from those of education or sewage disposal in that the initiative to provide the service comes from the individual (i.e. the doctor) and the location of the service receives varying degrees of guidance from the Family Practitioner Committee and the Area Health Authority. Once again, the rural settlements policy of the Structure Plan was preceded by an established system of health services which had the capability of meeting the needs of the rural population. Health services were another important factor in the calculation of the development potential of rural settlements, and although child health clinics

were the variable used in this measurement, it is probable that these coincide largely with the distribution of health centres and doctors surgeries. Therefore, it is to be expected that key settlements will be well supplied with these health facilities.

As is the case with other services, the building of health centres in rural Warwickshire is based on the premise of fulfilling a need rather than solely concentrating on the key settlements. However, it is admitted that if the need can be fulfilled equally from a key or non-key location then the key settlement will be favoured even though the building cost will be the same in each case, varying only with the number of doctors using the centre. In fact the use of health centres as opposed to mere doctors surgeries is very much dependent on the size of the catchment population and on the availability of community health services. Thus, even of the key settlements only Kingsbury has a health centre, although two more are planned at Bidford-on-Avon and Studley. None is situated in any of the non-key settlements.

The distribution of doctors surgeries is more likely to represent the spatial element in health service provision in the rural areas. According to the Warwickshire Area Health Authority, 1,500 is the minimum threshold population to warrant the full time services of a doctor, although this figure does vary according to the scattered nature of the population and the effect of the doctor having to supply medicines because of the absence of a chemist. Allied to this population threshold is the ideal situation that there should be a maximum distance of five miles between a doctor and his patient. Although doctors have not officially been directed to practise from any particular location, the above parameters have ensured that every key settlement has a doctors practice operating from it and although the non-key settlements also contain practising doctors, it is clear that the key settlements constitute the hub of local health services for most of the rural area. This trend is perpetuated

by the increasing incidence of two, three or even four doctor practices which need a larger threshold population to support them. However, it is interesting to note that many such practices devote ancillary surgery time to a location in the rural hinterland thus presenting the non-mobile population with health service opportunities on at least one day in the week.

Once again it is noticable that the provision of health services doesnot appear to conflict in any way with the key settlement policy. Although doctors are not directed to practise from any particular place, any doctor wishing to set up practice would be guided by the Family Practitioner Committee as to which location might be advantageous. The present position in rural Warwickshire is that there are already sufficient doctors for the numbers of prosepctive patients, and the opportunities for a doctor to set up a new practice in such areas are therefore very limited. Thus any future practice will be steered into areas of new population, that is the key settlements.

The above three examples suggest that the provision of public or semi-public services and facilities is fairly well attuned to the needs of the key settlement policy. However, there are, at least in the short term, infrastructural problems affecting the immediate development of the key settlements. These arise from the difficulties encountered by the various public authorities in readjusting their strategies so as to make them compatible with the Structure Plan proposals for rural settlements. Priorities for the provision of new facilities have had to be altered and although most authorities have to base their allocation on the relative need for a particular service, presumably the relative needs of a settlement become more important when it is selected for considerable development. This would certainly be the attitude adopted by the planners.

Some time lag between the different sets of priorities is bound to occur as in Southam where development has been

halted for three years since it was originally classified as a key settlemtnt, in anticipation of further sewage disposal facilities. The situation in Southam also highlights another area of discrepancy between public authorities. Development is also prevented while the decision is made as to the building of a by-pass around the town. Questions of road building are plagued by divisions of responsibility and this and other longer term infrastructural matters are capable of causing long delays to the key settlement growth programme.

Finally, it is useful to pause for a moment and consider the rural area in opposition to the more highly pressured urban areas. It is easy to discuss the priorities by which measures are allocated to provide certain facilities and services within the rural area. However, depending on the scale of financial stringencies imposed on local authorities in the next few years, it might be the case that priority is given to urban areas over rural areas. This would result in the key settlements not receiving their expected level of services and facilities while the needs of the non-key settlements might almost be ignored. So long as this situation is prevented, it is likely that the key settlements policy will not be compromised by incompatible strategies for public service provision once the discrepancies due to time lag are overcome.

CHAPTER 6

THE KEY SETTLEMENT POLICY IN A PRESSURED RURAL COUNTY - THE WARWICKSHIRE ANALYSIS

Although this study was designed as a totally impartial evaluation of key settlement policies, the analysis of history, theory and policy in previous chapters has brought to light several hypotheses around which such an evaluation may be centred. Those hypotheses relating to the use of key settlement policies in pressured rural areas may be summarised as follows:-

1. A key settlement policy is able to effect a successful polarization of infrastructure and service provision into selected centres (Chapter 1), and this provision in rural areas as a whole bears a direct relationship with population thresholds (Chapter 2).
2. Some form of settlement hierarchy does exist in pressured rural areas on which the promotion of selected key settlements may be founded (Chapter 2).
3. Key settlements perform two major growth centre functions:-
   (a) the centrifugal spread of development and prosperity to the periphery.
   (b) the centripetal movement of population from within as well as from outside the rural area (Chapter 2).
4. A key settlement allows the conservation of settlements whose environmental quality is such that further large scale growth would be inappropriate (Chapter 1).
5. An inflexible attitude towards growth in non-key settlements, especially when linked to inappropriate key settlement selections, can cause physical and social hardship to healthy communities (Chapters 3 and 5).
6. Planning authorities are able to adhere to stated key settlement policy guidelines in everyday decision-making when faced with opposing social, economic and political pressures (Chapter 5).

DATA SOURCES

In order to test these hypotheses, data were collected from a number of different sources (Table 6.1).

Table 6.1 Data Sources

DATA TYPE	WARWICKSHIRE	SOUTHAM (ADDITIONAL DATA)
POPULATION	Census county volumes 1961, 1971 W.C.C. population estimates, 1975	Ward Library, 1971
HOUSEHOLDS		Ward Library, 1971 Southam Local Plan (S.D.C., 1975) Bishop's Itchington Local Plan (S.D.C., 1977)
HOUSING	Questionnaire District Council planning offices County Structure Plan (W.C.C., 1973A, 1973B)	S.D.C. W.C.C. (planning permissions)
CONSERVATION	County Structure Plan (W.C.C., 1973B) W.C.C.	
SERVICES	Questionnaire District Council planning offices	S.D.C. Southam Local Plan Bishop's Itchington Local Plan "Environmental Study of Southam" (Southam Town Council, 1975) Midland Red (transport)
EMPLOYMENT	Questionnaire District Council planning offices W.C.C. County Structure Plan (W.C.C., 1973A)	S.D.C.
PERCEPTION	Questionnaire	

W.C.C. Warwickshire County Council
S.D.C. Stratford-upon-Avon District Council

By far the greatest part of the information stemmed from a questionnaire survey sent to every parish clerk in Warwickshire (Appendix 1). The questionnaire requested information concerning growth and decline in the provision of services, new housing and new employment in each parish between 1965 and 1975, while the opportunity was also taken to examine the knowledge and attitudes of parish clerks towards the key settlement policy in general. Thus, the survey provided a vehicle through which a catalogue of the infrastructure needed for rural living in Warwickshire could be compiled. Following a high response rate to the questionnaire (83%), information concerning non-respondent parishes was obtained either through the auspices of the local District Council planning department, or by personal visitation. In this way a complete data set was achieved, covering every civil parish in Warwickshire.

Two questions immediately arise as to the validity of data collected in this manner. The first problem concerns the accuracy with which a parish clerk is able to answer the questions included in the questionnaire. In order to test this accuracy, planning offices were asked to supply information for a random sample of parishes about which replies had already been received from parish clerks. Comparison of the two sets of data revealed a 92% correspondence, and any deviations that did occur tended to reflect the timing of change rather than the physical presence or absence of any particular phenomenon. Bearing in mind the fact that information of this kind is not likely to be faultless even when supplied by planning offices, it was considered that the data set was sufficiently precise for the purposes of this study. Indeed, it is difficult to imagine a more profitable source of such information. Partial evidence is available from planning permission, rateable value and employment office data but in toto, the catalogue for each parish is best compiled by someone with local knowledge of that parish.

The second problem inherent in a questionnaire survey of parish clerks is the use of the civil parish as the areal unit of study (c.f. Chapter 4). There is a danger that two or more discrete settlements may occur within any one parish in which case any internal variations, for example in housing or service development, will be masked by analysis on a parish basis. However, where this situation has occurred, parish clerks have usually been careful to outline differing levels of development between settlements within the parish and so this difficulty has largely been overcome. In any case, data gleaned from other sources has also been tabulated at parish level and so the parish questionnaire has aided the general objective of comparability of differing types of information.

Aside from the questionnaire, planning permission and public service provision data were obtained directly from the County and District Councils concerned, and socio-economic and household facts were provided by the Ward Library and County volumes of the census. Other criteria were measured from the County Structure Plan (Warwoxkshire County Counci, 1973A, 1973B). Any difficulties or advantages stemming from these data will be introduced as they are encountered in the analyses below.

It is now intended to use these data to test the above hypotheses, and thereby evaluate the progress of the key settlement policy in Warwickshire, under a series of systematic headings. Broad county-scale trends will be investigated in this chapter while an examination of the smaller-scale ramifications of the policy will be examined in Chapter 7 in a case study of Southam Rural District.

POPULATION

(a) Population Distribution

Analysis of the Warwickshire key settlement policy is hampered by the fact that the Structure Plan of which

it is part was not officially accepted by the Secretary of State until 1975 (Warwickshire County Council, 1975). Unofficially, however, the main tenor of the key settlement policy has been followed by the planners since the publication of the Coventry-Solihull-Warwickshire Sub-Regional Study (Coventry City Council et al, 1971) and so the period from 1971 to the present day can reasonably be expected to reflect the commencement and continuing use of this type of policy in pressured rural areas. Though not ideal, the decision to study a newly-instigated key settlement policy does allow an insight into difficulties caused by a radical policy change-over in the countryside (c.f. the long-established policy in Devon - see Chapter 9).

Figure 6.1 shows the pattern of population distribution in 1971 at the starting point of the key settlement era in Warwickshire. It is apparent that the settlement pattern includes a large number of parishes of over 1000 population both in the north-west between the Birmingham and Coventry conurbations, and surrounding the smaller urban centres of Rugby, Leamington Spa/Warwick and Stratford-upon-Avon. As distance from these urban nodes increases, the occurrence of large centres of rural population becomes less frequent. In these more peripheral areas, the dominant population composition is one of sectors or channels of highly populated parishes, (for example between Coventry and Rugby, and south-eastwards from Warwick/Leamington Spa) interspersed by areas of lower population usually in the 100-500 category.

All but one of the selected key settlements have populations over 1000 (see Chapter 5) but it is noticeable that there are two distinct patterns of key settlement distribution. Nine key centres are clustered in the highly populated north-west buffer zone between Birmingham and Coventry. The remainder are more widely scattered amongst the rural hinterland to the south and west of the county. There may well be an interesting division of roles between these two groups, as the needs of a

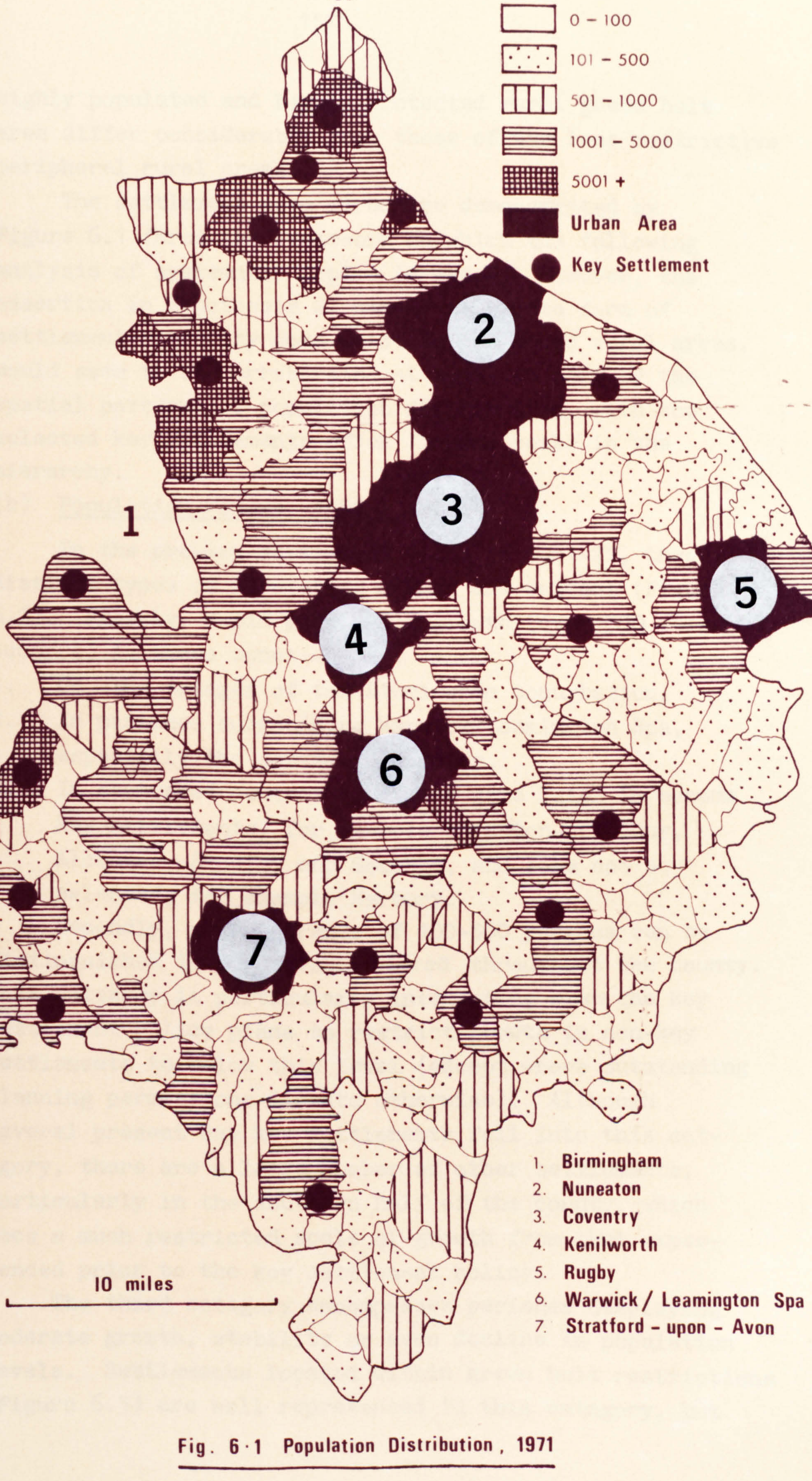


Fig. 6·1 Population Distribution, 1971

highly populated and highly protected rural green belt area differ considerably from those of the less restrictive peripheral rural areas.

The settlement size structure demonstrated by Figure 6.1 forms the framework on which the following analysis of systematic topics is based. However, the assertion in Hypothesis 2, namely that some form of settlement hierarchy does exist in pressured rural areas, would seem to be corroborated at least in part by the spatial patterns of population distribution, with the selected key settlements often forming peaks in the hierarchy.

(b) Population Change, 1961-71

In the pre-key settlement years of 1961-71, three distinct types of population change are evident (Figure 6.2). Firstly, rapid population growth (over 500 persons) occurred in three zones:-

1. On the fringes of the Birmingham conurbation.
2. In parishes surrounding Warwick/Leamington Spa, especially the south-east sector.
3. In scattered centres including some later to become key settlements, for example Shipston-on-Stour, Alcester, Studley and Southam, and some not so selected, for example Harbury.

Secondly, growth trends of 100-500 persons can be distinguished in parishes scattered throughout the county. This category is particularly interesting since the key settlement policy plans to restrict growth in non-key settlements to below this level (except where outstanding planning permissions dictate otherwise). Although several present day key settlements fall into this category, there are a large number of other settlements, particularly in the southern half of the county, which face a much restricted scale of growth from that experienced prior to the key settlement policy.

The third category encompasses parishes displaying moderate growth, stability or even decline in population levels. Settlements located within green belt restrictions (Figure 6.3) are well represented in this category, but

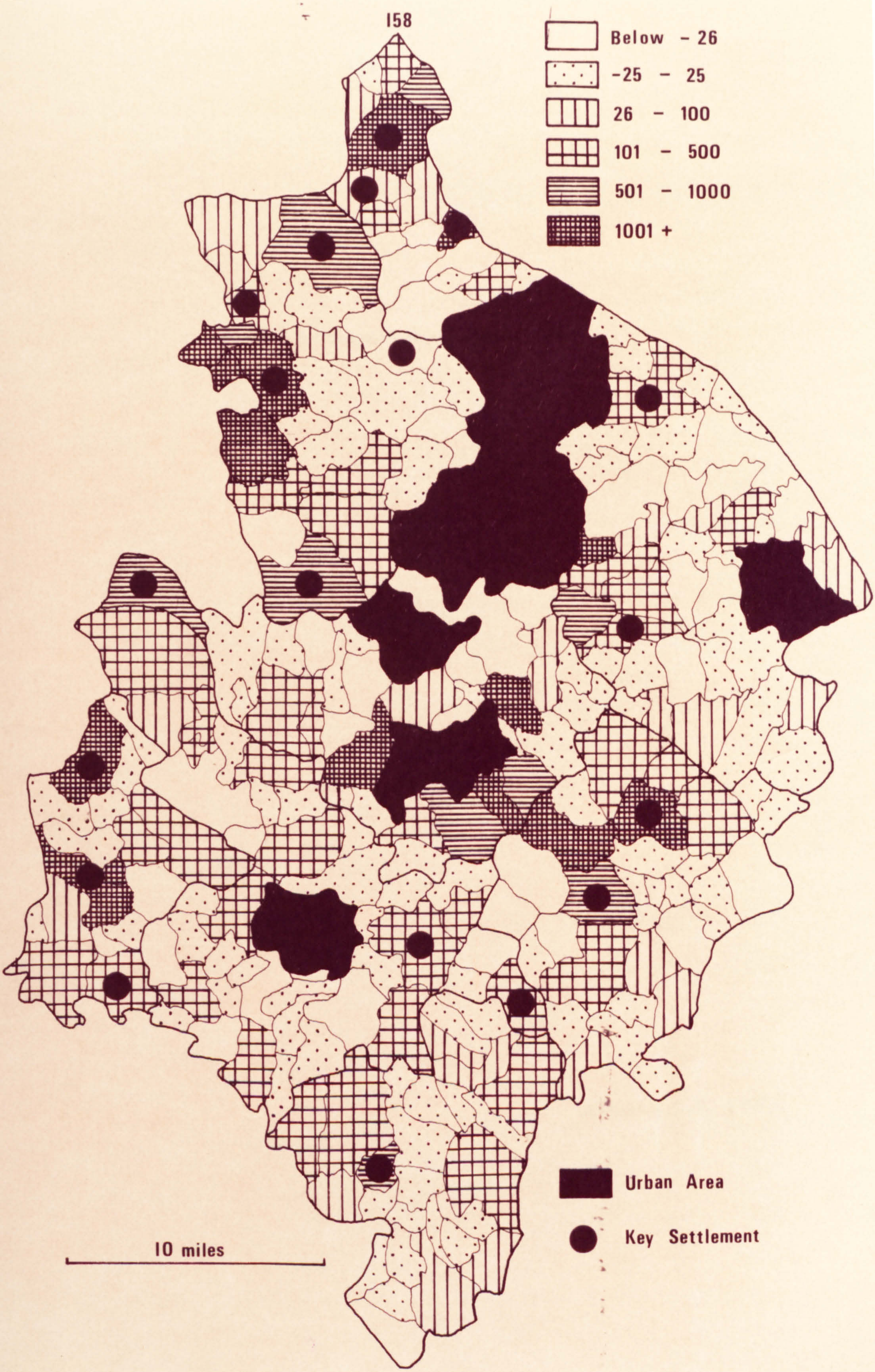


Fig. 6·2 Population Change, 1961–71

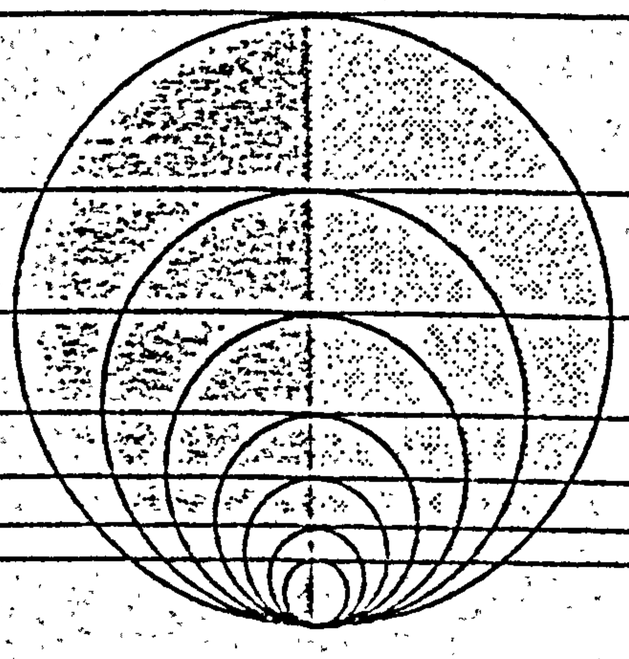
Fig. 6.3 Warwickshire Green Belt

After W.C.C. (1973)

POPULATION AND SETTLEMENTS

URBAN SETTLEMENTS Policy Ref. 4.2(2)

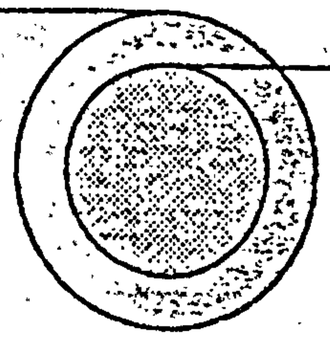
Proposed Population: Policy Ref. 4.2(1)			Proposed Employment: Policy Ref. 4.4 (1)		
500,000	–	1,000,000	500,000	–	1,000,000
250,000	–	500,000	250,000	–	500,000
100,000	–	250,000	100,000	–	250,000
50,000	–	100,000	50,000	–	100,000
25,000	–	50,000	25,000	–	50,000
10,000	–	25,000	10,000	–	25,000
1,000	–	10,000	5,000	–	10,000



Example

100,000 – 250,000 Persons

50,000 – 100,000 Jobs



Policy Ref.

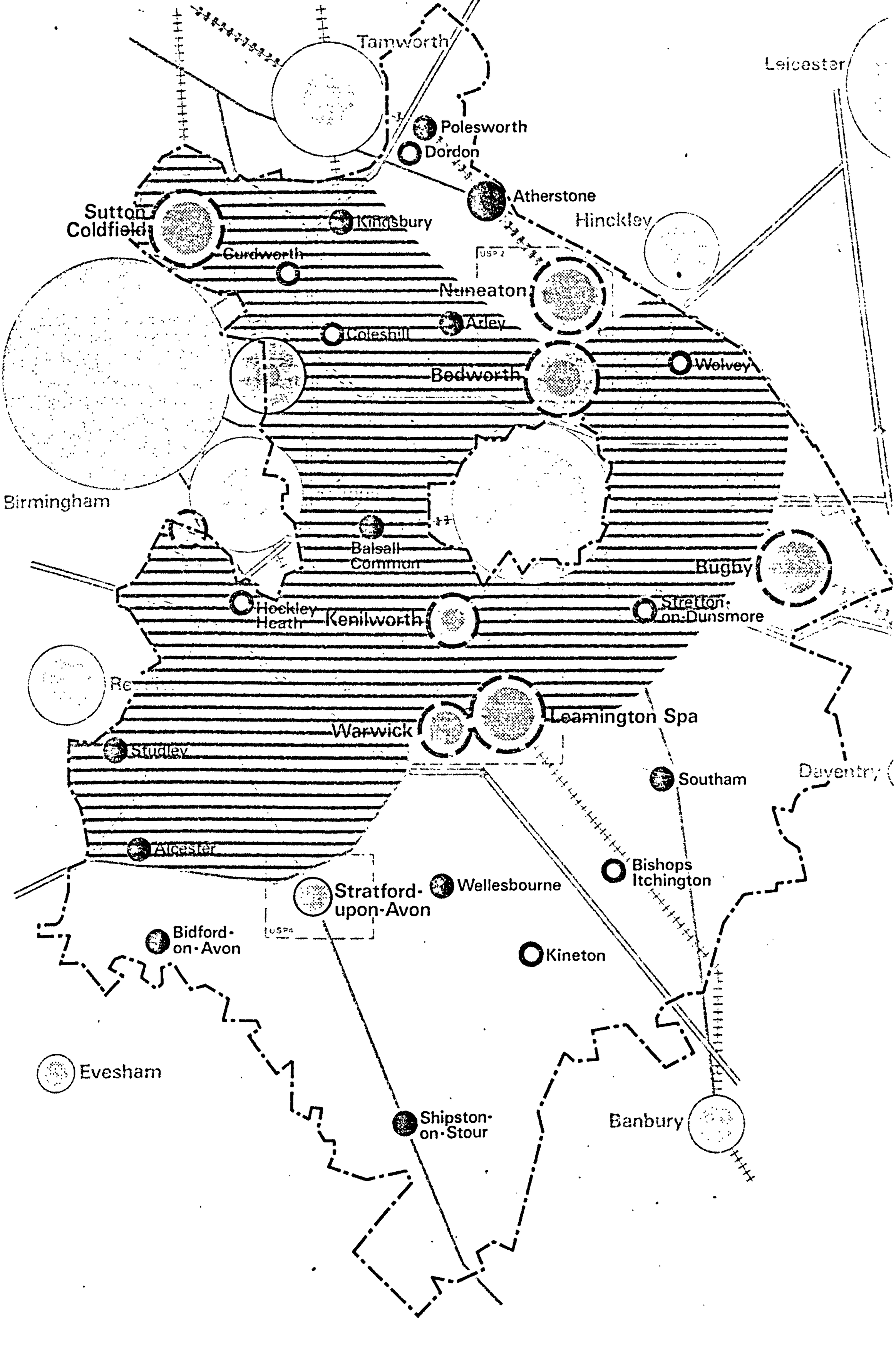
4.2(3) Expansion Settlements

4.2(5) Green Belt

RURAL SETTLEMENTS Policy Ref. 4.3(4)

4.3 (1) First Category Rural. Key Settlements

4.3 (1) Second Category Rural Key Settlements


Tamworth
Leicester
Polesworth
Dordon
Atherstone
Sutton Coldfield
Kingsbury
Hinckley
Gurdworth
USP2
Nuneaton
Arley
Coleshill
Wolvey
Bedworth
Birmingham
Balsall Common
Rugby
Hockley Heath
Kenilworth
Stretton-on-Dunsmore
Warwick
Leamington Spa
Studley
Southam
Daventry
Alcester
Bishops Itchington
Wellesbourne
Stratford-upon-Avon
USP4
Bidford-on-Avon
Kineton
Evesham
Shipston-on-Stour
Banbury

the lower end of this population growth continuum is largely taken up by the smaller agricultural parishes in the south and east of the county.

(c) Population Change, 1971-75

Against this background of widespread population growth, an analysis of change between 1971 and 1975 is attempted in Figure 6.4. The population figures for 1975 are taken from Warwickshire County Council's unofficial population estimates. There are several restrictions imposed by the nature of this data as is pointed out by the County:-

> "Because of the difference between methods of collecting census information on population and methods of calculating home population since the census, the difference within any parish or district between the census figures and the estimated figures does not necessarily represent the growth or decrease in population within that parish or district." (Warwickshire County Council, 1976, 1).

However, there being no other source of information concerning post key settlement policy population levels, the 1975 estimates have been used with caution to give some indication of broad trends in population growth and decline. Small-scale changes, on the other hand, are unreliable and are not accounted for in the analysis.

Further difficulties arise from the local government boundary re-organisation of 1974, as a result of which, parts of north-west Warwickshire (including two key settlements) were annexed by the West Midlands Metropolitan County. Population estimates are not available for these parishes and so they have been omitted from Figure 6.4.

Despite the approximate nature of the 1975 population data, some general indication of population change under the key settlement policy is given by Figure 6.4. The same categories are used as in Figure 6.2, although it must be remembered that the time period involved is half that of the previous analysis and so any comparison between the two should take this into account.

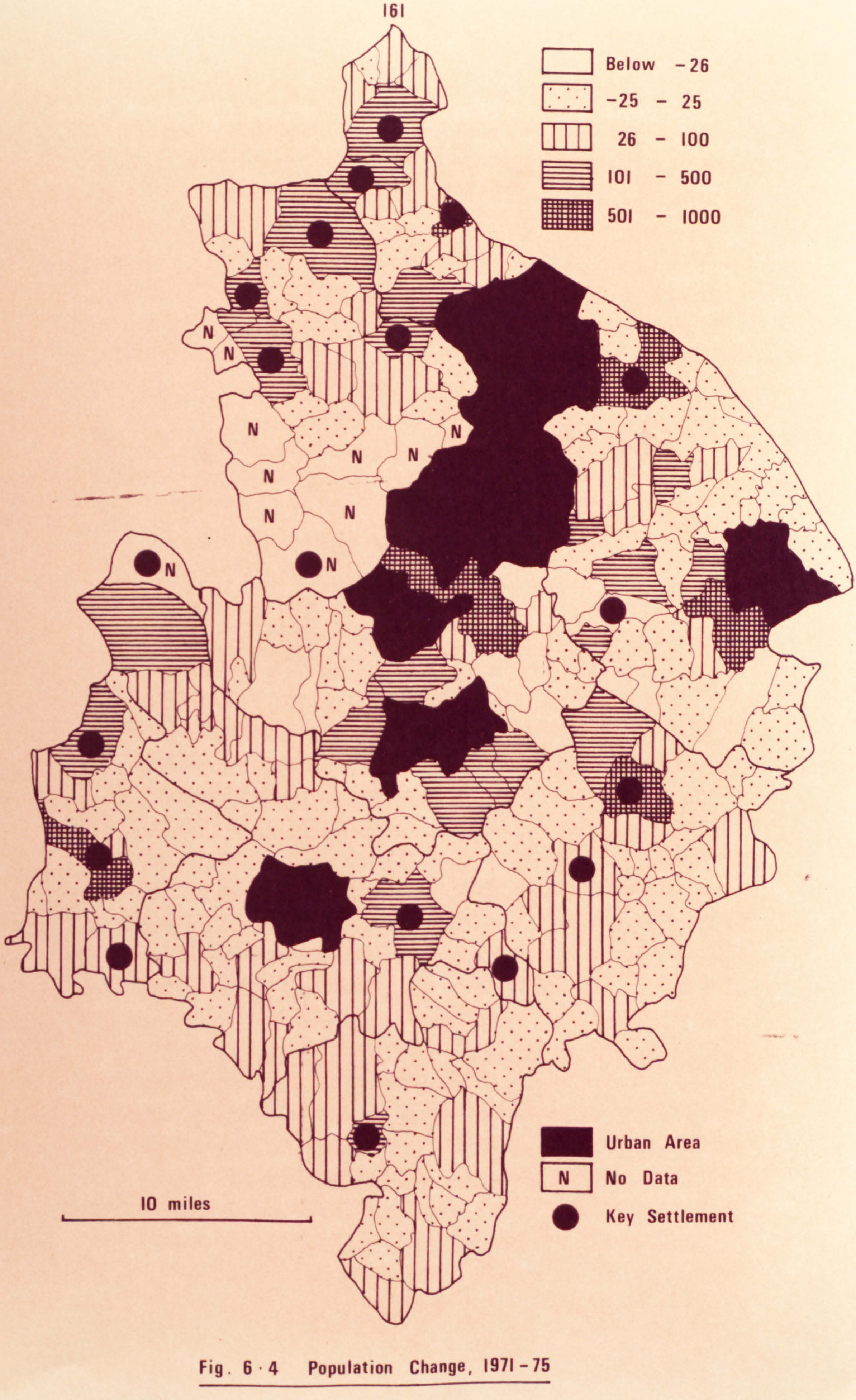


Fig. 6·4 Population Change, 1971 - 75

It would appear from Figure 6.4, that in terms of population growth, the key settlement policy has so far been rigorously applied in the southern half of the county. Here, the only major growth points coincide with the key settlements and the remaining parishes have been restricted to a level of growth which is in keeping with the objectives of the Structure Plan. Contrary to expectations, however, are the indications that certain non-key parishes in the more urbanised northern half of the county have displayed high levels of population growth despite the influence of green belt restrictions. Moreover, some key settlements (particularly in the south) are recorded as having low rates of population increase which again may not be the expected pattern.

Changes in population between the two periods are summarised in Table 6.2. Perhaps the most interesting aspect of these figures are the residual parishes; that is those non-key settlements whose level of population growth is higher than expected, and those key settlements which have not achieved a substantial level of growth. These residuals are recorded in Table 6.3. It was thought that some of the unexpected population increases might have been due to outstanding planning permissions. In fact only two of these parishes (Ansley and Wolston) are named as having outstanding commitments equivalent to 100 or more persons. Other increases have occurred in parishes which form part of Urban Structure Plan areas and are thus not affected by the key settlement policy. For the remainder it must be concluded either that a very high rate of natural increase is in evidence or that a large intake of institutional population has occurred, or else that the key settlement policy has been unable to withstand pressures for commuter migration into certain of the larger non-key rural settlements. This last reason may particularly be the case where the settlement concerned was earmarked for growth during the Interim Policy period and had therefore gained a growth impetus.

Table 6.2 Population Change By Numbers of Parishes

Population Size	Total	Population Change 1961-1970						Population Change 1971-1975						
		Less Than - 25	-24 - 25	26 - 100	101 - 500	501 - 1000	More Than 1000	Less Than - 25	-24 - 25	26 - 100	101 - 500	501 - 1000	More Than 1000	No Data
0-100	42	3	39						42					
101-500	96	24	55	16	1			5	64	24	2			1
501-1000	32	4	6	9	8	5		5	12	11	2(1)			2
1001-5000	53	7	3	4	25	8	6	3(1)	7	19(3)	14(4)	5(3)		5(2)
5000 +	9					1	8				5(4)	1(1)		3
TOTAL	232	38	103	29	34	14	14	13	125	54	23	6		11

Numbers of key settlements in brackets.

Source: Census 1961, 1971 and Warwickshire County Council

Table 6.3 Population Residuals 1971-75

Alcester R.D.	1971-75
BIDFORD-ON-AVON	48
Atherstone R.D.	
Ansley	196
Rugby R.D.	
Binley	106
Dunchurch*	607
Long Lawford	108
Princethorpe	201
Stretton under Fosse	212
Wolston	111
STRETTON-ON-DUNSMORE	-34
Southam R.D.	
Long Itchington	150
BISHOP'S ITCHINGTON	70
Stratford R.D.	
Tanworth	247
KINETON	44
Warwick R.D.	
Bishops Tachbrook	221
Budbrooke	113
Leek Wootton	170
Radford Semele*	103
Stoneleigh	572
Whitnash*	411

* Part of Urban Structure Plan area
Low growth key settlements in capitals.

Four low-growth key settlements are identified, with one - Stretton-on-Dunsmore - actually demonstrating a loss of population, This could be interpreted as a reflection of these settlements' ability to perform key settlement functions, although further study is needed to substantiate any such interpretation.

This investigation of population change in Warwick-shire has highlighted three questions. Firstly, is it

practicable or even desirable to channel the major proportion of rural population growth into a small number of key settlements when other settlements demonstrate an undeniable impetus for growth? Secondly, can a restrictive key settlement policy be fully enforced on a highly pressured rural buffer zone, even with the aid of a concomitant green belt strategy? Lastly, does the bestowal of key settlement status necessarily ensure the attainment of policy objectives such as an increasing population? Thus far, the indications are that all three questions should be answered in the negative to some degree or other. Much, however, depends on whether patterns of new housing correspond with the impression given by demographic analysis.

HOUSING

Tables 6.4 and 6.5 represent parishes of different population sizes falling into differing categories of new housing between 1965-70 and 1971-75. It is evident from Table 6.4 that some settlements of more than 500 population exhibited large scale development of both private and council housing and that substantial amounts of new housing were built in most settlements over 1000 population during the period 1965-70. The situation under five years of key settlement policy (Table 6.5) appears to be very similar. New house building in parishes under 500 population has been slightly more restricted during this later period, but three settlements of between 501 and 1000 population exhibit corresponding distributions of new housing both before and after the instigation of a key settlement policy. Only in the largest settlements are there signs that building rates have been cut, particularly in the public housing sector.

A synopsis of these trends is presented in Table 6.6 which compares building rates in all parishes over the two periods in question. It can be seen that the differences in rural housing brought about by the key settlement policy occur at the extrmes of the building

Table 6.4 New Housing, 1965-1970, By Numbers of Parishes

Population Size	Total	Private Housing						Council Housing						
		0 – 10	11 – 30	31 – 50	51 – 100	More Than 100	No Information	0	1 – 10	11 – 30	31 – 50	51 – 100	More Than 100	No Information
0-100	42	42						42						
101--500	96	86	9				1	85	5	4	1			1
501-1000	32	21	5	1	4		1	25	2	2	2			1
1001-5000	53	7	10	12	8	8	8	19	5	8	2	8	3	8
5000 +	9				1	6	2	4		1			2	2
TOTAL	232	156	24	13	13	14	12	175	12	15	5	8	5	12

Source: Questionnaire

Table 6.5 New Housing, 1971-1975, By numbers of Parishes

Population Size	Total	Private Housing					Council Housing					
		0 – 10	11 – 30	31 – 50	51 – 100	More Than 100	0	1 – 10	11 – 30	31 – 50	51 – 100	More Than 100
0-100	42	42					42					
101-500	96	93	3				90	5	1			
501-1000	32	22	7		2(1)	1	23(1)	3	4	1	1	
1001-5000	53	12(1)	16	12(6)	10(4)	3(2)	30(5)	5	14(5)	2(2)	1	1(1)
5000 +	9		1(1)	2(1)	2(1)	4(2)	2		3(3)	2(1)		2(1)
TOTAL	232	196	27	14	14	8	187	13	22	5	2	3

Numbers of settlements in brackets

Source: Questionnaire

Table 6.6 Comparison of Parish Building Rates, 1965-70 and 1971-75 By Numbers of Parishes

New Private Housing	1965-70	1971-75
0-10	156	169
11-30	24	27
31-50	13	14
51-100	13	14
101 +	14	8
No information	12	-
New Council Housing		
0	175	187
1-10	12	13
11-30	15	22
31-50	5	5
51-100	8	2
101 +	5	3
No information	12	-

scale. Large numbers of parishes have been confined to little or no new housing whereas fewer parishes have been allowed to accommodate substantial development. These figures would appear to support the claim that the aims and objectives of the Warwickshire key settlement policy are being effectively achieved.

However, when new private and council housing are placed in the spatial context it is again apparent that there are some important anomalies to the expected patterns of concentration of new houses into the key settlements. In the case of new private housing between 1971 and 1975 (Figure 6.5), considerable development has occurred in non-key settlements in the Warwick/Leamington Spa commuter belt and in Birmingham/Coventry buffer zone, as well as in isolated cases such as Welford-on-Avon. Again, an examination of the residual parishes from Table 6.5, as presented in Table 6.7, reveals that these inconsistencies are not always the

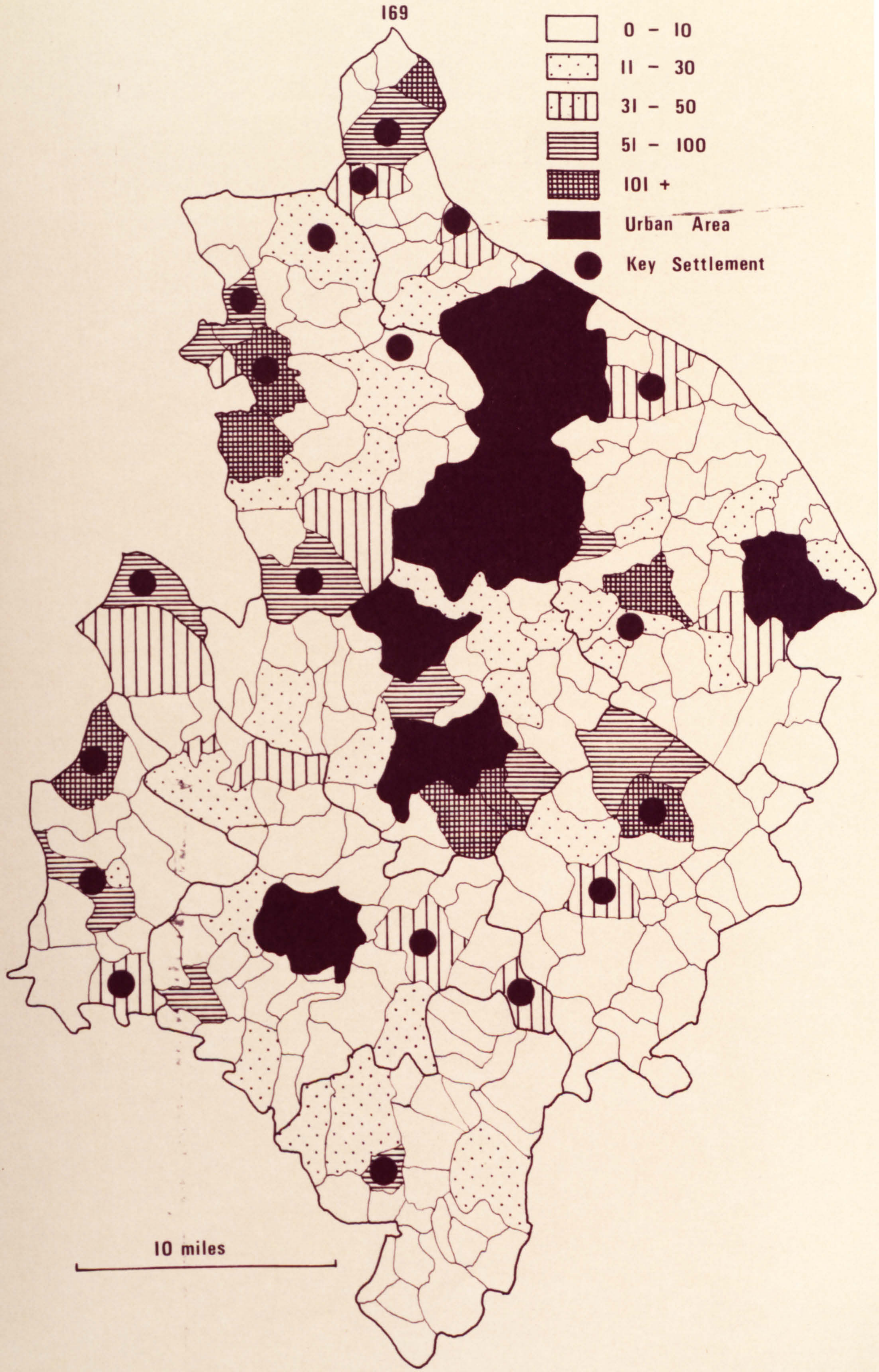


Fig. 6·5 New Private Housing, 1971-75

result of outstanding planning permissions as listed by Warwickshire County Council (Table 6.8), although some are accounted for by parishes falling within Urban Structure Plan areas.

Table 6.7 Housing Residuals, 1971-75

Alcester R.D.	Housing Type	Growth Category	Outstanding Planning Permissions
Aston Cantlow	C	11-30	
Salford Priors	C	11-30	
Atherstone R.D.			
Austrey	P	101 +	
"	C	51-100	
Baddesley Ensor	C	11-30	
Grendon	C	11-30	
Mancetter	P	31-50	
Shuttington	C	11-30	
Meriden R.D.			
Berkswell	P	31-50	
Bickenhill*	P	101 +	
Castle Bromwich*	P	51-100	
Kingshurst*	P	31-50	
" "	C	101 +	
Water Orton	P	51-100	
ARLEY	P	0-10	400
"	C	0	
CURDWORTH	C	0	
KINGSBURY	P	11-30	524
Rugby R.D.			
Binley	P	51-100	
Dunchurch*	P	31-50	
STRETTON-ON-DUNSMORE	P	11-30	
" " "	C	0	
WOLVEY	C	0	
Shipston R.D.			
Tysoe	C	31-50	
Southam R.D.			
Fenny Compton	C	11-30	
Long Itchington	P	51-100	60
" "	C	11-30	
Stockton	P	51-100	
"	C	11-30	
BISHOPS ITCHINGTON	C	0	

Table 6.7 continued

Stratford R.D.	Housing Type	Growth Category	Outstanding Planning Permissions
Beaudesert	C	11-30	
Claverdon	P	31-50	
Hampton Lucy	C	11-30	
Henley-in-Arden	P	31-50	91
Tanworth	P	31-50	
Ullenhall	C	31-50	
Welford-on-Avon	P	51-100	
KINETON	C	0	
Warwick R.D.			
Bishops Tachbrook	P	101 +	
" "	C	51-100	
Bubbenhall	C	11-30	
Budbrooke	C	11-30	
Leek Wootton	P	51-100	
Radford Semele*	P	51-100	
" "	C	11-30	
Whitnash*	P	101 +	
"	C	31-50	

Low growth key settlements in capitals

P = private
C = council
* Urban Structure Plan area

Table 6.8 Land Committed For Development in Rural Areas

	Population Equivalents	Dwellings
Atherstone	4500	1500
Wellesbourne	2100	700
Alcester	1752	584
Balsall Common	1740	580
Kingsbury	1572	524
Arley	1200	400
Bidford-on-Avon	1137	379
Studley	1092	364
Shipston-on-Stour	1083	361
Southam	918	306
Polesworth	654	218
Henley-in-Arden	273	91
Warton	270	90
Coleshill	240	80
Dordon	240	80
Ansley	231	77

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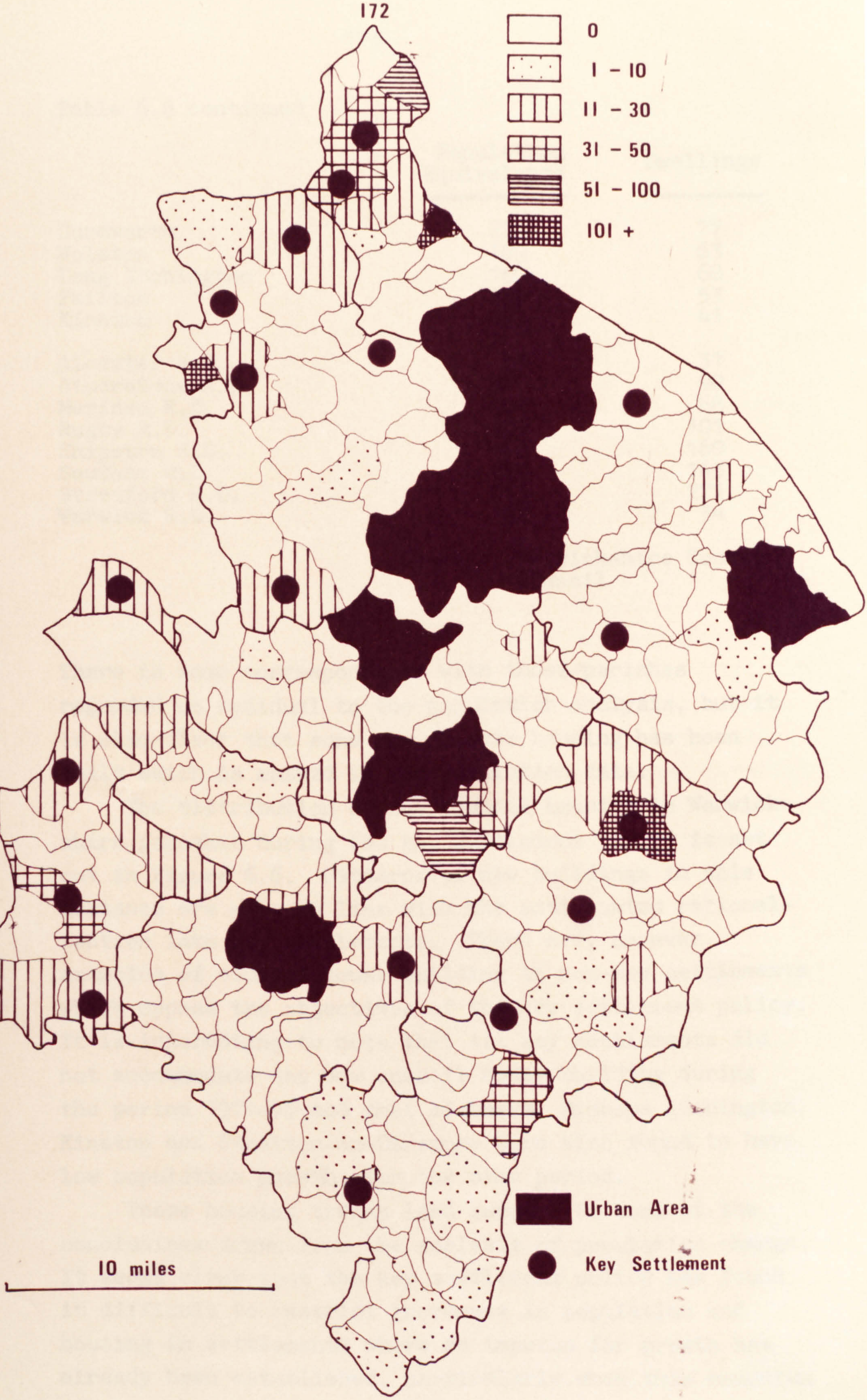


Fig. 6·6 New Council Housing, 1971–75

Table 6.8 continued

	Population Equivalents	Dwellings
Curdworth	231	77
Wolston	189	63
Long Itchington	180	60
Pailton	159	53
Kineton	123	41
Alcester R.D.	93	31
Atherstone R.D.	270	90
Meriden R.D.	204	68
Rugby R.D.	303	101
Shipston R.D.	480	160
Southam R.D.	429	143
Stratford R.D.	813	271
Warwick R.D.	102	34

Source: Warwickshire County Council

There is some correspondence with those parishes regarded as residual to the population analysis, but it is also clear that some new private housing has been built which is masked in the population data.

The distribution of new council housing in Warwickshire parishes during the key settlement period is set out in Figure 6.6. Patterns of new buildings in this instance are more in line with the anticipated rationalisation into key settlements. There are, however, examples of council house building in non-key settlements which oppose the objectives of the key settlement policy. It is interesting to note that six key settlements did not accommodate any new council house building during the period 1971-75 and that of these, Bishops Itchington, Kineton and Stretton-on-Dunsmore were also found to have low population growth over the same period.

These housing trends lend support to some of the conclusions drawn from the analysis of population change. It seems clear that the key settlement policy has found it difficult to restrict increases in population and housing in settlements where an impetus for growth has already been established, particularly when this momentum

has been supported by previous settlement policies (note the Interim Policy status of many of the residual parishes in Table 6.7). These trends are also noted by Shaw (1970) in his study of planning permissions in the Peak District National Park. Doubt must also be cast on Hypothesis 6. The indications are that planning authorities are not able to adhere strictly to stated policy guidelines when faced with opposing social, economic and political pressures.

A note of caution should, however, be introduced at this point. The time period under observation is comparatively short, and the data obtained from parish clerks are at best liable to discrepancies. Moreover, at a time of policy changeover there are invariably some teething troubles both in administration and in policy decision making in the various local government departments, particularly when administrative boundary changes have also occurred. Taking all these criteria into account, the indications outlined above should be interpreted strictly as indications and trends rather than definitive truths. A more positive analysis of these factors is attempted in Chapter 7 where a case study of Southam Rural District is undertaken with the aid of Ward Library population data, and planning permission data from Warwickshire County Council.

CONSERVATION

The fourth hypothesis at the beginning of this chapter states that a key settlement policy allows the conservation of settlements whose environmental quality is such that further large scale growth would be inappropriate. Matters of conservation were certainly given due emphasis in the selection of key settlements (Warwickshire County Council, 1973B), with the inclusion of both landscape and townscape as variables in the Development Potential equation and with two of the four weightings of the index being devoted to the protection of good quality environments.

The measurement of townscape was done by "assigning a score from 0 to 5 to each settlement, where 5 represented

no detrimental effect and the greatest potential for development, and 0 serious effect and hence least potential for development" (Warwickshire County Council, 1973B, 10). A similar indication of landscape was included, with an identical inverse scoring system whereby "the maximum landscape value scores reflect the best landscape and the least suitability for development on conservation of landscape objectives" (p.31).

It is interesting to compare these landscape and townscape scores both for those settlements selected as key settlements and for those in which Conservation Areas have been designated. This comparison is undertaken in Table 6.9. As might be expected, the group of key settlements which do not encompass Conservation Areas score highly on both measurements, although it would seem that greater account is taken of townscape than of landscape for the purposes of allowing development. A greater degree of variation is apparent when the scores ascertaining to parishes with Conservation Area status are investigated. Again, the higher scores are associated with the townscape index (with an average score of 2.1 compared with 1.3 for landscape) which suggests that better quality landscapes than townscapes are being conserved under the key settlement policy.

However, these averages are misleading since they include the high scores attributed to those key settlements of which only parts have been designated as Conservation Areas. The distinction has to be made here between, on the one hand, a Conservation Area in a large settlement where development in one sector will not be detrimental to the conservation status of another, and on the other hand, a small settlement where any development would detract from the scenic or architectural character of the entire location. The former situation explains why ten key settlements appear in the list of Conservation Areas as part of a policy to preserve worthwhile environments. Indeed, it may well be seen as beneficial in a social sense to concentrate population into a pleasing situation if the former may be carried out without the ruination of the latter.

Table 6.9 Conservation Area Characteristics

	Interim Policy Status	Land-scape	Town-scape
Alcester R.D.			
Alcester*	1	2	4
Arrow		0	1
Aston Cantlow (2)	2	2(2)	0(1)
Bidford-on-Avon* (2)	1	3(-)	3(-)
Coughton		1	2
Great Alne	2	2	2
Haselor		2	0
Morton Bagot		-	-
Salford Priors	2	3	0
Atherstone R.D.			
Atherstone*		0	4
Mancetter		2	4
Meriden R.D.			
Balsall*	1	3	5
Barston		-	-
Berkswell		1	2
Coleshill**		3	5
Fillongley	1	1	2
Hampton-in-Arden	2	2	1
Rugby R.D.			
Brinklow	1	2	3
Dunchirch	1	-	-
Monks Kirby	2	1	2
Stretton-on-Dunsmore**	1	1	3
Thurlaston	2	2	0
Wolston	1	3	3
Shipston-on-Stour R.D.			
Barton-on-the-Heath		-	-
Brailes (2)	2	0(-)	2(-)
Cherington	2	0	1
Great Wolford		-	-
Halford	1	1	0
Honington		-	-
Ilrmington		0	2
Little Compton		1	1
Long Compton	2	0	1
Oxhill		2	5
Shipston-on-Stour*	1	1	5
Stourton	2	1	1
Stretton-on-Fosse	2	1	0
Sutton-under-Brailes		-	-
Tredington	2	1	0
Tysoe (2)	2	0	1
Whichford		0	3

Table 6.9 continued

	Interim Policy Status	Land-scape	Town-scape
Southam R.D.			
Avon Dassett		-	-
Farnborough		0	0
Fenny Compton	2	1	2
Lighthorne		3	2
Long Itchington	2	3	3
Priors Hardwick		2	2
Priors Marston		2	3
Radway		3	2
Ratley		0	2
Shotteswell		0	2
Southam*	1	2	5
Warmington		1	2
Wormleighton		-	-
Stratford-upon-Avon R.D.			
Bearley	2	1	0
Beaudesert	1	-	-
Charlecote		2	2
Claverdon	2	0	2
Clifford Chambers		2	2
Combrook		-	-
Compton Verney		-	-
Hampton Lucy		2	3
Henley-in-Arden	2	2	3
Kineton**	2	2	4
Stratford-upon-Avon continued			
Moreton Morrell	2	1	0
Quinton	2	-	-
Snitterfield	2	1	3
Tanworth-in-Arden	1	0	0
Temple Grafton		0	2
Welford-on-Avon	2	1	0
Wellesbourne*	1	4	4
Wootton Wawen	2	0	1
Warwick R.D.			
Ashow		-	-
Barford	2	2	2
Cubbington		-	-
Lapworth	1	1	4
Leek Wootton	1	-	-
Offchurch	2	0	2
Sherbourne		-	-
Stoneleigh	2	-	-

Continued/.....

Table 6.9 continued

	Interim Policy Status	Land-scape	Town-scape
<u>Other Key Settlements</u>			
Arley		1	5
Bishops Itchington		4	4
Curdworth		5	5
Dordon		3	5
Hockley Heath		3	5
Kingsbury		5	4
Polesworth		3	4
Studley		3	4
Wolvey		3	3

* 1st tier key settlement
** 2nd tier key settlement

Source: Warwickshire County Council

The designation of Conservation Areas in Warwickshire may be viewed in the spatial context in Figure 6.7. This distribution demonstrates that those clashes between key settlement designation and Conservation Area status occur mainly in the less densely populated south and east of the county, and that six of the key settlements within the northern buffer zone are noticeably lacking in officially planned conservation. Also apparent is that the highly developed suburban parishes surrounding the major urban centres are also considered as low in the list of conservation priorities.

All in all, the fourth hypothesis would seem to be upheld, at least in the example of Warwickshire. Smaller settlements of high environmental quality have not been selected for development and attempts have been made to introduce sectoral housing growth into larger settlements of similar quality, so that the excellence of any desirable physical milieu will not be belittled. In terms of physical environment, then, the key settlement policy appears to exert a beneficial influence, but what of the social environment? The question of whether a settlement is socially able to accept large-scale growth is not broached in the selection procedure for the Warwickshire key settlements, presumably because it is a factor that is not easily quantified. Nevertheless, the matter of the quality of social and community milieu is an important one, and will be returned to in the next chapter where the social ramifications of the key settlement policy are examined in greater detail.

SERVICES

(a) Changes in Service Provision

One of the principal justifications for any key settlement policy is that it is economically unviable to provide services and infrastructure in every village and town in a scattered settlement hierarchy. Therefore, it is postulated in the first hypothesis that a key settlement policy is able to effect a successful polarisation of infrastructure and service provision into selected centres.

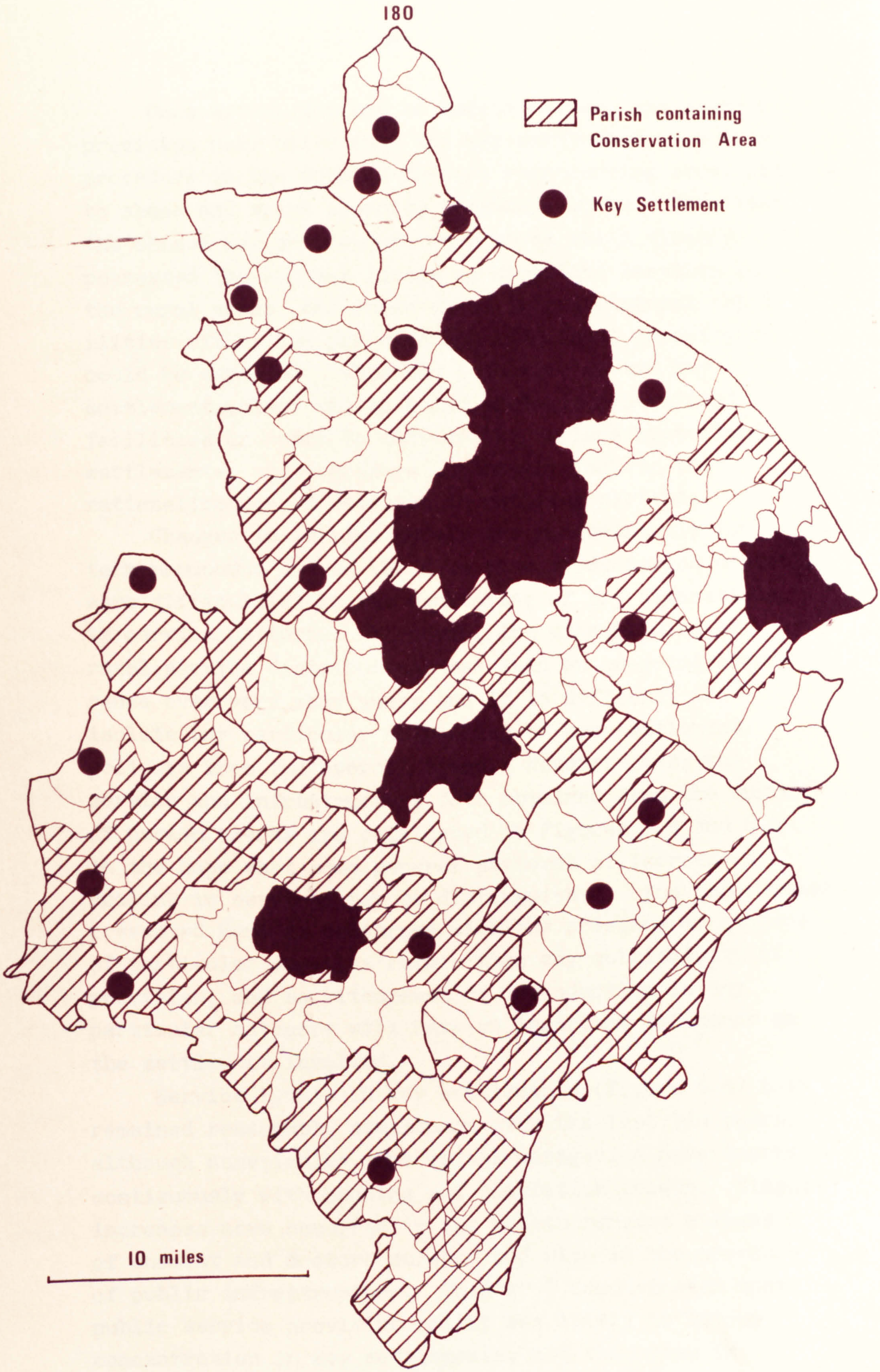


Fig. 6·7 Conservation Areas

Once again, matters of infrastructure and service provision were built into the key settlement selection procedure in the form of factors representing accessibility to shops and spare capacity of sewage works. In effect the chosen key settlements were those which already possessed the highest levels of shops and services in the rural areas, and those whose infrastructural capabilities either had pre-existing additional capacity or could be expanded. Thus the objective of the key settlement policy was to build up these centralised facilities in order to service the various hinterland settlements, and therefore inherently look to the rationalisation of services in outlying parishes.

Changes in service levels are predominantly long term phenomena and so the five year study period presents some difficulties in the monitoring of any alterations to service patterns. Moreover, the streamlining of rural service distributions has been an on-going occurrence over very many years and it is difficult to isolate any particular outworking of key settlement policies from the overall trend. Nevertheless, the service and infrastructure data obtained from the survey of parish clerks are catalogued in Figures 6.8 and 6.9 in the hope that some general patterns of increase or decline in services may be distinguished. The information presented here is concerned with the presence or absence of particular services rather than any multiplicity of provision, and so withdrawal or introduction in any particular category will have an important influence on the settlement involved.

Service levels in key settlements (Figure 6.8) have remained reasonably stationary over the last ten years, although numerically some retail categories have increased contiguously with housing and population growth. Singular increases aave occurred in the health service classes of chemist and doctors surgery and also in the provision of public infrastructure. Chapter 5 demonstrated that public service provision policy was likely to favour concentration in key settlements, and this view is

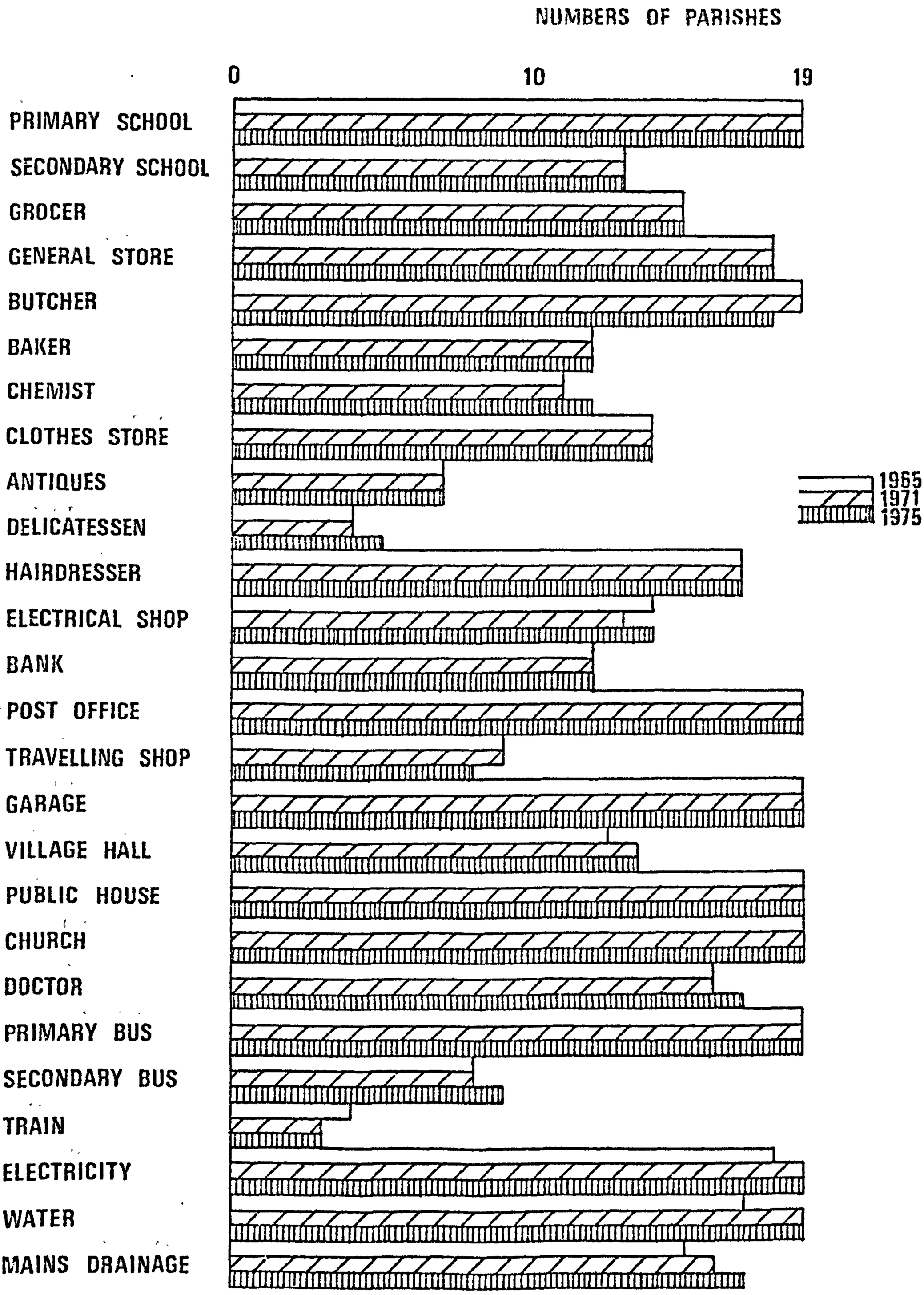


Fig. 6·8 Service Provision In Key Settlement Parishes

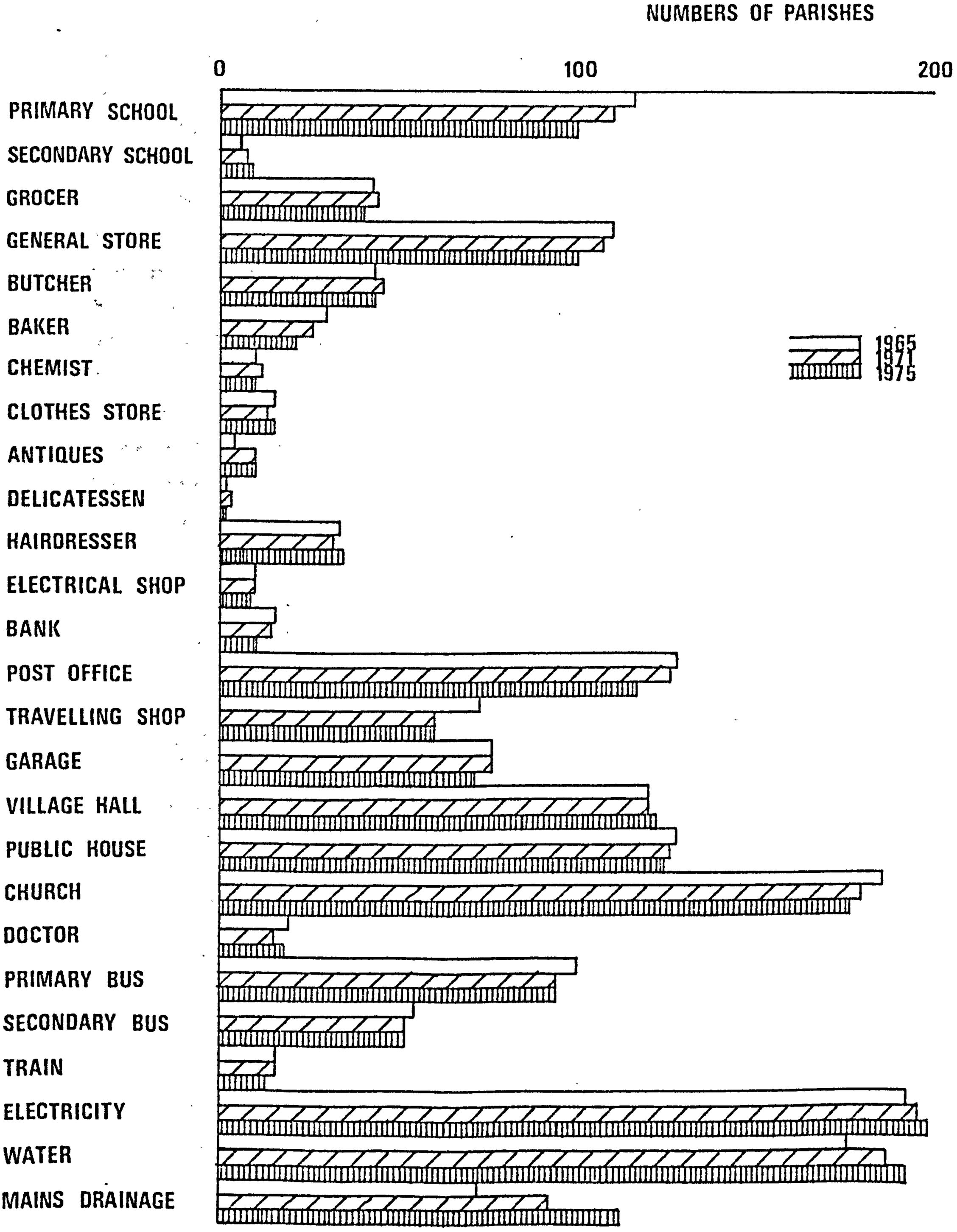


Fig. 6·9 Service Provision In Non-key Parishes

supported here. Similar trends are apparent in the private sector with all first tier key settlements possessing a considerable range of retail, community and service facilities.

The pattern of provision in non-key settlements shows a definite trend of decline or stability in most retail and public services, but a gradual increase in the distribution of public infrastructure such as electricity, water and mains drainage. Particular recessions can be seen in the location of primary schools and general store/post offices in non-key areas, these two being important factors in local community life. Remarkably the analysis shows that bus services have remained stable over this period, although frequency of buses may well have deteriorated.

Against this background, the service changes during the key settlement period (1971-75) are not contrary to expectation. The raw figures are presented in Table 6.10.

Table 6.10 Service Changes, 1971-1975

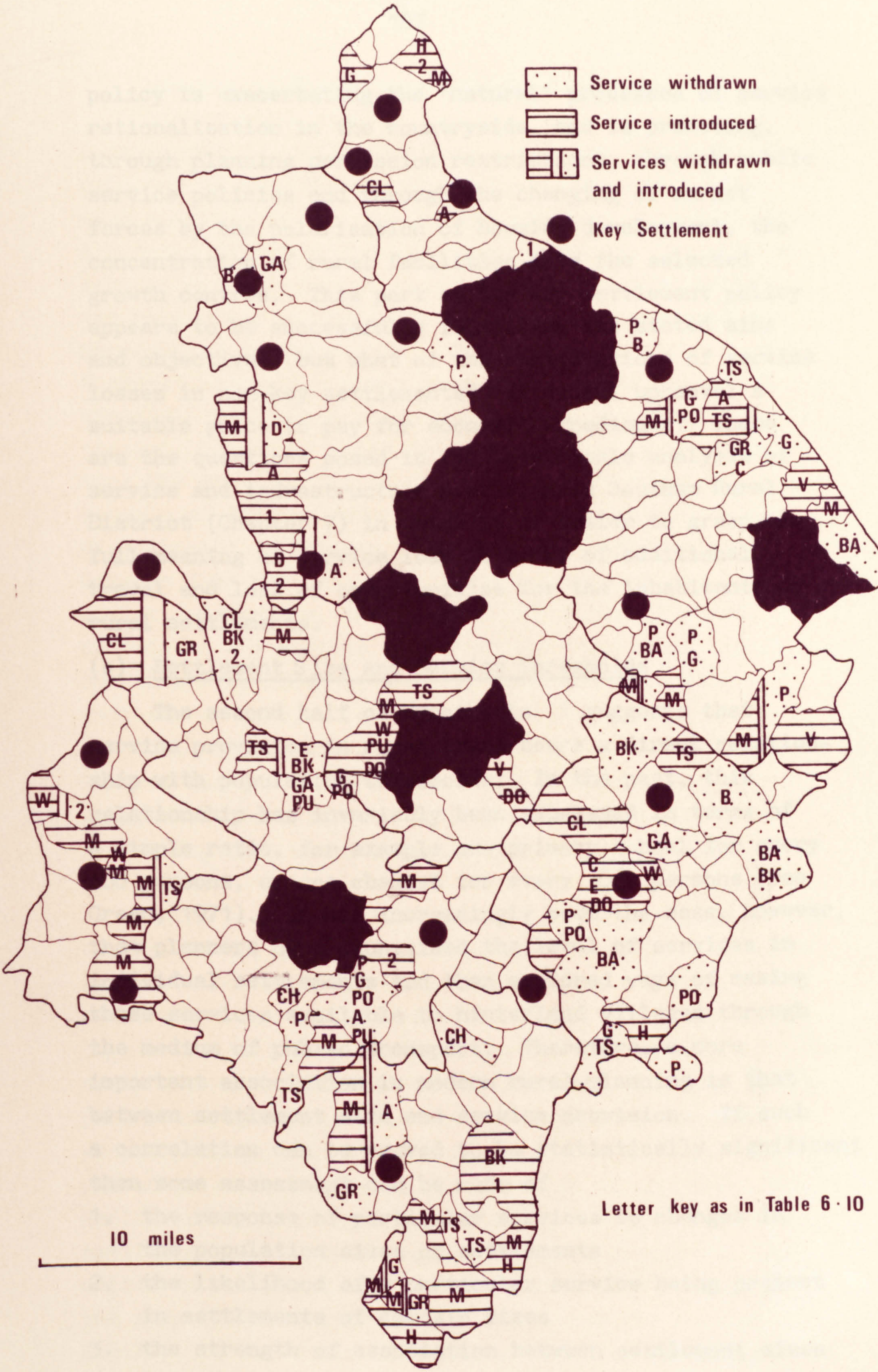
		Introduced	Withdrawn
P	Primary school		10
GR	Grocer		4
G	General store		7
B	Butcher		3
BA	Baker		4
C	Chemist	1	1
CL	Clothes store	3	1
A	Antiques shop	3	3
D	Delicatessen	1	1
H	Hairdresser	3	1
E	Electrical and T.V. shop	1	1
BK	Bank	1	4
PO	Post office		5
TS	Travelling shop	5	6
GA	Garage		3
V	Village hall	3	
PU	Public house	1	2
CH	Church		2
DO	Doctors Surgery	3	
1	Primary bus service	2	1
2	Secondary bus service	3	2
ED	Electricity to all dwellings	1	
W	Piped water to all dwellings	4	
M	Mains drainage to all dwellings	24	

Source: Questionnaire

Under the influence of the key settlement policy, the numbers of primary schools and foodshops in non-key parishes have decreased at a faster rate than in the previous decade. Elsewhere the general pattern of steady rationalisation has continued apart from some unconformities due to the transient nature of delicatessen, antiques and hairdressing enterprises which are very responsive to the ebb and flow of demand and fashion. Another departure from the overall trend is the travelling shop, on which many hopes for the servicing of remoter rural areas are pinned (See Chapter 11). The threshold between profit and loss in this particular undertaking is also precarious as is shown in its multiple introduction and withdrawal in various parishes. Table 6.10 also shows that levels of public transport have actually increased during this period, although increased benefits from this increase have only been gained in two individual parishes.

Figure 6.10 shows the rural locations where service gains and losses are encountered over the key settlement period. As previously indicated, the key settlements already possess the highest levels of service provision in the rural areas. However, there is some evidence that second tier key settlements have attracted vital services. For example, Bishops Itchington has gained a chemist, a doctors surgery and an electrical and television shop within the first few years of its key settlement status. Service losses in key settlements are restricted to transient food and luxury retail facilities in locations where competition from urban centres is very high.

Reductions in service provision in non-key settlements are greatest in the less pressured southern and eastern sectors of the county. It is in areas such as Rugby, Southam and Shipston-on-Stour Rural Districts where villages are losing their primary school, post office and food shop which are all so important to the life of a rural settlement. Gains in infrastructure have occurred where the backlog of projects is being cleared in the policy changeover period, but the general conclusion to be drawn from this picture is that the key settlement



Letter key as in Table 6·10

Fig. 6·10 Service Changes, 1971–75

policy is exacerbating the 'natural' processes of service rationalisation in the countryside, and is promoting, through planning permission restrictions, through public service policies and through the changing of market forces by the polarisation of housing development, the concentration of rural facilities into the selected growth centres. This part of the key settlement policy appears to be successfully fulfilling its stated aims and objectives, but what of the ramifications of service losses in non-key settlements? Is social upheaval a suitable price to pay for economic expediency? These are the questions posed in the local-scale analysis of service and infrastructure provision in Southam Rural District (Chapter 7) in which it is easier to grasp the full meaning of service loss in terms of additional travel and loss of opportunities for the inhabitants of rural settlements.

(b) Settlement Size and Service Thresholds

The second half of Hypothesis 1 suggests that service provision in rural areas bears a direct relationship with population thresholds. In the past, this relationship has invariably been expressed in terms of a simple ratio, for example one primary school for every 500 persons, or one chemist for every 3000 persons (see Green, 1971). It has increasingly been the case, however, that planners have emphasised the level of services in individual settlements and then explored ways of making these services available to hinterland villages through the medium of public transport. Therefore, a more important association in modern rural planning is that between settlement size and service provision. If such a correlation can be proved to be statistically significant then some assessment can be made of

1. the response of particular services to changes in the population sizes of settlements
2. the likelihood of a particular service being present in settlements of certain sizes
3. the strength of association between settlement sizes and service levels in key settlements as opposed to

non-key settlements at various distances from higher order centres.

A standard asymptotic regression curve was the technique selected to make these assessments. Separate curves were constructed for each of the services listed in Figure 6.8 using 1975 data from the questionnaire. Population size of settlements was measured on the X-axis while the percentage occurrence of the service concerned was represented by the y-axis. The changes of slope on the S-shaped regression curve were then used to delimit a threshold band below which the service is unlikely to be present, but above which it is statistically probable that the service will occur. Figure 6.11 shows an example of this procedure, this graph representing the distribution of primary schools in non-key settlements between five and ten miles distant from a higher order centre. Naturally, the width of the threshold band depends on the quality of fit of the regression line, but this very width is able to distinguish varying patterns of service centres. For example, a narrow threshold band would suggest regularly sized service centres whereas a wider band might indicate that some smaller settlements were displaying a higher level of centrality than would be expected from settlements of that size.

Table 6.11 shows the results of this analysis as applied to all parishes in Warwickshire without categorisation. No significant regression line could be constructed for certain services. This in itself highlights the fact that the distribution of publicly provided or sponsored facilities such as secondary schools, fringe public transport services and the important chemists shop depend more on spatial location (whether this be geared to an even spatial distribution of education and health centres, or to transportation routeways) than on settlement size. Those retail services previously described as transient are also insufficiently related to the size of the settlement in which they are located. Finally, it was found that infrastructural facilities

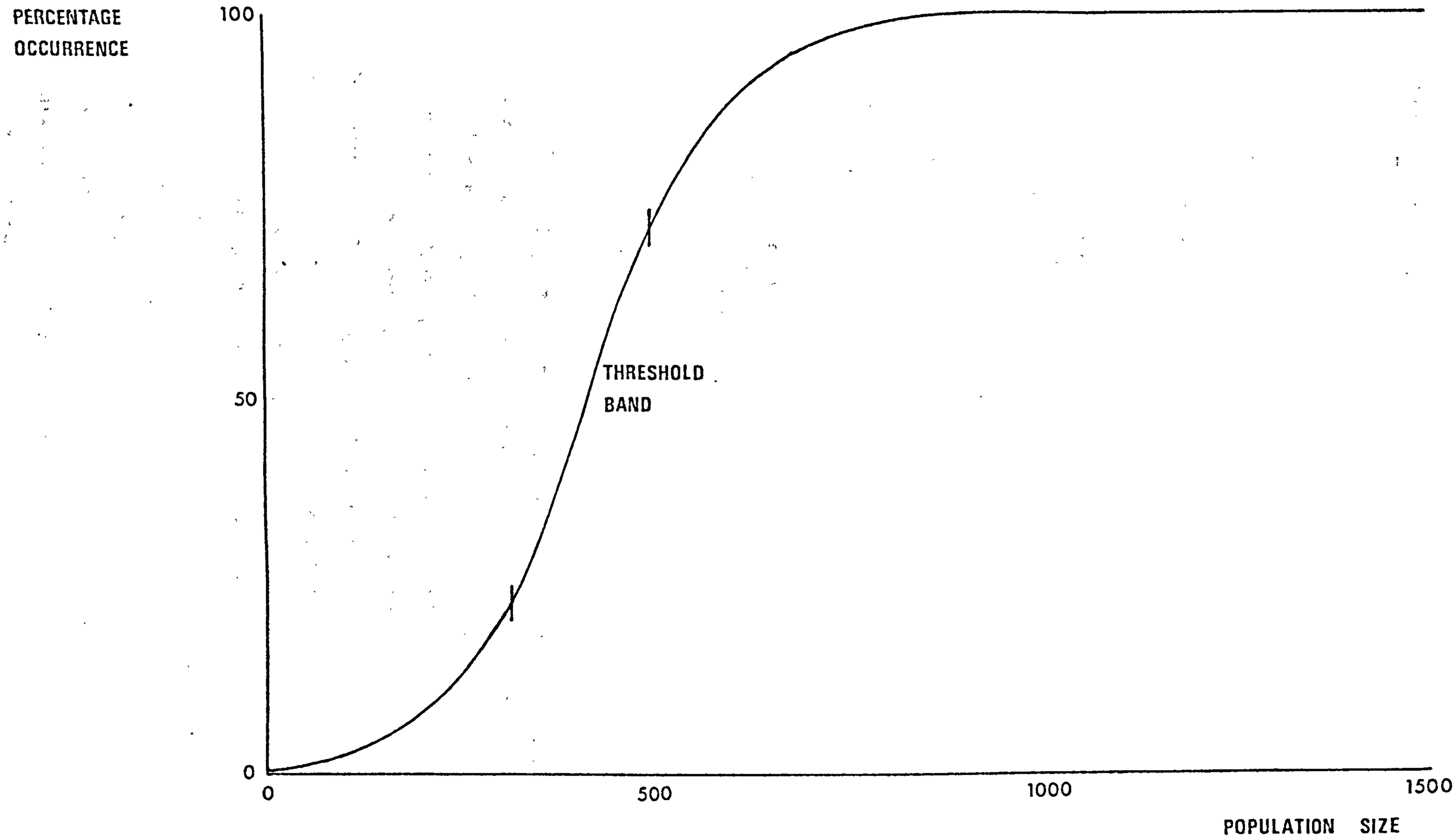


Fig. 6·11 Service Threshold By Regression

are based on discrete locational systems consisting of a range of settlement sizes rather than one particular size group.

Table 6.11 Settlement Service Thresholds by Regression (Total)

	R^2	Threshold Band
Primary school	.7957	250-700
Secondary school		
Grocer	.6198	1200-2000
General store	.6078	300-700
Butcher	.8452	900-1500
Baker		
Chemist		
Clothes store	.9138	2500-3500
Antiques shop		
Delicatessen		
Hairdresser	.9128	1500-2000
Electrical and T.V. shop		
Bank	.8285	3000-4500
Post office	.4555	200-400
Travelling shop		
Garage	.7298	500-1000
Village hall		
Pub	.7613	0-300
Church		
Doctors surgery	.6574	1750-2500
Primary bus service	.8078	300-800
Secondary bus service		
Train		
Electricity		
Piped water		
Mains drainage		

However, good regression fits were obtained for the remaining services in Table 6.11. Thus it is clear that settlements of 700 or so population are likely to possess a primary school, general store/post office, public house and perhaps some access to public transport, whereas higher level foodshops, luxury retail services and professional services are all centralised into increasingly larger centres. These threshold bands give further credence to the rationalisation of services in rural areas, and to the part played by the key settlement policy in the acceleration of this process.

A further regression analysis was carried out on Warwickshire parishes divided into key settlements and non-key settlements of varying distances from higher order centres (Table 6.12).

Table 6.12 Settlement Service Thresholds By Regression (Including Distance Factor)

	KEY SETTLEMENT		2 MILES		5 MILES		10 MILES	
	R^2	Threshold	R^2	Threshold	R^2	Threshold	R^2	Threshold
Primary school		100%	.7611	300–600	.7573	250–600	.5953	300–500
Secondary school*	.8736	2000–2750						
Grocer	.8348	1500–1750	.8397	1200–2000	.6323	1200–3000	.5434	1000–1750
General store		---	.2925	700–1000	.6485	200–700	.5503	300–500
Butcher	.9023	900–1500	.4151	2250–4000	.8352	1200–2000	.8210	500–700
Baker*	.6617	1100–1500						
Chemist*	.5962	2000–2500						
Clothes store	.5237	1750–2250						
Antiques shop*							.4841	900–1200
Delicatessen*								
Hairdresser	.7782	1100–1500	.7265	1200–1800	.8183	1750–3000	.8024	800–1000
Electrical and T.V. shop	.4682	1800–2500						
Bank	.5962	2000–2750			.7058	3250–4500		
Post office		100%	.3959	600–900	.5771	100–400	.5733	400–550
Travelling shop*								
Garage		100%	.8243	900–1300	.3729	600–1200	.4993	350–550
Village hall*			.4641	300–650	.4876	100–300	.2406	300–550
Public house		100%	.6559	225–550	.6621	100–400	.6079	250–450
Church*		100%	.3114	0–100		100%		100%
Doctors surgery	.7258	1200–1750	.5774	2250–3500			.4563	700–1000
Primary bus		100%			.7078	200–650		
Secondary bus*							.2673	250–500
Train*								
Electricity*		100%						
Piped water*		100%						
Mains drainage*		---						

--- straight line regression

* no regression response for total parishes

The threshold bands in the first column reaffirm the strong relationship between service levels and the generally high population sizes of the key settlements. Only the most location - or fashion - conscious facilities fail to occur regularly in key settlements.

Those settlements situated within two miles of a higher order settlements tend to display high minimum values for the threshold bands of various services. It seems logical that small settlements adjacent to larger centres are less likely to possess services of their own, and the relatively high maximum figures for threshold bands represent the fact that a greater population size is required at this distance to achieve similar service levels to those in key settlements.

Both the minimum and maximum figures are lower for the next distance category (more than two but less than five miles distant). Here there is a greater need particularly for the provision of lower threshold facilities as the distance from larger centres increases. In the case of the most isolated parishes, certain higher-order threshold bands (particularly grocer, hairdresser and doctors surgery) are significantly reduced, although it must be remembered that very few rural settlements in Warwickshire do, in fact, occur at distances of ten miles from a recognised centre and so this trend should notbe overemphasised. Nevertheless, Table 6.12 does give some indication of the manner in which key settlements dominate the service patterns in those parts of rural Warwickshire which are beyond the reach of the major urban centres.

The relationship between settlement size, threshold bands and servicing levels is a vast topic which demands further study. It would have been tangential to this study, for example, to compare time-series threshold bands in Warwickshire, and yet it would be most interesting to discover whether the minimum levels for various services are increasing as the process of rationalisation continues. What has been suggested, however, is that the concept of the threshold band is more meaningful

than a single threshold figure, and that the static analysis of the 1975 situation does reaffirm, at least in part, that service provision in pressured rural areas does bear a direct relationship with settlement population thresholds in general, and with key settlements in particular.

EMPLOYMENT

One final topic which is an essential part of any rural settlement policy, and is particularly crucial to the key settlement policy, is that of employment provision. The situation in a pressured rural area is very different from that in its remoter counterpart in that by definition the pressured areas are located adjacent to the centres of employment provided in the major urban centres. The Warwickshire policy on employment in rural areas is plainly stated.

> "Manufacturing and service employment cannot generally be encouraged in rural areas unless the proposals are essentially for the benefit of the rural community. Where there are appropriate developments, it is intended that in general they should be located within the key settlements, although limited expansion of existing small businesses will not automatically be precluded providing they are in satisfactory locations." (Warwickshire County Council, 1973A, 28).

There would appear, therefore, to be two strands to the question of rural employment in Warwickshire. Firstly, if manufacturing and service employment are generally to be restricted to the urban centres, then the problem of accessibility to these centres becomes paramount. Secondly, and of equal importance, if any regional imbalance of accessibility occurs, the policy response in terms of attracting employment into deprived areas becomes a matter of urgency.

(a) Accessibility to Employment

Accessibility to employment was one of the criteria measured as part of the key settlement selection procedure (Warwickshire County Council, 1973B). An index was interpolated from the formula

$$A_i = \sum_j \frac{O_j}{D_{ij}\, C_j}$$

where A_i = job accessibility of setllement i
O_j = number of jobs in Employment Area j
D_{ij} = travel cost from settlement i to Employment Area j
C_j = competition for jobs in Employment Area j from all other settlements.

One criticism of this index is that it does not take sufficient account of local jobs. However, this factor is examined below and is found not to detract from the overall pattern as calculated by the index. Once again scores from 0-5 were produced and the resulting distribution is shown in Figure 6.12. Settlements of below 200 population were discarded from the Structure Plan analysis as being too small to act as centres, but some indication of their accessibility can be gleaned from the scores of the surrounding settlements, except that the smaller parishes are less likely to be served by reasonable public transport services. At the other end of the scale, parishes included in Urban Structure Plan areas and those adjacent to the major urban centres are also excluded, but these may be assumed to have high levels of job accessibility.

Figure 6.12 shows a distinct regional imbalance of accessibility to employment. It is clear that the southern areas of the county have far less opportunity than those in the north so far as employment is concerned. This in itself is neither surprising or disturbing since it has already been established that the major concentrations of rural population occur in the north and west of the county. Moreover, distances within the county are not great and so accessibility from the south, although low in relative terms remains at a higher level than in some other pressured rural counties.

The Structure Plan suggests that "younger people tend to settle in those settlements closest to the main

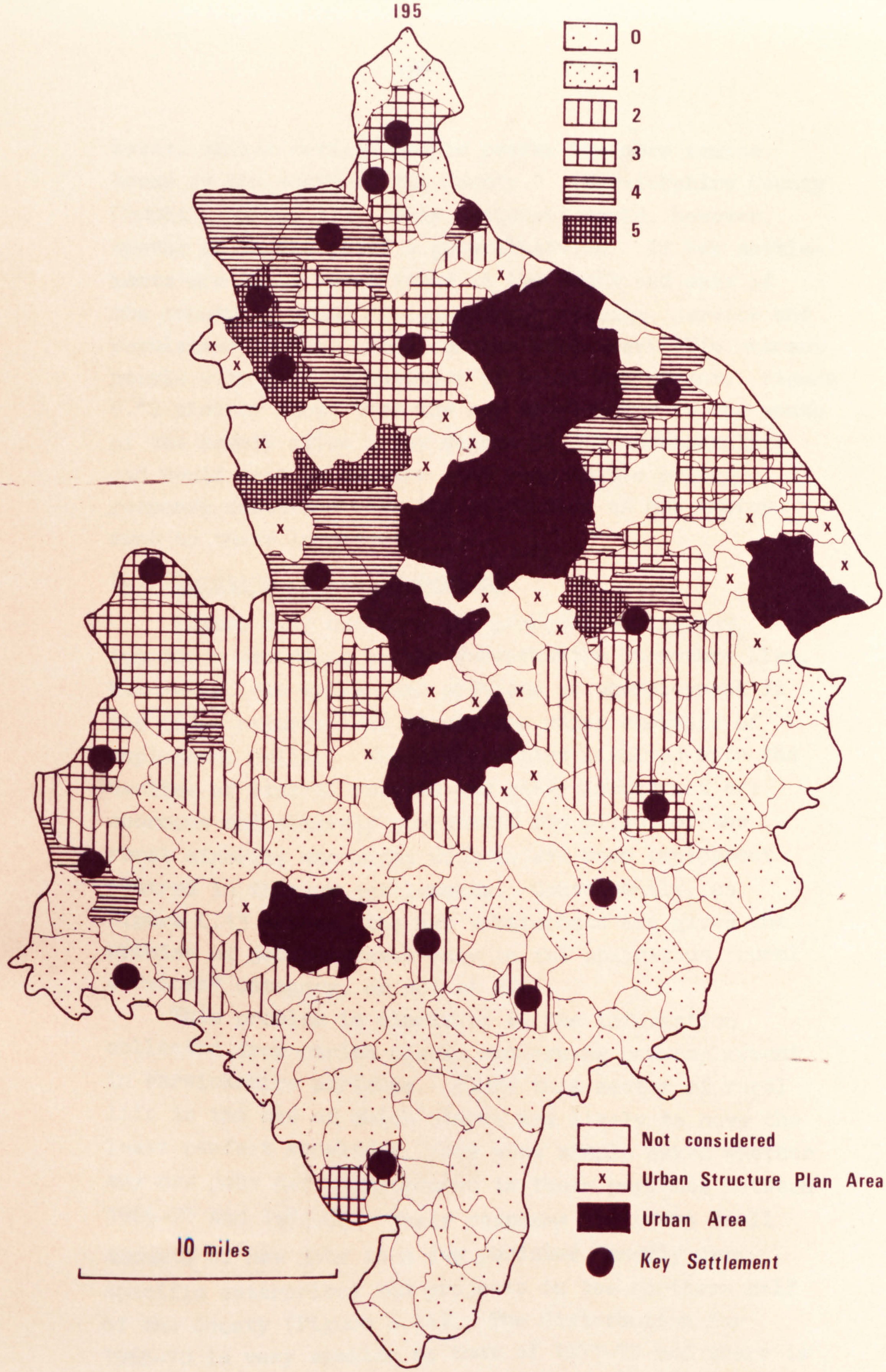


Fig. 6·12 Job Accessibility Index

After Warwickshire C.C. (1973)

towns, whilst retired people prefer the more remote areas in the south of the County." (Warwickshire County Council, 1973B, 12). This statement would, however, appear to be too great a generalisation. If key settlements are to be established in the south and east of the county in order to concentrate housing, service and population growth, these centres will inevitably attract people with some expectation of local employment. Figure 6.12 clearly shows that the key settlements in the south of the county offer a low degree of job accessibility and would seem to require some responsible policy response concerned with the attraction of new employment to these locations.

(b) Location of New Employment

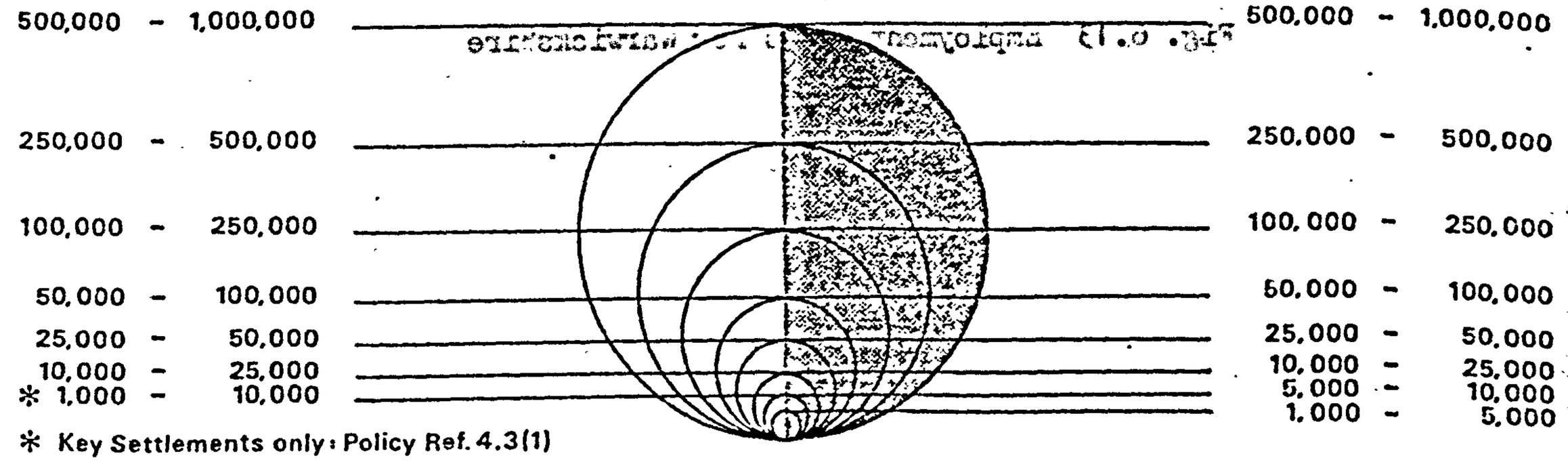
Figure 6.13 outlines the proposed employment increases according to the Warwickshire Structure Plan. Naturally, the widespread problems of unemployment in the major conurbations occupy the major emphasis of employment policy. The difficulties involved with the decline of mineral related and heavy industries are enormous and entirely overshadow the plight of the rural minority who might wish to see some employment centred in the key settlements. Consequently, as Figure 6.13 proves, the key settlements are given the promise of job increases only in the ubiquitous "rural services" category, or not at all.

This problem is clarified by the information collected from parish clerks concerning new employment in Warwickshire parishes. Since this sector of rural life is the one of which clerks are likely to have the least perfect knowledge, they were simply asked whether any new jobs had been created in their parishes between 1965-70 and 1971-75. Their response indicates small amounts of new jobs in a few parishes, mostly from specific enterprises and projects in the northern half of the county (Figure 6.14). The distribution for 1965-70 is very similar to that of 1971-75 and there is no indication that the key settlement policy has caused

Fig. 6.13 Employment Plans For Warwickshire

After W.C.C. (1973)

EMPLOYMENT



Policy Ref.

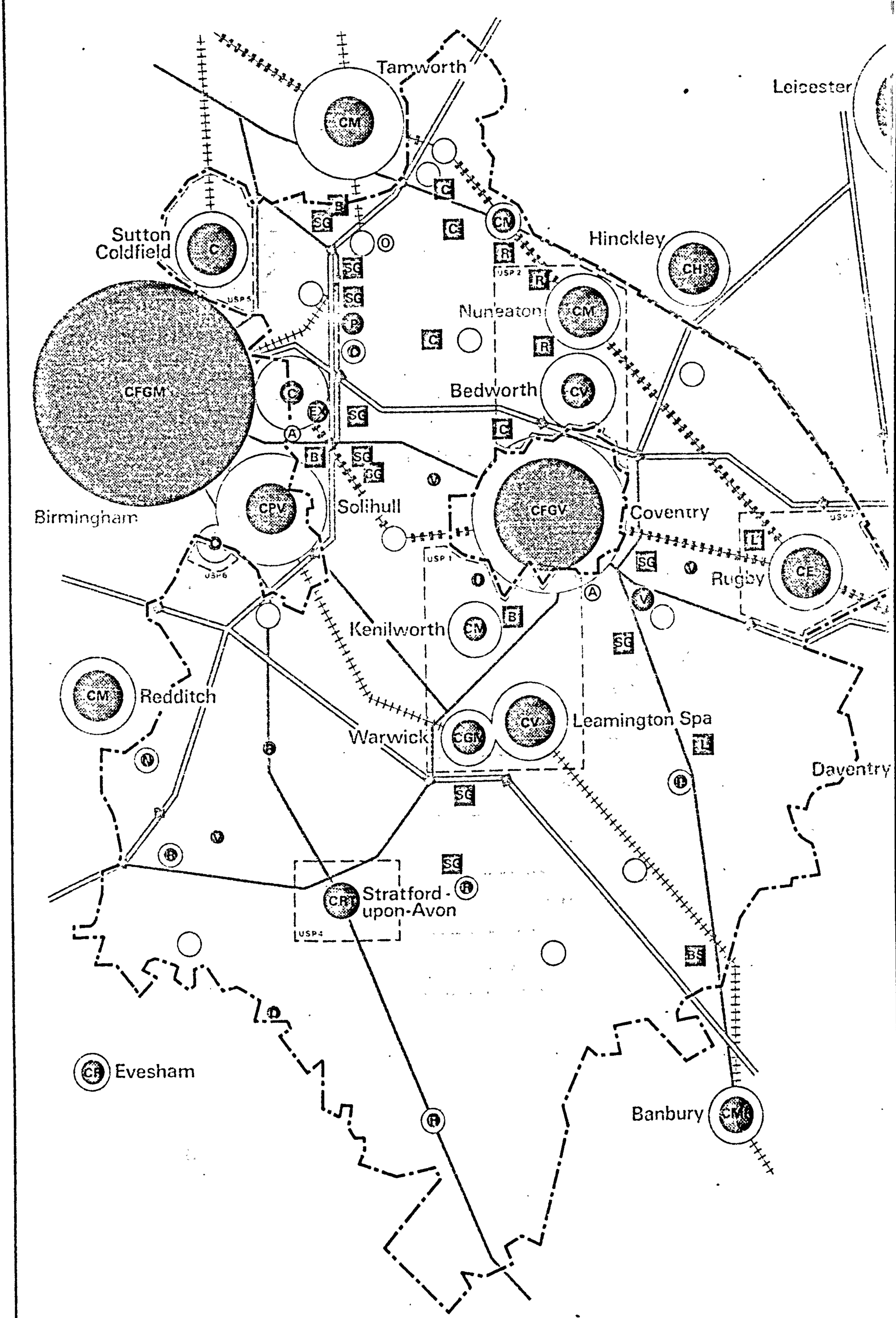
MAJOR EMPLOYMENT FUNCTION

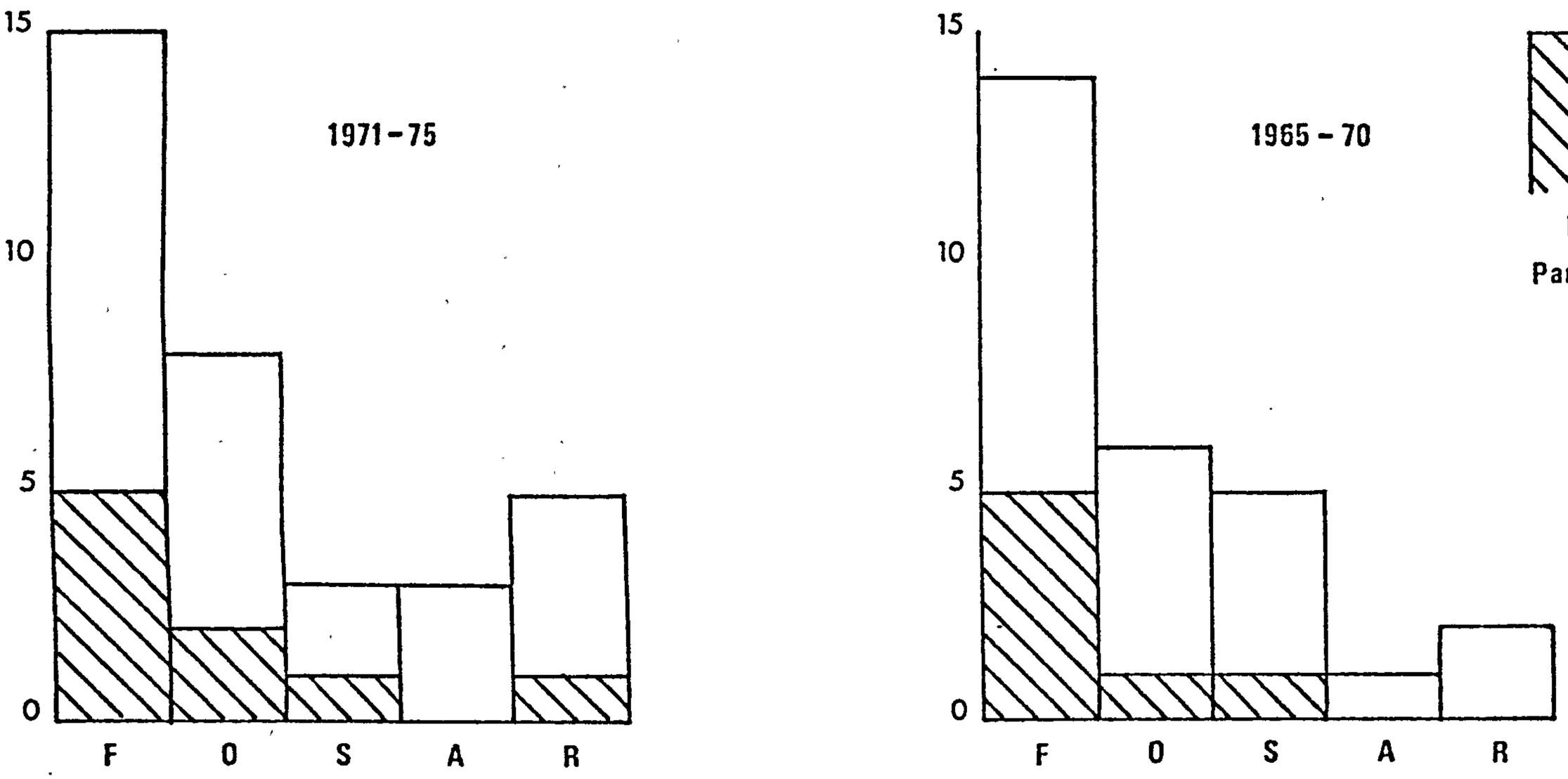
4.4(13) Ⓐ Airport
4.4(6-7) C Commerce and Shopping
D Defence
E Electrical
EX Exhibition Centre
F Freight Terminal
G Central and Local Government
H Hosiery
M General Manufacturing
N Needles
Ⓞ Oil Terminal
PS Public Services
R Rural Services
T Tourism
U University
V Vehicles

MINERAL RESOURCES

4.4(2)

B Brickclay
BS Building Stone
4.4(3) C Coal
L Limestone
R Roadstone
SG Sand and Gravel


Tamworth
CM
Leicester
Sutton Coldfield
C
Hinckley
CH
Nuneaton
CM
Bedworth
CV
CFGM
Birmingham
CPV
Solihull
CFGV
Coventry
Rugby
CE
Kenilworth
CM
Redditch
CM
Warwick
CGM
CV
Leamington Spa
Daventry
Stratford-upon-Avon
CR
Evesham
CR
Banbury
CM
USP 1
USP 2
USP 4
USP 5
USP 6



F FACTORY
O OFFICE
S SERVICE
A AGRICULTURAL
R REMAINDER

Fig. 6·14 Provision Of New Employment In Warwickshire Parishes

any changes in employment policy. Therefore, the situation remains that small industrial estates, each with additional land available, have been built in the southern centres of Southam (1.0 hectare remaining), Shipston-on-Stour (1.4 hectares), Alcester (9.0 hectares) and Bidford-on-Avon (2.5 hectares) and yet of these only Alcester has received any expansion of employment during the key settlement period.

There would appear to be fundamental discrepancies in a policy which concentrates housing and services into key settlements with low employment accessibility and this rural sub-system may well be a candidate for the constant monitoring and reviewing of the key settlement policy that was promised in the Structure Plan. The whole question of employment is taken up again both in the Southam case study and in the conclusions and recommendations drawn up in Chapter 11.

CLUSTERS OF WARWICKSHIRE PARISHES

So far, the analysis of the outworkings of the Warwickshire key settlement policy has taken the form of investigating distributions of raw data, and descriptively measuring the influence of the key settlements on these various patterns. Indeed, several interesting conclusions have arisen from this process. The need is apparent, however, to present some significant statistical corroboration for the trends and relationships discovered above. It is relatively simple to demonstrate that significant associations exist between key settlements and the concentrations of population, housing, services and employment by using the Chi^2 technique. The Chi^2 associations shown in Table 6.13 form a backcloth to the more descriptive analysis of relationships between key settlements and the various sub-systems, and indeed fully justify the above attempts to explain such relationships. There nevertheless remains the desideratum for some form of spatial analysis which is able both to juxtapose the various strands of life in rural settlements, and to allow some assessment of the degree to which certain types of parish are affected by the key settlement policy.

Table 6.13 Key Settlement Associations With Rural Sub-Systems

	Chi^2	Degrees of Freedom	Significance
Population			
Population 1971	87.3719	8	.0000
Population 1971-75	73.7200	8	.0000
Housing			
Private housing, 1971	76.5203	8	.0000
Council housing, 1971	90.4325	8	.0000
Services			
Primary school	15.5999	2	.0004
Secondary school	73.9454	2	.0000
Grocer	38.5667	2	.0000
General store	15.5999	2	.0004
Chemist	93.4011	2	.0000
Bank	78.5600	2	.0000
Post office	11.7559	2	.0028
Doctors surgery	78.6742	2	.0000
Primary bus service	24.3048	2	.0000
Employment (new jobs)			
Factory employment 1971-75	71.3571	2	.0000
Office employment 1971-75	60.7911	2	.0000
Service employment 1971-75	59.9353	2	.0000

The technique which comes nearest to fulfilling these requirements is cluster analysis. Little needs to be said of this statistical tool which has received standard usage in spatial and locational analysis in the fields of geography and planning (Everitt, 1974) and which is readily available through the Clustan 1C computer package (Wishart, 1975). In general terms, clustering is a method of "partitioning an observed sample population into disjoint or overlapping homogeneous classes, to produce an operational classification" (Wishart, 1975, 5). In this case, clusters of Warwickshire parishes were produced so that intra-cluster similarities and inter-cluster differences could be

examined and the relationships between each cluster and the key settlement policy could be analysed.

Three criteria tend to dictate whether cluster analysis is to be manipulated in a meaningful manner. Firstly, several methods are available by which individual parishes are linked together into one cluster or another. The selection of an appropriate linkage method is essential if significant results are required. Probably the best method when using distance coefficients is Ward's error sum of squares method, which looks for the greatest internal correlation within each cluster and so this method was used in the analysis.

The second criterion concerns the number of clusters to be used in the categorization process. Careful scrutiny both of the linkage dendrogram and of the significance levels at which the final fusions occur suggest that six clusters are appropriate in this case, since further fusion would link clusters 3 and 4 at an unacceptably low level of significance.

Finally, because clustering is a robust statistical technique, it will produce clusters from whatever data is presented for processing. Therefore, to obtain significant results the data input must be carefully monitored with due respect for the old adage that "what goes in must come out". All the Warwickshire parish questionnaire data under the headings analysed above were used in the clustering process with two important exceptions. No measures of population size or key settlement status were included, since it has been established that significant causal relationships exist between these two factors and the service, housing and employment variables which form the major proportion of the data to be clustered. Considerable auto-correlation would have occurred had these two causal factors been included. Indeed, cluster analysis was used in this case to suggest lateral similarities other than mere groupings of similar population size.

The results of the cluster analysis are shown in Figure 6.15 and each cluster will be reviewed individually.

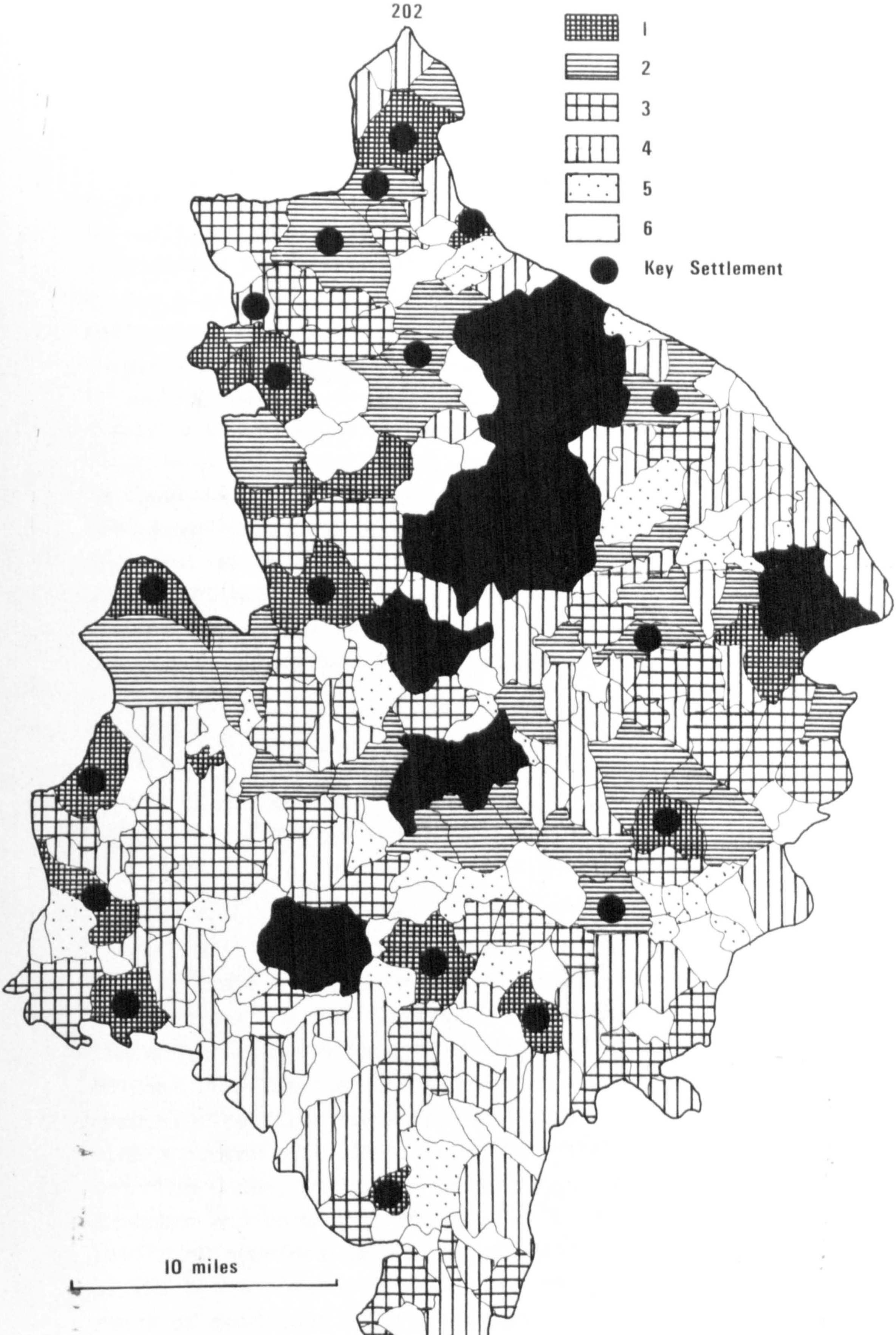


Fig. 6·15 Warwickshire Clusters

(a) Cluster 1

The first cluster, with a very high level of internal correlation (0.38) includes nine first tier and three second tier key settlements along withsix other parishes. Settlements included in this cluster are characterised by the highest levels of service provision, typically possessing primary and secondary schools, foodshops, chemist, bank and doctors surgery, plus a full complement of infrastructural facilities. New housing, both public and private is also concentrated in these settlements along with new factory employment in some locations. It is apparent that this cluster represents either those settlements which have received some definite benefit from the key settlement policy or those which are self-sufficient enough to act as rural or suburban centres without the aid of key settlement status. The latter group have been found to be well represented in the list of residual parishes from the population change and housing analyses. All in all, this cluster constitutes high centrality key settlements and those parishes which but for their suburban locations or their excessively rapid past rates of growth would have been selected as key settlements.

(b) Cluster 2

Cluster 2 is spatially restricted to the northern part of the county, and this locational bias indicates that the settlements concerned are heavily reliant on the major urban centres of north and central Warwickshire. In fact, the cluster is an agglomeration of two sub-groups. The first includes six key settlements along with a number of other settlements which are not adjacent to urban nodes, while the second consists of large suburban and commuter centres. Both groups have high levels of services (although not as high as in Cluster 1) of which the presence of the primary school and a wide range of foodshops is symptomatic. Private house building rates have been high and there has also been some building of new council houses. Some new employment has also been attracted.

The overriding factor in this cluster is the excellence of transport links. A high ratio of train services is linked with good primary bus services and together these variables suggest that Cluster 2 settlements are very attractive to the commuter. This one factor transcends a wide range of population sizes.

As for the future of settlements in this cluster, many of the suburban sub-group are bound up in Urban Structure Plan areas, while those people living in the key settlements will also be reaping the benefits of Structure Plan policies. Of the remainder, those situated away from the urban centres will suffer from the restrictions on all but the smallest amounts of housing growth. The high quality of transport links will ensure good access to urban facilities but there may be a case for allowing greater flexibility in fulfilling local housing needs in these settlements.

(c) <u>Cluster 3</u>

The third cluster contains parishes with small villages typified by the presence of a primary school, general store/post office, public house and church. There is a high incidence of travelling shop occurrence and further proof of the isolated nature of these parishes is instanced both by the greater proportion of secondary rather than primary bus services, and by the low level of mains drainage facilities. Some new private housing has been scattered amongst these parishes but there is little or no indication of new employment.

Thus, with locations often detached from key settlements and larger centres, and with poor lines of communication, these settlements are at some disadvantage from the key settlement policy. Only minimal growth will be allowed in such places and so there is little hope that further facilities will be attracted. Indeed, service losses may continue to occur in these parishes. Furthermore, imperfect transport services present some difficulties in reaching centralised services, and so some improvement in these linkages would seem to be the minimum requirement for the parishes represented by this cluster.

(d) Cluster 4

Settlements within this cluster are broadly similar to those in Cluster 3 except that they often have a larger population size and that in the past there has been considerable private and council housing growth. Specific servicing differences from Cluster 3 are vital in the interpretation of this grouping. For instance, there is a very high incidence of primary public transport facilities which together with the cluster distribution shown by Figure 6.15 suggest that these parishes tend to straddle the main lines of communication. The reasonably high levels of mains drainage fit into this pattern while the smattering of antiques and hairdressing establishments suggest that some Cluster 4 settlements prove fashionable to some affluent section of the commuting population.

One interesting member of this cluster is Curdworth, which is the key settlement with the lowest levels of servicing and employment. It does, however, comply with the criterion of high rates of past housing growth. Even apart from Curdworth, the settlements in Chapter 4 are fairly well served by the key settlement policy. With a high degree of public transport services, they are better able than many rural settlements to use the services provided in the key settlements, although being on good lines of communications, there will always be the tendency to ignore key settlement facilities in favour of links with the better opportunities presented by the major urban centres. Also, the largest Cluster 4 settlements might consider themselves well suited to accept further growth (particularly in the housing sector) but are restricted in this respect by the key settlement policy.

(e) Cluster 5

The dominant factor in Cluster 5 is the lack of services and facilities of any description. Such settlements occur in two types of location. Firstly, ten parishes are included which are situated adjacent to major urban centres, and thus have few facilities of

their own because of the proximity to urban services. These parishes vary in population size but often contain intensive agricultural areas and are covered by green belt restrictions. The second sub-group may be interpreted as small unserviced hamlets serving agricultural areas which form the green wedges between the channels of more densely populated parishes in the southern part of the county. Thus, although both types of settlement in this cluster are physically close to the opportunities provided by key settlements and major urban centres, the lack of public transport means that private transport is required to take advantage of these opportunities.

(f) Cluster 6

The last category produced by the cluster analysis is akin to Cluster 5 in that it consists of relatively unserviced suburban settlements within the northern green belt zone along with similar but smaller settlements in the southern parts of the county. Cluster 6 differs in that there are some communications with higher order settlements (about half of the parishes possess public transport facilities) and that there is a greater incidence of past housing growth and pockets of new employment. These parishes again tend to be situated within the green wedges and their opportunities under the key settlement system differ from Cluster 5 only on the strength of greater public transport facilities.

In particular the cluster analysis has highlighted the fact that only a small minority of settlements receive positive benefits from the key settlement system. For the policy to be more democratic and wide-ranging, linkages are required between key settlement and hinterland on a scale that is not evident at present. In conclusion, it is strongly suggested that the situations revealed by the cluster diagnostics lend considerable support to the findings of the above sub-system analyses, and together the spatial and systematic dimensions provide a firm foundation on which to study the local scale ramifications of the key settlement policy.

KEY SETTLEMENT PERCEPTION

As a postscript to these two dimensions of analysis, it is worthwhile recording the parish clerks' own knowledge and perception of the key settlement policy. In answer to the question "do you know which is the nearest key village to your parish?" only 69 of the 196 parish clerks who responded to the questionnaire were able to name the key settlement correctly (Table 6.13). Of the remainder, 39 named an urban centre rather than a rural setttement and the other 88 either named a non-key settlement or had no knowledge of key settlements at all.

Table 6.14 Key Settlement Perception

	Key Parishes	Non-key Parishes
1. No response	4	32
2. Correctly named key settlement	12	57
3. Named larger urban centre	-	39
4. Named incorrect village/ Don't know	3	85

Perhaps even more surprising than these statistics is that three parish clerks representing key settlement parishes did not know that their parish contained a key settlement.

Bearing in mind that parish clerks are more likely than most other rural settlement residents to have encountered the Structure Plan and its key settlement policy, there would appear to have been some lack of penetration in the way that the policy was presented to the rural populace, and to the officials who administrate rural community affairs. Another explanation for this low level of policy perception could perhaps be attributed to the choice of boundaries for key settlement sub-areas. If a settlement is placed within the hinterland of a distant key settlement but is located adjacent to another centre, then it would not be surprising if the parish clerk of indeed any of the residents did not know of the key settlement policy's influence on their particular parish.

Figure 6.16 places parish clerks' perception and the key settlement sub-areas in the same spatial perspective. Two points arise from these distributions. Firstly, the spheres of influence are extremely variable and seem to take little account of linkages between key settlement and hinterland. Some boundaries defy all understanding. For example, the parish of Chesterton and Kingston is included in the Southam sub-area despite the fact that it is cut off from Southam by the two parishes which comprise the Bishops Itchington sub-area. Furthermore some sub-areas (for example those of Wellesbourne and Balsall Common) include considerable tracts of suburban parishes which are inevitably closely linked with urban rather than rural centres. In these cases a rational decision might be taken to link certain semi-urban parishes into that particular urban system and to use the key settlement to service those parishes which are more divorced from the urban centres.

The second point arising from Figure 6.16 is that the perception of some key settlements is extremely high whereas in other cases it is almost non-existent. As a general rule, first tier key settlements appear to be better known than the second tier group. Centres such as Atherstone, Alcester, Bidford-on-Avon, Wellesbourne, Shipston-on-Stour and Southam are well known within many of the parishes which they serve, while the two second tier centres in Rugby Rural District hardly make any impact whatsoever. These patterns would seem to indicate that the sub-areas surrounding some smaller key settlements are too expansive to be serviced efficiently, particularly when urban centres provide intervening or adjacent competition to the facilities of the key settlement.

If previous sections have demonstrated that key settlement policies need to forge links between key settlements and their hinterlands, then this analysis of parish clerks' perception has shown that it is equally important to forge public attitudes into the mould of the key settlement policy. This will not be achieved



Fig. 6·16 Key Settlement Sub-areas And Parish Clerks' Perception

unless logical and rational selections of key settlements and their hinterlands are presented for thorough public discussion so that rural people understand the processes and objectives of the policy. Such an understanding is necessary to counteract public antagonism against the seemingly selective and restrictive local-scale policy ramifications some of which will be reviewed in the next chapter.

CHAPTER 7

THE SOUTHAM DISTRICT CASE STUDY

THE AREA AND ITS KEY SETTLEMENTS

Prior to the 1974 local government re-organisation Southam Rural District formed a discrete secondary administrative area consisting of 32 parishes, and although this area has now been encorporated into the larger Stratford-on-Avon District since 1974, it was decided to make a special study of the progress of these 32 parishes under the key settlement policy. Southam R.D. is situated in the south-east of the county and in the past has been sufficiently distant from the major centres of urban population to escape any inordinate amounts of urban pressure. Recently, however, its proximity to Leamington Spa/Warwick has produced considerable pressure for development within the district. These trends are corroborated by rurality indices of 1.2054 in 1961 and 5.0972 in 1971. Southam R.D. would therefore seem to be an appropriate area for the study of local-scale effects of the key settlement policy in a pressured rural area.

Figure 7.1 recalls the cluster categorisation of parishes in Southam R.D. (Chapter 6). This distribution shows that the area consists of a continuum of parishes ranging from almost unsettled agricultural areas through smaller parishes and hamlets to the larger, more highly developed settlements represented by Clusters 1, 2 and 4. Southam and Bishops Itchington have been designated as key settlements to serve most of this area, although some parishes in the south are included in the Kineton sub-area. Special attention is now focused on Southam and Bishops Itchington so that the later analyses of the relationships between the key settlements and their hinterlands may be put into context.

(a) Southam

Southam is the kingpin of the settlement hierarchy within the rural district, and has been growing steadily in terms of population from 1881 persons in 1951 to 4506

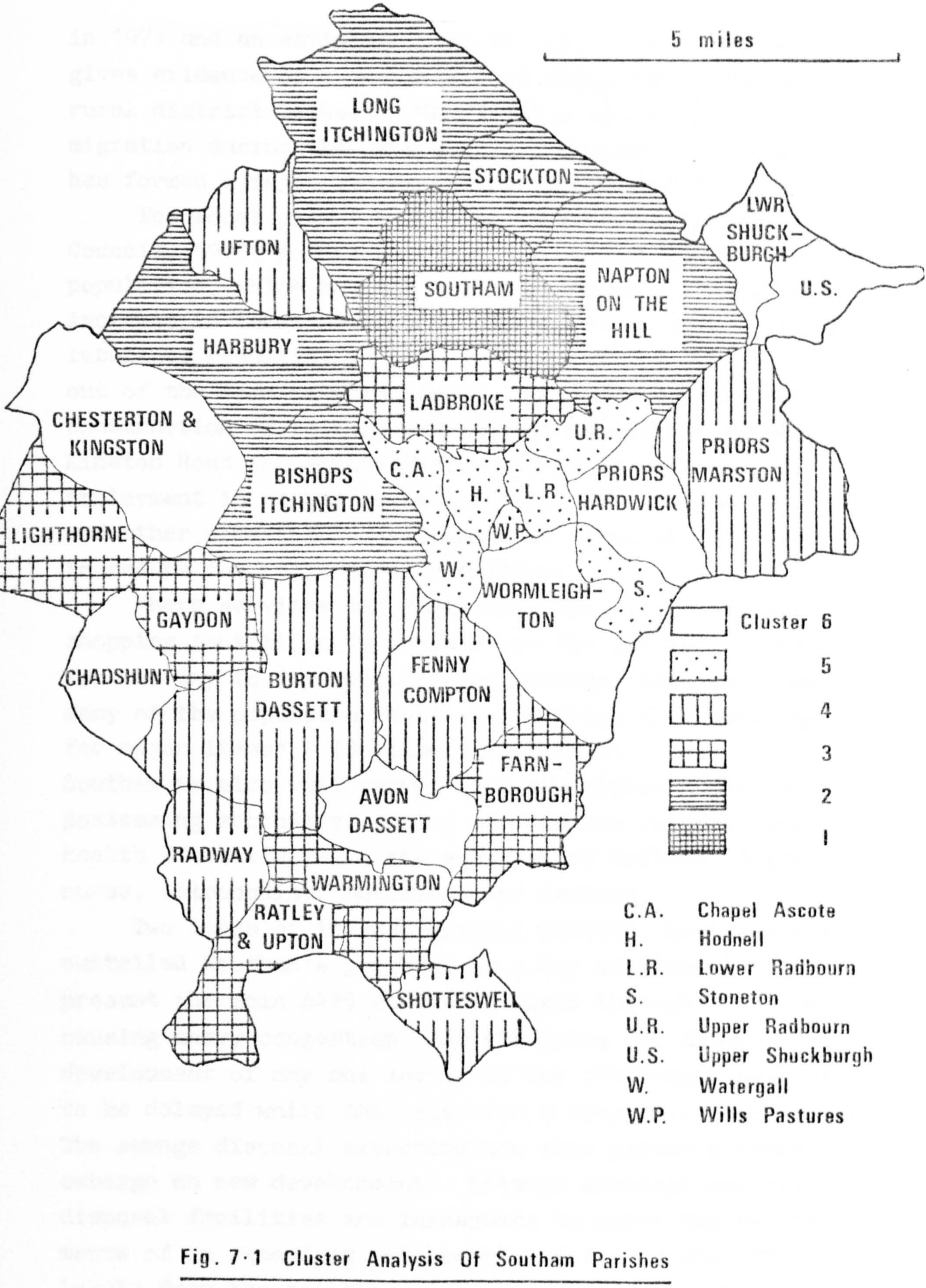


Fig. 7·1 Cluster Analysis Of Southam Parishes

in 1971 and an estimated 5140 in 1975. The 1971 census gives evidence of a 14.2% rate of migration within the rural district between 1966-71 and a 26.3% rate of in-migration during the same period. Undoubtedly, Southam has formed a major attraction for these migratory trends.

The local plan for Southam (Stratford-on-Avon District Council, 1975) points out that "the growth of Southam's population, which has taken place without a proportionate increase in local employment opportunities has caused an imbalance resulting in more and more people travelling out of the town to work" (p.6). It suggests that the construction of factory and warehouse premises on the Kineton Road Industrial Estate has provided some new employment in recent years but that some limited industrial and other commercial development is required in Southam to reduce the reliance on commuting.

Where services and facilities are concerned, the shopping facilities in Southam are "in general adequate for the day to day needs of the average family although many of the population take weekly trips into Leamington for major items". (Southam Town Council, 1975, 2). Southam is also well served with educational facilities, possessing secondary, junior and infants schools, and health facilities with the services of doctors, district nurse, chiropodist, opticians and dentist.

Two items of infrastructure, however, have severely curtailed Southam's progress as a key settlement. At present the main A425 road runs right through the town causing heavy congestion, and the plans for future development of any one sector of the settlement have had to be delayed while the route for a by-pass is negociated. The sewage disposal situation has also placed a temporary embargo on new development. Present sewerage and sewage disposal facilities are inadequate to serve the requirements of an expanding settlement. Not only are effluent levels from the existing plant well below the stipulated level, but the siting of the plant is also unacceptable in that it has become almost enveloped by new residential development to which great nuisance is caused.

(b) Bishops Itchington

Bishops Itchington is situated three miles south-west of Southam, and was selected as the second-tier key settlement for the area despite the apparent suitability of Harbury and Long Itchington for that designation (see Chapter 5). The growth of Bishops Itchington has been comparatively recent, rising from a population of 1184 in 1961 to 1840 in 1971, although the estimated increase during the key settlement period (1971-75) is only 70 persons.

Formerly, many people from Bishops Itchington and neighbouring Harbury were employed in the local cement works, but since the decline in this source of employment, more than 70% of the working population commute to Leamington, Warwick and Coventry and to a lesser extent Southam. The local plan (Stratford-on-Avon District Council, 1977) does consider that "the modest population increase planned for the village might warrant some limited industrial and commercial development in order to avoid an even greater dependence on the larger towns and to make the settlement more self-supporting" (p.7) although at present there is no sign of this possibility being put into operation.

In terms of services, Bishops Itchington has the usual complement of foodshops which cater for day to day shopping needs, but these are scattered in two or three locations in the village and retailers suggest that the lack of a focal shopping centre is detrimental to the attraction of shoppers from outside the village, The Bishops Itchington sub-area consists of the village itself along with the parish of Harbury, and it is difficult to imagine that Harbury residents would travel to Bishops Itchington rather than to Leamington for any services not provided in their own village. Nevertheless, some growth in facilities has taken place during the key settlement period with the introduction of a doctors surgery, chemist and electrical and television shop. With these services added to the primary school and adequate utility infrastructure, Bishops Itchington appears

to be well equipped for modest future residential growth, but the basic level of retail services along with the public transport situation (see below) severely restrict the settlements capabilities as a service centre.

DEMOGRAPHY

Under the Interim Policy, Southam, Bishops Itchington and Harbury were scheduled for primary growth, while Fenny Compton, Long Itchington, Napton-on-the-Hill and Stockton were allocated secondary growth status. The Interim Policy was itself largely a reflection of past growth trends (see Chapter 5), and therefore the pre-1971 period in the Southam area saw considerable development in a number of parishes. Table 7.1 exhibits noticeable population increases in those settlements listed above as well as in Burton Dassett which accommodates large numbers of Armed Forces personnel.

Table 7.1 Population change in Southam R.D. 1971-75

	1961	1971	1975	1961-71	1971-75
Avon Dassett	224	201	180	-23	-21
Bishops Itchington	1184	1840	1910	656	70
Burton Dassett	1289	1681	1760	392	79
Chadshunt	57	57	70	0	13
Chapel Ascote	21	17	20	-4	3
Chesterton and Kingston	156	106	100	-50	-6
Farnborough	225	319	320	94	1
Fenny Compton	520	571	570	51	-1
Gaydon	1055	412	440	-643	28
Harbury	1378	2380	2400	1002	20
Hodnell	10	15	20	5	5
Ladbroke	211	201	240	-10	39
Lighthorne	1359	898	820	-461	-78
Long Itchington	1679	1890	2040	211	150
Lower Radbourn	4	8	10	4	2
Lower Shuckburgh	74	84	90	10	6
Napton-on-the-Hill	769	901	910	132	9
Priors Hardwick	143	162	170	19	8
Priors Marston	466	440	470	-26	30
Radway	231	219	220	-12	1
Ratley and Upton	369	416	420	47	4
Shotteswell	217	206	220	-11	14
Southam	2212	4506	5140	2294	634
Stockton	862	1027	1090	165	63
Stoneton	4	2	*	-2	*
Ufton	224	222	230	-2	8

Continued/....

Table 7.1 continued

	1961	1971	1975	1961-71	1971-75
Upper Radbourn	35	19	30	-16	11
Upper Shuckburgh	21	26	20	5	-6
Warmington	296	296	330	0	34
Watergall	9	12	20	3	8
Wills Pastures	10	2	*	-8	*
Wormleighton	132	106	130	-26	24

* No 1975 population estimates

The superimposition of a restrictive key settlement policy onto this pattern of wider growth would seem to have had a profound effect on population growth in the Southam area. Whereas seven centres for in-migration and four centres attracting migrants from within the Rural District were in evidence during the period 1966-71 (Table 7.2), only two centres, Southam and Long Itchington (which was subject to outstanding planning permissions from the previous policy) show rates of growth anywhere near equivalent to the previous period. Although no figures are available, it may be assumed that thus far Southam itself has formed the only realistic centre for in-migrants in this study area during the key settlement period.

Table 7.2 Centres of population migration in Southam R.D.

In-Migration 1966-71		Within-Migration 1966-71	
Bishops Itchington	510	Bishops Itchington	270
Burton Dassett	1070	Harbury	380
Harbury	790	Long Itchington	300
Lighthorne	560	Southam	640
Long Itchington	310		
Southam	1190		
Stockton	250		

Source: 1971 Census

These trends of growth and stability serve to re-emphasise the importance of the key settlement procedure. Had Harbury or Long Itchington been selected as the second tier key settlement, rather than Bishops Itchington then the pattern of population growth in these settlements

would be very different to that displayed in Table 7.1. The rights and wrongs of stunting growth in such settlements are matters of the philosophy and politics of policy making (and as such are discussed in Chapter 11) but comments from some clerks serving parishes in this position prove that the policy is certainly not popular with local residents. It is feared that the young people of these villages will be unable to find housing in either the public or the private sector and so will be forced to move either to the key settlement or even to the less restricted urban areas. The next census will be an interesting indication of whether this migration is, in fact, occurring in the Southam area.

Two further aspects of the demography of this area are of some importance. The first concerns pockets of non-mobile population in the countryside. Wibberley (1977) has suggested that it is the young, the elderly and the housewives who have least mobility in rural areas and who are therefore at the greatest disadvantage under policies of service rationalisation or where levels of public transport are low. Some indication of these factors is given by Figure 7.2 which shows percentages of elderly and young rural residents matched against car ownership levels for parishes divided into three categories according to the frequency of bus services.

The age group distributions show a fluctuating pattern in the Southam sub-area. However, it is apparent that the larger centres of Southam, Bishops Itchington, Harbury and Long Itchington have relatively low levels of population over age 65 and indeed a significant inverse correlation exists between population size and proportions of residents of pensionable age. The scatter of population under age 20 is fairly even, although there are some indications that the smaller rural settlements have a smaller percentage of this group than the larger centres. Figure 7.2 therefore shows that there certainly are groups of non-mobile population in the smaller non-key settlements, and that the tendency is for the more remote settlements to be biased towards the elderly and middle-aged age brackets.

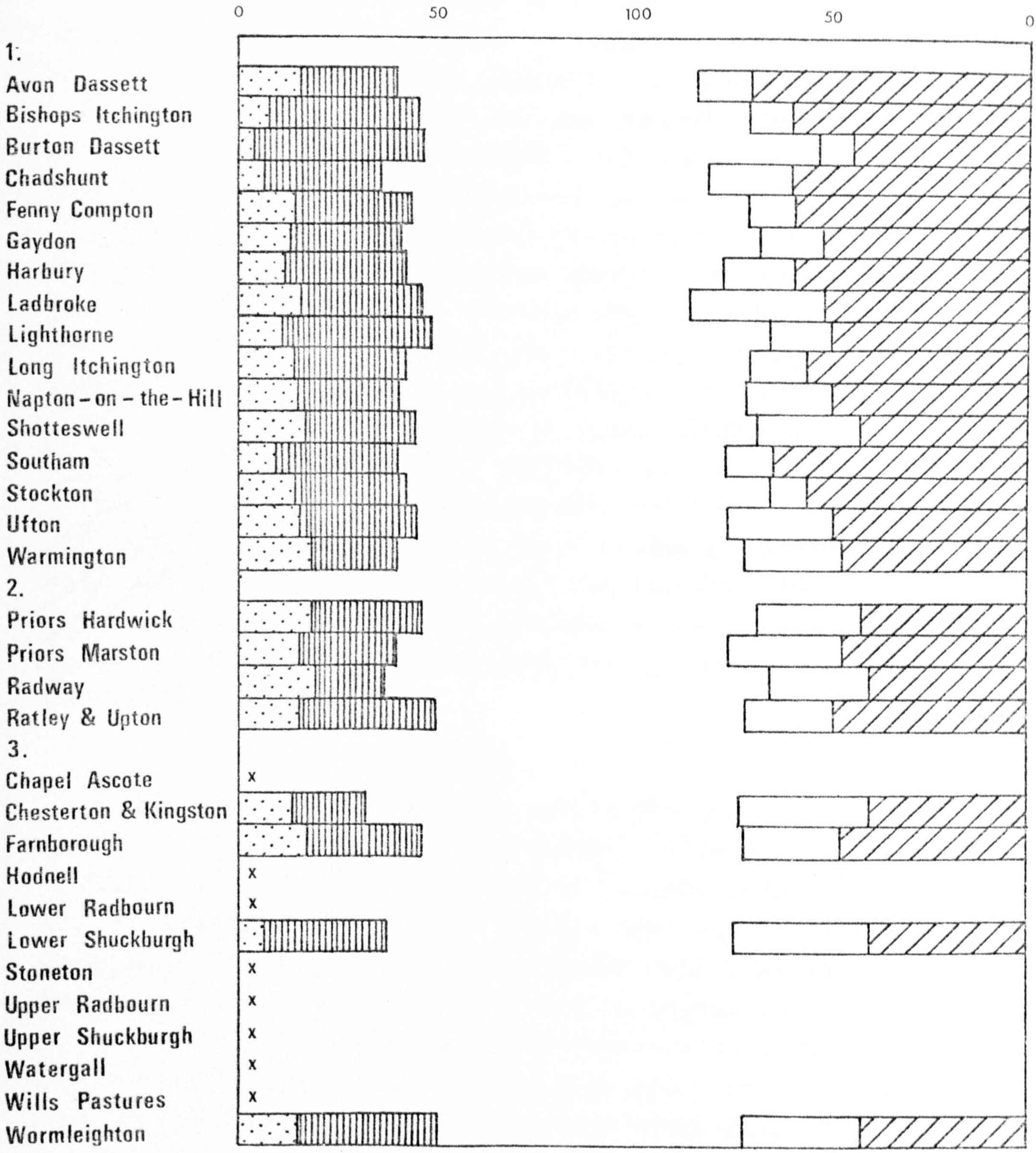


Fig. 7·2 Accessibility And Non-mobile Population Groups

This last point is taken up by the car ownership section of Figure 7.2. There is a strong correlation between high levels of car ownership in general and two car ownership in particular and the smaller (and often more isolated) rural settlements. Not only, therefore, has there been a natural magnetism exerted by the larger settlements on households which do not own a car, but it is also evident that the smaller settlements have attracted the more affluent type of commuter who can afford to run two cars. Socio-economic groups 1 and 2 (employers and managers in central and local government, industry and commerce) are well represented in these settlements. If this was the case in 1971 then the key settlement policy can only have exacerbated the trend and increased the numbers of villages which have become gentrified in this manner. However, it is also evident that these small settlements do contain pockets of non-mobile population which do not appear to be catered for by the rationalising key settlement policy.

HOUSING

Another strand of the key settlement policy analysis at county level which warrants further investigation at a more detailed scale is that of housing provision. It was suggested in the last chapter that some non-key settlements appeared to exhibit higher than expected rates of new housing during the policy changeover period 1971-75, and that these anomalies were not explained by outstanding planning permissions from the previous policy. Only Southam (306 dwellings) and Long Itchington (60) of the area under review are listed as having substantial land committed to development (Warwickshire County Council, 1973B, 22) while for the remainder of Southam R.D. 143 dwellings were permitted but not built before 1971.

Table 7.3 lists planning permissions and refusals in the study area between 1965 and 1976. This information was taken from the Warwickshire County Council card index file of planning permissions and some approximations have had to be made where estate type development was applied for.

Table 7.3 Planning permissions and new housing

	PLANNING PERMISSIONS				NEW HOUSING
	1965-1970		1971-1975		1971-76
	Permitted	Refused	Permitted	Refused	
Avon Dassett	5	5	2	2	3
Bishops Itchington	412	244	89	30	51
Burton Dassett	15	31	16	82	9
Chadshunt	--	1	--	--	--
Chapel Ascote	--	--	--	--	--
Chesterton and Kingston	22	9	1	3	2
Farnborough	7	17	2	11	1
Fenny Compton	18	26	18	95	3
Gaydon	31	20	15	47	8
Harbury	341	242	57	93	16
Hodnell	--	1	1	--	--
Ladbroke	18	60	7	37	22
Lighthorne	19	50	20	32	1
Long Itchington	622	109	91	90	34
Lower Radbourn	1	--	--	--	--
Lower Shuckburgh	--	--	--	--	--
Napton-on-the-Hill	86	126	36	63	13
Priors Hardwick	17	21	4	5	2
Priors Marston	23	22	31	41	4
Radway	3	7	6	16	1
Ratley and Upton	13	24	2	30	1
Shotteswell	25	14	10	31	3
Southam	599	269	236	768	73
Stockton	101	40	55	88	26
Stoneton	--	--	--	--	--
Ufton	6	30	16	6	4
Upper Radbourn	--	--	4	--	--
Upper Shuckburgh	--	--	--	--	--
Warmington	16	21	14	20	2
Watergall	2	--	--	--	--
Wills Pastures	2	1	--	--	--
Wormleighton	--	--	5	1	2

Source: planning permissions Warwickshire County Council
new housing Stratford-upon-Avon District Council

In some cases the information system did not supply the numbers of dwellings included in a particular estate application and so these were then either estimated from dwellings per acre figures on the original application or from the memory of staff with knowledge of particular areas. These estimates are largely restricted to cases where permission was refused, but the nature of the data should nevertheless be borne in mind.

The numbers of houses actually built between 1971 and 1976 accurately reflect the key settlement policy objectives for the Southam area. 73 were built in Southam (a low figure due to the sewage embargo), 34 in Long Itchington and 123 in the remainder of the parishes, excluding Bishops Itchington. The 51 houses built in this second tier key settlement are within the 'modest expansion' limits but do not equate with the estimated population increase of 70 over almost the same time period. This discrepancy could arise from faults in the population estimates, but could also have been caused by some out-migration from this settlement or at least a lack of in-migration, both factors being contrary to the aims of the key settlement policy.

However, when the planning permission data are examined there is some evidence that housing growth in non-key settlements has not been as strictly controlled as one might imagine. The expected levels of permitted dwellings can be seen in the cases of Southam and Bishops Itchington, but the numbers allowed in Harbury, Long Itchington and Stockton appear to be incompatible with their non-key status, even accounting for the changeover from growth under the Interim Policy to the restrictions of the key settlements policy. Even the numbers of dwellings permitted in smaller settlements such as Napton-on-the-Hill and Priors Marston seem surprisingly high. Clearly, the key settlement policy has not been able to channel housing growth solely into the two centres of Southam and Bishops Itchington.

A look at planning refusals between 1971 and 1975 gives some idea of the demand for new housing in various settlements. As is often the case, the designation of Southam as a major growth centre has brought a spate of planning applications from local and national construction firms wishing to share in the profits of a growth situation. 75% of these applications have been refused on normal development control grounds. Many refusals are also evident in the former growth centres of Fenny Compton, Harbury, Long Itchington, Napton and Stockton, perhaps

suggesting that there remains a high level of demand for housing in these settlements. Furthermore, there are also signs of limited demand for new housing in some of the smaller settlements such as Gaydon, Priors Marston and Shotteswell. These planning application figures do pose the question of whether it is socially acceptable to impose such severe restrictions on new housing in non-key settlements and whether indeed it is possible to curtail development in settlements where a momentum of growth has been established.

The Structure Plan policy has considerably reduced the level of permissions compared with that of 1965-70 and has also decreased the likelihood of any application being allowed (except in the smaller key settlements of Bishops Itchington). What it has failed to do, however, is to officially recognise the need for some supply of housing for local needs in non-key settlements, even though this is inherent in the planning permission figures. It will be interesting to see whether permissions in these settlements are actually translated into new houses built over the next few years.

ACCESSIBILITY

The problem of accessibility was repeatedly encountered in the discussion of the key settlement policy at the county scale. In this case study it is possible to closely examine the relationships between bus services, car ownership and the various service and employment opportunities provided for rural residents.

(a) Acessibility to Services

The Supplementary Report on Rural Settlements (Wareickshire County Council, 1973B) gives some indication of the relative shopping opportunities in Warwickshire parishes. Accessibility to local shops, district centres and town centres were measured separately and then combined with local shops receiving a double weighting. Significantly, the influence of district centres (those with more than 25 shops) was assumed to be five kilometres.

The distribution of the scores from this index is shown in Figure 7.3 which demonstrates that only Southam itself has the highest score of accessibility, while other northern parishes have scores of 2 and 1 and the remainder have zero accessibility or were too small to be included in the calculation. However, if the influence of Southam as a district centre is to be limited to five kilometres then this is exactly the pattern to be expected.

In fact, this index of shopping accessibility is rather detached from the situation on the ground, due to the bus routes operating in the Southam area as shown in Figure 7.4. If the key settlements are to operate as service centres then the public transport system should reflect the linkages between Southam and Bishops Itchington and their respective hinterlands. Bus routes connecting Southam and its larger hinterland parishes are fairly good. Napton, Stockton and Ufton are all well connected by adequate bus services for shoppers while secondary services are available from Priors Marston and Priors Hardwick. The survey of retailers reported in the Southam local plan (Stratford-on-Avon District Council, 1975) found that "two thirds of the returns showed trade from outside Southam as forming 50% or more of total trade" (p.12) and this reflects the public transport links with outlying centres.

Two factors, however, detract from Southam's capacity to act as a service centre. Firstly, a number of the smaller settlements are not connected by public transport to Southam, and residents from these villages making a special shopping journey by car are as likely to travel the additional miles to Leamington with its higher range of retail outlets than to Southam. Coupled with this, people living in settlements with a bus connection to Leamington are also likely to make the longer journey for a better selection of shops. These patterns of shopping behaviour are indicative of the use of other services and facilities. Long Itchington is an example of a settlement whose residents are not easily able to use the extra facilities in Southam because the only bus

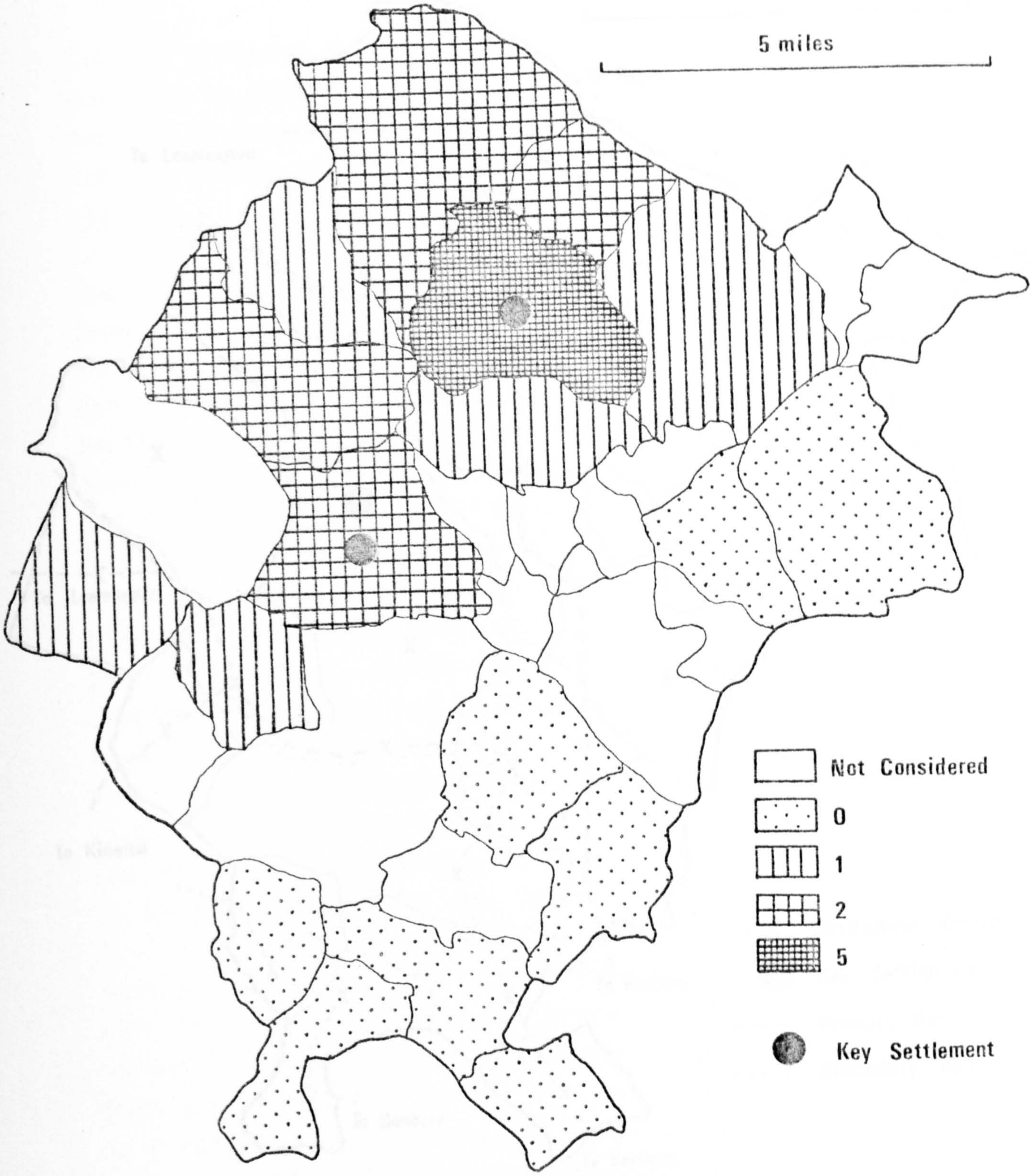


Fig. 7·3 Accessibility To Shops

After Warwickshire C.C. (1973A)

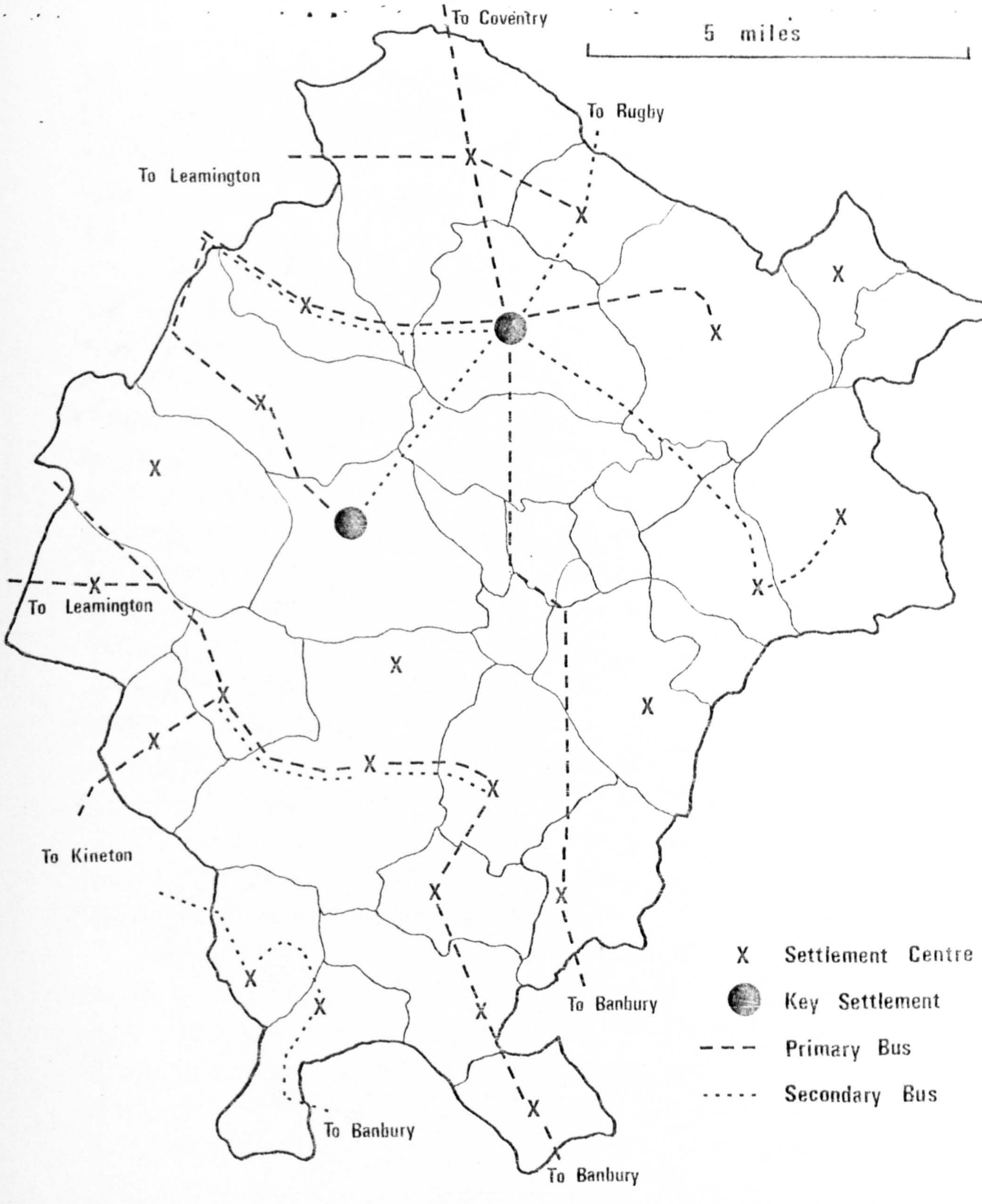


Fig. 7·4 Public Transport Services

link is provided by the expensive and infrequent X59 Coventry to Oxford express. There is, however, a bus service to Leamington Spa and so residents without cars tend to travel there for services not found within the village.

The Bishops Itchington sub-area only stretches to the parish of Harbury which again has strong links with Leamington. Bishops Itchington in reality acts merely as a centre for new housing rather than as a service centre for surrounding villages. Those parishes in the south of Southam R.D. falling within the Kineton sub-area are even less well linked to their centre. Chadshunt and Gaydon are both linked by a primary bus service and Radway and Ratley and Upton are served by secondary bus services. However, even more so than in the north, the influence of a large town, Banbury, is paramount in journeys to shop. Farnborough, Avon Dassett, Fenny Compton, Warmington and Shotteswell are all well linked to Banbury. Shotteswell, for example, is reported by its parish clerk to have always been closely associated with Banbury as regards doctors, hospitals, shopping and education, as the bus service has always been geared to Banbury rather than any other destination.

Once again, it has been seen that the larger urban centres have powers of service attraction which stretch well into the notional rural areas as defined in the Structure Plan. It would seem more logical to accept that some areas fall within the influence of towns such as Leamington and Banbury and to concentrate rural resources into establishing adequate links between the remaining rural settlements and centres such as Southam which offer sufficient retail, education, health and other social and community services.

(b) <u>Accessibility to Employment</u>

Figure 6.12 has shown the interpretation of access to employment as presented in the Structure Plan, and it can be seen from this map that most of the parishes in the study area have relatively low levels of employment opportunity. The one exception to this pattern is the

cluster of settlements between Southam and Leamington, which as might be expected, demonstrate a higher level of accessibility to these two employment centres.

This situation has to be placed in perspective. A pressured rural area such as that under observation here is by definition greatly influenced by large urban centres. Areas such as Southam R.D. become pressured because of the migration of commuters searching either for less expensive housing than is found in the urban areas, or else for the rural environment in which they wish to live. When this pattern of commuting is superimposed on an established employment base of mineral working and agricultural enterprises, problems of job accessibility are less acute, but with the decline in this local employment the reliance on commuting has become high: hence the attempts to build up employment in Southam and possibly even at Bishops Itchington at some time in the future.

Figure 7.5 shows the proportions of employed persons working inside and outside Southam R.D. in 1971. Apart from the centre of institutional employment in the parish of Burton Dassett, the only settlements where a noticeable number of workers are employed within the district is Southam itself and its surrounding satellite centres of Bishops Itchington, Long Itchington, Harbury, Napton and Stockton. However, the overriding trend in settlements of any size (apart from Southam) is that of commuting out of the district, and journey to work tables from the 1971 census show that Leamington, Warwick and Coventry are the major centres of external employment.

The method of travel to work, both inside and outside the district, gives an important indication of accessibility to employment centres from settlements within the study area. Of persons employed within Southam R.D., private transport is the dominant form of travel to work, with the car being shown as very important - as were motor and pedal cycles. Travel by foot is also significant in a number of parishes, giving evidence both of small pockets of local employment and of the unsuitable nature

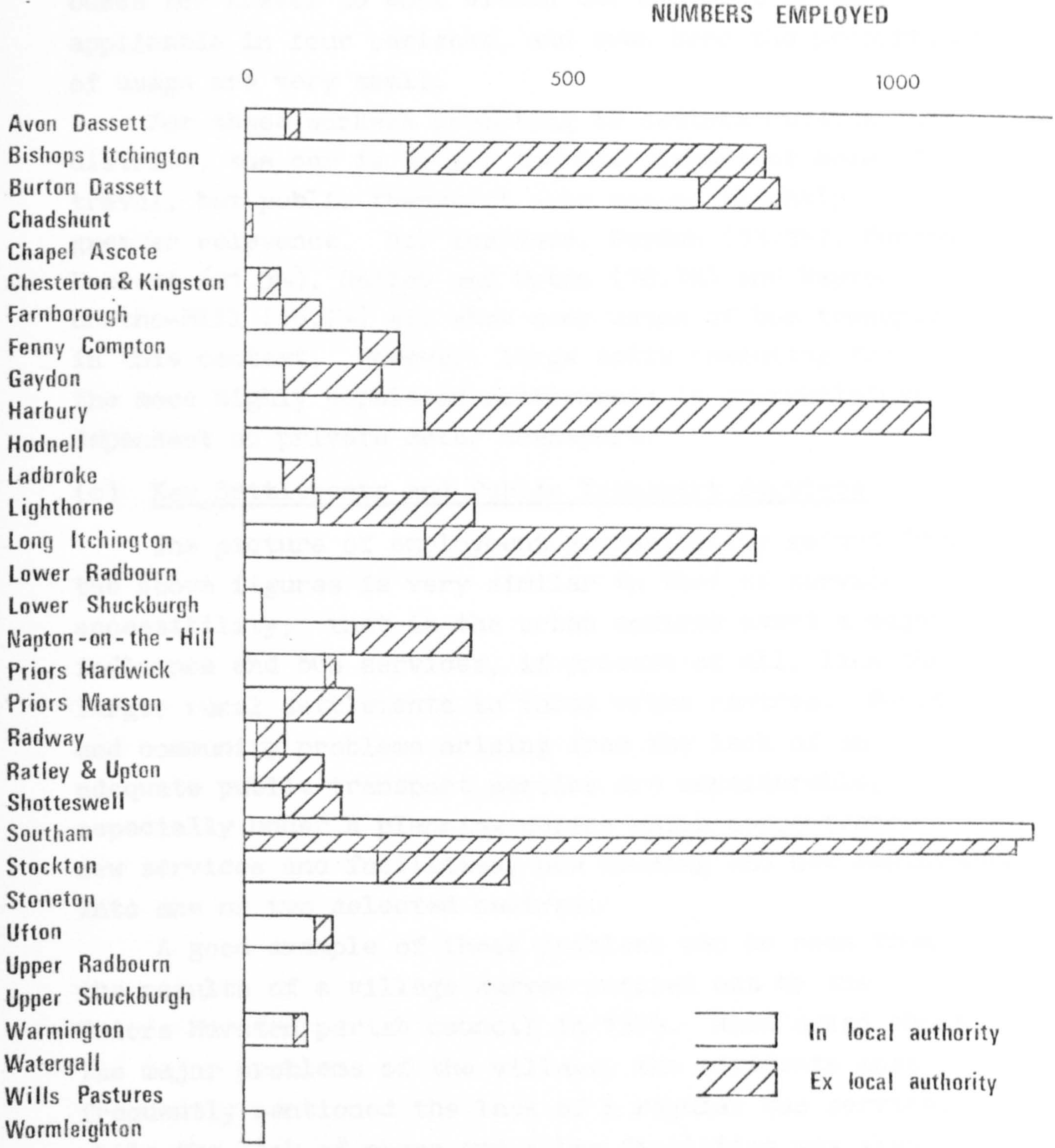


Fig. 7·5 Employed Persons Working Inside And Outside Southam R.D.

of the public transport systems. In fact the use of buses for travel to work within the district is only applicable in four parishes, and even here the proportions of usage are very small.

For those workers commuting to centres outside the district, the car is by far the most important mode of travel, but public transport does assume slightly greater relevance. For instance, Gaydon (33.3%), Burton Dassett (21.5%), Ratley and Upton (18.2%) and Napton-on-the-Hill (16.7%) all show some usage of bus transport in this context. However, large scale commuting from the more highly populated settlements is overwhelmingly dependent on private motor transport.

(c) Key Settlements and Public Transport Services

The picture of employment accessibility gained from the above figures is very similar to that of service accessibility; that is the urban centres exert a major influence and bus services, if present at all, link the larger rural settlements to these urban centres. Social and community problems arising from the lack of an adequate public transport service are considerable, especially under a planning policy which concentrates new services and facilities, new housing and new employment into one or two selected centres.

A good example of these problems can be seen from the results of a village survey carried out by the Priors Marston parish council in 1974. When asked about the major problems of the village, the residents most frequently mentioned the lack of a regular bus service, while the lack of shops and other facilities was also thought to be an important disadvantage. The first priority for future action by the Parish Council was thought by residents to be to subsidise a bus service. Obviously, the problems of reaching centralised services and facilities are acute for non-mobile groups in villages such as Priors Marston, and with little new housing (especially council housing) being built, the socio-economic structure of the settlement is likely to change under the influence of the key settlement policy.

If the key settlement policy is to be more than a mere planning expedient in this area, then a new dynamic approach to rural linkage would seem to be required. At present, the policy relies on existing transport systems to provide connections between hinterland and centre but this laissez-faire approach has restricted Bishops Itchington to being a centre for new housing rather than a comprehensive key settlement. Southam is better served by transport but there remains a number of amall settlements out of its reach. Rural linkages are the most important problem for the planners if a key settlement policy is to be both economically effective and socially acceptable, and this point is returned to in the conclusions drawn in Chapter 11.

THE SPREAD OF DEVELOPMENT OPPORTUNITIES FROM SOUTHAM

Having highlighted the social and community problems existing under the key settlement policy it is now appropriate to consider the suggested benefits from such a policy in terms of the spread of development opportunities to the peripheral settlements as postulated in Hypothesis 3. The theoretical justification for this hypothesis is explained in Chapter 2 and may be summarised as follows. The influence of a small scale growth centre in the rural context is likely to display a trend of distance-decay since those rural settlements nearest to it will have the highest levels of transport linkage and therefore will be in the best position to take advantage of service and employment concentrations in the growth centre. Consequently, housing development will occur in these locations of highest opportunity.

Inevitably this theoretical background may be challenged, particularly on the grounds that spatial patterns as described above are often overridden both by artificial planning decisions and by the greater influence of higher order urban centres. However, the hypothesis merits statistical testing because the ability of rural centres to spread some of their centralised benefits to the less privileged hinterland settlements is

an integral question in the moral and philosophical discussion concerning the key settlement policy. If the centralisation of investment into key settlements necessitates deprivation and loss of opportunity in non-selected settlements then the policy may need to be reviewed on moral or philosophical grounds, but if the spread of key settlement benefits enables the upkeep of levels of opportunity in rural areas in stringent economic circumstances then the policy may continue to dominate the planning of rural areas in years to come.

(a) An Index of Rural Development

In order to test Hypothesis 3 a series of interlinked statistical tests were undertaken which owe much to a recent paper by Moseley (1973A). The first stage of this series was to produce a variable which gives some calculation of the level of development opportunity in the various parishes of the study area. This was done by the construction of an "index of rural development" using similar methods and techniques as were used in the "index of rurality" (Chapter 4). Twenty variables representing population, household, service and employment characteristics were selected as being indicative of the state of development in individual villages. Previous analyses suggested that these phenomena were important in the development of rural areas and so they were combined into a data set for inclusion into a principal components analysis. Table 7.4 lists these variables and their loading scores onto the principal component of rural development, which explained 44.6% of the total variance. All but two of the variables were of acceptable strength for inclusion in the index, with only the indicators of pensionable age groups and of agricultural employment being of too random a distribution for the specific purposes of the analysis.

From this point, the indexation procedure outlined in Chapter 4 was followed. The loading scores were used as weights for the individual variables which were then matched against the raw data for each parish. Finally, the index score for each parish was standardised producing a range from +30 to -12.

Table 7.4 Variable input for index of rural development

1.	Numbers of households in council housing	.88307	-0.7759 ***
2.	Dwellings granted planning permission, 1971-76	.82880	-0.7405 ***
3.	Number of 1- year migrants within local authority	.77529	-0.6768 ***
4.	Primary school	.76527	-0.6786 ***
5.	Primary bus service	.76169	-0.7066 ***
6.	% more than 2 person households	.74275	-0.1433
7.	% dwellings with 3 basic amenities	.72552	-0.5081 **
8.	Doctors surgery	.71730	-0.6889 ***
9.	General store/post office	.71695	-0.7210 ***
10.	% owner occupied housing	.70520	-0.2288
11.	% households with one or more cars	.68932	-0.0969
12.	Population change 1971-75	.68258	-0.6902 ***
13.	Chemist	.62037	-0.5996 ***
14.	Bank	.61042	-0.6038 **
15.	New employment 1971-75	.57676	-0.5996 **
16.	% unemployment	.57429	-0.7492 ***
17.	% employed persons working in local authority	.51044	0.3358
18.	Number of 1- year migrants into local authority	.49571	-0.6883 ***
19.	% population over age 65	.46119	--
20.	% in socio-economic groups 13, 14 and 15 (agricultural occupations)	-.01961	--
Component 1 - index of rural development			-0.8050 ***

Levels of significance

** 99%
*** 99.9%

This index would appear to give a good representation of a conglomeration of the four major facets of rural life; but it must be remembered that the accuracy of an index of this kind is dictated by the input variables. In this case the index ranking corresponds closely (but not entirely) with the results of the cluster analysis (Figure 7.1) and so it would seem reasonable to use the index as a basis for further analysis.

(b) The Correlation and Regression Stages

In order to assess the spread of development opportunities from the key settlement, the index of rural development has to be viewed in the context of proximity to the rural growth centre, that is Southam. Simple

regression analysis was used to investigate these factors. Moseley (1973A, 66) warns that the validity of the regression relationship "depends upon certain assumptions notably the absence of measurement error, the linearity of the hypothesized relationship and the randomness of the errors in the regression equation (the autocorrelation problem)". The problems caused by the nature of this particular data set are discussed where encountered in the text.

Table 7.4 sets out the correlation coefficient between the dependent variables (the index of rural development and each of its constituent parts) and the independent variables of distance from Southam. The logarithmic value was used for the latter since trends of distance decay are typically curvilinear in nature. The highly significant inverse correlations between most of the dependent variables (particularly their agglomeration in the index of rural development) and distance from Southam lend considerable support to the supposition that the opportunities for the essentials of rural living do decline as proximity to the key settlement decreases, and therefore that the presence of the key settlement increases opportunities for those settlements within its range.

An immediate rider must, however, be added to this hypothesis. In order to achieve these high levels of correlation significance the eight smallest parishes, these being the seven Cluster 5 parishes plus Upper Shuckburgh (Figure 7.1), were omitted from the analysis on both theoretical and statistical grounds. These parishes are mainly agricultural and do not contain a recognisable settlement and therefore they are likely to exhibit extremely low levels of development opportunity wherever their location. They are thus theoretically extraneous to this particular analysis. Statistically, both the absence of measurement error and the linearity of the hypothesized relationship would have been compromised by the inclusion of these parishes. Thus, although the number of unit parishes to be considered was reduced to 23 with resultant problems of the number

and distribution of data points, it was felt that if these parishes were given similar weight to those containing substantial settlements then any development surface trends that were present in the analysis would be obscured.

A regresssion of the index of rural development against the logarithmic distance from Southam produces an r^2 value of 0.6479 which with the appropriate number of degrees of freedom appears to be significant. Therefore, the hypothesis that key settlements play a measureable role in the occurrence of development opportunities in rural settlements is further supported to an extent which permits a third analytical dimension to be attempted.

(c) Trend Surface Analysis

Trend surface analysis is "a procedure by which each map observation is divided into two or more parts: some associated with the 'larger-scale' systematic changes that extend from one map edge to the other, and others associated with 'small-scale' apparently non-systematic fluctuations" (Krumbein and Graybill, 1965 quoted in King, 1969, 152). In straightforward terms, trend surface analysis in this instance is a three dimensional regression analysis with geographical co-ordinates being added to the previously considered variables of distance and rural development. This further dimension allows the estimation of a trend surface rather than a trend line, and thus is highly suited to a problem such as the measurement of the spatial spread of development opportunities in rural areas.

Norcliffe (1969) in a critical appraisal of the use and limitations of trend surface models in spatial disciplines, warns that this technique has often in the past been used in inappropriate and inaccurate circumstances, resulting in some very misleading calculations. He therefore outlines several objectives, concerning both the tool itself and the data to be analysed by it, which are required to be met before trend surface analysis can be used with any confidence.

Firstly, trend surface models should be used to test rather than to create hypotheses.

> "It is important that one should have some theoretical notions concerning the functional relationships involved, and therefore of the type of surface which one expects will best fit a given situation." (Norcliffe, 1969, 340)

This requirement is apparently met to a suitable degree by the theoretical discussion in Chapter 2, which led to the original hypothesis that the trend surface analysis is being called upon to test.

Norcliffe further warns that it is desirable that data points in a trend surface analysis should be more or less evenly distributed within the map area, and consequently that clustered data are to be avoided on the grounds that some areas may be over-represented and others under-represented. Any such uneven representation "can, in some circumstances, lead to a surface's showing a spuriously good fit" (Norcliffe, 1969, 342). It can be seen from Figure 7.1 that no evident clustering exists in the selected parish data points, even accounting for those parishes which were withdrawn from the analysis.

Another problem with trend surface analysis concerns autocorrelated data. One of the most frequent uses of this type of analysis is to separate regional from local components, with the trend surface representing the regional element while the residuals from the regression surface isolate local influences. However, Norcliffe suggests that "if a marked local component is identified by a clustered group of residuals, then the observations are autocorrelated and one has violated one of the fundamental assumptions required by the model if any inferences are to be drawn" (p.344). In order to combat this problem, this analysis follows Moseley's technique of considering as significant only those trends which meet the 99% significance level. The explanatory power of these trends is sufficient to overcome the pitfalls of autocorrelated data.

The final criterion expounded by Norcliffe deals with the number of data points included in the analysis,

and this point is perhaps the most crucial consideration in the use of trend surface analysis in rural situations. If too few data points are used, the resultant trends will be of diminished significance because of under- and over-representation of certain areas. No minimum number of data points is suggested, although 30 observations is the lowest point on Norcliffe's table of minimum explanation levels of non-random trends for power series trend surface maps. However, trend surface analysis was undertaken on 23 parishes in the Southam area on the basis of two arguments. Firstly, the number of degrees of freedom is accounted for in the measurement of significance using F-tables. A higher proportion of variance must be explained in the regression equations to achieve an appropriate degree of significance using small numbers of data points. Nevertheless, if that degree of significance is attained then trends inferred from the analysis may be accepted. Secondly, few key rural settlements will include a large number of settlements in their hinterland, and if this powerful technique is to be used in the rural idiom, small numbers of data points must be accepted. Nevertheless, the problem of scale does diminish the strength of the analysis, and also precludes the greater explanatory power available when the study area is divided into quadrants around the growth centre.

(d) Trend Surface Analysis and Southam Rural District

The trend surface model may be expressed in equation form:-

$$Z_{ij} = a(N_i, E_j) + e_{ij}$$

where Z_{ij} = observed value of the dependent variable

N_iE_i = the geographical co-ordinates of the observation

e_{ij} = the residual

a = parameter of the regional trend

The actual surface is defined by polynomial expressions usually involving the first, second and third-order terms. Thus:

$Z_1 = a + bN + cE$ (the linear surface)
$Z_2 = a + bN = cE + dN^2 + eNE + fE^2$ (the quadratic surface)
$Z_3 = a + bN + cE + dN^2 + eNE + fE^2 + gN^3 + hN^2E + iNE^2 + jE^3$ (the cubic surface)

When expressed in these terms the parameters for the linear quadratic and cubic surfaces may be calculated by multiple regression analysis. The surfaces obtained for the Southam area are shown in Figures 7.6 to 7.8 with double units of the index around the mean being portrayed in each case.

Table 7.5 shows that according to the confidence limits imposed by Norcliffe, only the cubic surface attains the required level of significance.

Table 7.5 Trend surface results

	Percentage variation explained	Significance according to 99% F-distribution
Linear surface	19.7%	Not significant
Quadratic surface	49.7%	Not significant
Cubic surface	71.0%	Highly significant

The linear surface is clearly insignificant showing merely a dip in the surface of rural development from NNE to SSW. Although not sufficiently significant in statistical terms, the second order equation does give a further dimension to the trend. A peak begins to appear around Southam parish with the surface sloping away in all directions, particularly to the immediate south-east.

However, it is the cubic surface which appears to have the greatest explanatory power. This third-order expression if found to be significant at the exacting 99% level, and thus may be accepted as outlining some of the trends occurring in the surface of rural development in the Southam area. As hypothesized, the spread of development opportunities does show a function of distance decay with a definite peak occurring around the Southam parish and a slow rate of decline over immediately adjacent parishes. The surface shows a faster rate of decline in the north-east and central southern parts of the study area.

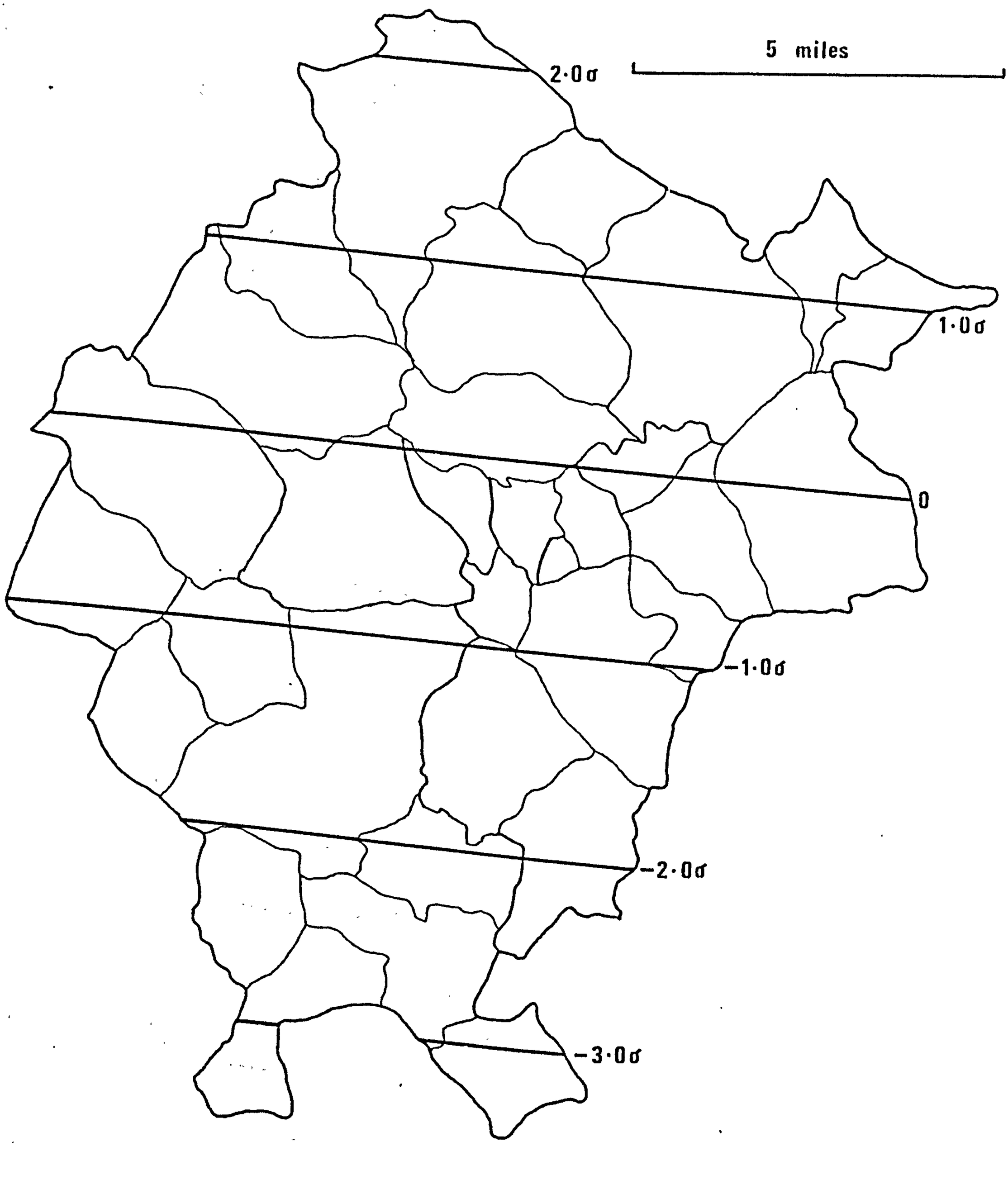


Fig. 7·6 Linear Trend Surface

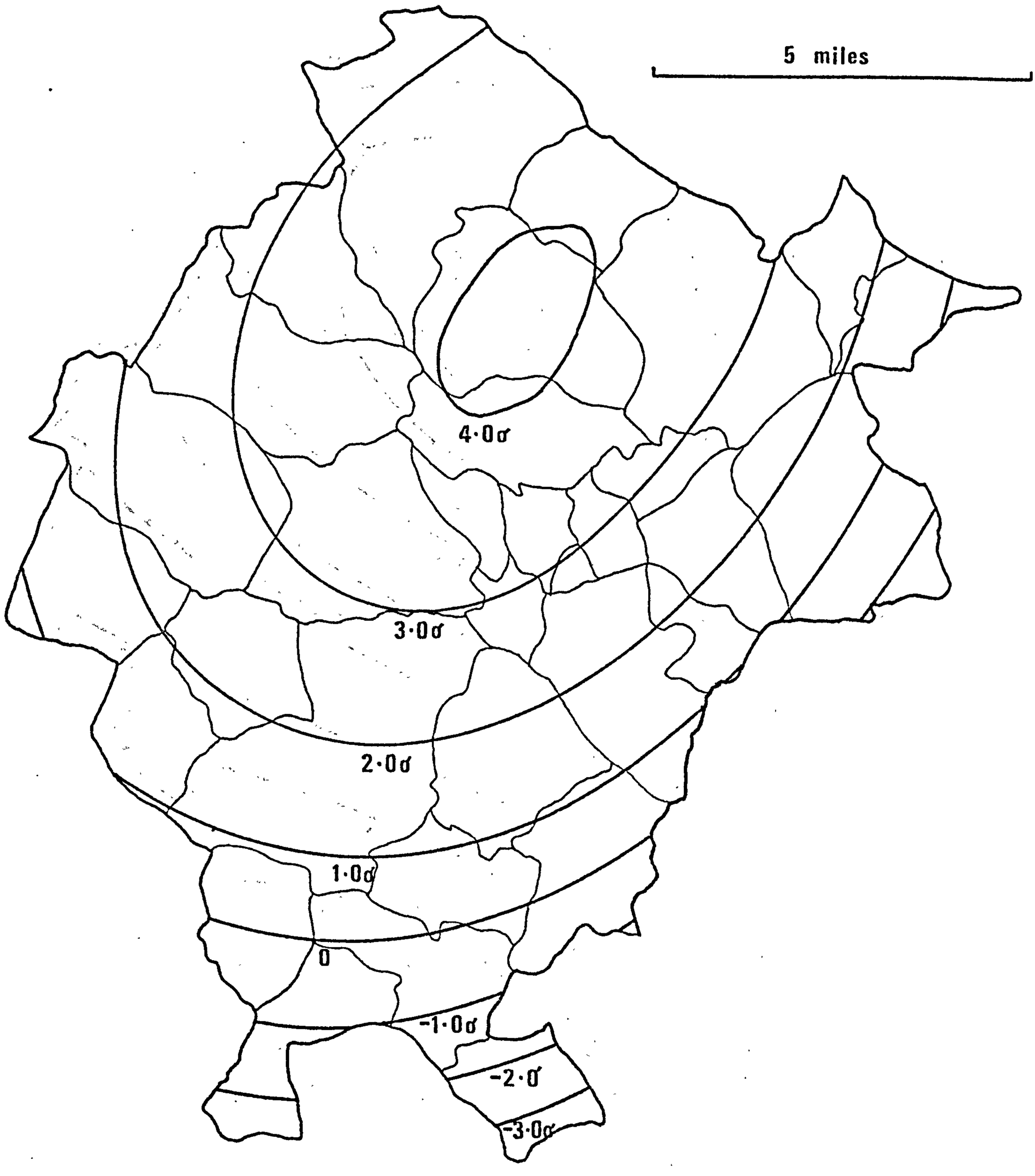


Fig. 7·7 Quadratic Trend Surface

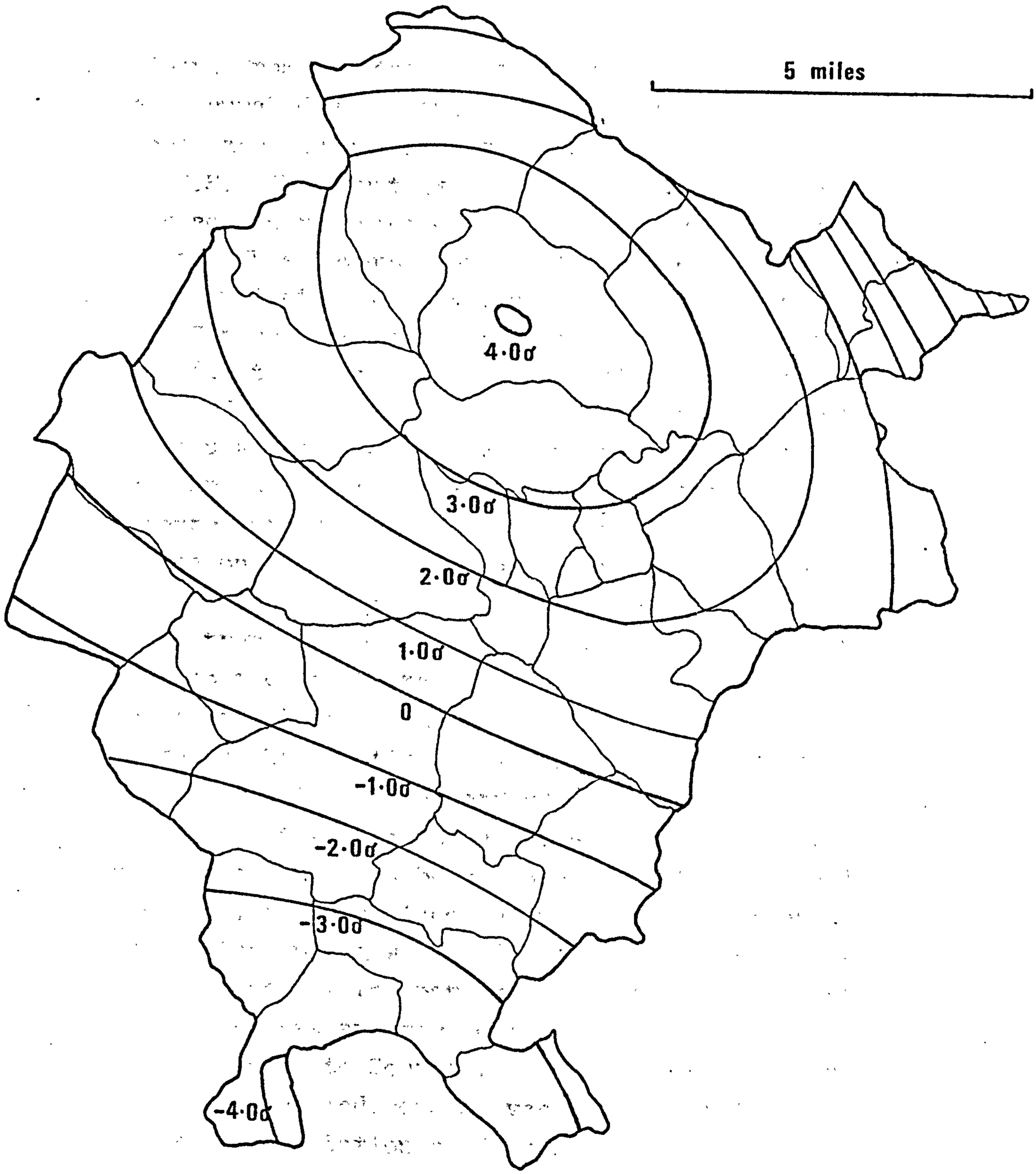


Fig. 7·8 Cubic Trend Surface

Apart from the fact that the expected surface and slope of rural development do occur, two other important phenomena are visible from the cubic formulation in Figure 7.8. The first is the peripheral upturn in the surface in the south-east and sowth-west parts of the area. This reversal of the linear and axial trends may well indicate the influence of large settlements such as Banbury (in the sout-east) and perhaps even Kineton (in the south-west). Secondly, the contouring of the surface suggests a positive peak in the north of the study area and a trough in the south, with a marked threshold line between these two formations. This band represents the very outer limit of Southam's influence on its peripheral area, and beyond this point the links with Southam become very tenuous indeed.

The trend surface analysis then, appears to lend support to the second hypothesis, and although a study of the residuals from the cubic surface reveals localised peaks, particularly Harbury, it is evident that proximity to Southam affords the maximum opportunities for development within the study area. It might be imagined that what has been measured in this analysis is, in fact, the disguised influence of the urban node of Leamington Spa/Warwick. Indeed, it has been suggested above that many of the parishes in the north and west of the study area are more effectively linked in Leamington than to Southam. However, proximity to Leamington as an independent variable did not give such strong correlation coefficients or explain a high proportion of variance in a regression analysis. Nevertheless, Southam itself owes much of its prominance to the nearness of Leamington and so the influence of the larger centre cannot be discounted and should not be underestimated.

One final point should be stressed concerning this application of trend surface analysis. In the past, the interpretation of trend surfaces has frequently been over-rigid resulting in local or regional phenomena being mistaken for universally applicable events. Therefore,

it must be said that the presence of a non-random trend surface of development around Southam does not prove that this key settlement is necessarily spreading opportunities and benefits to surrounding parishes. An alternative explanation could be that these proximal settlements have been permitted high levels of development under previous planning policies, and that this previous standing is reflected in the surface. This particular aspect was anticipated in the index of rural development which laid particular emphasis on dynamic trends during the key settlement period, but the whole question of how far the local scale ramifications of the key settlement policy as a whole may be evaluated on the effectiveness of one or two particular key settlements is discussed further in the concluding chapter. It is certainly clear that further use of the trend surface technique at this scale is required before any definitive policy assessment can be produced in this analytical fashion.

CHAPTER 8

THE DEVON KEY SETTLEMENTS POLICY

The rural areas of Devon reached a population peak around 1851, and since that time there has been a general pattern of declining rural population. Inter-war planning in Devon amounted to an attempt to assess and preserve the scenic qualities of the county (Thompson, 1932) and so it was not until the formulation of the County Development Plan (Devon County Council, 1953) that the problems afflicting the rural settlements were formally recognised.

It would appear that the Development Plan placed a good deal of emphasis on Devon's rural settlements. A survey of rural facilities was undertaken, which when analysed reached the conclusion that

> "a village with a population of 500 or over was definitely a local centre with a fairly well balanced community having facilities for a sound social life" (p.15).

However, the formulation of a positive rural settlements policy was delayed until a deeper study of the rural community structure could be undertaken. As with many rural counties, the lack of adequate planning resources, when coupled with an underestimation of the problems pervading the rural areas, resulted in a lack of urgency when formulating rural settlement planning policies.

THE COUNTY DEVELOPMENT PLAN - FIRST REVIEW

The First Review of the Development Plan (Devon County Council, 1964) undertook an in-depth study of rural community structure and used the results as a basis for the formulation of a rural settlements policy. The very fact that such a survey was carried out gives some idea of the heightened awareness in planning circles of the need for more corporate planning policies in rural areas. This awareness must in part have been due to the publication of the 1961 Census with its evidence of continuing depopulation in rural Devon. In addition the work of researchers such as Saville (1957)

and Mitchell (1951) in the academic field had gone a long way towards an explanation of rural population loss and had pointed out that positive management of rural areas was a desirable starting point for the solution of this problem.

The rural community survey gathered information concerning a wide spectrum of rural life, especially relating to:

> "the extent of residential development since 1951; the availability of facilities such as the number of shops, community centres, schools, doctors' surgeries and health centres; the availability of mains water, electricity, drainage and gas; centres visited for weekly shopping; and major sources of employment." (Devon County Council, 1964, 45).

From the results of this survey, several variables were selected as being indicative of the social condition of a rural settlement. The report stated that "a thriving rural community should possess the following facilities and services:

(i) Public utilities - mains water, electricity and sewerage;
(ii) Social facilities - primary school, places of worship, village hall, and possibly a doctor's surgery;
(iii) Shops, for day-to-day needs and post office;
(iv) Employment either in the village or conveniently situated nearby." (p.45).

However, in order to create such thriving rural communities the planning of the rural areas had to be modified from the laissez faire attitude adopted by the initial Development Plan. Up to this point, council house building had been in the form of small estates wherever an immediate need existed, and public utility services such as sewerage schemes had often been carried out in settlements that were unsuitable for further growth. Locational decisions such as these led to a spread of public investment right through the settlement pattern and created a precedent (especially in the case of sewerage schemes) for further development on a dispersal basis. The First Review decided that this form of

investment failed to take full advantage of available resources and so a rural settlements policy was proposed that would "ensure that services, facilities and new development are provided or maintained in the most appropriate places and that these various efforts to improve the environment support each other." (p.46).

The formation of a policy of this nature had to take several factors into account. Principal among these factors was the stemming of rural depopulation which was considered the chief of all rural ills; but the changing function of the village, the decline in agricultural jobs and the need for alternative employment opportunities, and the contraction of public transport were also considered. The emergent policy consisted of the selection of 68 key settlements which would be the only rural locations for major extensions of residential development and public utilities. Any appropriate industry requiring a rural location would be channelled into these key settlements which would also act as centres for social services such as police and general practitioner facilties. So, as with Warwickshire, the Devon policy aimed at a comprehensive role for its key settlements in the fields of housing, services, employment and (implicitly) conservation of settlements unsuitable for growth. As it was, the comprehensive nature of the policy was dependent on the availability of employment in or near the key settlements, and little indication was given at this stage as to the steps to be taken to attract new employment opportunities into the key settlements.

They key settlements themselves were simply one order in a growth centre hierarchy which also included higher order sub-urban centres, coastal resorts, key inland towns and subregional centres. Of particular interest in the context of the key settlements are the key inland towns which were programmed for both residential and industrial growth and would thus serve as the centres for employment and non-essential shopping around which most of the satellite key settlements would revolve.

At the lowest level of the rural settlement hierarchy all non-key settlements were classed together as being locations where "further residential development should be restricted" (p.48). Permission for development was only to be granted to relieve a particular need, after consideration of the extent to which criteria such as "availability of public utilities and social services, the adequacy of approach roads and public transport together with their location in relation to key settlements and urban centres" (p.48). On the face of it, this policy adopts a strict attitude towards the non-key settlements, as the criteria quoted are the very factors influencing the selection of the key settlements and so those settlements not singled out as being suitable for growth are likely to be lacking in the infrastructural requirements for non-key settlement growth. However, as will be seen later, this was not strictly the case.

SELECTION OF THE KEY SETTLEMENTS

The First Review clearly states that "the selection of key settlements will depend on the following criteria:

(a) existing social facilities, including primary (and in some cases secondary) schools, shops, village hall and doctors surgery; and public utilities (gas, water, electricity, sewerage);

(b) existing sources of employment (excluding agriculture) in or in the vicinity of a village;

(c) their location in relation to principal traffic roads and the possibility that new development may create a need for a by-pass;

(d) their location in relation to omnibus routes or railways providing adequate services;

(e) their location in relation to urban centres providing employment, secondary schools (where not provided in the key settlement itself), medical facilities, shops and specialised facilities or services. A town will provide all services and facilities which one would expect to find in a key settlement. Key settlements are not appropriate near main urban centres;

(f) their location in relation to other villages which will rely on them for some services;
(g) the availability of public utilities capable of extension for new development;
(h) the availability and agricultural value of land capable of development; and
(i) the effect on visual amenities."

Considering the relative paucity of experience and expertise in the planning of key settlements that was available to planners at that time, this list of criteria appears to be a commendable attempt to account for all parts of the planned rural system in the selection of the key settlements. It cannot be stressed too often that the success or failure of any key settlement policy may largely be due to the wisdom of the original selection of the constituent growth centres. The First Review makes no mention of how the above list of criteria was translated into a decision for or against growth in any particular settlement. Whether the nine groups of variables were given equal emphasis or whether weighting procedures were used is not known. The extent to which the above criteria were compromised in favour of an even geographical spread of growth centres is also unexplained. It therefore seems appropriate that the selection of the key settlements should be examined in a little greater detail both in terms of the choice of one settlement from many in a specific area, and of the number and geographical location of settlements that were favoured in the First Review of the Development Plan.

(i) <u>Selection of Individual Key Settlements</u>

In the case of Warwickshire, it was found that many of the discriminating variables in the key settlement selection procedure were positively associated with the population size of the individual settlements. As many of the variables used in the selection of Devon's key settlements were duplicated in the Warwickshire method, it would seem likely that population size would have been a significant factor in the Devon selection process. Table 8.1 sets out the highest 1961 Census parish populations

Table 8.1 Populations of Rural Settlements By Rural District, 1961.

	Population	Key Settlement
Axminster R.D.		
Colyton	1922	*
Beer	1453	
Uplyme	1243	
Chardstock	1207	*
Barnstaple R.D.		
Fremington	4409	*
Combe Martin	2228	*
Mortehoe (including Woolacombe)	1285	*
Bratton Fleming	488	*
Parracombe	309	*
Bideford R.D.		
Hartland	1326	*
Parkham	568	
Buckland Brewer	515	*
Woolfardisworthy	505	*
Crediton R.D.		
Crediton Hamlets	1082	
Sandford	982	
Morchard Bishop	780	
Newton St. Cyres	758	
Crediton R.D. ctd.		
Lapford	612	*
Bow	608	
Cheriton Fitzpaine	545	*
(Copplestone - no equivalent parish)		*
Holsworthy R.D.		
Bradworthy	697	*
Holsworthy Hamlets	630	
Broadwoodwidger	589	
Ashwater	569	
Pyworthy	467	
Black Torrington	429	
Halwill	407	*
Milton Damerel	388	
Bridgerule	366	
St Giles on the Heath	345	*
Honiton R.D.		
Branscombe	626	
Broadhembury	556	
Upottery	461	*
(Sidmouth Junction - no equivalent parish)		*

Ctd./....

Table 8.1 continued

	Population	Key Settlement
Kingsbridge R.D.		
Stokenham	1314	*
Modbury	1077	*
Malborough	793	*
Thurlestone	685	*
Stoke Fleming	683	*
Loddiswell	637	*
Newton Abbot R.D.		
Kingsteignton	4833	
Kerswells	3694	
Bovey Tracey	3357	*
Chudleigh	2053	*
Moretonhampstead	1541	*
Bishopsteignton	1451	
Ilsington	1384	
Ipplepen	1128	*
Okehampton R.D.		
Chagford	1346	*
South Tawton (incl. Sticklepath/ S. Zeal)	1260	*
North Tawton	1098	*
Okehampton Hamlets	992	
Hatherleigh	984	*
Sampford Courtenay	707	

	Population	Key Settlement
Okehampton R.D. ctd.		
Drewsteignton	625	
Bridestowe	505	*
Northlew	499	*
Plympton St. Mary R.D.		
Newton and Noss	1842	
Wembury	1452	
Ermington	1245	
Brixton	1071	
Yealmpton	1060	*
St. Thomas R.D.		
Exminster	3302	
Woodbury	2736	*
Broadclyst	2332	*
Kenton	2055	*
Lympstone	1620	
Newton Poppleford	1021	*
Ken	959	
Whimple	885	*
Alphington	765	
Whitestone	750	
East Budleigh	673	
Otterton	611	
Christow	607	*
Ide	598	

Ctd./...

Table 8.1 continued

	Population	Key Settlement
St. Thomas R.D. ctd.		
Dunsford	572	
Tedburn St. Mary	559	*
Stoke Canon	336	*
South Molton R.D.		
Chulmleigh	960	*
North Molton	855	*
Chittlehampton	713	*
Bishops Nympton	708	*
Witheridge	699	*
Burrington	444	*
Tavistock R.D.		
Buckland Monachorum	2687	
Lydford	2059	
Bere Ferrers (including Bere Alston)	1976	*
Horrabridge	1397	*
Lifton	841	*
Mary Tavy	763	*
Tavistock Hamlets	699	
Milton Abbot	614	*
(Princetown - no equivalent parish)		*
Tiverton R.D.		
Bradninch	1663	
Uffculme	1663	*
Bampton	1517	*
Halberton	1268	
Silverton	1248	*
Hemyock	1063	*
Torrington R.D.		
Winkleigh	934	*
Shebbear	589	*
Langtree	463	
Ashreigney	421	
Dolton	415	*
St. Giles in the Wood	414	
High Bickington	410	*
Merton	292	*
Totnes R.D.		
Ugborough	2051	
South Brent	1803	*
(Harbertonford - no equivalent parish)		*

for each rural district and compares these populations with the equivalent settlements which were selected as growth centres. Four key settlements did not correspond to a parish area and so were not included in the analysis. As in the Warwickshire population analysis (Chapter 5) a gap in the parish listing represents the occurrence of a number of other settlements between two key settlements.

Table 8.1 suggests that two distinct levels of reasoning can be seen behind the selection of Devon's key settlements. These might be described as the recognition of existing resource locations and potential resource locations in the rural settlements hierarchy. The selection of existing resource locations as key settlements for future growth is clearly demanded by criteria a) to g) (listed above) on which key settlement selection depended. This level of reasoning can be easily discerned from the parish population totals. Axminster, Bideford, Kingsbridge, South Molton, Tavistock and Totnes rural districts all devote their quota of key settlement designations to those settlements with the highest populations. Few exceptions can be seen in these rural districts, but those which do occur are interesting in themselves. It might have been expected that settlements such as Parkham (Bideford R.D.), Buckland Monachorum and Lydford (Tavistock R.D.) and Ugborough (Totnes R.D.) would have been selected as key settlements under the same reasoning. However, on further examination these settlements are situated adjacent to other growth centres and so were passed over.

Potential resource locations were selected when the need for a geographical spread of key settlements was not satisfied by larger existing resource locations. This reasoning was hinted at by criteria f), h) and i) and can be seen in the key settlement selections in Crediton R.D. where the four largest settlements were disregarded in favour of a more even spread of smaller key settlements. More commonly, rural districts are found to exhibit a combination of the two selection

rationales. For instance, the three largest rural settlements in Barnstaple R.D., all over 1000 population, were selected as key settlements along with Bratton Fleming and Parracombe with populations of 488 and 309 respectively. Similar, if sometimes less extreme, differences are exhibited by the key settlements of Holsworthy, Okehampton and Tavistock rural districts.

Several important points are raised by these two differing locational types of key settlement. Firstly, the original Development Plan for Devon suggested 500 as the threshold population for a socially balanced and well serviced local centre. However, it is noted in Table 8.1 that at least 11 key settlements do not meet this population threshold, the extreme example being Merton (Torrington R.D.) with a population of 292. Three possible explanations may be offered for this apparently contradictory situation. Either these settlements all had large existing planning permission commitments, or it was hoped to build these smaller settlements up into higher order service centres, and thus fulfil their location potential, or else the association between population and the key settlement criteria is not as powerful as in pressured rural areas such as exist in Warwickshire.

No mention is made of any consideration of existing commitments but it is probable that some account may have been taken of this factor. However, it is quite possible that in isolated rural areas, a settlement of relatively small population size will have traditionally acted as a centre of services and facilties for a sizeable surrounding area, in which case the designation of key settlement status can only improve the situation in this rural system. On the other hand, it may be that key settlement status was inflicted somewhat indiscriminately on unsuitable small settlements so that a comfortably even distribution of rural growth centres could be seen on the map of Devon. Hopefully, later analysis relating to service levels in different parishes will go some way towards resolving this debate.

Another major theme to emerge from the population analysis concerns the wisdom of selecting some of the larger size band of key settlements where existing resources were located. The extreme example of this size group is Fremington, with a population of 4409 in 1961, but it is noticeable that there are many key settlements with well over 1000 population. A suspicion arises that some of these settlements having missed selection as key inland towns or coastal resorts, usually on the grounds of their proximity to other centres, had to be designated as key settlements in view of their size and consequent ability to create political pressure. The alternative classification for these settlements would have been as "other towns" and this might have led to growth restrictions in the settlements at some later date, and perhaps would be seen as a less desirable title than the key settlement designation. Besides, "other towns" were planned to serve a rural hinterland of 5000 population and many of the large settlements in question do not meet this criterion. However, an answer is demanded from the later stages of analysis as to whether large settlements which act as commuter settlements for higher order centres, and thus tend to have more upward than downward linkages within the settlement hierarchy, can successfully fulfil the role of key settlements.

(a) <u>The County Pattern of Key Settlements</u>

The number and geographical location of the selected key settlements has been one of the major criticisms of the Devon policy. Twelve years planning experience of key settlements has tended to reach the intuitive conclusion that too many key settlements were originally selected and that consequently the intermediate distances between growth points were too small. It is important, then, to reach some conclusion as to a more suitable level of key settlement provision, but this can only be done by looking at the original decision and discovering whether changing circumstances have produced an outmoded key settlement pattern.

The First Review of the Development Plan gives no indication as to the reason for selecting 68 key settlements nor of the justification for the geographical distribution of these centres. Certainly, no rural population growth target is assumed, as in the Warwickshire policy. Indeed, the very nature of the policy suggests that key settlements were an unknown quantity, and so rather than limit them to a certain number, the decision seems to have been made to allow any settlement which was capable, or potentially capable, of acting as a service centre to be given the chance to prove itself.

Table 8.2 analyses the key settlement situation in each rural district. Clearly, the number of key settlements selected is related to both area and population size of the district. Those districts adjacent to centres of urban population and thus with relatively high rural populations have less key settlements per head of population than do the more problematical districts with low base populations at low densities.

Other variations are highlighted by the use of nearest neighbour analysis on the pattern of key settlements within each rural district. An analysis of the county as a whole would be misleading in this context as it would be greatly influenced by variations in topography and population density. However, the rural districts provide a convenient areal measure for the detection of internal variation in key settlement patterns within the county. The nearest neighbour analysis matches a point pattern over an area against a pattern produced at random for the same area. An index is produced ranging from 0, which indicates a closely clustered pattern, through 1, which denotes a random pattern, to 2.15, where all points are uniformly distributed throughout the area and are therefore as far away from each other as possible (Hammond and McCullagh, 1974). The nearest neighbour index scores for Devon, which range from 0.8 to 2.1 (Table 8.2) indicate the presence of a reasonably uniform level of key settlement distribution. Apart from Axminster R.D. where

Table 8.2 Nearest Neighbour Analysis By Key Settlements

Rural Districts	Population	Density (Popn/Hectare)	Key S'ments	Higher Order S'ments	Rurality Index 1961	Nearest Neighbour Index	Z Score
Axminster	14,324	0.697	2	1	-3.7733	0.873	0.769
Barnstaple	25,073	0.478	5	1	-2.5061	1.225	0.962
Bideford	5,102	0.226	3	-	-6.8705	1.670	1.217*
Crediton	9,783	0.259	3	-	-2.9482	1.205	0.680
Holsworthy	8,468	0.215	3	1	-8.0555	2.049	3.474**
Honiton	7,070	0.285	2	-	-4.556	1.373	1.011
Kingsbridge	11,738	0.410	6	-	-3.5270	1.444	2.081*
Newton Abbot	25,921	0.693	4	-	-1.2451	1.381	1.460
Okehampton	11,994	0.224	6	-	-6.2182	1.588	2.757**
Plympton St. Mary	12,912	0.530	1	1	3.6099	1.603	1.621
St. Thomas	27,187	0.596	8	-	0.6166	1.726	3.924**
South Molton	11,173	0.224	6	1	-7.5281	1.447	2.096*
Tavistock	21,597	0.348	6	1	-1.8262	1.356	1.611
Tiverton	20,547	0.445	4	1	-3.0783	1.633	2.425*
Torrington	6,944	0.215	5	-	-6.6319	1.794	3.396**
Totnes	13,769	0.412	2	-	-1.6967	1.198	0.756

* significant at 5% level
** significant at 1% level

the two key settlements are clustered around the key inland town of Axminster, the scores represent the tendency towards an even spread of key settlements within each district to the extent that Holsworthy R.D. exhibits an almost perfectly even distribution. Other high scores are found in Bideford, Okehampton, Tiverton and Torrington rural districts, all of which were found to have high negative scores in the 1961 rurality index. Thus in most of the remoter rural areas of Devon the highly even spread of key settlements mirrors the 'natural' central place hierarchy. High nearest neighbour scores are also found in St. Thomas and Plympton St. Mary rural districts which border Exeter and Plymouth respectively. Therefore, it is evident that great emphasis has been placed on the achievement of an even spread of key settlements in the most remote districts and also possibly in those districts under greatesturban pressure.

Having obtained these index scores, it is interesting to determine some measure of the probability that these distributions resulted from 'chance'. King (1969) derives an exact probability through the calculation of a z score which is given by

$$z = \frac{\bar{D}obs - \bar{D}ran}{\sigma_{\bar{D}ran}}$$

where Dobs is the observed distribution of points and Dran is the statistically derived random distribution against which the observed distribution is measured. Table 8.2 shows the distributions which were significant at the 5% and 1% levels and therefore can confidently be said not to have been derived by chance. It is again noticeable that the extreme rural districts, as well as St. Thomas R.D., are those where a significant z score is attained and this demands some explanation for such an even settlement pattern.

Analysis of the selection of Devon's key settlements both by population totals and by the nearest neighbour technique suggest two general trends on which selection

was principally based. Firstly, those rural settlements with the largest populations were selected as the natural service centres in each area. In addition, a number of smaller settlements were selected to fill in the rural spaces between the larger settlements. Nearest neighbour analysis suggests a tendency towards a contrived even distribution of key settlements in many districts, and it is important to judge the performance of the key settlements policy in the light of this suggestion. Certainly, the above analysis allows the hypothesis that the selection procedure was heavily influenced by political pressure both from individual settlements for designation as key settlements, and from rural settlements in general (or more exactly from prestigious persons living within those settlements) for there to be a key settlement within easy reach. Any such pressure might have resulted in too many key settlements with relatively small population hinterlands. Thus public investment would have to be spread too thinly, and the key settlements policy would not be able to fulfil its desired objectives. This hypothesis will be taken up in Chapter 9 where the levels of service, housing and employment provision in Devon's key settlements are analysed in greater detail.

THE COUNTY DEVELOPMENT PLAN - SECOND REVIEW

Six years after the instigation of the Devon key settlements policy, a Second Review was published (Devon County Council, 1970) which, amongst other things, presented the opportunity for a general reappraisal of the rural settlements policy. Over the interim period, population decline in north and central Devon was seen to have been retarded while housing, service and industrial development in the key settlements was judged to be satisfactory. The Second Review judged that a strictly implemented key settlements policy was able to reverse rural depopulation, and in general the Devon policy was seen to have been successfully implemented and was fulfilling the aims expected of it:

> "The Local Planning Authority selected sixty-eight key settlements in the First Review which appeared

> to be the right villages for further development as rural centres; the rapid subsequent decrease in the rate of rural depopulation indicates that the policy has made a comprehensive and correct selection of villages." (Devon County Council, 1970, 30)

Changes in key settlement designations were discussed, but in general any additions to the original 68 settlements were seen to run the risk of "dissipating the level of investment in key villages" (p.30) and thus would weaken the policy, while deletions were generally avoided because of the consequent "waste of investment and the misleading effect such changes will have on the public" (p.30). If these explanations are taken at their face value, it would have been extremely difficult for the planners to reduce the number of key settlements even if this was thought to be desirable. Therefore, over the space of six years the selected key settlements had become firmly entrenched as the centres for rural growth, and existing investment and public opinion were able to perpetuate this situation. Some small scale alterations were made to the policy, resulting in a net loss of three key settlements. Dunkeswell was added to the list while Woolacombe and Chudleigh were moved up the settlement hierarchy and Thurlestone and Northlew were moved down as they were not able to perform the required central place functions.

Mention is also made of five other settlements which were considered for addition to the list of key settlements, but were rejected because they did not satisfy the conditions laid down by the original nine criteria. Three of these five settlements were rejected because they were situated too close to other key settlements or key inland towns, and this point gives further emphasis to the importance attached to an even geograpical distribution of key settlements.

The Second Review did bring about an important modification of the key settlements policy in terms of the attitude adopted towards the non-key settlements. Between 1964 and 1970, 20% of all new housing in Devon had been built in settlements of this category, and

although this increase was due in part to longstanding planning permissions, it was decided to tighten up this part of the policy. This was done by altering the emphasis of the development specification in the non-key settlements from expansion to meet the immediate needs of the settlement, to expansion "to an extent which will depend upon the character of the village or hamlet and the adequacy of services" (p.31). The revised policy made it easier for planners to refuse development in non-key settlements and in this way it was hoped to divert this pressure for growth into the key settlements themselves. However, by adopting this stricter attitude, the planners laid themselves open to the criticism that they were thwarting natural growth in the smaller rural settlements.

The policy as set out in the Second Review has been maintained to the present day and presumably will continue until superceded by the policy for rural settlements to be contained within the forthcoming County Structure Plan. A great opportunity for policy changes is afforded by the possible adoption of new strategies under the Structure Plan. Whereas previously the established policy gathered momentum from its own pattern of investment commitments, the Structure Plan allows a readjustment of policy to suit present and future needs. Thus it will be interesting to see whether the Devon Structure Plan will continue with a similar type of rural settlement policy due to the importance of previous investment and growth commitments in certain key locations (as has been the case in Norfolk), or whether the planners will grasp the opportunity of making radical alterations to the key settlement pattern. The analysis in Chapter 9 attempts a critical review of the past performance of the key settlements policy with a view to possible future policy changes.

As with Warwickshire, it is considered that the strategies adopted by the various public authorities for the provision of public facilities and services form an integral part of the overall rural settlements policy.

Consequently a similar review of education, sewerage and health service provision in rural Devon has been undertaken as an attempt to assess whether the Development Plan policy is as comprehensive in nature as it was actually planned to be.

THE KEY SETTLEMENTS POLICY AND PUBLIC SERVICES

A policy such as the one outlined above, which aims at the comprehensive planning of key settlements in the fields of housing, services, employment and conservation, would need maximum co-operation from public service provision strategies to ensure that the "various efforts to improve the environment support each other" (Devon County Council, 1964, 46). In order to gain some impression as to whether these various strategies were in fact contiguous with the key settlements policy, similar questionnaires to those in Appendix 1 were sent to the following bodies

(a) Devon County Council Education Department
(b) South West Water Authority
(c) Devon Area Health Authority

The reasoning behind the choice of these particular bodies is similar to that expressed in Chapter 5, and it will be possible at a later stage to draw some conclusions as to the variations in public service strategies between 'rural' and 'non-rural' counties. There is no statutory requirement for these bodies to publish any detailed policy (Drake et al, 1975) but the general guidelines on which their policies have been based were discovered through the medium of the questionnaires.

(a) Education Policy in Rural Devon

The general education policy for Devon is clearly set out in the First Review of the Development Plan, and makes special reference to the scattered rural settlement pattern, which it claims "has been a main factor in the formulation of the policy designed to secure an economic distribution of social services, one of the most important of which is education" (p.81). In fact, the minimum provision of educational facilities was expected to be the placement of technical education facilities in regional centres

secondary education facilities in key inland towns, coastal resorts, sub-urban towns, and "other towns"; and primary and area school facilities in key settlements.

The emphasis placed on the key settlements as centres for primary education, especially where schools assume extra mural functions as in the case of area schools, has led to changing patterns in rural education. 3000 is considered by the Education Committee to be the minimum catchment population for a primary school, and thus a considerable area of scattered population may be covered by a key settlement primary school. Consequently, the policy for education provision is likely to result both in the closure of some of the smaller primary schools in non-key settlements and in an increased level of school pupil transportation, although the Education Committee maintain that most of the population are within easy reach of a primary school. Bearing in mind the close-knit and evenly distributed nature of the key settlement pattern, the provision of primary education facilities in key settlements would seem to have been the only credible option open to the education policy makers, even though the cost of new schools does not vary in key and non-key settlement locations.

Five key settlements offered secondary education facilities during the Development Plan period but the major concentration of secondary schooling was located in the higher order settlements. Pupils were not expected to travel for more than 1¼ hours to reach their school, but this limit would appear to be one of expediency since a secondary school would need a threshold population of 12,500 for it to remain viable. A glance at the population size of Devon's rural districts (Table 8.2) gives an immediate impression of the difficulty in providing secondary education for such a scattered population pattern.

The smaller scale policy relationship between new housing and education provision in rural Devon would appear to have been a strained one over the Development Plan period. This was partly due to the planners'

inability to restrict substantial new housing projects to the centres of primary education, namely the key settlements, and partly because of the overriding policy restrictions imposed on the Education Committee by the increasing curtailment of capital and revenue expenditure. Problems have been experienced concerning the timing and rate of development of new housing projects. The time within which planning permission can be given and acted upon is often shorter than the period required to include permanent school accommodation in a building programme and then to complete the building (even where the necessary site is already in hand). Differing rates of development produce a similar effect. Where rates are accelerated, the building programme cannot keep pace, yet where rates are slowed, the gradual growth in school catchment may be met by the provision of unsatisfactory temporary classrooms, as at no point in time is there a sufficient volume of growth to give sufficient priority to a new school or substantial extensions to the existing school.

Difficulties have also arisen from a lack of co-operation over the limits of development in a certain area. Obviously, when making a long term plan for educational provision in an area it is necessary to have access to information concerning planning proposals for future population or housing increase. Any uncertainty as to the limits of this development, or subsequent changes in plans, can easily throw the longer-term educational planning out of joint. Thus in a policy where no growth targets or population change levels are set, a workable system of information exchange and co-operation is a prerequisite for compatible policy formation. That such a system has not been maximised in Devon is the fault of neither party in particular. Clearly the planners were faced with a situation where the location and rate of growth could not be predicted accurately, whereas the planning of educational facilities was necessarily long term because of the perennial insufficiency of capital to meet school building needs

in time. Priorities had to be established which invariably meant that adequate school accommodation followed some way behind housing development rather than being ready at the same time.

The Education Committee have submitted the suggestion to the Structure Plan that educational facilities should be as important a consideration in the location decision for new housing development as sewerage requirements have been in the past. The very fact that education facilities have thus far lacked such consideration has given rise to the situation whereby the overall key settlements policy and the provision of education services have often been out of phase over the Development Plan period. An analysis of the changing pattern of education facilities is included in Chapter 9 and it will be interesting to see whether cases of policy incompatibility have had any apparent effect on the overall working of the key settlements policy.

(b) Sewage Disposal Policy in Rural Devon

The First Review of the Development Plan sets out the major policy directions for the provision of sewerage and sewage disposal facilities in the rural parts of the county. By 1964, most of the larger villages were reported to have water-borne sewerage systems and it was expected that "water-borne sewerage will be extended to all but the smallest villages, and inadequate systems improved during the period of the plan" (p.88). An important part of the policy was the provision of spare capacity in systems serving the key settlements where residential expansion was to be expected.

Within this general framework, actual priorities for investment in capital programmes were decided by a points system which did not as such take into consideration the Development Plan designation of a village as a key settlement. However, such consideration was given indirectly through the awarding of points for factors such as the number of houses or industrial areas outlined in development plans for a settlement. Therefore, any

priority given to key settlements was done so only indirectly, and so theoretically, if a non-key settlement was proved to have a greater need, then priority for investment would have been granted to that location. On a broader scale, a points system such as this would give the more urban areas the best opportunity for a high score and so it is likely that these areas would be given general priority over the remoter rural areas.

Sewerage schemes of differing size, and thus serving varying population thresholds, have been used in rural Devon. The First Review suggests that small schemes serving one or two villages were favoured despite the high per capita cost, but as the Development Plan period progressed there was a noticeable trend towards larger schemes with their inherent economies of scale. Consequently, there has been a corresponding decrease in the likelihood of non-key settlements obtaining first time sewerage, especially if they are situated at some distance from a higher order centre.

Similar difficulties to those experienced in the provision of education facilities are presented by the configuration of new housing development and adequate sewerage schemes. There is, however, one basic difference between the provision of education and sewerage facilities and that is the absolute necessity for there to be adequate sewerage services before any new housing is allowed to be built in a specific area. Whereas pupils from settlements with no education facilities can be transported to school it is not practicable for developers to install their own sewerage systems and so they are dependent on using spare capacity in existing systems. Therefore, while housing in a school-less settlements will be allowed to proceed if other factors are favourable, the very fact that no sewerage facilities are available in a settlement will lead to an embargo on new houses until the situation is alleviated.

This being the case, co-operation between planners and the Water Authority assumes a completely different nature to that between planners, and for example, the

Education Committee. The Water Authority are not in a position whereby they are continually trying to catch up with new planning developments. Their power of embargo allows them to assess the various priorities for investment on the basis of what they consider to be the greatest need, rather than being dictated to by planning decisions and settlement categories. In fact the state of sewerage and sewage disposal can dictate to the planners as to whether or not development should proceed. A situation such as this demands the very closest co-operation between the two policy making bodies, but again this has unfortunately not been the case in Devon. The discrepancy between demand for facilities and capital available for investment has become increasingly wide as controls on public spending become stricter. This lack of finance has led to a backlog of schemes needing attention with the result that a settlement has required an ever increasing number of points before its sewerage needs are met.

The provision (or non-provision) of sewerage facilities is likely to have had a drastic effect on new housing development in rural areas. Although it was the stated intention of the First Review that priority should be given to key settlements, it is inevitable that there will have been some time lapse in certain of these growth centres before spare sewerage capacity for further development is provided. For example, in 1974, 31 key settlements were in need of immediate sewerage improvement (Devon County Council, 1974) and of these, work was only programmed in 13 cases. The prospect of improvement in the remaining 18 cases remains remote as the Water Authority themselves do not forsee these modifications being carried out in the forseeable future. Such difficulties have been experienced by the key settlements throughout the Development Plan period, and presumably the non-key settlements generally have even lower priority in sewerage matters.

Once again, greater co-operation is being sought between the policy makers in the hope that the Structure

Plan will include corporate policies that are workable and acceptable to both parties. The effect that sewerage provision has had on the key settlements policy is further analysed below (Chapter 9) where the hypotheses suggested here will be examined in the light of the policy as a whole. However, it is important to note that sewerage provision strategies, if divergent from the needs of the key settlements policy, have the ability to undermine the effectiveness of the entire rural settlements policy for Devon.

(c) Health Services Policy in Rural Devon

By contrast to the provision of education and sewerage facilities discussed above, health service provision in rural Devon would seem to have been more compatible with the needs of the overall key settlements policy. This is perhaps because the task of providing the services of a general practitioner is somewhat less difficult to manage than the provision of, for example, sewerage schemes involving considerable capital expenditure. The Devon Area Health Authority and Family Practitioner Committee would seem to have the ability to exert a good deal more control over health service provision than was the case in Warwickshire, where it was very much the individual doctor's decision as to where to set up practice.

The First Review makes provision for the building of small clinics in the key settlements and in fact the form of this policy has evolved to the provision of health centres housing three or more doctors, when requested by the Family Practitioner Committee. This autonomous Committee has been able to exert considerable influence on the pattern of rural health services through its financial assistance to help doctors in the setting up or running of surgeries.

The location of doctors' services in rural Devon has been organised strictly according to the needs of the local population, and while the average practice size in Devon is 2500 population, this ranges from 1500 in sparsely populated areas to 3000 in larger centres of

population. These parameters have meant that doctors have tended to be located in the key settlements, or even in higher order settlements, and this trend has gathered momentum now that health service policy has gravitated away from single surgeries towards the three or more doctor health centres. This locational pattern might mean that doctors have to travel long distances to their patients, but such factors of distance are considered secondary to the economic viability of the health service system. Moreover, the Family Practitioner Committee has strict control over the setting up of new practices through the granting or witholding of financial assistance, and although the Committee does not concern itself directly with the Development Plan settlement categorisation, the emphasis placed on the viability of surgeries and patient distribution has favoured a key settlement location especially when new practices are provided to serve new housing development.

Naturally, the health centre building programme has been subject to curtailment similar to that affecting other public services, due to the dirth of financial resources for investment. However, the Area Health Authority consider that the present distribution of health centres and doctors is adequate to meet the needs of Devon's rural population, and so there would seem to be no question of a financial backlog in the provision of this service.

It would appear then, that health service provision does not conflict with the overall key settlement policy. The needs of the non-key settlements are met either by doctors located in the higher order centres, or by ancilliary surgeries which are held perhaps on one day per week in some outlying villages for the benefit of the scattered rural population. Moreover, the larger key settlements would appear to be adequately provided with health service facilities, but it remains to be seen from the later analysis whether some of the smaller key settlements serve large enough rural hinterlands to support the full time services of a general practitioner.

(d) Service Provision in Remote And Pressured Rural Areas

On the whole there would seem to be a good deal of friction between, on the one hand, the various strategies for the provision of public utilities and services in rural Devon, and on the other the overall key settlements policy which aims to promote residential growth and service development in key villages which will then act as centres for the surrounding rural areas. It is also likely that other services provided by public bodies (or which are influenced by directions from the local authority) such as roads, bus transport, social services and so on will similarly be seeking objectives which do not necessarily correspond to those of the key settlements policy. In so far as the provision of these services is based on a particular need in a particular location, then the rural population would be serviced at an entirely satisfactory level, but when questions of financial viability or expediency are emphasised, or where the limited nature of public investment results in the formulation of a system of priorities, then conflicts between overall and specific servicing policies may arise.

It must be remembered that Devon is an extremely large administrative unit with a scattered rural population particularly in the northern, central and western areas. Therefore, the level of capital available for investment in public services will be lower than in a more compact area such as Warwickshire, despite government compensations in the form of rate support grants and so on. Also there are parts of Devon where the population is declining or static, and so there is little incentive for service improvement as little short term benefit will be seen to accrue from any such investment. However, the success of the key settlements policy will depend on the selected growth centres being formed into viable service centres and this will not be achieved without an appreciable increase in public investment.

With so many demands on a restricted purse, it is little wonder that investment in Devon has been channelled

into cases of vital need, even if these do not correspond with the longer term key settlements policy. However, there do appear to be signs of at least an awareness of the need for greater co-operation between departments and public bodies, even if such a coming together is slow in being put into operation. The analysis in Chapter 9 will give a clearer picture of just how much these various frictions have compromised the objectives of the key settlement policy.

By comparison, public service provision in Warwickshire has many advantages. The overall key settlements policy seeks to contain growth rather than to promote it, and so reasonably accurate growth targets can be produced for each settlement which greatly aid the long term planning of infrastructural facilities. The rural population is less scattered and nearer to large centres of urban population with the result that more capital investment has been made available, even though this does not by any means match the demand for such investment. Also, the key settlements themselves are generally of larger population than those in Devon and so have a correspondingly greater internal demand for services and facilities which can be shared with the surrounding rural population.

It is to be expected then, that the Warwickshire policy, which has been able to benefit both from its own past mistakes and from those occurring in other counties, will have incorporated measures and methods of inter-departmental co-ordination into the Structure Plan vehicle to ensure that the comprehensive policy of the written statement will not be radically compromised by differing priorities and objectives in the distribution of public services. Even so, some attention between various parts of the overall Warwickshire policy does seem to have occurred, and this may be an indication that these problems of co-ordination have still not been solved.

CHAPTER 9

THE KEY SETTLEMENT POLICY IN A REMOTER RURAL COUNTY - THE DEVON ANALYSIS

As Chapter 8 has related, the aims of the Devon key settlement policy have been to "guide private investment (particularly in houses and industry) to the same locations as public investment in services and facilities" in order to respond to problems of "rural depopulation and of pressures around the major urban areas" (Devon County Council, 1977, 21). It is the effects of the policy in the remoter parts of the county that are of particular interest in this chapter, but the policy's performance in the more pressured rural areas gives another interesting comparison between the dual roles of key settlements in areas of growth and decline.

This chapter follows a similar methodological sequence to Chapter 6 and so many of the comments concerning the techniques and administration involved in analysing the data will not be repeated here. Table 9.1 outlines the sources of data used in this chapter and the next.

Table 9.1 Data sources

Data Type	Devon	Okehampton (Additional Data)
POPULATION	Census county volumes 1961, 1971	Ward Library, 1971
HOUSEHOLDS		Ward Library, 1971 Devon County Council survey of selected settlements, 1976
HOUSING	Questionnaire District Council Planning Offices	West Devon District Council (planning permissions)
SERVICES	Questionnaire District Council Planning Offices	West Devon District Council. Devon County Council Survey 1976. Devon General Omnibus Co. (transport)
EMPLOYMENT	Questionnaire District Council Planning Offices Community Council of Devon. County Structure Plan - Report of Survey (D.C.C., 1977)	West Devon District Council
PERCEPTION	Questionnaire	

Once again, the survey of parish clerks was the major data input and it is worth recording that replies were received from 89.7% of parishes and the remainder of the information set was drawn from the county and district planning offices and from personal observation and conversation.

The use of the civil parish as the data base caused some problems in the case of Devon. Two key settlements are represented by two or more parishes each. While another, Princetown, is notionally included in the parish of Lydford. Therefore, any parish containing all or part of a key settlements is referred to in the text as a "key settlement parish". In addition, seven key inland towns are represented by parishes and so the term "key parish" is used when these are added to key settlement parishes in the analysis.

Several of the hypotheses on which the Devon analysis is based are similar to those considered in Chapter 6 with reference to pressured rural areas. These concern:

1. The successful polarisation of infrastructure and service provision into selected centres.
2. The nature of the settlement hierarchy on which the promotion of selected key settlements may be founded.
3. The degree to which key settlements are able to perform growth centre functions.
4. Attitudes towards growth in non-key settlements.
5. The performance of planning policies when faced with opposing social, economic and political pressures.

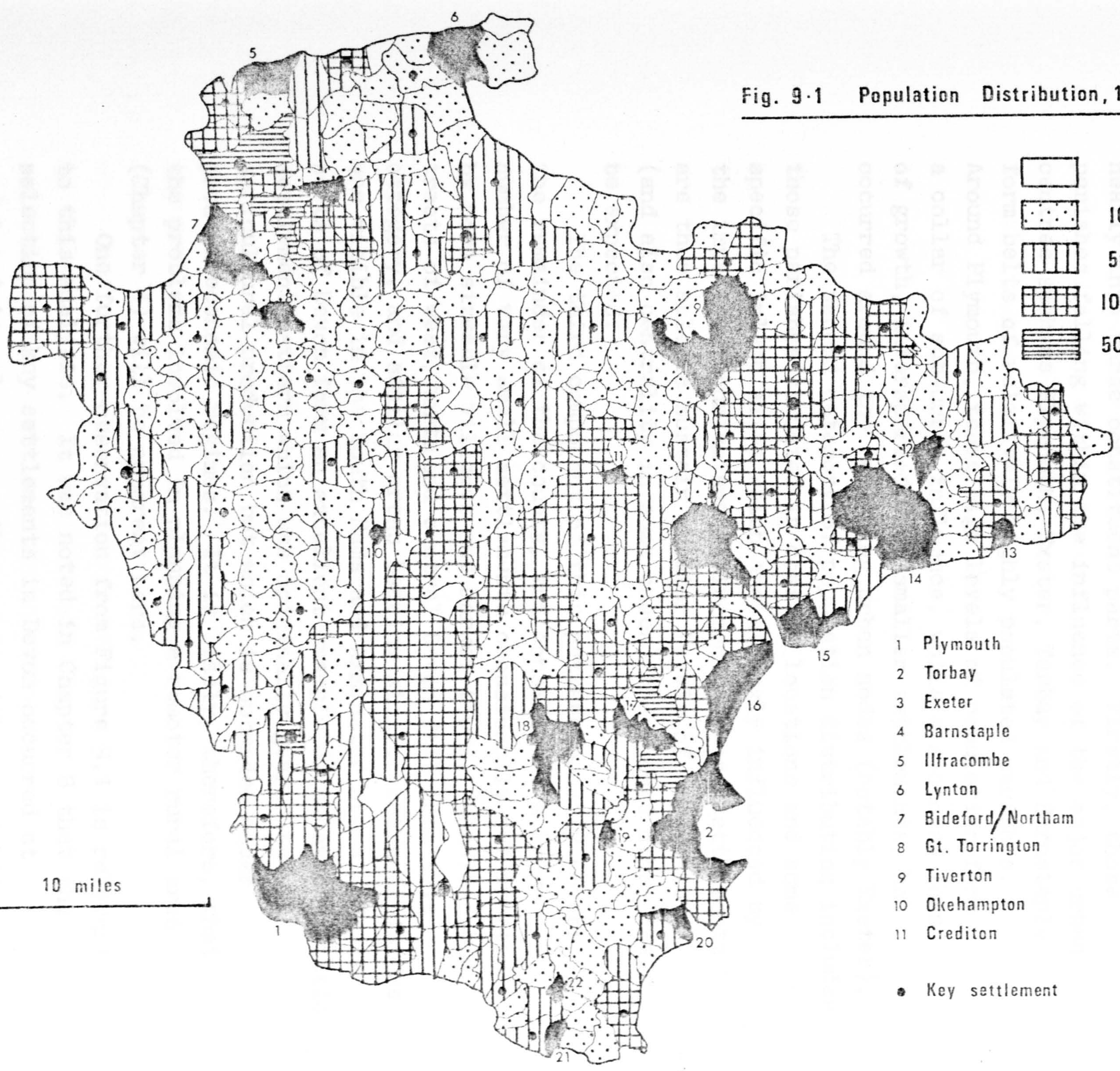
In addition, it has been hypothesised in Chapters 1 and 2 that key settlement policies are able to stem the tide of rural depopulation by creating centres of interesting opportunities in rural areas. These six hypotheses are analysed under systematic headings below.

POPULATION

(a) Population Distribution

Figure 9.1 shows the distribution of population in Devon parishes as recorded by the 1971 Census. It must

Fig. 9·1 Population Distribution, 1971



1 Plymouth
2 Torbay
3 Exeter
4 Barnstaple
5 Ilfracombe
6 Lynton
7 Bideford/Northam
8 Gt. Torrington
9 Tiverton
10 Okehampton
11 Crediton
12 Honiton
13 Seaton
14 Sidmouth/Ottery St. Mary
15 Exmouth
16 Teignmouth/Dawlish
17 Newton Abbot
18 Ashburton
19 Totnes
20 Dartmouth
21 Salcombe
22 Kingsbridge

• Key settlement
● Higher Order Centre

be remembered that many of these parishes cover an extensive land area, and often include two or more discrete settlements. A case in point is Lydford parish which encompasses much of the uninhabited moorland of Dartmoor as well as the major settlement of Princetown (a key settlement) and Lydford. Bearing these factors in mind, the pattern of population in rural Devon falls neatly into three constituent parts. Firstly, those parishes falling within the influence of the major urban centres such as Plymouth, Exeter, Torbay and Barnstaple form belts of relatively highly populated parishes. Around Plymouth, these high levels of population form a collar of sub-urban influence, while a sectoral form of growth, interspersed with smaller settlements, has occurred around the remaining urban nodes (notably Exeter).

The second category of population distribution includes those parishes situated in coastal locations and some specific inland sites which are strongly influenced by the impact of tourism and retirement. These settlements are thus able to sustain greater levels of population (and also centrality in some cases) than would otherwise be expected.

The third component of this pattern broadly covers the remainder of the county, and consists of a large number of very small settlements occasionally interrupted by more sizeable villages and market towns. Considerable tracts of west, north and central Devon fall into this category, and smaller areas bearing similar characteristics are visible in the South Hams and Axminster areas. These parts of Devon form an excellent example of an anachromistic settlement pattern which was originally geared to agricultural production but which is outmoded under present economic regimes. It is likely, therefore, that the problems involved in planning a remoter rural area (Chapter 1) will be apparent here.

One further observation from Figure 9.1 is relevant to this analysis. It was noted in Chapter 8 that the selection of key settlements in Devon occurred at regular intervals across the county with no weighting in

favour of the more problematical remoter areas. What is also evident from the distribution of population is that most of the selected key settlements in these remoter districts are of low population size (some less than 500 population) and so in effect the problem areas are discriminated against in that investment is spread thinly across a number of small settlements thereby limiting the success of those larger settlements in the area which have the necessary foundation to create an impetus for growth. This point is returned to later in this chapter.

(b) Population Change 1961-1971

The Devon key settlement policy has been in operation for a sufficient length of time for a significant assessment to be made of its efficacy and success in fulfilling its stated aims and objectives. Unfortunately, no population estimates are available for the period between 1971 and the present day, but a review of population change between 1961 and 1971 covers a substantial part of the key settlement policy time-span. Figure 9.2 demonstrates the change in parish populations between these dates.

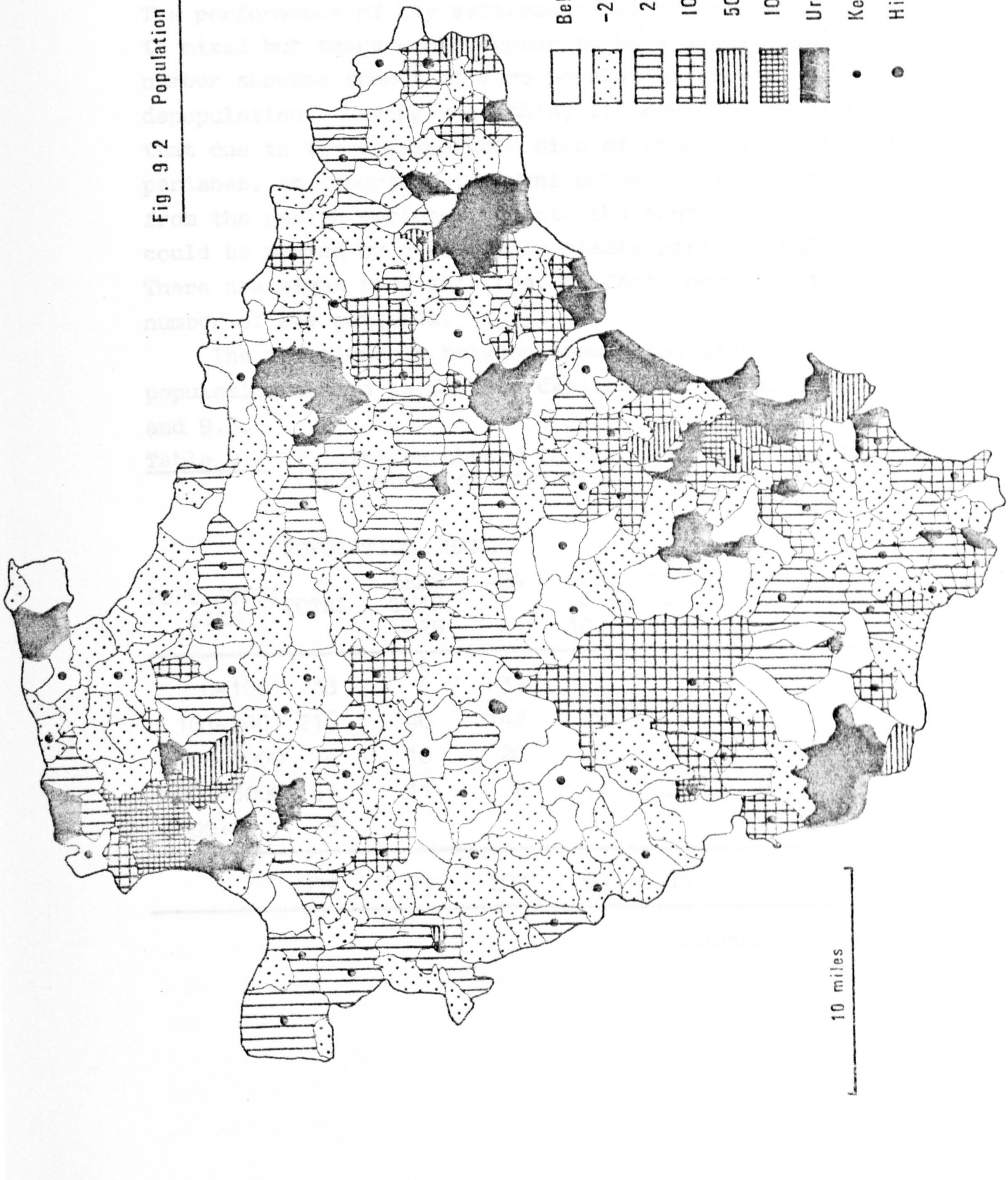
Considerable population growth has occurred in four areas:

1. The Barnstaple/Braunton area
2. Parishes immediately surrounding Torbay
3. Some coastal parishes in the south and east of the county
4. The outer ring of parishes surrounding the urban nodes of Plymouth and Exeter.

It is also interesting to note that the inner rings of parishes around these last two cities have in fact lost population over this period (see Cloke, 1977B).

However, so far as those inland parishes not mentioned above are concerned, the incidence of population growth of any significant scale is restricted to a few parishes surrounding the key inland towns of Tavistock and Tiverton and to key settlements such as Shebbear and Winkleigh which were of substantial population size before the key

Fig. 9·2 Population Change, 1961-71



settlement policy was instigated. Elsewhere, patterns of moderate growth are visible particularly marking the outer influence of Exeter, Plymouth and Barnstaple, but also in areas affected by tourism especially in the north-western and southern coastal belts. In the really remote areas, most parishes display either a state of stability or have suffered some considerable depopulation. The performance of key settlements within these areas is mixed but there would appear to be a significant number showing trends of zero population growth or depopulation. Having said this, it should be remembered that due to the considerable size of some key settlement parishes, an important internal movement of population from the parish peripheries into the central settlement could be masked by a seemingly stable parish population. There are signs that this has, in fact, occurred in a number of key parishes.

The relationship between population size and population change is further explored in Tables 9.2 and 9.3.

Table 9.2 Population change in all parishes 1961-71 (by numbers of parishes)

POPULATION SIZE	TOTAL	POPULATION CHANGE					
		LESS THAN -25	-24 – 25	26 – 100	101 – 500	501 – 1000	1000+
0-100	38	4	33	1			
101-500	216	40	142	29	5		
501-1000	79	18	20	26	14	1	
1001-5000	61	11	8	10	25	5	2
5000+	5					1	4
	399	73	203	66	44	7	6

Source: 1971 Census

Table 9.3 Population change in key settlement parishes 1961-71 (by numbers of parishes)

POPULATION SIZE	POPULATION CHANGE TOTAL	LESS THAN -25	-24 - 25	26 - 100	101 - 500	501 - 1000	1001+
101-500	12	2	7	3			
501-1000	25	3	6	11	4	1	
1001-5000	32	8	5	4	13	2	
5000+	1						1
	70	13	18	18	17	3	1

Source: 1971 Census

An analysis af all parishes shows that the great majority of settlements with a population of less than 500 have either remained . stable or have experienced depopulation. Even of those settlements in the 501-1000 category, only half exhibit even moderate growth. Therefore, it is only the settlements of 1000 or more population which show any signs of establishing a regular pattern of growth.

Table 9.3 concentrates on the performance of the selected key settlement parishes. It is evident from these figures that 17% of key settlement parishes have populations under 500, and a further 35% have less than 1000 population. Of these two groups only 5 key settlement parishes have shown population increases of over 100 persons, and even of those key settlements with more than 1000 population, more than half have grown by less than 100 persons over this ten year period.

This distribution of population growth must be viewed in a spatial context. Most of the more highly populated key settlements are situated in the south and east of the country and so the trend of stagnation and decline is confined largely to the remoter districts. There are, however, some residuals to this pattern in the problem rural areas of Devon. Shebbear and Winkleigh

have already been mentioned in this context, and several other remoter key settlements (for example Lapford, Dolton and Bradworthy) have also demonstrated moderate rates of growth. However, it is also evident that many key settlements in north and central Devon have failed to reverse depopulation within their own parish, let alone in those parishes adjacent to them.

If this is the situation in the key settlements then what of the non-key settlements which have been denied policy aid from planners? Figure 9.2 shows that apart from parishes within the sphere of influence of urban nodes, there are very few non-key parishes which exhibit population growth. Where growth has been manifested it is often adjacent to the key inland towns or even to some of the larger key settlements. This may be a tentative pointer towards the fact that some of the larger selected settlements have counteracted depopulation on a local scale, but further evidence is required before this suggestion can be substantiated.

Overall, then the study of population distribution and change has highlighted two opposing trends in Devon. Those rural parishes within the influence of the major urban centres, or bolstered by the influx of tourists or retired people, have shown some population growth. However, cases of increasing population in the northern and west-central remoter areas are isolated within a general pattern of stagnation and depopulation. Therefore, so far as demographic analysis is concerned, the key settlement policy has not fulfilled its objective of reversing the effects of depopulation, except in certain localised areas. However population patterns often mask both small-scale and wider trends in other parts of the rural system and these must be investigated before any meaningful assessment of the efficacy of the key settlement policy can be made.

HOUSING

The distribution of new housing is perhaps the facet of rural life which is most closely linked to the

patterns of population change outlined above. However, it should be remembered at the outset that the housing occupancy rate in Devon has declined from an average of 3.0 persons to 2.7 persons during the period under study and so situations of static population will still produce a demand for new housing. Bearing this in mind, Tables 9.4 and 9.5 exhibit the levels of new private and council housing in parishes of varying population size during the key settlement policy period. Between 1965 and 1970, only 10% of parishes received more than 30 new private houses while a similar level of new council housing was built in only 10 parishes. At the other end of the scale, more than 80% of parishes received less than 10 new private or council houses each.

Two factors in Table 9.4 can be seen to be important in the explanation of these statistics. Firstly, the size of settlements appears to have a significant bearing on the expectation that new houses will be built in a particular location. Only 5% of parishes with a population of less than 500 persons received more than 10 new private houses during this period whereas 87% of parishes over 1000 population provided sites for housing development on this scale. Furthermore, the necessity for a large base population would appear to be even more critical in the establishment of locations for council house building.

The second factor concerns the priority given to building new houses in the key settlements. Table 9.4 shows a limited tendency for the larger selected centres to attract new residential development, but at the same time many key settlements at the lower end of the population range have been confined to little or no new housing. It is also very evident that there has either been a lack of demand or else a lack of planning inclination to establish new housing in the smaller non-key settlements in Devon.

Table 9.5 portrays a similar analysis for the period 1971-75. Over this later time span a greater overall

Table 9.4 New housing 1965-70 (by numbers of parishes)

POPULATION SIZE	TOTAL	PRIVATE					COUNCIL				
		0-10	11-30	31-50	51-100	101+	0	1-10	11-30	31-50	51-100
0-100	38	38					37	1			
101-500	216	203(12)	10	3			161(8)	48(4)	6	1	
501-1000	79	59(17)	13(5)	3(1)	1	3(2)	41(6)	29(15)	8(4)	1	
1001-5000	61	18(13)	19(10)	8(3)	9(7)	7(3)	19(11)	21(9)	16(11)	3(3)	2(2)
5000 +	5				1	4(3)		1	1(1)	1(1)	2(1)
TOTAL	399	318	42	14	11	14	258	100	31	6	4

Parishes including key settlements or higher order centres in brackets

Source: questionnaire

Table 9.5 New housing 1971-1975 (by numbers of parishes)

POPULATION SIZE	TOTAL	PRIVATE					COUNCIL					
		0-10	11-30	31-50	51-100	101+	0	1-10	11-30	31-50	51-100	101+
0-100	38	38					37	1				
101-500	216	200(12)	15		1		186	24(6)	6(6)			
501-1000	79	53(13)	16(6)	4(3)	5(2)	1(1)	49(10)	20(8)	7(5)	3(2)		
1001-5000	61	17(6)	19(12)	8(5)	12(10)	5(3)	29(12)	9(8)	16(11)	5(5)	1	1
5000 +	5	1		1		3(3)	1(1)	1	1	2(2)		
TOTAL	399	309	50	13	18	9	302	55	30	10	1	1

Parishes including key settlements or higher order centres in brackets

Source: questionnaire

level of house building has taken place and it is apparent from these figures that key settlements have been the most prominent recipients of this increase. It is again evident, however, that it is in the larger settlements (that is over 500, and especially over 1000 population) that most of the new housing has been promoted. Interestingly, though, there are isolated examples where small amounts of council housing have been allowed in low population non-key settlements.

These tables suggest that a definite link exists between settlement size and the planned development of new housing under the key settlement policy. However, for a fuller understanding of the distribution of new housing in rural Devon these patterns must be translated to the spatial perspective (Figures 9.3 and 9.4). It has already been remarked that an important dichotomy exists between those parishes influenced by adjacent urban areas or tourism, and those 'problem' areas which are remote from urban centres and are thus unlikely to be suffering from the pressures of population increase. Thus it is to be expected that the lions share of new housing development will have taken place in the more urbanised pole of this rural dichotomy. Figure 9.3 shows this to be the case. The major private residential developments during the period 1965-70 occurred adjacent to, or within easy commuting distance from the urban centres of Plymouth, Torbay, Exeter and Barnstaple. In addition, the south and south-east coastlines also show signs of significant levels of new housing. It is interesting to note that much of this new development has been successfully steered into the key settlements of these growth areas.

The performance in this respect of the key settlements serving the more remote inland areas is less satisfactory. A few of the isolated centres in these areas stand out as locations for some new private housing. For example, Winkleigh, North and South Tawton, Chulmleigh, Shebbear and Mary Tavy all demonstrate significant levels of new housing during this period. These locations may

Fig. 9·3 New Private Housing, 1965-70

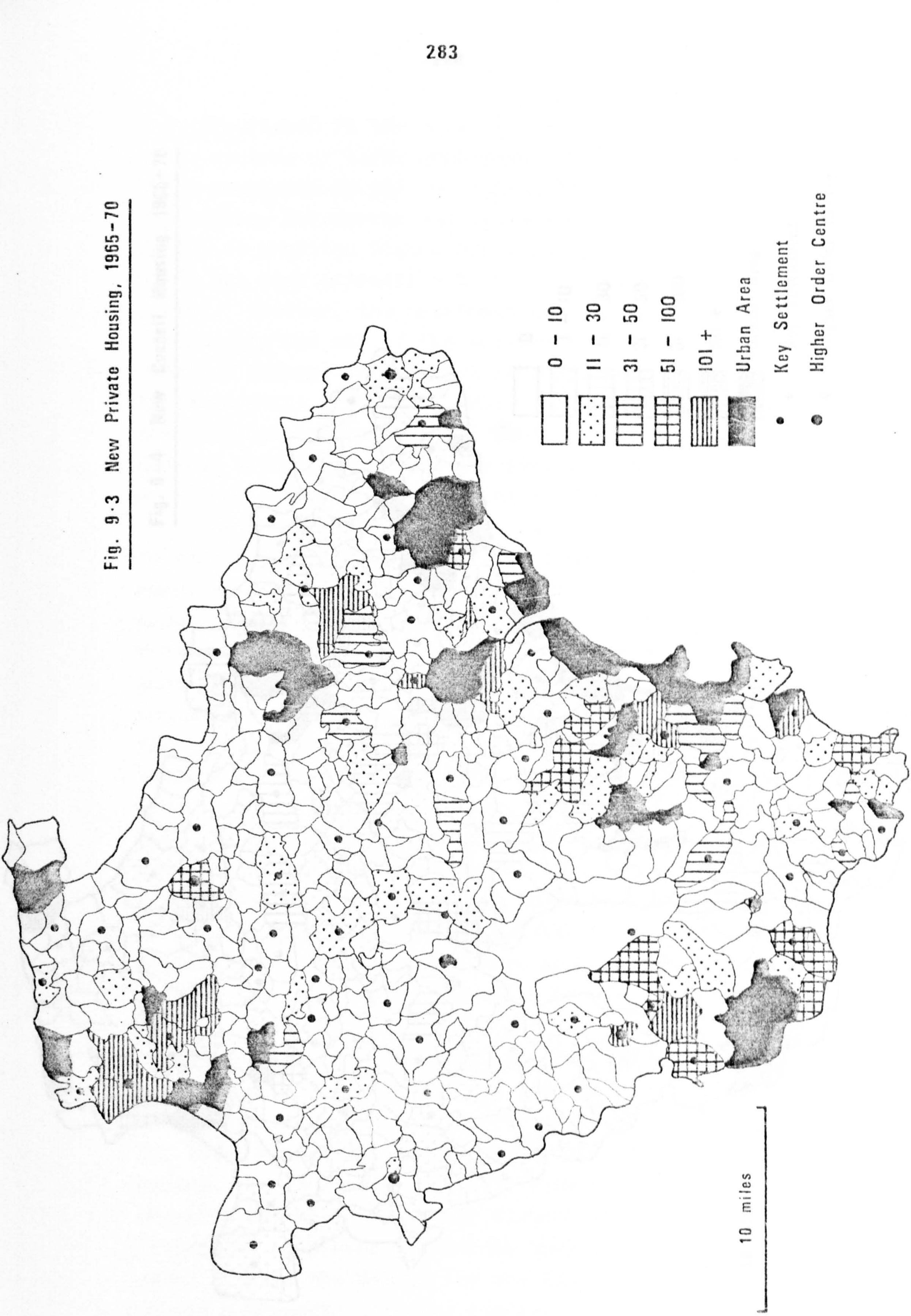
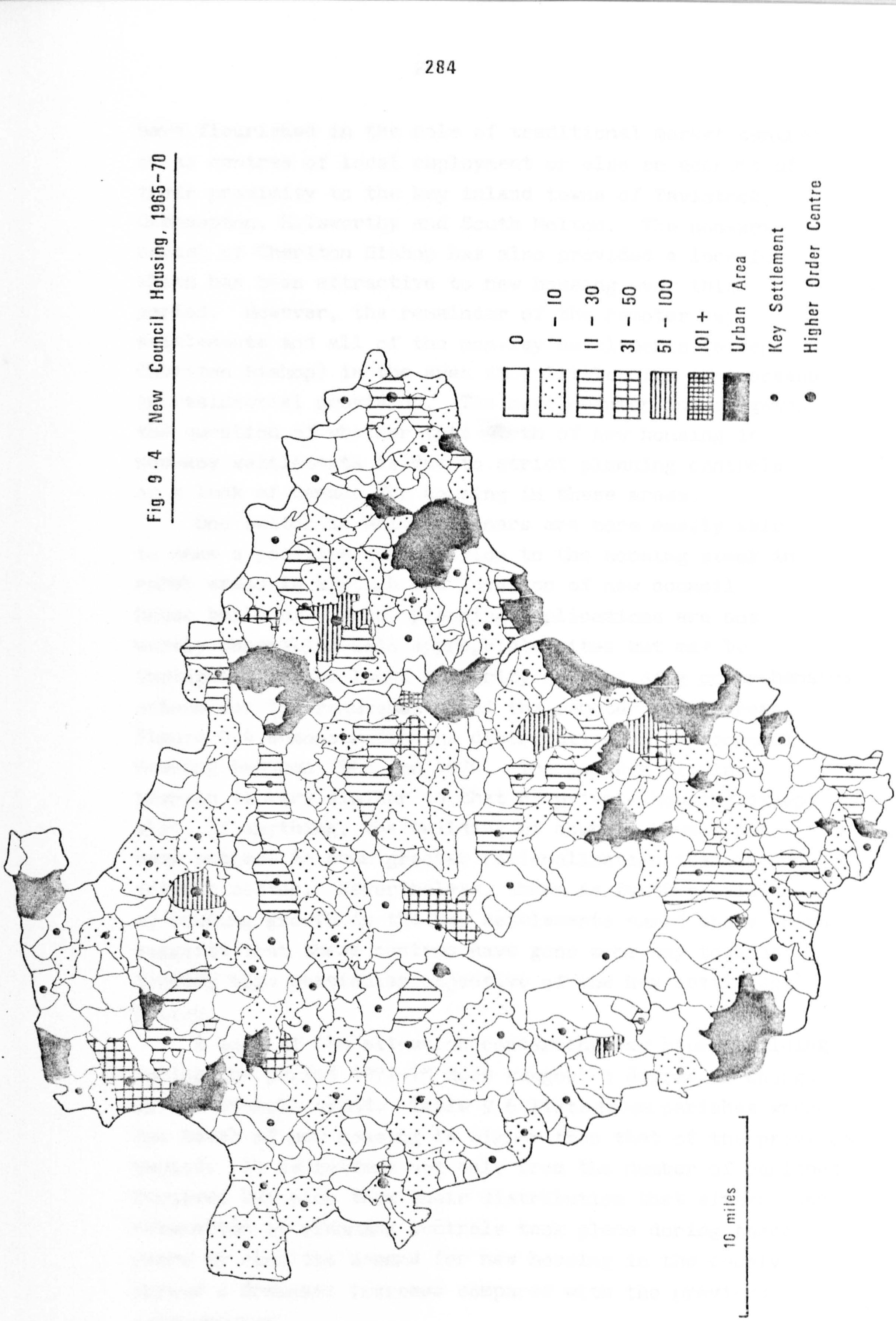


Fig. 9.4 New Council Housing, 1965–70



have flourished in the role of traditional market centres, or as centres of local employment or else on account of their proximity to the key inland towns of Tavistock, Okehampton, Holsworthy and South Molton. The non-key parish of Cheriton Bishop has also provided a location which has been attractive to new housing over this period. However, the remainder of the remoter key settlements and all of the non-key settlements (except Cheriton Bishop) in the area show little sign of increase in residential provision. The next chapter investigates the question of whether this dearth of new housing in non-key settlements is due to strict planning controls or a lack of demand for housing in these areas.

One sector in which planners are more easily able to make a positive contribution to the housing stock in rural areas is through the location of new council house building. Here, planning applications are not merely channelled into appropriate sites but may be instigated by the local authority as part of a comprehensive scheme for the rejuvenation of the remoter rural areas. Figure 9.4 demonstrates the distribution of new council housing between 1965 and 1970. The pattern displayed therein is very similar to that of private housing except that, if anything, the building of council houses has been subject to even greater rationalization than the private sector. Nevertheless, there is further evidence of housing growth in the key settlements named above which suggests that these centres have gone some way towards meeting this particular objective of the key settlement policy.

A look at the situation concerning new house building during the period 1971-75 does suggest a degree of change in the overall trend. Table 9.6 lists those parishes where the level of new housing is higher than that of the previous period. It is evident not only from the number of parishes involved but also from their distribution that either some relaxation of planning controls took place during these years or else the demand for new housing in the county showed a dramatic increase compared with the previous quinquennium.

Table 9.6 Centres of housing increase 1971-75 compared with 1965-70

Axminster R.D.

Colyton
Dalwood

Barnstaple R.D.

Bishops Tawton
Combe Martin*
Heanton Punchardon
Landkey
Mortehoe*

Bideford R.D.

Abbotsham
Parkham
Woolfardisworthy

Crediton R.D.

Chawleigh
Lapford*

Holsworthy R.D.

Holsworthy Hamlets

Honiton R.D.

Feniton*
Offwell
Payhembury

Kingsbridge R.D.

Blackawton
Charleton
Marlborough*
Modbury*
Strete

Okehampton R.D.

Chagford*
Hatherleigh*

Plympton R.D.

Bickleigh
Wembury
Yealmton*

St. Thomas R.D.

Bridford
Broad Clyst*
Christow*
Colaton Raleigh
Doddiscombleigh
Kenton*
Tedburn St. Mary*

South Molton R.D.

Burrington*
North Molton*
Witheridge

Tavistock R.D.

Bere Ferrers*
Lifton*
Lydford*
Mary Tavy*

Tiverton R.D.

Bampton*
Halberton
Hemyock*
Kentisbeare
Sampford Peverell
Silverton*
Thorveton
Uffculme*
Willand*

Torrington R.D.

Beaford
Dolton*

Totnes R.D.

South Brent*
Ugborough

* Key settlement

In practice, both these phenomena were contributory factors to this small but significant upturn in house building in rural areas. Several non-key parishes are represented in Table 9.6 which points to the fact that the channelling of all new housing into key settlements has been less strict, while the greater demand has led to a more widespread distribution of building.

So far as the remoter areas are concerned, the pre-reorganisation rural districts of Barnstaple, Bideford, Holsworthy, Kingsbridge, Okehampton, South Molton, Tavistock and Torrington account for nearly half of the parishes where building rates had been significantly increased.

Within these districts there has been an emphasis on housing provision in the key settlements but it is also noticeable that some non-key parishes have also been allowed to expand. An examination of planning permissions as part of the Okehampton area case study (Chapter 10) will give a greater insight into planning attitudes towards new housing in the non-key settlements.

To conclude this review of new housing in rural Devon under the key settlement policy it is worthwhile placing the housing situation in rural areas in the wider context of the whole of the county. Table 9.7 shows the number of dwellings completed between 1965 and 1975 in different types of settlement in each of the Devon Economic Planning Areas.

Table 9.7 Dwellings completed in various Devon settlement types 1965-75

	Exeter/ East-Devon	South-east Devon/ Torbay	Plymouth	North Devon	West Devon
Sub-regional centres	5200	8400	15820	1380	-
Other urban centres	11120	2680	1800	4290	340
Key settlements	1990	1270	1480	1050	220
Non-key settlements with Outline Plans	390	1040	830	560	-
Other non-key settlements	2220	750	830	940	340

After Devon County Council (1977)

Clearly, the urban areas have received by far the greatest proportion of new housing, although Barnstaple has received less building than the other sub-regional centres. Of the proportion of dwellings built in the rural areas, the majority occur in those areas influenced by the urban nodes. Thus the levels of building in the North and West Devon areas which correspond to the most remote of the rural areas are very small in comparison. Interestingly, however, dwellings completed in non-key settlements in these areas exceed those built in the selected key settlements.

One point in favour of the housing policy in rural Devon is that it has corresponded with the theme of conserving those rural settlements of highest environmental quality. But from this and the preceding analysis of the Devon policy, it is difficult to support the hypothesis that key settlements in remote rural areas are able to concentrate sufficient population and housing into centres of intervening opportunitites in order to stabilise situations of depopulation. We may rather construct a secondary hypothesis that the implementation of the key settlement notion in Devon has been inappropriate on two counts. Firstly, the policy covers remote and pressured parishes without offering special dispensation for the two different sets of problems covered by the same planning vehicle. Secondly, the number of key settlements in the remote areas is too great for the development of an impetus for growth in any more than a few of them. It will be interesting to see whether analysis of other rural sub-systems confirm these suggestions particularly in view of the increasing acceptance amongst planners and academics that some degree of flexibility concerning the provision of new houses in non-key settlements is an essential part of any policy of investment concentration in rural areas.

SERVICES

(a) Changes in Service Provision

One of the areas in which the key settlement policy is most likely to succeed is in the concentration of service provision into key settlements. Indeed, one of the criteria for the original selection of the key centres was the level of "existing social facilities, including primary (and in some cases secondary) schools, shops, village hall and doctors surgery; and public utilities (gas, water, electricity, sewerage)" (Devon County Council, 1964, 46). The location of settlements in relation to public transport routes was also considered in the selection procedure. Bearing in mind that such a policy inherently accepts the 'natural' trends of service rationalisation from small centres then an analysis of service changes should reflect

the dominance of key settlements as service centres.

Once again the problem of separating policy ramifications and 'natural' trends is encountered in this instance. It cannot be argued with any confidence that the patterns of service change outlined below would not have occurred if the key settlement policy was not in operation. However, the service and infrastructure data resulting from the survey of parish clerks are catalogued in Figures 9.5 and 9.6 in order to outline the differences between service development in key and non-key settlements. This analysis is based in all parishes, including those representing key inland towns.

Service provision over the period 1965-75 in the key parishes (Figure 9.5) exhibits a trend of stability rather than variation in the number of units representing each phenomenon, it is clear that the key settlement policy has not brought about any widespread increases in the quality of services in the selected centres. Even public transport facilities follow the trend of stability, although the frequency of services has declined in many cases. However, as the key settlements were originally chosen for the adequacy of their services, the policy can at least be seen to have maintained this level of service provision in an environment of decline.

In addition to this stabilizing effect, the quality of services and facilities has been noticeably improved in the categories of health services and infrastructural facilities. There has been a dramatic rise in the number of key parishes served by a doctors surgery. This trend was postulated in Chapter 8 where it was indicated that the unwritten policy for setting up new health services did favour key settlement locations. Moreover, the county policy of establishing purpose-built health centres has further benefited some of the selected centres rather than non-key parishes (see Table 9.8). It was also suggested in Chapter 8 that county policy for the provision of public infrastructure was likely to recognise key settlements as unofficial priority areas. This expected pattern is also manifested in Figure 9.5 where the occurrence

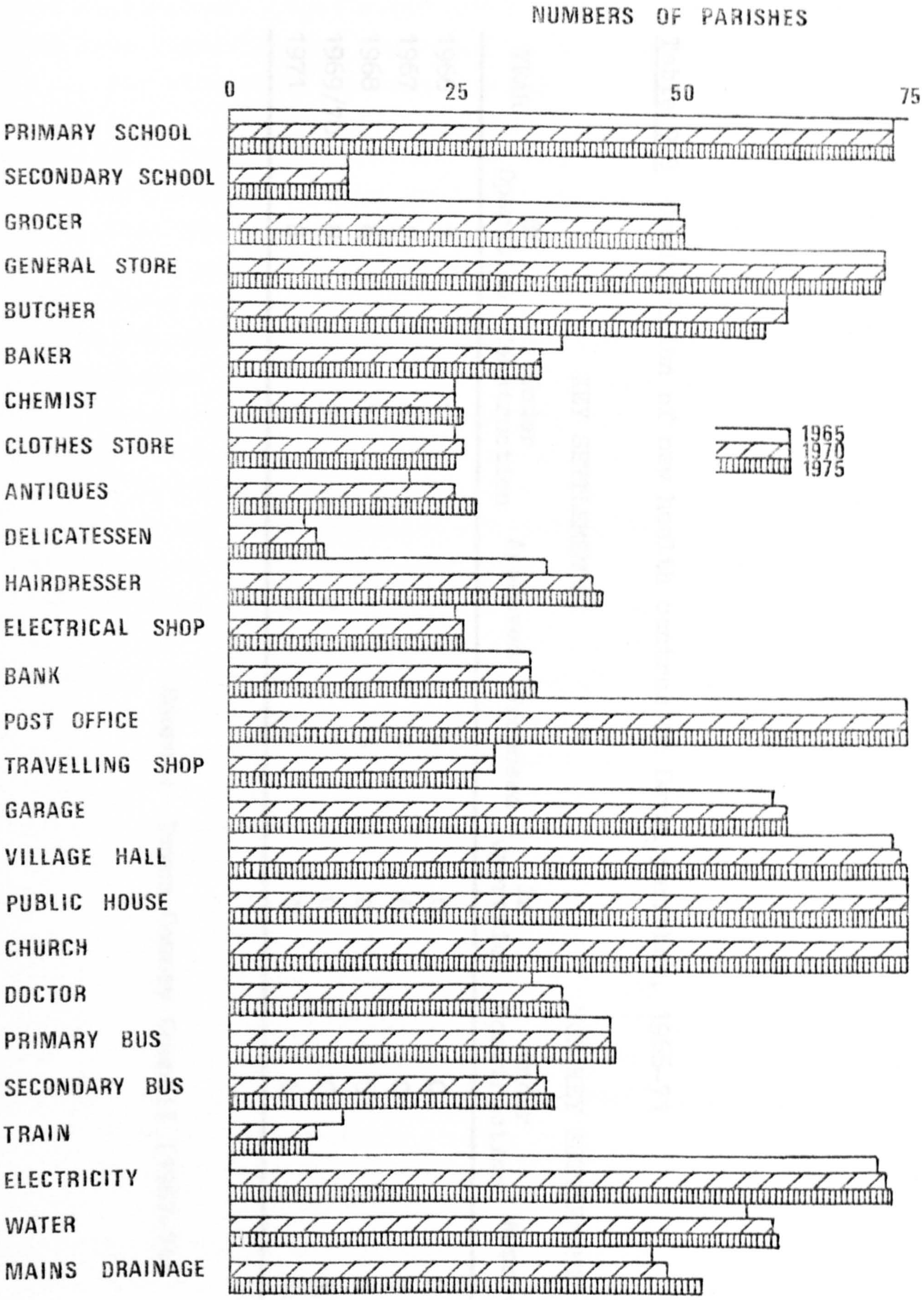


Fig. 9·5 Service Provision In Key Settlement Parishes

Table 9.8 Construction of new health centres in Devon parishes, 1966–71

YEAR	KEY SETTLEMENTS				NON-KEY SETTLEMENTS			
	In Operation	Under Construction	Approved	Proposed	In Operation	Under Construction	Approved	Proposed
1966	1	1	1	4	0	0	0	1
1967	2	4	1	3	0	0	0	1
1968	6	1	1	3	0	0	0	1
1969/70	8	3	2	1	0	0	1	0
1971	8	3	3	1	0	0	1	0

Source: Devon County Council (1967–74)

of electricity, piped water and mains drainage is seen to have significantly increased in the key parishes.

The picture of service provision in non-key settlements (Figure 9.6) is predominantly one of decline. Essential services for everyday living in remoter rural areas have gradually dwindled as a result of public and private sector policies of concentration. Foodshops, particularly the ubiquitous general store, have shown a marked decline as has the travelling shop which provides a similar service for more isolated settlements. Professional and health services, notably the village post office and family doctor concerns have followed the same trend. Specialist shops, already scarce in rural areas, demonstrate a net pattern of stability but their location often depends on the relative affluence of a particular settlement. In addition to these losses, the village school, which is often the hub of village community life, has also been subject to policies of concentration. Furthermore, all these dis-benefits have not been countered by increases in public transport. The recession in provision of primary bus services (defined as more than four buses per day) is hardly compensated by the small increase in secondary service (often one bus per week on market day). This low level of public transport in non-key settlements illustrates the need for a greater planning effort to forge links between growth centres and their hinterlands. Figure 9.6 further emphasises that only the gradual rise in the levels of community facilities (for example village halls) and infrastructure counteracts the general trend of decline to any extent.

It should not be forgotten that these figures refer to all rural parishes in Devon, whereas the regional imbalance between the south/east and the north/central areas has already been stressed. Figure 9.7 outlines service changes in the pre-reorganisation Rural Districts of Barnstaple, Bideford, Holsworthy, Kingsbridge, Okehampton, Tavistock, Torrington and South Molton, which represent the most problematical rural parishes in Devon. At first

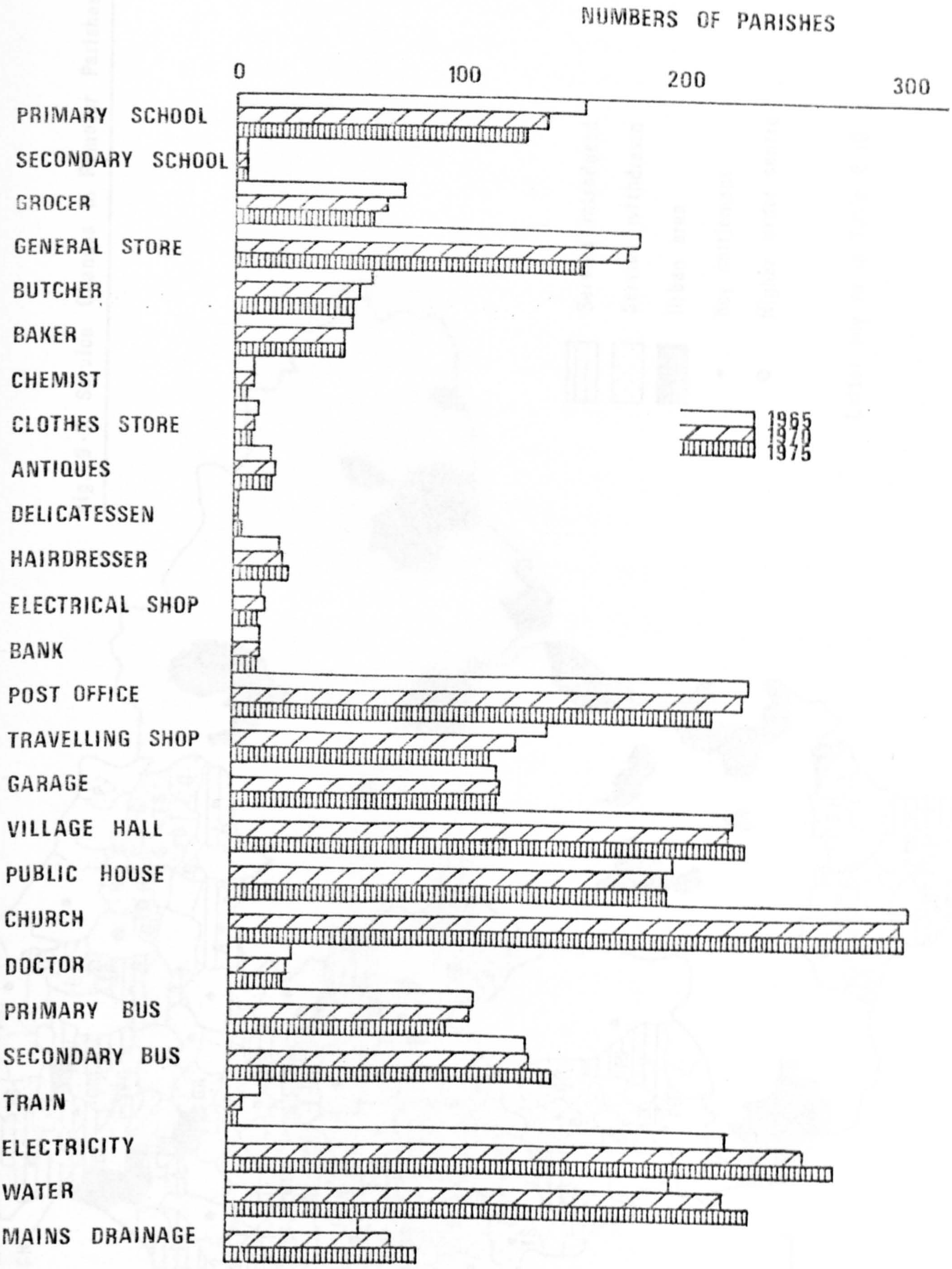
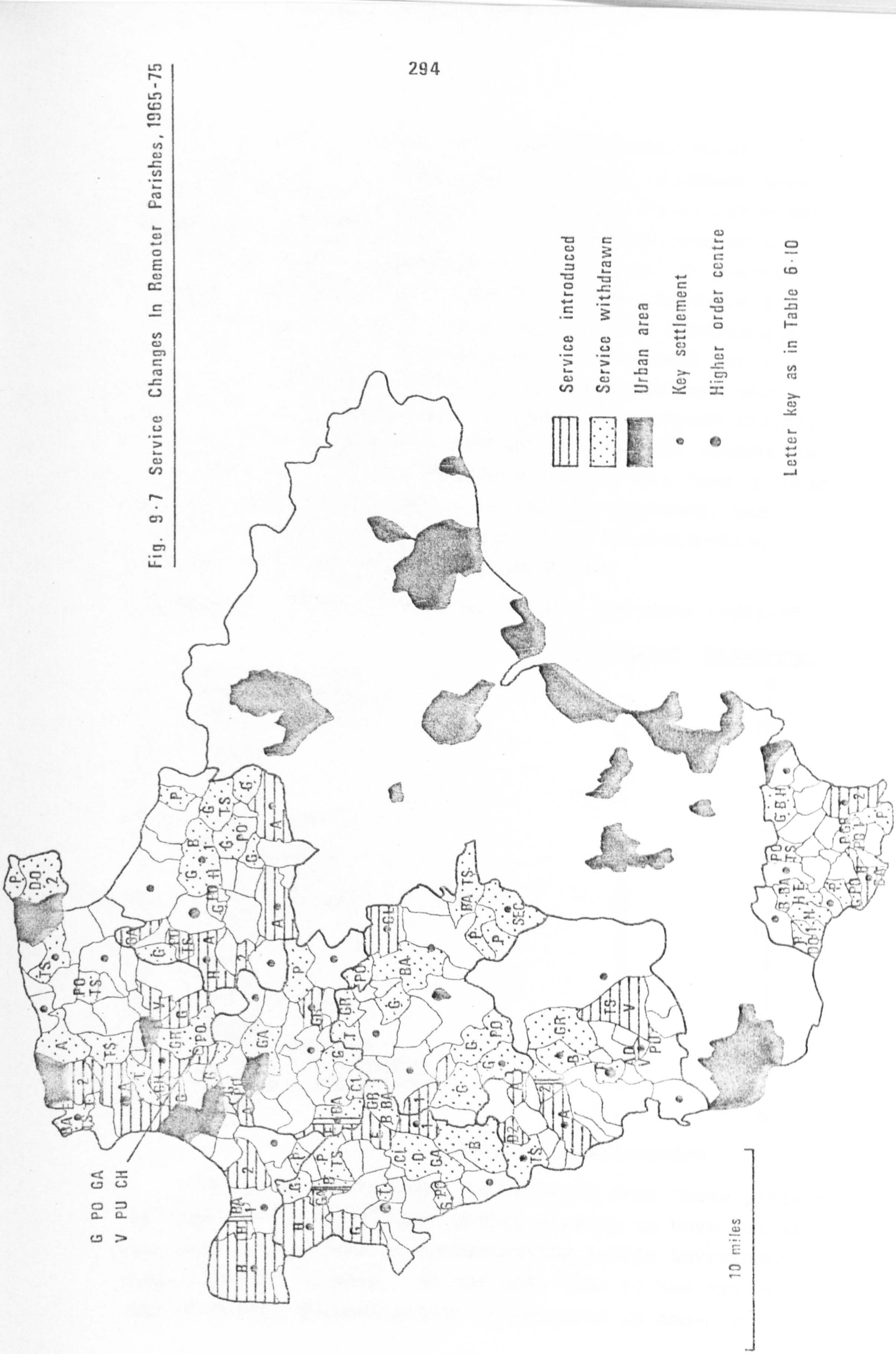


Fig. 9·6 Service Provision In Non-key Parishes

Fig. 9·7 Service Changes In Remoter Parishes, 1965-75



sight, the level of service introduction into these settlements appears to be high. However, a closer look at the services involved emphasises that it is often the transient antiques, hairdressers or garage enterprises as well as basic infrastructural facilities (a general increase not shown here) which have been attracted to these areas (Table 9.9). Even so, the key settlements are well represented as locations of increased service provision. However, Table 9.9 also demonstrates that so far as the primary school, general store/post office, foodshop, travelling shop and doctors surgery categories are concerned, the key settlement policy has done nothing to stem the tide of decline in non-key parishes, and indeed the policy's strictures towards concentration may well have exacerbated the situation.

Table 9.9 Service changes in remoter parishes (1965-75)

		Introduced	Withdrawn
P	Primary school		9
S	Secondary school	1	1
G	General store	3	18
GR	Grocer	1	5
B	Butcher		7
BA	Baker	1	7
C	Chemist	1	
CL	Clothes store		2
A	Antiques	8	1
D	Delicatessen	2	1
H	Hairdresser	5	4
E	Electrical and T.V. shop	2	2
PO	Post office	2	10
TS	Travelling shop	2	9
GA	Garage	3	3
V	Village hall	3	1
PU	Public house	1	2
CH	Church		1
DO	Doctors surgery		2
1	Primary bus service	2	4
2	Secondary bus service	7	2
T	Train		6

Source: Questionnaire

The general conclusion to be drawn from these patterns is that the key settlement policy appears to have fulfilled its stated objective of concentrating public investment into selected centres. At the same time it has exacerbated the on-going rationalization of services in non-key

settlements both directly through public service policies and indirectly through planning restrictions leading to the polarization of new housing (if any) into the growth centres. The key settlements are designed to act as service centres for surrounding rural parishes. Whether or not the level of facilities in key settlements and the quality of linkages between centre and hinterland are sufficient to carry out this function cannot be fully ascertained from this broad-scale approach, and so this question will be further investigated in the case study of service provision in the Okehampton area (Chapter 10).

(b) Settlement Size and Service Thresholds

In a situation where any growth in the services and facilities of a rural area has to be attracted rather than channelled, the relationship between settlement size and service thresholds becomes critical. It was hypothesised earlier in this chapter that the selected key settlements were too numerous and often too small to achieve the aims of the key settlement policy. One of these aims is to build up a level of facilities in these centres which is sufficient to serve a rural hinterland, and so some measurement of the relationship between size and provision is required in order to suggest which settlements have this capability.

Once again the asymptotic regression curve was used to quantify the link between these two criteria in the form of a threshold band. This technique is explained in Chapter 6. In a remote rural area where settlements are often losing population, the minimum point of the band becomes very important. Obviously this lower extreme is not able to pinpoint the population size at which an enterprise is able to close down or establish itself with equal profitability, since the factor of inertia will prolong a service in a depopulating settlement. However, this zone does suggest the approximate mark to which a settlement population should rise to gain the facility in question.

Table 9.10 indicates the results from this analysis as applied to Devon parishes. As in the corresponding Warwickshire analysis, certain services do not allow the construction of a significant regression line.

Table 9.10 Settlement service thresholds by regression

	R^2	Threshold Band
Primary school	.8417	300-700
Secondary school	---	--
Grocer	.5972	500-2500
General store	.7194	250-800
Butcher	.8151	800-1500
Baker	--	--
Chemist	.9013	1500-5000
Clothes store	.9120	2000-3500
Antiques shop	--	--
Delicatessen	--	--
Hairdresser	.6583	900-2500
Electrical and T.V. shop	---	--
Bank	.5319	1750-3500
Post office	.7282	150-400
Travelling shop	---	--
Garage	.7698	500-1000
Village hall	--	--
Public house	.7439	100-300
Church	--	--
Doctors surgery	.5729	1000-2500
Primary bus service	.8302	500-1200
Secondary bus service	--	--
Train	---	--
Electricity	--	--
Piped water	--	--
Mains drainage	--	--

Once again this highlights the fact that some public sector facilities are provided on the basis of an even geographical distribution rather than on the basis of settlement size. The secondary school, secondary bus service and infrastructural facilities fall into this category. Furthermore, transient retail services such as the antiques shop and the delicatessen are likely to follow affluence and fashion rather than a certain threshold of clientele.

The remaining services in Table 9.10 did give a good regression fit. Although the r^2 values in this case are higher than in the Warwickshire analysis, the threshold bands are on the whole wider than were applicable to the

pressured rural county. This reflects the essential nature of a certain minimum service level whatever the population structure of the area. However, when it is remembered that many of the key settlements in the most problematical areas of Devon are of relatively low population size (between 450 and 800 population) it may be realised that services available to settlements of this size are not of the level to support any substantial rural hinterland. Not all of these key settlements can rely on being the exceptional location which, despite low population size, is used to provide the essential minimum service level mentioned above.

Another yardstick with which to measure these bands is the suggestion in the key settlement policy document that "a thriving rural community should possess the following facilities and services:

(a) Public utilities - mains water, electricity, sewerage
(b) Social facilities - primary school, place of worship, village hall and possibly a doctors surgery
(c) Shops for day-to-day needs, and post office."

(Devon County Council, 1964, 45). The threshold bands suggest that many of the smaller key settlements do not meet these criteria. Furthermore, although no analysis of settlement size by distance from the nearest key centre was attempted since no settlement in Devon is very far (in distance terms) from a key settlement, it is evident that most of the non-key settlements have become less than thriving communities in these terms.

The threshold band analysis would therefore appear to support the hypothesis that key settlements in the remoter parts of Devon are too many and too small to act as viable service centres which will maintain levels of opportunity in the rural hinterland. Evidently, then, many rural dwellers have to look to higher order settlements, or at least to larger key settlements for many of the goods and services necessary for rural life. This pattern of service use is inextricably linked with the question of accessibility and transport, a subject which is further analysed in the Okehampton case study.

EMPLOYMENT

The final major rural subsystem to be affected by the key settlement policy is that of employment. It has been noted in Chapters 2 and 3 that, in theory, a comprehensive key settlement policy should include either the provision of employment in the key settlements or else provide suitable access from these centres to employment elsewhere. The original Devon policy (Devon County Council, 1964) appears to have been in two minds about the employment role of key settlements. On the one hand the policy states that "a thriving rural community should possess . . . employment either in the village or suitably situated nearby" (p.45) and that "it will be to those (key) settlements that industries requiring a rural location will be encouraged, if appropriate to go" (p.46). Indeed, one of the selection requirements for key settlements was the location of "existing sources of employment (excluding agriculture) in or in the vicinity of a village" (p.46). On the other hand, the same policy document attaches far greater importance to the attraction of new employment into the key inland towns, which are seen as the locations where "employment opportunities to replace agricultural employment may be best provided" (p.41).

This basic locational paradox presents two main themes for discussion in any analysis of the relationship between key settlements and employment provision. Firstly, it is necessary to discover whether new employment has been attracted to the key settlements in general and the remoter key settlements in particular. Secondly, the relationship between key settlelments and the employment provided in their associated key inland towns or higher order centres should be investigated in order to assess this second employment option afforded by the key settlement policy.

(a) Employment in Key Settlements

It is both unfortunate and inevitable that this particular section of the key settlement policy is the one for which parish clerks were able to respond with the least reliable information: unfortunate because no

full catalogue of new employment in these locations is available from other data sources, and inevitable because the number of jobs provided by any new enterprise is not easily estimated by a parish clerk relying on local knowledge of the area. The information provided by the parish clerks is therefore presented only in terms of the presence or absence of new employment in any particular key settlement, and even in this form, the accuracy of the data leaves something to be desired.

Figure 9.8 outlines the provision of new employment in Devon parishes. It shows that a little over 20% of key settlements attracted new factory jobs between 1965 and 1970, with this figure rising to 25% over the period 1971-75. Other forms of employment appear to be less significant although it is interesting to note that non-key locations have been successful in attracting some office employment as well as some new jobs in the secondary sector. From these figures it would appear that some small success has been achieved in the attraction of new employment into the key settlements.

Other studies have produced results which further expound these trends. Peter d'Abbs (1975), in a survey of social and economic change in North Devon, outlines the location of new firms which have recently been attracted to the area. In the whole of the study area, which includes the rural districts of Barnstaple, Bideford, Holsworthy, Okehampton, South Molton and Torrington, and therefore covers most of Devon's remoter rural areas, only 5 out of 26 key settlements were found to have provided locations for new firms. Most of the area's new employment was placed in Barnstaple and other higher order centres (Table 9.11). D'Abbs concludes that although there was a substantial influx of new manufacturing industries into North Devon between 1966 and 1974, a noticeable imbalance occurred concerning the size and location of settlements which received this new employment. In particular he singled out the Okehampton areas as one where "very little industrial growth took place (and) the decline in employment in primary industries resulted in an overall decline of 24% in the number of insured employees" (p.78).

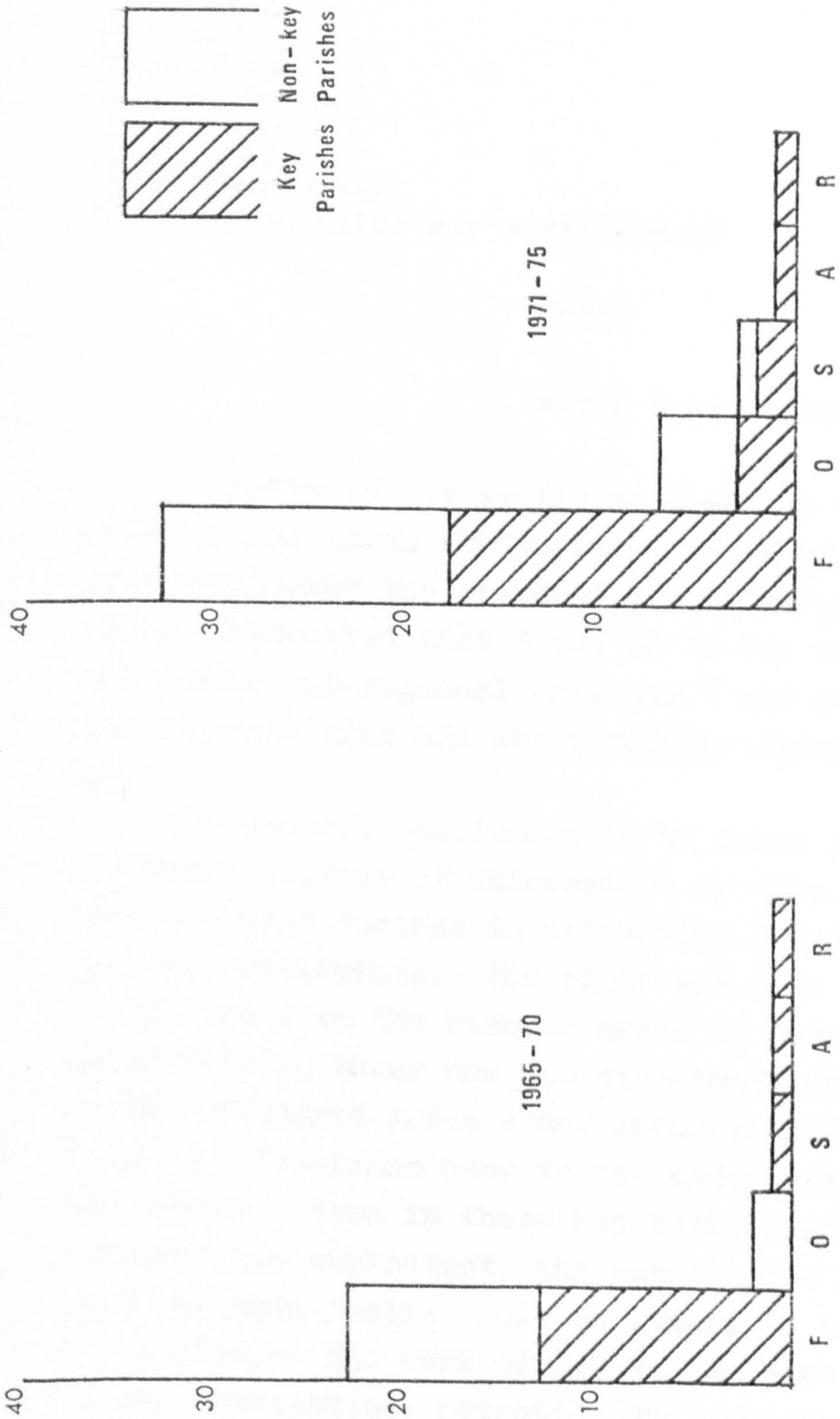


Fig. 9.8 Provision Of New Employment In Devon Parishes

Table 9.11 Location of new firms in North Devon

Location	Number of Firms
Barnstaple	17
Bideford	4
Holsworhty	3
Ilfracombe	4
Okehampton	3
South Molton	5
Great Torrington	6
Others (including key settlements)	8
Total	50

After d'Abbs (1975)

A survey of key settlements in the Exeter and Plymouth sub-regional areas (Community Council of Devon, 1976) also catalogued the presence of new industry. This survey discovered that 3 out of 17 key settlements in the Exeter sub-regional area and 1 out of 13 in the Plymouth sub-regional area had attracted new firms in the recent past.

The general conclusion to be drawn from these three different sources of information is that there has been only moderate success in attracting new employment to the key settlements. The signs are that the higher order inland towns in the remoter areas of Devon have received substantially fewer new job opportunities than those in the pressured areas since industrialists have tended to prefer locations near to the major cities of Plymouth and Exeter. Even in those key settlements which have received new employment, the actual rise in the number of jobs has been small. This in itself is not a bad thing. For instance, the work of CoSIRA has been a major force in the instigation, retention and even expansion of small firms in the rural areas of Devon. These small enterprises are invaluable in the lifting of rural morale as well as in providing further employment opportunities. However, rightly or wrongly, it would appear that the major effort has been directed towards new employment in the higher order urban centres.

(b) Employment in Key Inland Towns

Figures 9.9 and 9.10 illustrate the changing pattern of employment in Devon Employment areas. These employment trends are dominated by the urban centres within each area. It is immediately apparent that the remoter rural areas have remained almost stationary in numbers of employees, the exception being Barnstaple Employment Area which has shown an appreciable increase. These figures mask much of the new employment that has taken place since the outmigration of some workers balances the new jobs provided in the areas. However, it seems likely that only small increases in employment have occurred in areas such as Tavistock and Okehampton. Therefore, the job opportunities in these remoter areas continue to rely heavily on commuting.

Figure 9.11 gives an impression of the hinterlands of the urban centres in Devon. Although these spheres of influence are based on shopping trip analysis, they also demonstrate the positioning of employment centres in the remoter areas. It might be imagined that the key settlements with their more extensive public transport services to the key inland towns, would provide good links with these centres of employment. However, a recent study of rural transport in Devon (Department of the Environment, 1974) suggests that public transport is becoming decreasingly important in the journey to work of rural residents. In a case study of the Tiverton area, 77% of workers travelled to work by car, 7% by stage bus, 6% by contract bus and the remainder by motor cycle, cycle or on foot. The report concludes:

> "Public transport does not play a significant part in the journey made to and from work in the outlying areas we examined; even in the one best served by buses. Already more people in these areas travel to work by getting lifts than go by stage bus. There may be cases, however, where people without access to cars find their choice of employer limited" (p.6)

This last point is important in this context since it is these groups of immobile people who are most helped by the transport facilities provided in the key settlements.

After D.C.C. (1964) FIG. 9.9

EMPLOYMENT PATTERN 1962

DEVON SOUTH-WEST GT. BRITAIN

THESE CIRCLES ARE NOT TO SCALE BUT INDICATE THE PROPORTIONATE DIVISION OF EMPLOYMENT INTO THE THREE MAIN INDUSTRIAL CATAGORIES.

Somerset

Ilfracombe
Barnstaple
Bideford
Okehampton
Tavistock
Ashburton
Tiverton
Honiton
Axminster
Seaton
Exmouth
Teignmouth
Newton Abbot
Torquay
Paignton
Brixham
Totnes
Plympton
PLYMOUTH
Kingsbridge
Dartmouth
EXETER

Dorset

Cornwall

COUNTY OF DEVON

SCALE IN MILES

N

LEGEND

NUMBER OF INSURED POPULATION

2,500 5,000 10,000 15,000 25,000 50,000

EMPLOYMENT EXCHANGE AREA BOUNDARIES.

BOUNDARY OF POPULATION AREAS

MANUFACTURING INDUSTRIES SHOWN THUS:-

C. CLOTHING.
E/E. ELECTRICAL OR ENGINEERING GOODS.
Fd. FOOD.
Tx. TEXTILES.
T. TIMBER.
V. VEHICLES.
P. PAPER.
Cly. POTTERY OR CLAY MANUFACTURERS.
S/B. SHIPBUILDING.
Rem. REMAINDER.

MANUFACTURING INDUSTRIES / EXTRACTIVE INDUSTRIES. / SERVICES

After D.C.C. (1977)

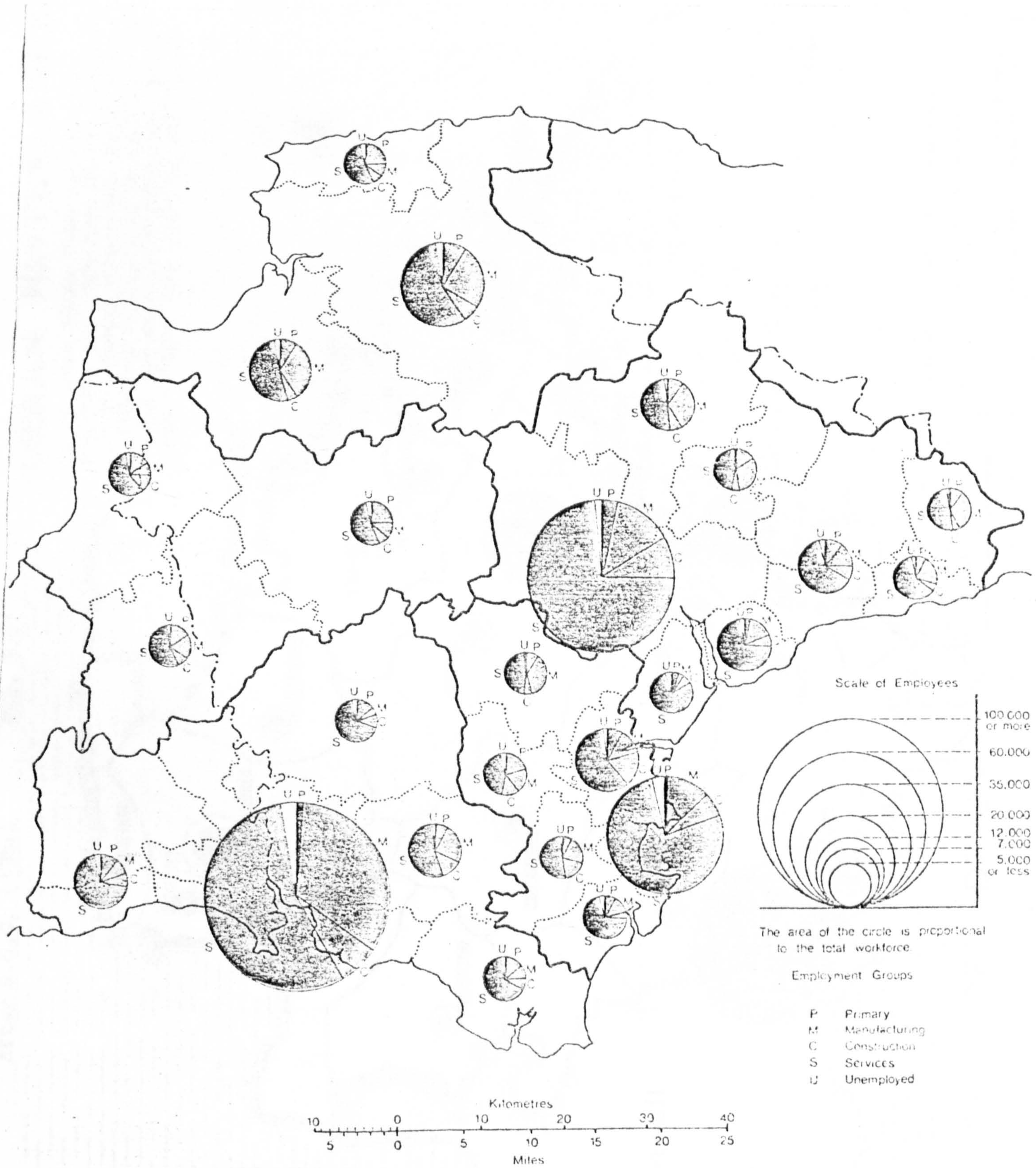
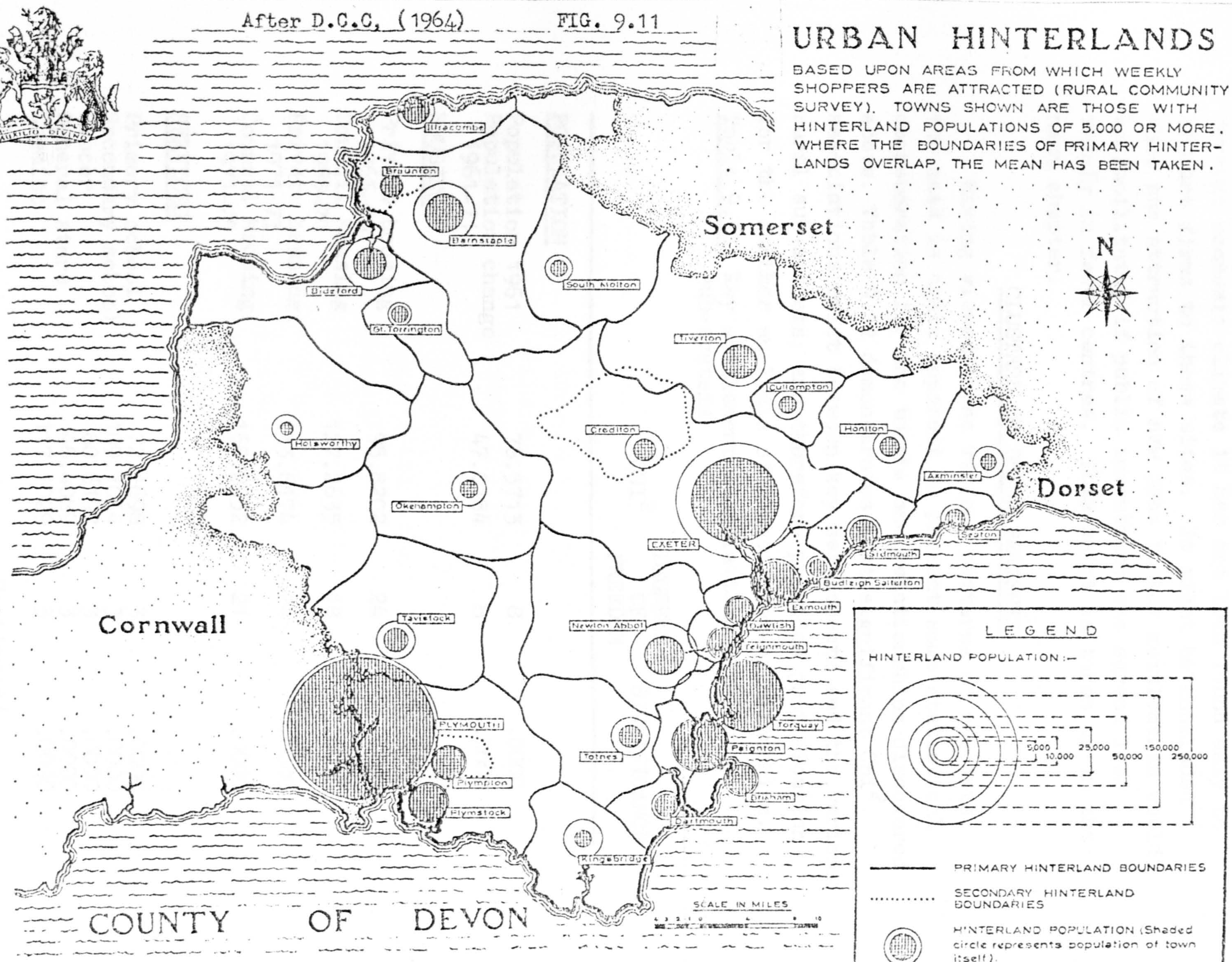


Fig. 9.10 Employment Pattern, 1974

After D.C.C. (1964) FIG. 9.11

URBAN HINTERLANDS

BASED UPON AREAS FROM WHICH WEEKLY SHOPPERS ARE ATTRACTED (RURAL COMMUNITY SURVEY). TOWNS SHOWN ARE THOSE WITH HINTERLAND POPULATIONS OF 5,000 OR MORE. WHERE THE BOUNDARIES OF PRIMARY HINTERLANDS OVERLAP, THE MEAN HAS BEEN TAKEN.



COUNTY OF DEVON

Overall, however, the key settlements make only a modest contribution to employment opportunities. Some small industrial estates have been established but in the current economic climate it has not been found easy to attract firms to these sites. It might be concluded that the attraction of new jobs to key settlements would be facilitated if public investment was spread less thinly in fewer centres. This point is taken up in the next chapter.

CLUSTERS OF DEVON PARISHES

Having viewed these various patterns of raw data, the need is again apparent to present some statistical corroboration for the trends and relationships discovered above. Table 9.12 demonstrates that significant Chi^2 associations exist between key settlements and the various rural sub-systems, and therefore provides justification for the further analysis of these inter-relationships.

Table 9.12 Key settlement associations with rural sub-systems

	CHI^2	DEGREES OF FREEDOM	SIGNIFICANCE
POPULATION			
Population 1961	76.5713	8	.0000
Population change 1961-71	47.0184	8	.0000
HOUSING			
Private housing 1965-70	98.8202	24	.0000
Council housing 1965-70	127.2635	18	.0000
Private housing 1971-75	133.6174	24	.0000
Council housing 1971-75	168.2952	21	.0000
SERVICES			
Primary school	72.1698	3	.0000
Secondary school	109.1014	3	.0000
Grocer	60.6197	3	.0000
General store	46.4089	3	.0000
Chemist	117.1029	3	.0000

Continued/...

Table 9.12 continued

	CHI^2	DEGREES OF FREEDOM	SIGNIFICANCE
SERVICES ctd.			
Bank	114.1946	3	.0000
Post office	26.4666	3	.0000
Doctors surgery	110.8870	3	.0000
Primary bus service	39.5049	3	.0000
EMPLOYMENT			
Factory employment 1965-70	124.1626	6	.0000
Factory employment 1971-75	130.6592	6	.0000

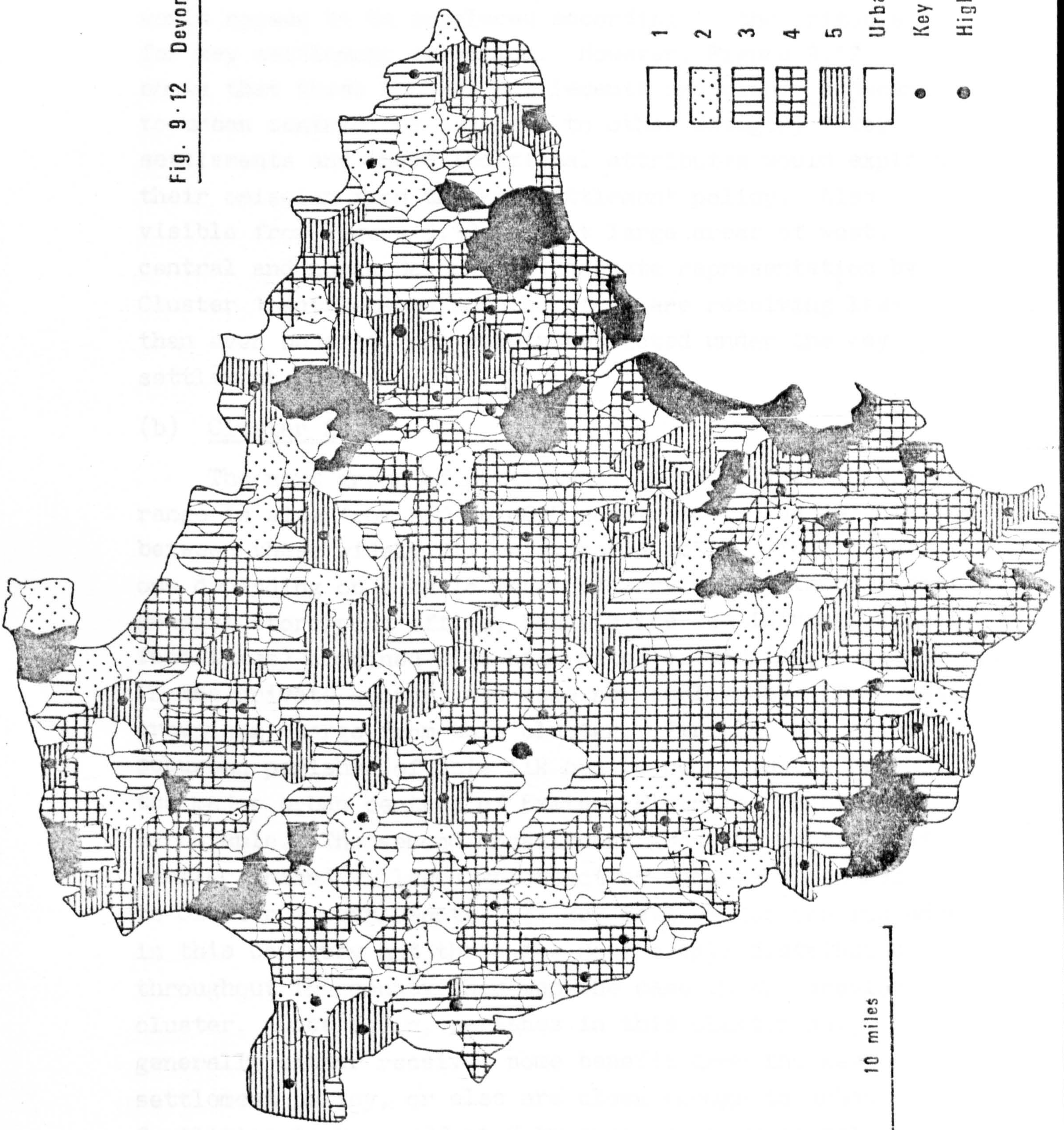
Once again, cluster analysis has been used to create a spatial juxtaposition of the individual strands of life in rural settlements.

Clustering techniques and the question of data input were discussed in Chapter 6. Ward's error sum of squares was again used in the differentiation process, and careful scrutiny of the linkage dendrogram and of the cluster fusion levels suggested that 5 clusters were appropriate to the Devon data. The results of the cluster analysis are shown in Figure 9.12, and each cluster will be reviewed individually.

(a) Cluster 1

The first cluster (with a high degree of internal correlation) includes 35 key settlements along with 13 other parishes. Settlements represented by this cluster are characterised by the highest levels of centrality. Service provision is high, with primary (and some secondary) schools, foodshops, banks, primary bus services and a full complement of infrastructural facilities being generally available in these locations. It is noticeable that Cluster 1 settlements constitute the centres for health services in rural Devon. Most of the rural doctors surgeries and all chemists are located in these types of parish. New public and private housing (particularly in

Fig. 9·12 Devon Clusters



the second policy quinquennium) are also concentrated in these settlements along with new employment in many cases.

Cluster 1 settlements can therefore be seen to represent the most successful and viable rural centres in Devon. This status is to be expected from the key settlement contingent but the non-key settlements in this category would appear to be misplaced according to the criteria for key settlement selection. However, Figure 9.12 shows that these non-key settlements are either adjacent to urban centres, or adjacent to other Category 1 key settlements and these locational attributes would explain their omission from the key settlement policy. Also visible from Figure 9.12 is that large areas of west, central and north Devon lack adequate representation by Cluster 1 settlements and therefore are receiving less than even benefit from growth attracted under the key settlement policy.

(b) <u>Cluster 2</u>

The next group of settlements in the cluster hierarchy range in size from 250 to 4000 population. The association between these widely differing parishes is a functional one depending on a basic level of services (primary school, general store/post office, bus service and infrastructural facilities) combined with high rates of housing, particularly in the private sector, and some new employment. Two spatial groupings emerge from this cluster. Firstly, groups of suburban parishes of this ilk can be recognised surrounding the major urban centres of Exeter, Plymouth, Torbay and Barnstaple. The second constituent grouping consists of smaller inland villages which act as secondary centres to Cluster 1 settlements. 31 key settlements are included in this category and these are more evenly distributed throughout the county than was the case in the previous cluster. Once again, parishes in this cluster have generally either received some benefit from the key settlement policy, or else are close enough to urban facilities to be unaffected by rural investment policies.

(c) Cluster 3

The third cluster includes nearly one third of all parishes in Devon. Service levels are characterised by the ubiquitous general store/post office, village hall, public house and church combination, while most settlements in this group are also served by public transport and about half possess their own primary school. Little or no new housing has been built in these settlements and in only 7 cases has new employment been attracted during the key policy period. This cluster represents the type of settlement outlined in the previous analysis; namely where the key settlement policy has heightened trends of population and service loss and where continuing standards of rural life are only maintained with the help of public and private transport. Settlements of this cluster and particularly evident in the remoter parts of the county, and even include 8 key settlements which would appear to be at a certain disadvantage in the fulfilment of growth centre objectives.

(d) Cluster 4

The settlements represented by this cluster are of similar service, housing and employment type to those in Cluster 3, with the exception of one vital attribute. Cluster 4 settlements appear to be located away from the major routeways and are therefore subject to pressing problems of accessibility. This relative remoteness is evidenced by a total lack of primary bus services and by a less than even pattern of secondary bus services. Infrastructural patterns (particularly those of mains drainage) are also detrimentally affected by this remoteness. The locational attributes of this cluster have been instrumental in the conditions of relative deprivation which have occurred in the settlements concerned under the key settlement policy. Such settlements are often served by travelling shops, but the lack of bus services has meant that high levels of personal mobility are needed if the facilities provided in the key settlements are to be used. The two key settlements in

this group would again appear to have few locational or functional advantages in the fulfilment of the policy's aims and objectives.

(e) Cluster 5

The final cluster consists of small agricultural hamlets often characterised only by the presence of a church and basic water and electricity provision. These settlements are often of low accessibility and have attracted little or no new housing and no employment. Cluster 5 settlements are mainly found in the west, centre and north of the county and often form the remote hinterlands of key settlements in the most disadvantaged rural areas in Devon. The position of the settlements under the key settlement policy differs only because their small size makes them the most difficult part of the rural system to assimilate under a policy of two-way linkages from centralised investment centres.

These cluster diagnostics lend considerable support to the findings of the above sub-system analyses. As in the Warwickshire analysis it can be seen that only a minority of settlements have as yet received positive benefits from the key settlement policy, and therefore it is suggested that the policy might be widened to include a broader spread of investment advantages in the remoter rural areas.

KEY SETTLEMENT PERCEPTION

As with the Warwickshire analysis, the survey of parish clerks contained a question pertaining to their knowledge and perception of the key settlement policy. Tabee 9.13 outlines the responses to this part of the questionnaire. In all, 52.4% of parish clerks were able to correctly name their nearest key settlement, while a further 19% named a larger urban centre. With no response from 10.3% of parishes this means that 18.3% of clerks were not aware of their nearest key settlement. Compared with the equivalent response from Warwickshire parishes, this level of knowledge is very high, as would be expected in a situation where the key settlements policy has been operative for 15 years.

Table 9.13 Key settlement perception

	Key parishes	Non-key parishes
1. No response	7	34
2. Correctly named key settlement	57	152
3. Named larger urban centre	6	70
4. Named incorrect village/ don't know	7	66

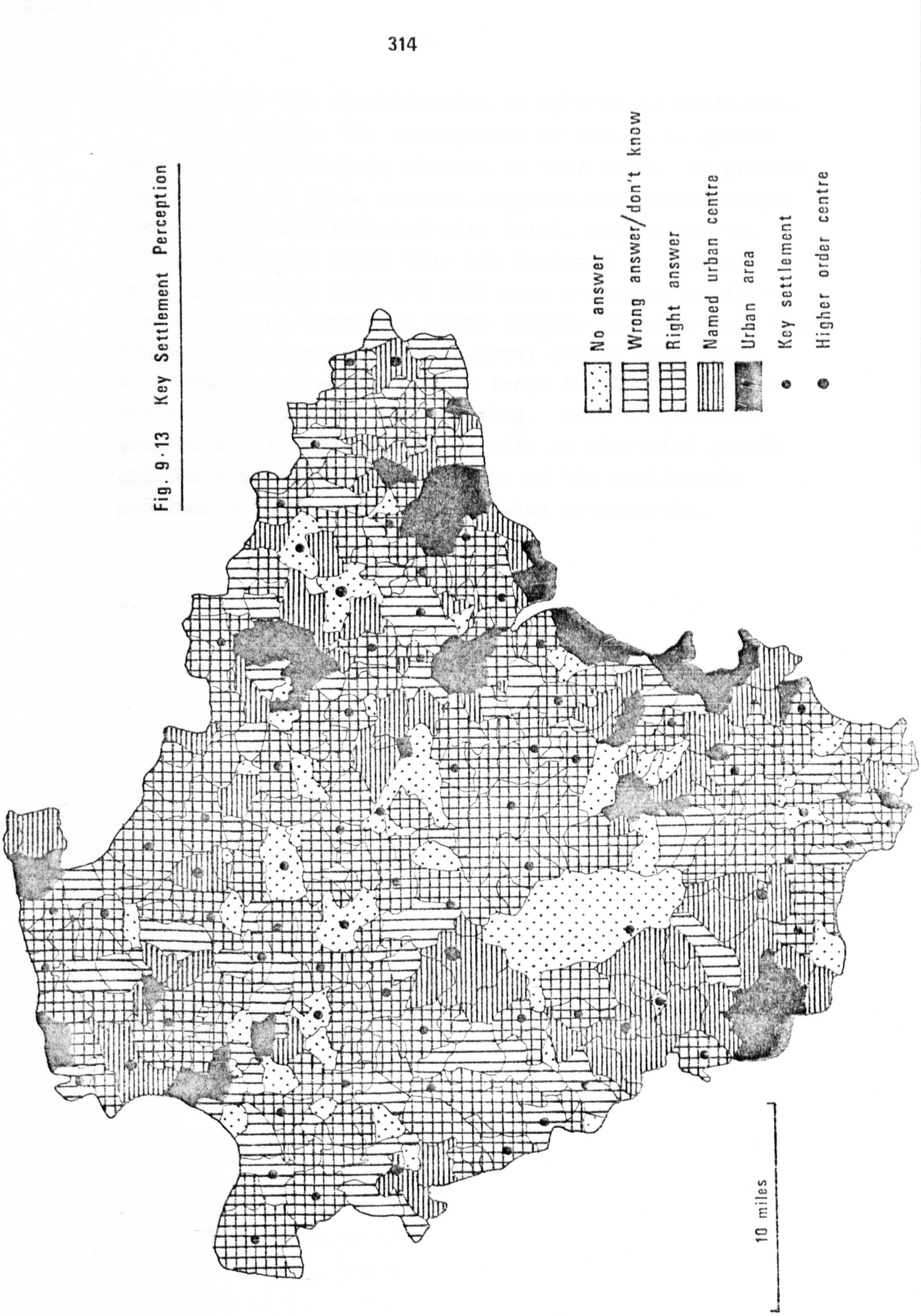
Source: Questionnaire

The perception of parish clerks representing key settlements and key inland towns is particularly interesting. All six respondent key inland towns demonstrated an awareness of their status. Furthermore, 57 key settlements also had knowledge of their selected rank in the settlement hierarchy. Thus, allowing for 6 non-respondent key settlements, only 7 clerks were not aware of their position under the rural settlements policy.

Figure 9.13 demonstrates that the clerks' perception of key settlements occurs in a regular pattern across the county. Parishes that demonstrated no awareness of the policy are also evenly scattered although small groupings of these settlements are visible in the extreme west and east of the county. Certainly, there are few indications to suggest that key settlements in the remoter areas are less well known than those nearer the major urban centres. On the contrary, many parishes in the more pressured rural areas have closer links with the larger towns and cities and so find the key settlement policy less applicable to their situation.

In the Warwickshire analysis, patterns of perception were used to differentiate between key settlements surrounded by zones of high awareness, and those concerning which a low degree of knowledge was exhibited in adjacent parishes. This formulation of spheres of perceptive influence is not possible in this case. Patterns of awareness are visible around key inland towns such as Tavistock, Okehampton and Crediton, but the key settlements are too

Fig. 9·13 Key Settlement Perception



numerous for the clarification of spheres of influence.

The need for the arrangement of sub-areas around each key settlement is obvious in this case. At present the pattern of these centres suggests that their number and location was selected with little regard for the hinterland areas which they are designed to service. Once again it is apparent that many parishes are in a position to be linked to urban centres whilst others would appear to require a definite rural centre with which to identify and with which to forge the linkages which are so essential for rural living. Such a system of hinterlands linked to centres with an attracted growth impetus would help overcome some of the small-scale problems encountered in the non-key settlements.

CHAPTER 10

THE OKEHAMPTON AREA CASE STUDY

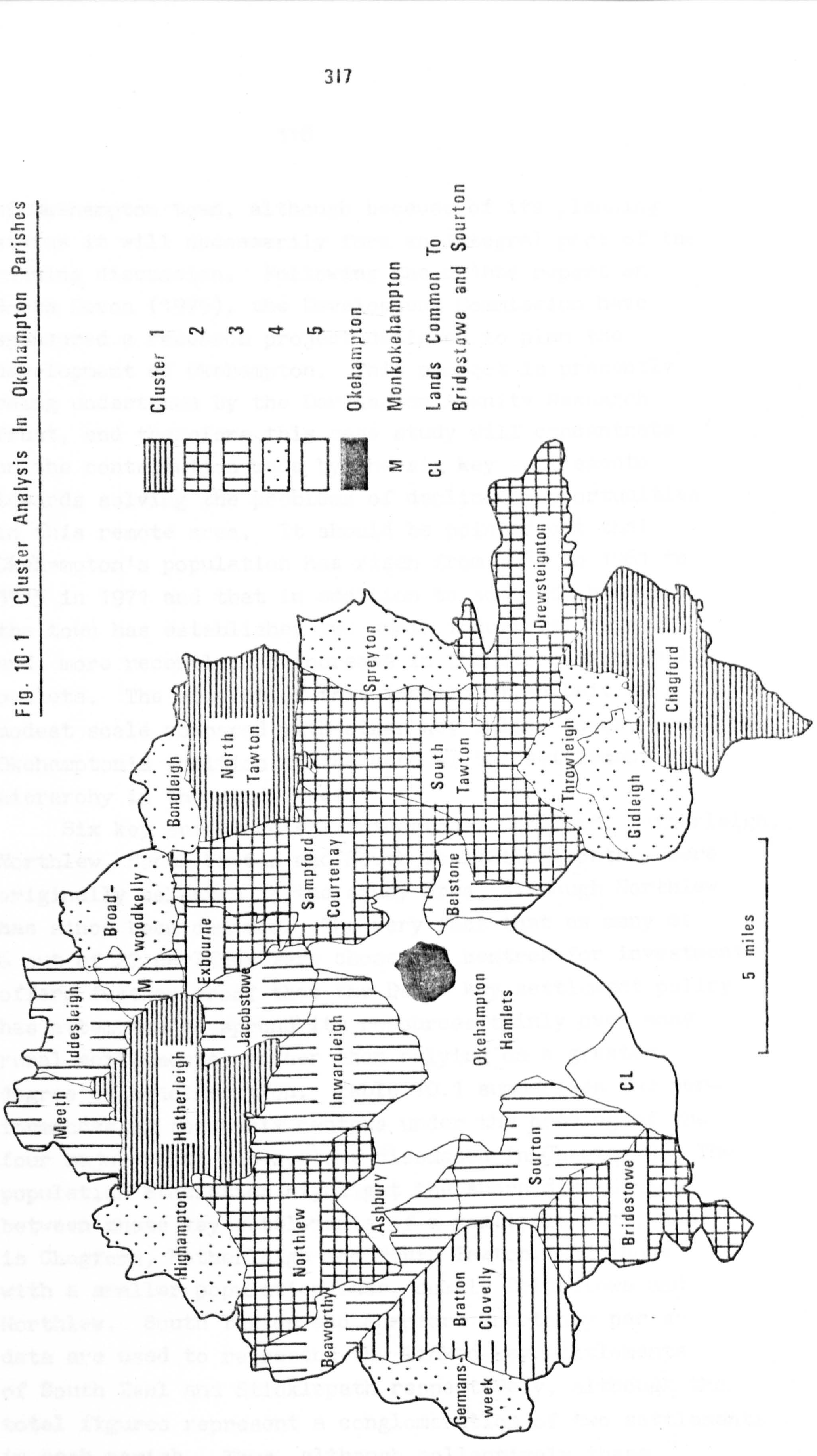
THE AREA AND ITS KEY SETTLEMENTS

As was the case with Southam, Okehampton Rural District formed a discrete secondary administrative unit prior to the 1974 local government re-organisation. After this date the 27 constituent parishes were encorporated into the new West Devon District. However, in consideration of the fact that census data are only available up to the year 1971, it was decided to remain with the pre-reorganisation boundary and make a special study of the progress of these 27 parishes under the key settlement policy. Okehampton R.D. is situated in the west/central region of Devon and forms part of the problematic remoter rural region of the county. The nature of the area is adequately summarised by rurality indices of -6.2182 in 1961 and -7.8254 in 1971. Although the southernmost parishes of the study area skirt the edge of Dartmoor, the district as a whole is not dominated by the effects of tourism. Therefore, Okehampton R.D. would appear to offer an appropriate area in which to study the small-scale ramifications of the key settlement policy in a remote rural area.

Figure 10.1 forms a reprise of the cluster categorisation of parishes in Okehampton R.D. (Chapter 9). Three Cluster 1 centres are present, while seven parishes fall within the Cluster 2 (secondary centre) grouping. Elsewhere in the study area, Clusters 5, 3 and 4 respectively are in evidence with increasing distance from Okehampton.

The principal settlement within the study area is Okehampton itself. Selected as a key inland town under the rural settlement policy of the First Review of the Devlopment Plan, Okehampton has been given the planning objective of providing a centre for the social and economic needs of its rural hinterland. The resources of this chapter have not been devoted to a full-scale appraisal

Fig. 10·1 Cluster Analysis In Okehampton Parishes



of Okehampton town, although because of its planning status it will necessarily form an integral part of the ensuing discussion. Following the d'Abbs report on North Devon (1975), the Development Commission have sponsored a research project designed to plan the development of Okehampton. This project is presently being undertaken by the Dartington Amenity Research Trust, and therefore this case study will concentrate on the contribution made by the six key settlements towards solving the problems of declining opportunities in this remote area. It should be pointed out that Okehampton's population has risen from 3864 in 1961 to 3915 in 1971 and that in addition to some new housing, the town has established two small industrial estates and, more recently, an increase in the stock of retail outlets. The receipt of this investment, albeit on a modest scale compared with other key inland towns, confirms Okehampton's position at the head of the settlement hierarchy in the study area.

Six key settlements - Bridestowe, Chagford, Hatherleigh, Northlew, North Tawton and South Zeal/Sticklepath - were originally selected in the study area, although Northlew has since been demoted. The very fact that as many as 6 out of 27 parishes were chosen as centres for investment offers further proof that the Devon key settlement policy has attempted to spread its resources thinly over many rural settlements, rather than relying on a greater degree of concentration. Table 10.1 summarises the performances of these six centres under the heading of the four major rural sub-systems discussed in Chapter 9. The population statistics highlight the sharp distinction between those key settlements of a realistic size, that is Chagford, Hatherleigh and North Tawton, and those with a smaller population base, namely Bridestowe and Northlew. South Tawton and Sampford Courtenay parish data are used to represent the linked key settlements of South Zeal and Sticklepath respectively, although the total figures represent a conglomeration of two settlements in each parish. Thus, although collectively these

Table 10.1 Key settlement performance levels

	Bridestowe	Chagford	Hatherleigh	Northlew	N.Tawton	S.Zeal*	Sticklepath**
Population change 1961-1971	-72	-96	-69	-16	24	73	-21
Population size 1971	433	1250	915	483	1122	1333	686
Services introduced					Clothes store		
Services withdrawn	General store Train	Secondary school			Train		Baker
Private housing 1965-70	10	10	10	10	30	30	10
Council housing 1965-70	0	0	0	0	30	50	0
Private housing 1971-75	10	50	10	10	20	10	10
Council housing 1971-75	0	0	30	0	20	0	0
New employment	x	x	✓(30)	x	✓(200)	✓(40)	x

* South Zeal is included in the parish of South Tawton
** Sticklepath is included in the parish of Sampford Courtenay

settlements offer a considerable base population, they individually belong to the smaller category of centre. The South Zeal/Sticklepath/South Tawton complex may be looked upon as an example of a linked settlement but it should be stressed that these units are not functionally interdependent since each reproduces the others basic services and facilities.

Although the size of key settlements has been seen as an important determining factor in the fulfilment of many policy objectives (see Chapter 9), the relationship between population size and the degree and direction of population change is not straightforward within the six key settlements under review. Of the three larger individual centres, Chagford and Hatherleigh have declined by 7.1% and 7.0% respectively while North Tawton has staged a moderate population increase of 2.2%. The smaller centres have displayed similarly mixed fortunes. A small decrease has taken place in Northlew (3.2%) and Sticklepath / Sampford Courtenay (3.0%), a larger decline at Bridestowe (14.3%) and a collective gain of 5,8% at South Zeal/South Tawton.

In order to explain these changes, other criteria have to be brought into consideration. For example, of the three key settlements where new employment has been introduced, only Hatherleigh has suffered a decline in population, whereas the lack of new employment has resulted in continuing depopulation. Levels of new housing are also important in this context. Table 10.1 shows the maximum figures of the questionnaire housing ranges (Appendix 1). From these data, it can be seen that the two key settlements to increase their populations also exhibit the highest house building rates over the whole study period. It is encouraging to note that since 1971 (and even since 1975) most of the key settlements in the study area have provided the locations for new housing on a considerable scale. This even applies to the smaller settlements of Bridestowe and to a lesser extent Northlew, and so these housing trends may be indicative of a more hopeful future for the selected key settlements

surrounding Okehampton. However, if it has taken ten years or more to instigate growth in the key settlements, then it would appear to be an even longer term project to spread some of these new opportunitites into the rural hinterland.

The long term nature of the key settlement task is further evidenced by the pattern of service provision. Basically, the county-wide trend of service stability has been followed in this area. However, it is disturbing to note the withdrawal of foodshop facilities from two centres, and this pattern would have been exacerbated had not a considerable outcry been raised over the proposed closure of the International Stores supermarket in Chagford. As it is, only Chagford, Hatherleigh and North Tawton offer levels of facilities of sufficient level to act as centres for retail and social services. The centrality of Hatherleigh is greatly increased by its weekly market. However, public transport systems, such as they are, tend to revolve around Okehampton and so the service role of the key settlements is somewhat restricted.

DEMOGRAPHY

When these six key settlememts are viewed in the context of the study area as a whole, their performance with reference to the policy aims and objectives may be assessed more effectively.

Table 10.2 demonstrates the rates of population change over the study area between 1961 and 1971 and also for the previous decade. These rates of change are not consistent over the two time periods. For example, several of the smaller non-key parishes showed population increases between 1951 and 1961 but suffered depopulation during the key settlement policy period. Ashbury, Germansweek, Jacobstowe and Sourton represent this reversal of upward population trends. Furthermore, some parishes (for example, Beaworthy and Belstone) exhibit an accelerated level of depopulation in the latter period compared with the former.

Table 10.2 Population change in Okehampton R.D. 1961-71

	1961	1971	1961-71	% Change	% Change 1951-61
Ashbury	51	47	-4	-7.8	10.9
Beaworthy	240	213	-27	-11.2	-9.1
Belstone	316	282	-34	-10.8	-5.1
Bondleigh	102	104	2	2.0	-27.1
Bratton Clovelly	373	372	-1	-0.3	-7.2
Bridestowe	505	433	-72	-14.3	-1.2
Broadwoodkelly	181	188	7	3.9	-1.6
Chagford	1346	1250	-96	-7.1	-15.3
Drewsteignton	625	534	-91	-14.6	-12.1
Exbourne	282	280	-2	-0.7	-3.8
Germansweek	130	117	-13	-10.0	3.2
Gidleigh	117	91	-26	-22.2	-7.1
Hatherleigh	984	915	-69	-7.0	-5.4
Highampton	170	171	1	0.6	-15.8
Iddesleigh	227	208	-19	-8.4	-11.4
Inwardleigh	418	443	25	6.0	-18.0
Jacobstowe	171	126	-45	-26.3	15.5
Meeth	133	140	7	5.3	-19.9
Monkokehampton	120	123	3	2.5	-13.7
Northlew	499	483	-16	-3.2	-11.7
North Tawton	1098	1122	24	2.2	-7.3
Okehampton Hamlets	992	508	-484	-48.8	29.5
Sampford Courtenay	707	686	-21	-3.0	-2.2
Sourton	408	348	-60	-14.7	2.3
South Tawton	1260	1333	73	5.8	-0.9
Spreyton	267	280	13	4.9	-11.0
Throwleigh	272	269	-3	-1.1	-11.9

Source: Census

On the other hand, other settlements have shown improved population characteristics under the key settlement policy. Bondleigh, Broadwoodkelly, Highampton and Monkokehampton represent a group of smaller parishes which have been transformed from situations of depopulation to those of population gains. Other parishes, such as Bratton Clovelly, Exbourne and Iddesleigh demonstrate reduced rates of depopulation.

The performance of the key settlements is of obvious importance in this respect. Comparative success has been achieved in North and South Tawton where depopulation has been reversed and in Chagford and Northlew where rates of depopulation have been reduced. However, population

loss has been accelerated in the key settlement parishes of Bridestowe, Hatherleigh and Sampford Courtenay. Thus there would appear to be no direct relationship between settlement size and fluctuating population levels in either key or non-key settlements. What is clear is the fact that no parish which gained population between 1951 and 1961 was able to continue this growth during the key settlement policy period, and so there is no certainty that the improved performance of many parishes over the latter time-scale will be continued into the future.

If settlement size has not dictated population trends then location might be considered as an alternative explanatory factor. Figure 10.2 suggests that the northern and eastern parts of the study area have been better able to cope with the problems of depopulation than have some parishes in the south and west. Any suggestions as to the nature and reasons behind this locational bias are at best tentaive because of the uncertain nature of population fluctuations. However, it does seem that patterns of rural life may have been stabilised in northern and eastern peripheral parishes due to the influence of the larger key settlements such as North Tawton and Hatherleigh, even though Hatherleigh itself displays accelerated depopulation. The more westerly parishes served only by the smaller key settlements of Northlew and Bridestowe have tended towards a reversal of previous growth or an acceleration of previous losses of population.

The 1971 Ward Library 10% Tables provide useful documentation concerning the migration of population into or within the study area (Table 10.3). Overall out-migratory trends tend to mask the attractiveness of certain settlements as centres for in-migration and within-migration. In each case the larger key settlements are prominent centres of attraction. Thus, although depopulation still occurs in five of the key settlement parishes, the essential opposite movement of people into the key settlements does exist as a basis for future expansion if out-migration is halted or slowed at a later

Fig. 10·2 Population Change, 1961-71

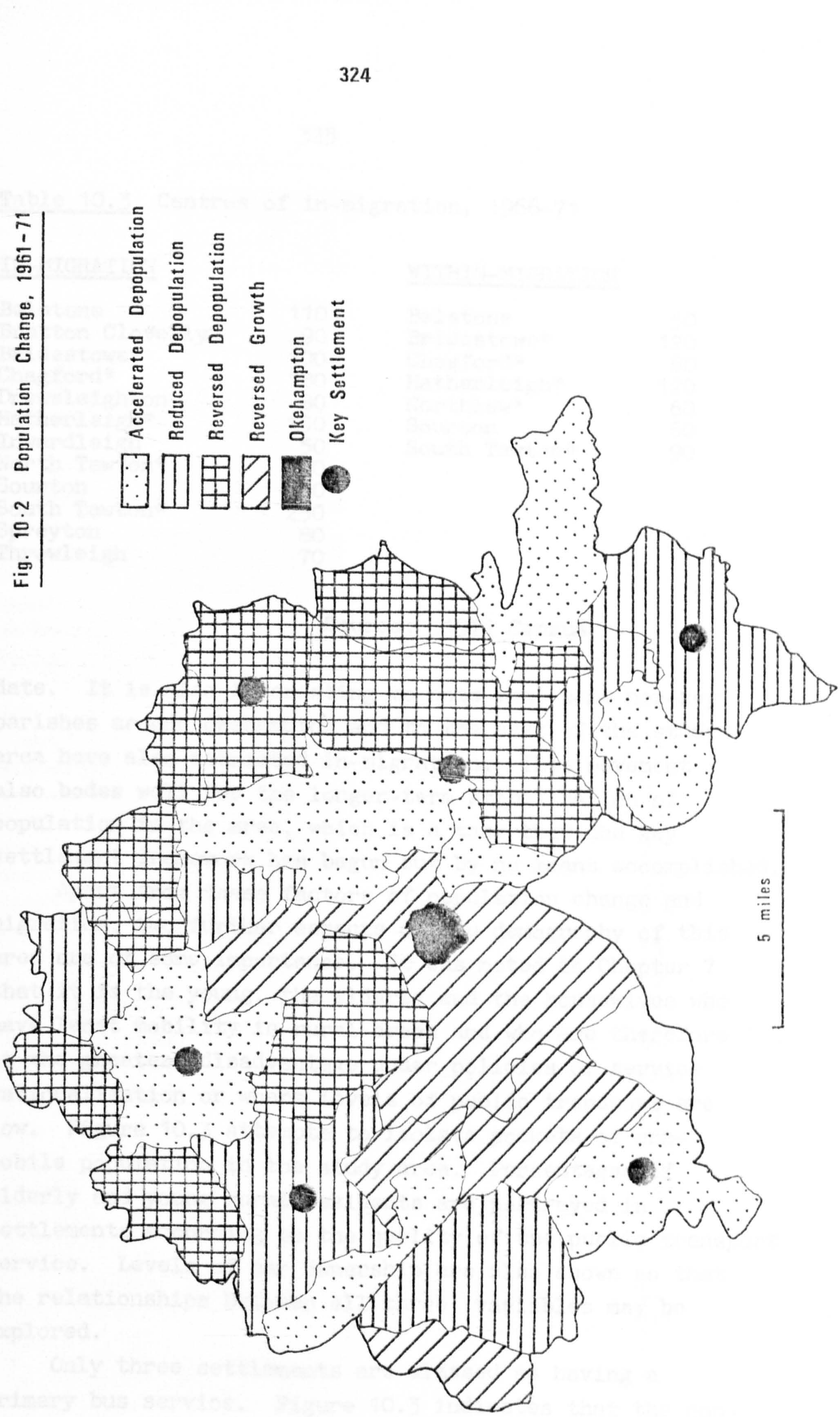


Table 10.3 Centres of in-migration, 1966-71

IN-MIGRATION		WITHIN-MIGRATION	
Belstone	110	Belstone	50
Bratton Clovelly	90	Bridestowe*	120
Bridestowe*	100	Chagford*	60
Chagford*	180	Hatherleigh*	120
Drewsleighton	80	Northlew*	60
Hatherleigh*	150	Sourton	60
Inwardleigh	50	South Tawton*	90
North Tawton*	130		
Sourton	50		
South Tawton*	250		
Spreyton	80		
Throwleigh	70		

Source: 1971 Census

date. It is also interesting to note that some non-key parishes around Okehampton and to the east of the study area have also attracted in-migration. This movement also bodes well for the longer-term stabilisation of population in the area, which is a task that the key settlement framework has begun but by no means accomplished.

Apart from these factors of population change and migration, two further aspects of the demography of this area are of some importance. It was noted in Chapter 7 that it is the young, the elderly and the housewives who have least mobility in rural areas and who are therefore at the greatest disadvantage under policies of service rationalisation or where levels of public transport are low. Figure 10.3 attempts to isolate pockets of non-mobile population in the study area. Percentages of elderly and young rural residents are portrayed in settlements according to the quality of the public transport service. Levels of car ownership are also shown so that the relationships between all three variables may be explored.

Only three settlements are classed as having a primary bus service. Figure 10.3 indicates that the non-mobile groupings of population in these settlements differ little from those in the remainder of the area. No significant association is found between the presence

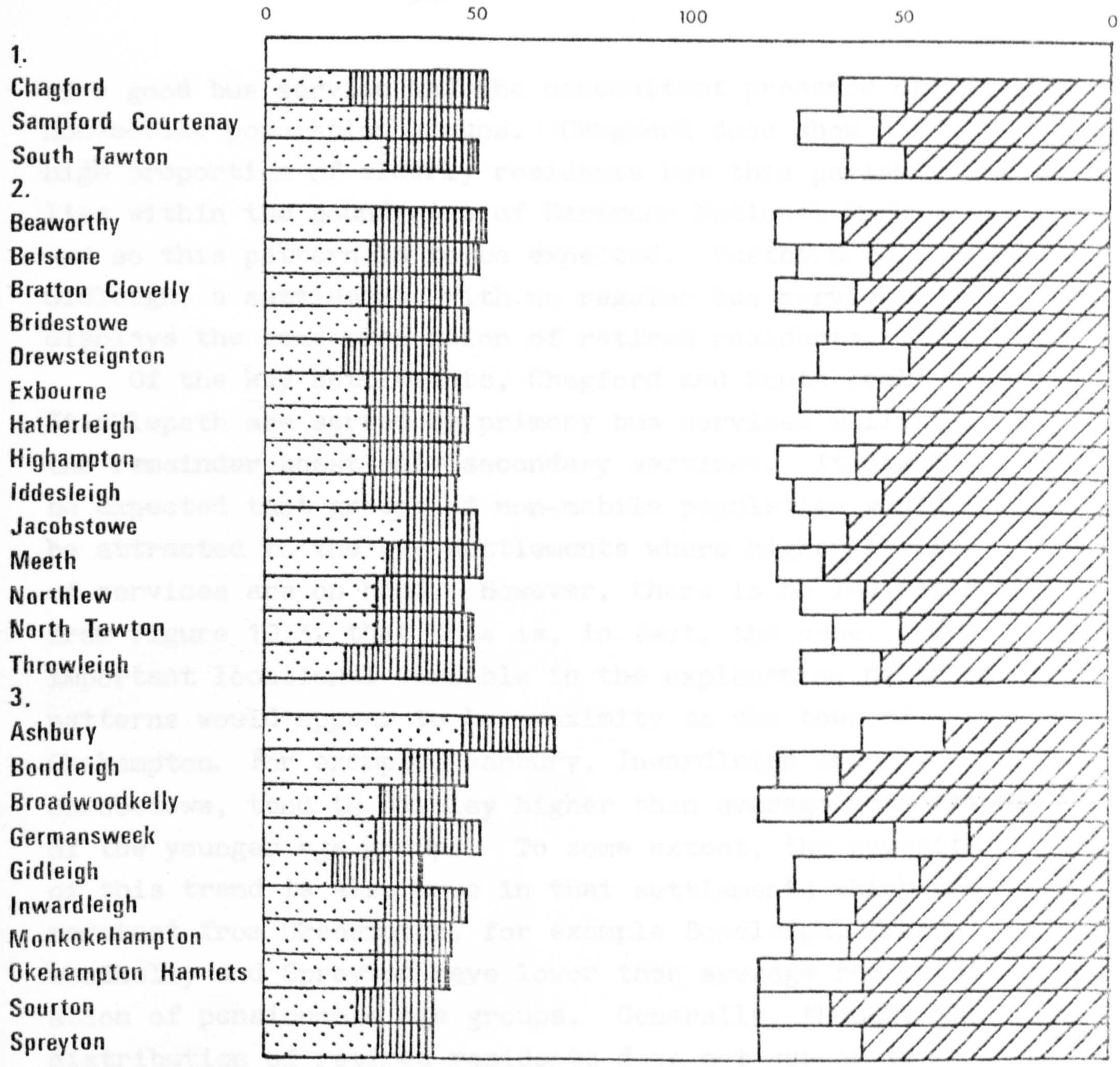


Fig. 10·3 Accessibility And Non-mobile Population Groups

of a good bus service and the concomitant presence of non-mobile population groups. Chagford does show a high proportion of elderly residents but this parish lies within the boundaries of Dartmoor National Park and so this pattern is to be expected. Furthermore, Gidleigh, a settlement with no regular bus service displays the same proportion of retired residents.

Of the key settlements, Chagford and South Zeal/ Sticklepath are served by primary bus services whilst the remainder boast only secondary services. It might be expected that groups of non-mobile population would be attracted to the key settlements where higher levels of services are on hand. However, there is no indication from Figure 10.3, that this is, in fact, the case. The important locational variable in the explanation of these patterns would appear to be proximity to the town of Okehampton. For example, Ashbury, Inwardleigh and Jacobstowe, tend to display higher than average proportions of the younger age groups. To some extent, the opposite of this trend is also true in that settlements which are remotest from Okehampton, for example Bondleigh, Broadwoodkelly and Spreyton have lower than average representation of pensionable age groups. Generally, though, the distribution of retired residents does not appear to respond either to settlement size or status or to the quality of public transport services. Therefore, it is clear that pockets of non-mobile population do exist in many of the non-key settlements, even those with low levels of accessibility.

Figure 10.3 also demonstrates the importance of car ownership in rural areas such as the one under review. In this case, the key settlements do seem to have exerted an influence on accessibility patterns. It is clear that lower rates of car ownership in general, and two-car ownership in particular, apply in these selected centres. On the other hand, rates of car ownership in non-key settlements are high, with an important emphasis on two or more cars per household in those settlements not served by a regular bus service. A long period of gradual

adjustment has been at work here. As bus services have receded so it has generally been the case that car ownership levels have increased to provide sufficient household accessibility. However, a situation such as this is likely to leave some small groups of rural residents who are stranded in a settlement from which they do not wish to move, and yet who lack the affluence to provide themselves with the necessary transport to remain in touch with vital services and facilities. The key settlement policy has done little to ease this type of situation and indeed may well have accelerated the gentrification of these smaller settlements.

HOUSING

The analysis of new housing in rural Devon over the key settlement policy period highlighted two major trends:

1. During the period 1965-70, low levels of housing were built in the rural areas, and new dwellings were concentrated mainly in the key inland towns and some key settlements.
2. Between 1971 and 1975, overall levels of building were significantly increased, and the strict attitudes towards new housing in non-key settlements were noticeably relaxed.

New housing is not necessarily an indication of population growth, since increasing building stocks are required to maintain the status quo in a situation of falling occupancy rates. However, new housing is a sign of an attitude of growth in a settlements which is equally important to the morale of a depopulating area.

Table 10.4 lists planning permissions and refusals in the study area over the key settlement policy period. This information was retrieved direct from the planning registers of the former Okehampton Rural District Council planning department. Once again, some small degree of approximation has been necessary in the case of estate development. The information system did not supply the numbers of dwellings involved in all estate applications and so these were estimated either from dwellings per acre figures or from the memory of staff with knowledge of

Table 10.4 Planning permissions and refusals 1965-75

	1965-70		1971-75			
	Permitted	Refused	Permitted	Refused	% permissions single dwellings	% council housing
Ashbury	1	2	1	-	100	
Beaworthy	-	3	16	26	56.2	
Belstone	17	6	16	9	39.4	
Bondleigh	1	-	2	3	100	
Bratton Clovelly	24	9	23	6	83.0	17.2
Bridestowe*	20	53	69	45	17.9	1.0
Broadwoodkelly	9	2	11	24	73.9	
Chagford*	63	23	145	110	13.0	4.8
Drewsteignton	3	20	24	26	55.6	
Exbourne	7	11	30	81	47.7	
Germansweek	5	2	17	3	73.9	
Gidleigh	-	1	-	-	-	
Hatherleigh*	65	241	150	34	15.4	12.9
Highampton	5	11	9	8	100	
Iddesleigh	2	2	1	6	100	
Inwardleigh	7	11	16	56	78.3	
Jacobstowe	2	-	4	3	66.7	
Meeth	1	1	7	3	50.0	
Monkokehampton	12	-	3	-	100	
Northlew*	17	11	30	83	74.5	8.5

Continued/.....

Table 10.4 continued

	1965-70		1971-75			
	Permitted	Refused	Permitted	Refused	% permissions single dwellings	% council housing
North Tawton*	59	22	101	51	23.1	30.6
Okehampton Hamlets	16	59	12	40	92.9	
Sampford Courtenay*	38	27	90	82	33.6	12.5
Sourton	13	26	28	42	31.7	14.6
South Tawton*	59	183	29	129	26.1	64.8
Spreyton	20	58	18	7	61.3	7.3
Throwleigh	9	6	13	8	45.5	27.3

* key settlement parishes

Source: West Devon District Council

particular areas. As in the Southam analysis, these estimates were largely restricted to cases where permission was refused, but the restrictions imposed by the nature of the data should not be forgotten.

It can be seen from Table 10.4 that planning permissions over the first quinquennium accurately reflect the key settlement policy objectives for the Okehampton area. The main centres of permitted new housing were the key settlements, and although one or two parishes such as Bratton Clovelly and Spreyton appear to have received a higher than expected level of permissions, the planning policy in these cases was generally for units of single dwellings rather than estate-type develppment. Of the key settlement parishes, it was Chagford, Hatherleigh, North Tawton and South Tawton that received the bulk of permissions while the three smaller key parishes did not rise above the level of the non-key parishes in this respect,

Between 1971 and 1975 the strict nature of planning control on new dwellings became more relaxed. An overall increase in the number of approvals took place during this period and again the larger key settlements were the most favoured locations. However, both the smaller key settlements and some non-key settlements also display significant increases in planning permissions. Unfortunately neither county or district authorities were able to provide accurate information for the numbers of houses actually built (rather than the number permitted) during this period, but the planning approval data appear to support the overall housing trends as outlined in the last chapter.

Three further criteria have to be examined before the effects of the key settlement policy on new housing may be assessed. The first of these is the location of new council housing. Table 10.4 demonstrates that the non-key settlements of Bratton Clovelly, Sourton, Spreyton and Throwleigh have received public investment in council housing. Although the size of these permitted developments is not great, the very fact that the local authority has looked at housing needs outside the key settlements is an indication that planners have accepted the need for a

flexible approach to local-scale housing within the key settlement framework.

The second factor to be examined concerns the type of people for which new housing (particularly in the private sector) is being built. It is usual for new council housing to be directed towards the needs of the local community although even this is not always the case. However, the nature and origin of future occupants of new private housing will depend largely on the type and cost of the houses being built.

For example, two new private housing developments have recently been completed in Chagford. One estate of terraced and semi-detached low-cost housing at the northern end of the settlement is the type of development which the planners favour in that it aims at young families or local people who might be attracted to this tasteful yet low budget housing. The other, in the south-west part of the settlements consists of ten or twelve detached luxury bungalows. Unfortunately from the planners' point of view, the low-cost estate has only been about half sold whilst the luxury bungalows according to local estate agents, could have been filled three or four times over by people seeking retirement. Therefore, the more popular housing does not always fulfil a local need or help in the stabilizing of a depopulating hierarchy, and this helps to explain the high number of planning refusals in some settlements.

The final point which is worthy of note in this context is that a time lag inevitably exists bewween the granting of planning permission ond the completion of building. In effect, many of the 1965-70 permissions were not completed until the 1971-75 period. It follows that a proportion of the 1971-75 permissions will have only been recently taken up and a further proportion will not yet have been built. Evidence of this fact comes from the recent building of new houses in centres such as Bridestowe, Chagford and Hatherleigh. Since a number of recent permissions have been granted in both key and non-key settlements, it might be expected that these

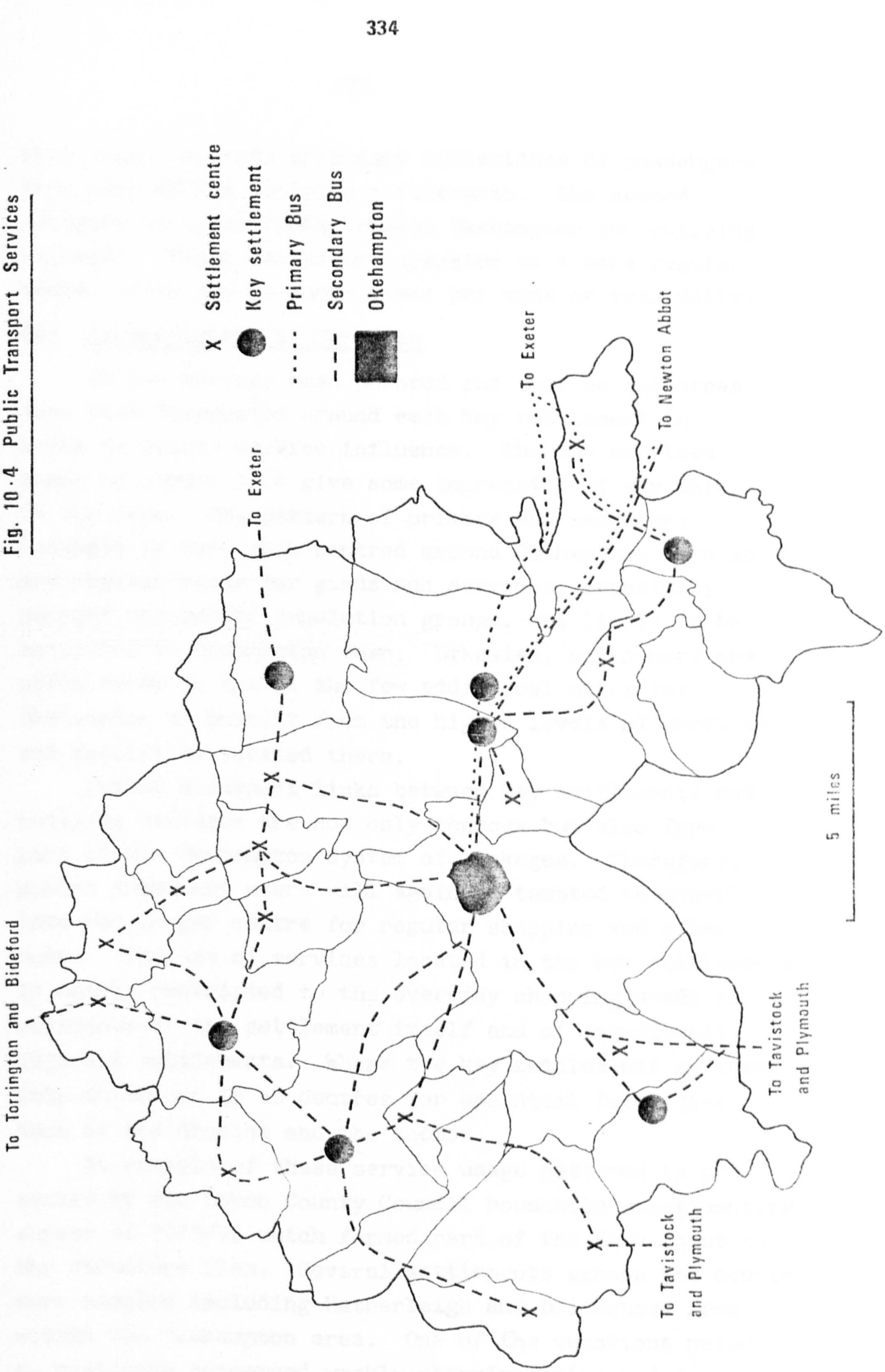
will be taken up in the next few years. If this is the case, then an upturn in the prospects of the study area might have become apparent. Rates of depopulation already slowed, might be stabilised or even reversed, and any resulting increases in population would improve the likelihood of service and employment attraction. At present, these trends are only just beginning to appear, but if the 1971-75 permissions are taken up then such an upturn could become a reality.

All in all, the key settlement policy has improved the rural housing situation by stages. The early refusal to allow housing in non-key settlements has gradually been replaced by a more tolerant approach, even though the key settlements have attracted the greatest proportion of development. However, any upturn in building rates as conjectured above, will only be of benefit to the whole area if the accessibility between non-key settlements and the selected centres is improved. It is this vital area of the key settlement policy that is analysed below.

ACCESSIBILITY

The question of accessibility has been repeatedly encountered in both county and local scale analyses in this study. However, in no situation is accessibility more crucial than in the type of remote rural area of which the Okehampton district is an example. Levels of car ownership have already been shown in Figure 10.3, so the pattern of accessibility on this area is completed by Figure 10.4 which outlines the public transport services available in the study area. The nationalised Devon General/Western National combination provides only minimal bus services in the Okehampton area. These routes link Okehampton, South Zeal/Sticklepath and Chagford eastwards to Moretonhampstead, Newton Abbot and eventually Exeter. Therefore, the remainder of the area is devoid of National Bus Company services. The second sector of public transport provision comprises those services operated by various local private firms. These fall into two categories. Firstly, several weekly and monthly shopping services to Plymouth, Exeter and Bideford have

Fig. 10·4 Public Transport Services



been organised with tributary collections of passengers from many of the outlying settlements. The second category includes links between Okehampton and outlying villages. These routes are operated on a more regular basis, often two or three times per week or even daily.

(a) Accessibility to Services

It has already been pointed out that no sub-areas have been designated around each key settlement in order to denote service influence. The bus services shown by Figure 10.4 give some impression of why this is the case. The pattern of primary and secondary linkages is very much centred around Okehampton, and so any regular needs for goods and services, especially amongst non-mobile population groups, are likely to be satisfied in Okehampton town. Likewise, car owners are often ready to travel the few additional miles into Okehampton to benefit from the higher levels of services and facilities located there.

Public transport links between key settlements and outlying villages are not only tenuous but also form part of the Okehampton system of linkages. Therefore, public transport users will again be tempted to travel into the larger centre for regular shopping and other needs. The use of services located in the key settlements is mainly restricted to the everyday shopping needs of residents of the settlement itself and of immediately adjacent settlements. Where the key settlements do come into their own is as centres for essential facilities such as the chemist and the doctor.

An example of these service usage patterns is presented by the Devon County Council household questionnaire survey of 1973/76 which formed part of the data input to the Structure Plan. Several settlements across the county were sampled including Hatherleigh and Bridestowe from within the Okehampton area. One of the questions posed to residents concerned weekly shopping trips and from this it transpires that 70% of Hatherleigh residents shop within the settlement, with 19% travelling to Okehampton and the remainder venturing further afield. Most respondents

walked to the shops at Hatherleigh, but for the journey into Okehampton only 3% used the bus rather than their private cars.

The situation in the smaller sample settlement, Bridestowe, is markedly different in emphasis. 75% of Bridestowe residents make a weekly shopping trip to Okehampton with more than half of these using the bus. Most of the remainder travel to Tavistock and again the high figure of 40% use bus rather than car transport to get there.

Two main points arise from these results. Firstly, it would seem that only the larger key settlements (such as Hatherleigh) have a sufficient level of services to satisfy local need, although Hatherleigh itself has been especially attractive as a service centre because of its weekly market. It is noticeable, however, that no Bridestowe residents did their weekly shopping in Bridestowe itself. The second point concerns the plight of the non-key settlements. It is regrettable that the County Council survey was not able to include examples of smaller, non-key settlements within its sample. A few of these settlements are fortunate to be served by a similar level of public transport as Bridestowe, but many are totally reliant on can transport. In both cases, Okehampton is the most likely destination for shopping and other services and facilities, although Hatherleigh does attract some usage from northern parishes particularly on market day. With the exception of Hatherleigh, the dearth of linkages between key settlements and the rural hinterland have meant that the selected centres have been less than successful in their servicing role.

(b) <u>Accessibility to Employment</u>

Whereas an irregular bus service can usefully be manipulated for shopping and use of other services and facilities in centralised settlements, the journey-to-work requires regular and convenient services between centres of employment and other settlements. Unlike the pressured rural areas around Southam, the majority of employed persons within the study area actually work within the boundaries of Okehampton R.D. Figure 10.5

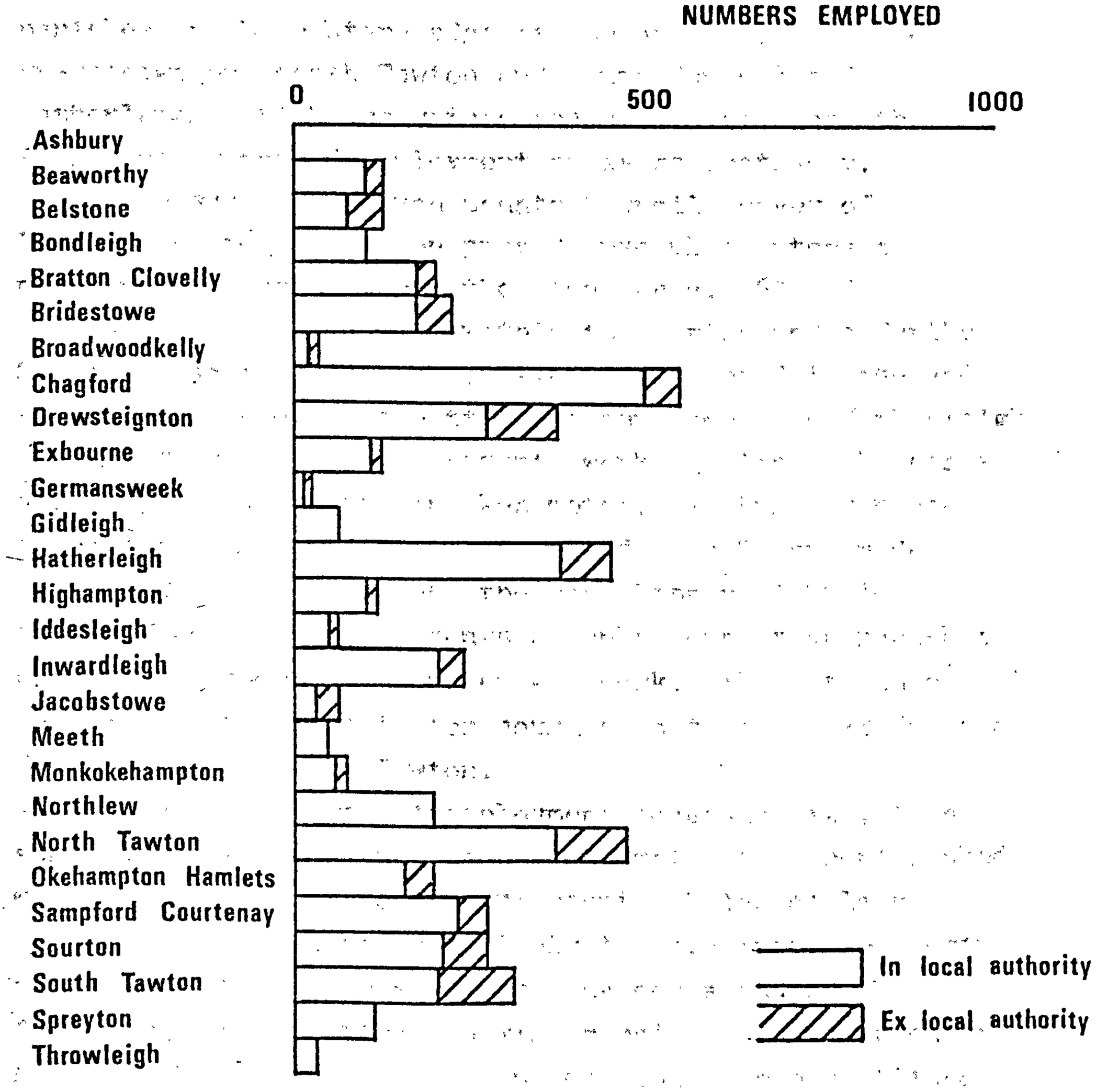


Fig. 10·5 Employed Persons Working Inside And Outside Okehampton R.D.

provides a breakdown of employment areas for each parish. The only noticeable commuting out of the area occurs in parishes on the eastern edge of the area (for example Drewsteignton, North Tawton and South Tawton) and in Hatherleigh, which are within reach of Exeter and the Barnstaple/Bideford employment areas respectively.

Once again the Devon County Council survey of Bridestowe and Okehampton provide useful pointers to employment centres within the study area. 62% of Bridestowe residents work within the parish and a further 8% in Okehampton with the remainder scattered inside and outside the area. The pattern of employment in Hatherleigh is similar with 65% of residents working within the parish and again 8% with jobs in Okehampton. No bus journeys-to-work are made from Bridestowe and only 5% are made from Hatherleigh. In fact the Ward Library 1971 10% tables suggest that residents of only four other parishes use bus transport for journeys-to-work. The most important factor in this usage is for journeys out of the study area from North and South Tawton.

Overall patterns of employment accessibility, then, suggest a heavy reliance on private motor transport linked with a dominance of local employment. Rates of long distance commuting are not likely to have increased during a period of rapidly rising motoring costs and so the future employment situation will remain heavily dependent on local jobs, which in turn places considerable reliance on the provision of new housing near to employment centres or else a continuing emphasis on local scale commuting.

(c) <u>The Key Settlement Policy and Accessibility</u>

It has been stated earlier that Devon's key settlements were selected without apparent regard either for service hinterlands or for linkages between the various levels of the planned settlement hierarchy. Support for this statement has been found in this local-scale analysis of accessibility. It would seem incongruous to provide services and facilities in particular settlements without consideration either of which areas will make use of this centralised investment or of how the residents from these

hinterland areas will travel to the services involved. Therefore, not only are some key settlements too small to provide usable service levels but it is also the case that the facilities provided in some of the larger key settlements are under-used because of this lack of linkages with the hinterland areas.

So far as employment is concerned, the situation has gradually evolved whereby public transport is of only minimal use in the journey-to-work situation and so the key settlement policy of providing jobs in, or within easy access of the selected centres would appear to be the compatible and indeed the most sensible method of relating population, service and employment patterns in the remote rural areas. The fact remains, however, that little new employment has been attracted to the key settlements, and so many local people have had to move elsewhere to gain employment during the key settlement policy period. It is to be hoped that if the expansion of Okehampton goes ahead, then attention will also be paid to the need for employment to be located in the surrounding key settlements as well as in Okehampton town itself. This wider pattern of employment will aid the key settlements in their objective of counteracting depopulation both in their own parishes and in their more remote hinterlands.

THE SPREAD OF DEVELOPMENT OPPORTUNITIES

One of the hypotheses proposed at the very beginning of this analysis was that key settlements perform the growth centre function of spreading development opportunities to peripheral settlements. In order to test this hypothesis, a similar sequence of interlinked analyses was carried out to that described in Chapter 7. Many of the comments and explanantions of methodological techniques will not be repeated here since they are fully expounded in the text of the earlier analysis.

(a) An Index of Rural Development

The starting point for any measurements of the spread of development opportunities must involve some device with

which to record the occurrance of these opportunities at static points across the study area. Consequently an "index of rural development" was again constructed using the standard methods and techniques explained in Chapter 4. The set of 20 variables which formed the input to the Southam analysis were also adopted as primary variables in this case; these variables representing the population, household, service and employment characteristics which have been found to be important criteria in the development of rural areas. Table 10.5 lists these variables and their loading scores onto the principal component of rural development, which explained 36.4% of the total variance.

Table 10.5 Variable loading scores

	Principal component loading scores	Correlation coefficient with log. distance from Okehampton
1. Bank	.92925	0.0170
2. Numbers of households in council housing	.91827	-0.0664
3. Dwellings granted planning permission, 1965-75	.90505	-0.0239
4. Chemist	.83416	0.1137
5. Doctors surgery	.80096	0.1781
6. New employment, 1965-75	.69560	-0.0088
7. Primary school	.67512	0.0572
8. Primary bus service	.66344	-0.0727
9. Number of 1-year migrants within local authority	.60621	0.0373
10. Number of 1-year migrants into local authority	.58301	-0.0777
11. General store/post office	.51885	0.2189
12. % population over age 65	.33673	
13. % unemployment	.20079	
14. % persons workingin local authority	.14394	
15. % dwellings with 3 basic amenities	.14122	
16. Population change 1961-71	.08089	
17. % in S.E.G.'s 13, 14, 15 (agricultural occupations)	-.38160	
18. % owner occupied housing	-.39228	
19. % more than 2 persons households	-.42852	
20. % households with one or more cars	-.62156	0.1987
Index of rural development		0.0612

The loading scores resulting from the principal components analysis give statistical credence to the above suggestion that the mechanisms and scale of development in a remote rural area are very different from those found in a pressured rural area. Eight of the primary input variables were discarded from the indexation procedure because their distribution over the study area was only randomly linked to centres of development. Variables alluding to retirement age population, employment (concerned with agriculture, commuting and unemployment), the quality and tenure of housing and the size of households were all found to be insignificantly linked with the principal component. Of particular interest is the exclusion of the population change variable. This would seem to support the earlier conclusion that some centres of development opportunity were themselves losing population.

Twelve variables remained and these formed the basis of the previously explained indexation procedure. The standardised index scores for each parish ranged between +16 and -8. It should again be remembered that the results of this indexation technique depend entirely on the suitability of the input variables. The index of rural development for the Okehampton area appears to give an accurate reflection of the important facets of remoter rural life, and furthermore, the index scores show a broad-scale comparability with the results obtained from the cluster analysis. It would therefore seem reasonable to use the index as a basis for further analaysis.

(b) <u>The Correlation and Regression Stages</u>

In a pressured rural area, the influence of a small scale growth centre such as Southam was found to display a distance-decay function since the settlements nearest to it had the highest levels of transport linkages and were therefore in the best position to take advantage of service and employment concentrations in the growth centre. Consequently, housing development tended to occur in these locations of highest opportunity. The position in a remoter rural area such as that under review differs from

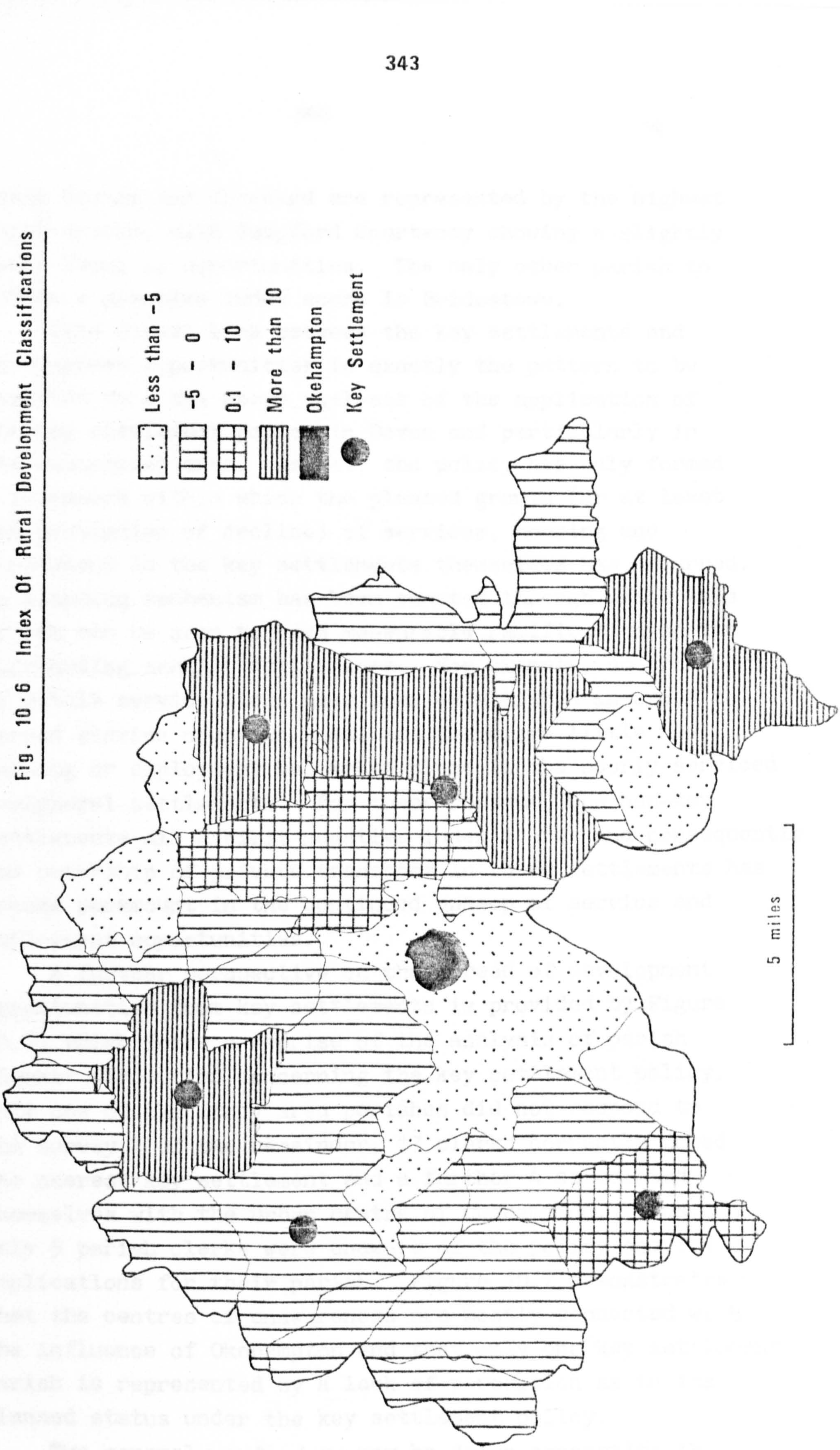
the pressured situation in a number of important respects. Firstly, in an area such as Okehampton, growth has to be attracted rather than channelled. Therefore a higher degree of centralisation of housing, service and employment growth occurs in the selected key settlements than was the case in the Warwickshire study area. Furthermore, the numerous and scattered nature of these key settlements has meant that the hinterland over which each is able to exert an influence is limited.

A combination of these factors, added to the depressed economic climate which has enforced trends of stability rather than measurable growth in the selected centres, has meant that the spread of development opportunities, if present at all, has proved very difficult to measure. The hinterland of each individual key settlement is small and undefined, and therefore the use of correlation and regression techniques is inappropriate and would in any case produce negative results due to the low level of measurable developmental criteria in non-key settlements. Furthermore, the influence of Okehampton itself does not display a trend of distance-decay within the study area due to the scattered nature of the key settlements. The correlation coefficient of each variable with the logarithmic distance from Okehampton are uniformly insignificant (see Table 10.5), and so it follows that the trend surface technique which is reliant on the distance-decay function is also of little use in this analysis. Therefore, other, less rigorous methods have had to be adopted to assess the spread of development opportunities within the study area.

(c) Development opportunities in Okehampton R.D.

Figure 10.6 shows the spatial distribution of the index of rural development within the study area. Although no suitable correlation was found between the index and fluctuating distance from any of the selected centres, the index itself remains a valid statement of developmental opportunities within the area. It is evident from Figure 10.6 that the distribution of such opportunities is dominated by the selected key settlements. Hatherleigh, North and

Fig. 10·6 Index Of Rural Development Classifications



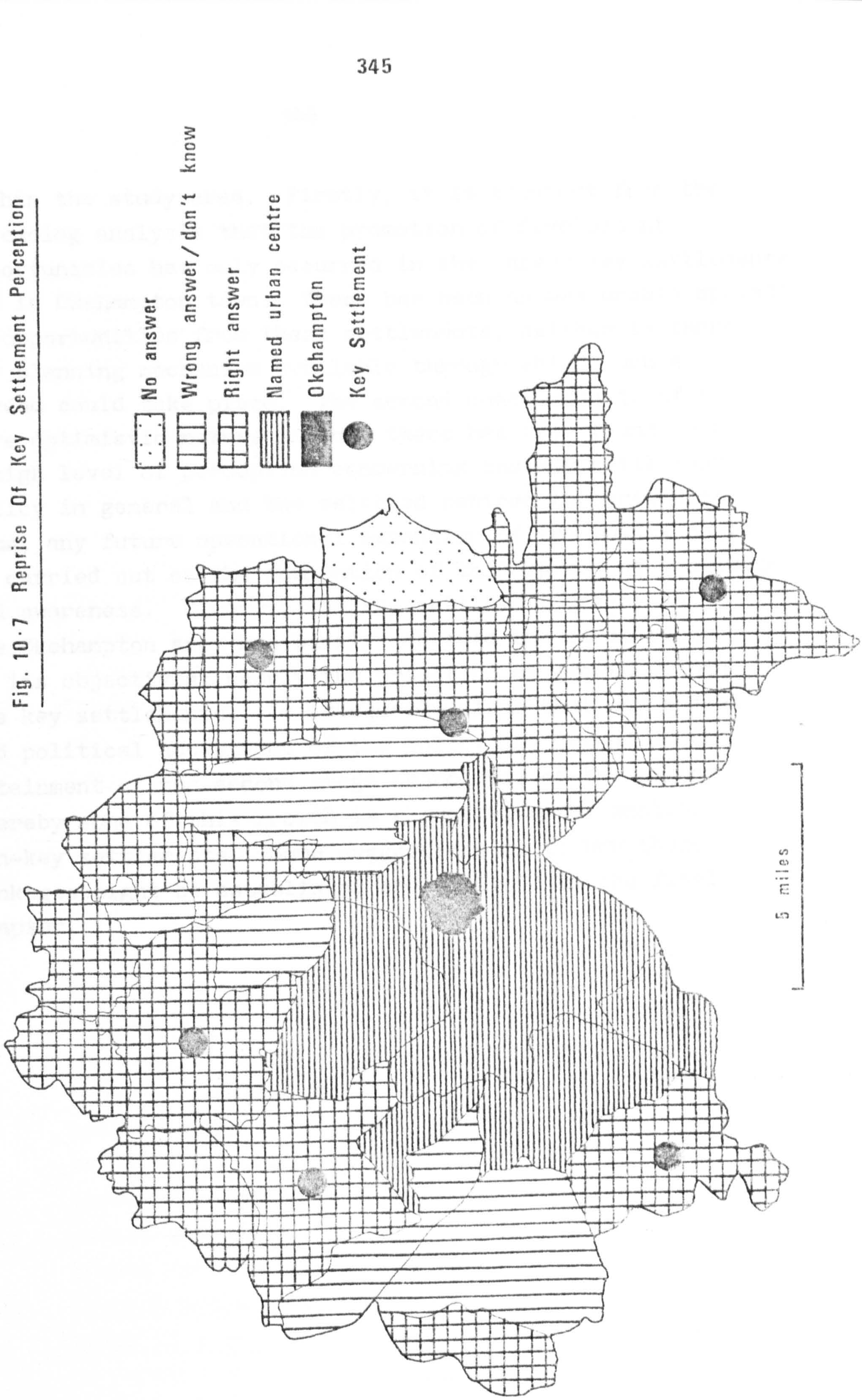
South Tawton and Chagford are represented by the highest index scores, with Sampford Courtenay showing a slightly lower level of opportunities. The only other parish to attain a positive index score is Bridestowe.

This direct link between the key settlements and development opportunities is exactly the pattern to be expected from the above analyses of the application of the key settlement policy in Devon and particularly in the Okehampton area. As yet, the policy has only formed a framework within which the planned growth (or at least the prevention of decline) of services, housing and employment in the key settlements themselves has occurred. No planning mechanism has been enacted through which this growth can be seen to have measurable ramifications on the surrounding smaller settlements. For example, no transport or mobile service links have been established in order to spread service opportunities, and therefore little new housing or employment has taken place in the poorly-serviced peripheral settlements. For these reasons, the non-key settlements all exhibit negative index scores and consequently the ownership of private transport in these settlements has become paramount in the continued upkeep of service and employment opportunities.

A further perspective on the spread of development opportunities from key settlements is provided by Figure 10.7, which forms a reprise of the analysis of parish clerks' perception concerning the key settlement policy. Only one of the study area parishes did not respond to the survey. Of the remainder, 17 clerks correctly named the nearest key settlement and a further 4 associated themselves with the urban centre of Okehampton. Thus, only 5 parish clerks were unaware of the policy and its implications for their parish. Figure 10.7 demonstrates that the centres of unawareness are mostly connected with the influence of Okehampton and that only one key settlement parish is represented by a lack of perception as to its planned status under the key settlement policy.

Two general conclusions may be drawn concerning the spread of development opportunities from selected centres

Fig. 10·7 Reprise Of Key Settlement Perception



within the study area. Firstly, it is apparent from the foregoing analysis that the promotion of development opportunities has only occurred in the larger key settlements and in Okehampton town. There has been no measurable spread of opportunities from these settlements, neither is there any planning mechanism available through which such a spread could take place. The second conclusion is of a more optimistic nature in that there has been found to be a high level of perception concerning the key settlement policy in general and the selected centres in particular. Thus, any future operational expansion of the policy could be carried out on the foundation of this spread of knowledge and awareness. Clearly, the key settlement policy in the Okehampton area has barely achieved the first stage of its objectives: namely the promotion of growth within the key settlements. It is equally clear that any social and political acceptance of the policy may depend on the attainment of the second stage objectives of the policy whereby some of this growth is shared with the smaller non-key settlements. Some suggestions as to how these linkages might be established are outlined in the final chapter.

CHAPTER 11

SUMMARY AND CONCLUSIONS

SUMMARY

1. A key settlement policy has often been regarded as a panacea for the rural ills existing both in areas of remoteness and in areas subjected to intense urban pressures. This study has set out to establish whether this type of policy fulfils the aims and objectives expected of it, and whether the key settlement mechanism is best suited to the 'remote' rural or 'pressured' rural situation.
2. The conception of the key settlement notion may be traced back to two dominant personalities of the inter-war and immediate post-war preiod. Harold Peake provided the academic germ of the concept in his writings concerning the geography of rural planning immediately after the 1914-18 war. Henry Morris put the concept to practical use with the instigation of village colleges in Cambridgeshire. (Chapter 1).
3. The original ideas of Peake and Morris have been widely adapted and augmented by other theoretical considerations in the rural planning field.
4. The growth centre analogue models of backwash and spread describe the results required from key settlement policies, but rural key settlements are not of sufficient scale to perform the theoretical functions of a growth pole or centre. However, growth centre theories may be applied to the rural scale provided that the expectation of results from such a policy does not exceed the small-scale answers that small-scale growth centres are able to produce.
5. Central place theory, service thresholds and the range of a good are all notions which have been used to support the key settlement type of policy. These are of particular relevance in the establishment of rural service centres.

6. However, of equal importance is the fact that the key settlement type of policy was presented as a convenient blue-print at a time when planners were searching for a definitive and seemingly innovative policy from which it was evident that the problems of the rural areas were being tackled. Therefore, there remains a suspicion that this subsequent conceptualisation has been a cosmetic justification for a policy which was created merely out of economic expediency. (Chapter 2).

7. The evolution and establishment of key settlement policies within the planning framework began with the regional planning schemes of the 1930's and was officially cradled in the evidence to the 2nd Report of the Minister of Health's Rural Housing Sub-Committee in 1937 which recommended the centralisation of housing development so as to economise on service provision.

8. Under the Development Plans and their subsequent reviews, the key settlement concept evolved from an emphasis on service provision, through housing development priorities, to a broader consideration of the functional status and potential of settlements, the economic environment and the operation of the settlement pattern in general.

9. It would be premature to draw strict conclusions concerning the continuing evolution of key settlement policies within the Structure Plan framework. However, there are indications of continuing use of this type of policy in remoter areas, and an increase in its use in pressured areas. (Chapter 3).

10. The need for study areas to be representative of the pressured and remote rural situations led to an investigation of the nebulous concept of rurality.

11. Rurality was defined in terms of selected discriminating variables, from which an index of rurality was formulated using principal components analysis. Distributions of four classifications of rurality are presented for the rural districts of England and Wales, and both

problematical remote rural areas and those suffering extreme urban pressure are identified. (See also accompanying published paper).

12. The index of rurality isolated Warwickshire (a 'pressured' county) and Devon (a 'remoter' county) as suitable study areas in which to investigate the ramifications of the key settlement policy. Each county is examined in turn by means of an extensive questionnaire sent to every parish clerk in Devon and Warwickshire. (Chapter 4).

13. The Interim Policy Statement of 1966 marks the beginning of key settlements thinking by Warwickshire planners, in that a wide range of settlements was selected as being suitable for limited expansion or limited infilling.

14. Following this trend, a fully-fledged key settlement policy, designating 1st and 2nd tier key settlements was produced as part of the Structure Plan. Strict rural population growth targets were stipulated, resulting in a restrictive attitude towards any substantial growth in non-key settlements.

15. Consequently, the selection procedure for key settlements is of paramount importance since the non-selection of certain centres will result in the stunting of growth over the key settlement period. Selection of key settlements was carried out using a complex indexation procedure which took account of development potential, land constraints and existing commitments. However, theoretical doubts are expressed about this technique, particularly in relation to the inherent dependence on the factor of population size.

16. It is therefore hypothesised that some settlements suited for further growth will suffer inappropriate restrictions under the policy.

17. A secondary analysis of public service policies in Warwickshire suggests that they are fairly well attuned to the needs of the overall key settlement policy. (Chapter 5).

18. The ramifications of the Warwickshire key settlement policy are analysed under a number of systematic headings.

19. Population. It was found that while most key settlements had experienced growth over the policy period, the growth in some key centres was lower than expected. In addition, some non-key settlements, particularly in the highly pressured rural buffer zone demonstrated an undeniable impetus for growth.

20. Housing. Under the key settlement policy, large numbers of parishes have been confined to little or no new private and council housing and fewer parishes than before have been allowed to accommodate substantial development. Again, several contraventions of key settlement concentration of housing are evident in the most pressured areas.

21. Conservation. It does appear from this example that a key settlement policy allows the conservation of settlements whose environmental quality is such that further large scale growth would be inappropriate.

22. Services. Services in key settlements have remained stable with the exception of increasing levels of health service and infrastructure provision. Non-key settlements display trends of decline in some retail and public services, but a gradual increase in the distribution of public infrastructure.

23. It was found that service provision in rural areas often bears a direct relationship with settlement size. This relationship was measured in the form of threshold bands.

24. Employment. Settlements in highly pressured areas offer adequate employment accessibility, but in less urbanised areas some degree of employment attraction appears to be required in order to establish growth at least in the key settlements. There is no indication that the key settlement policy has caused any changes in employment policy.

25. Parish Clusters. Cluster analysis was used to summarise the above relationships between the key settlement policy

and the various facets of rural life. Six clusters resulted, of which three represented settlements which are likely to suffer disbenefits under the key settlement policy. It was concluded that for the policy to be more democratic and wide-ranging, linkages are required between key settlements and hinterland on a scale that is not evident at present.

26. Key Settlement Perception. Low levels of perception concerning the key settlements policy were discovered in Warwickshire. This may be partly due to a lack of penetration during public discussion stages, and partly due to inappropriate key settlement sub-area boundaries. (Chapter 6).

27. Local scale effects of the key settlement policy in a pressured rural area were reviewed in a case study of the Southam area of Warwickshire.

28. The major key settlement in the area (Southam itself) offers a wide range of service and employment facilities along with good accessibility to the higher order urban centre of Leamington Spa. However, Southam's growth under the key settlement policy has been severely curtailed by the need for a by-pass and by overloaded sewerage capabilities.

29. The second-tier key settlement of Bishops Itchington appears to be well equipped for modest future residential growth, but the basic level of retail services along with an inadequate public transport situation restrict the settlement's capabilities as a service centre.

30. In terms of population, only Southam and Long Itchington have formed realistic centres for in-migrants during the key settlement period. Non-key settlements tend to be biased towards the elderly and middle-age brackets and these residents are heavily reliant on private transport. However, pockets of non-mobile population are visible in non-key settlements with resultant social and accessibility problems to be dealt with by the planners.

31. Despite these population characteristics, it is clear that the key settlement policy has been unable to channel

housing growth solely into the two centres of Southam and Bishops Itchington.

32. Accessibility to services and employment, is an important facet of rural life in the study area. Urban centres exert a major influence on patterns of accessibility, especially since bus services, if present at all, link the larger rural settlement to urban centres rather than to the key settlements. Again, linkage problems are apparent for non-key residents.

33. Finally, an attempt was made to measure the spread of development opportunities from Southam using a sequence of interlinked analyses involving principal components analysis, correlation, regression and trend surface analysis. It was found that proximity to Southam does afford the maximum opportunities within the study area, but that this pattern could be a response to previous policies rather than the more selective key settlement policy. (Chapter 7).

34. The First Review of the Devon Development Plan produced a rural settlement policy based on the selection of 68 key settlements which would be the only rural locations for major extensions of residential development, public utilities and rural employment.

35. A list of nine criteria were published as being paramount in key settlement selection, with the result that both existing resource locations and potential resource locations were selected.

36. Nearest neighbour analysis suggests that the markedly even distribution of key settlements was not brought about by chance. It is postulated that too many centres of insufficient size were selected as key settlements for political and other motives.

37. An analysis of the relationship between public service policies and the overall policy suggests that, for one reason or another, these various policies often proved to be incompatible. (Chapter 8).

38. The Devon analysis was again approached under systematic headings.

39. Population. In the remoter areas of Devon, population increase between 1961 and 1971 has been largely restricted to a few parishes surrounding the key inland towns and to those key settlements which were of substantial population size prior to the key settlement policy.

40. Housing. During the 1965-70 period, new housing was strictly limited to the larger key settlements. Between 1971 and 1975 a greater overall level of house building took place. Key settlements were again the main recipients but some residual non-key settlements received some new housing.

41. Services. Key settlements tended to maintain a stable service pattern over the policy period, although increased provision of health services and infrastructure is evident. Services were generally seen to decline in non-key settlements. Overall, the policy has fulfilled its stated objective of concentrating public investment, but no linkages have been set up through which to service the hinterland areas.

42. Threshold band analysis was again employed to demonstrate the relationship between service levels and settlement size in the remote rural context.

43. Employment. 20% of key settlements attracted new factory jobs in the first policy quinquennium, with this figure rising to 25% between 1971 and 1975. The remoter areas received a less than proportionate share of these new jobs. It was concluded that the attraction of new employment to key settlements would be facilitated if public investment was spread less thinly in fewer centres.

44. Parish Clusters. Cluster analysis again demonstrated that the majority of Devon's rural settlements are at a disadvantage under the key settlement policy. Consequently, wide-ranging linkages are required to link these hinterlands to the centralised benefits of the key settlements.

45. Key Settlement Perception. High levels of perception were discovered in Devon. This awareness of the policy may form the foundation for an improved key settlement

framework in the future. (Chapter 9).

46. Local scale ramifications of the key settlement policy in a remote rural area are reviewed in a case study of the Okehampton area.

47. Six key settlements are located within the study area, although Northlew's status was recinded under the 2nd Review of the Development Plan. The larger key settlements were most successful in terms of housing, services and employment, although no link was found between settlement size and population change.

48. In terms of demography several centres for in- and within-migration were isolated which would form a basis for future expansion if out-migration is halted or slowed. Generally, the key settlement policy has begun but by no means completed the reversal of depopulation.

49. It is also clear that pockets of non-mobile population do exist in many of the non-key settlements, even those with low levels of accessibility.

50. New housing was strictly controlled in the first policy quinquennium but relaxation occurred later in both key and non-key settlements. Planning permissions suggest a recent upturn in building rates, particularly in the larger key settlements.

51. The larger key settlements, for example Hatherleigh, possess sufficient services to sustain their immediate hinterlands, but such bus services that there are link smaller settlements with Okehampton town. Accessibility to employment is strongly dependent on high rates of personal mobility. In both cases the lack of recognised sub-areas has hindered the development of accessibility from key settlements.

52. Finally, trend surface analysis was found to be inapplicable to the scale and developmental pattern of this area. However, an index of rural development and other, more subjective indicators suggest that there has been no measurable spread of opportunities from the key settlements to the rural hinterland. (Chapter 10).

KEY SETTLEMENT AIMS AND OBJECTIVES

One of the major undertakings of this study was to assess the efficacy with which key settlement policies are able to fulfil the stated planning aims and objectives of pressured and remote rural areas. Two objectives are common to both situations, namely

1. the concentration of residential and employment growth into selected centres in order that the optimum economic pattern of polarised service and infrastructure provision may be effected.
2. the use of these centralised facilities to improve or stabilise the opportunities for residents of hinterland settlements.

However, the achievement of these objectives is designed to meet fundamentally different requirements in the two types of rural area. In pressured areas, a successful centralising policy allows the conservation of settlements whose environmental quality is such that further large scale growth would be inappropriate. Conversely, planners in the remoter areas would hope to stem the tide of rural depopulation by creating centres of intervening opportunities in rural areas.

The foregoing analyses of both types of area suggest that the first common objective has generally met with some success but that the second has received little attention under the key settlement policies as implemented in the two counties under review. Thus the conservation of rural settlements in pressured areas has been achieved at the cost of stunting the growth of viable non-key settlements. Likewise the stemming of depopulation at the other rural extreme has been partially achieved, but even this has often been due to the internal movement of population from hinterland to key settlement, thus exacerbating the crises in outlying small settlements.

In the case of Warwickshire, it was noticed that the planners have so far found it difficult to restrict increases in population and housing in settlements where an impetus for growth has already been established under previous planning regimes. The impression is gained of a

number of settlements in the county where the demand and the suitability for growth has not been seriously questioned and yet whose prospects for such growth are severely limited under the strict key settlement policy. It is also evident that there exists within pressured areas a number of smaller non-key settlements which suffer from the general rural malaise of declining service and transport provision and consequent replacement of traditional rural residents by affluent in-migrants. These settlements also contain pockets of non-mobile and lower paid population with their inherent problems of accessibility to employment, retail, social and community facilities. The key settlement policy is gradually encouraging these people to migrate towards the centralised services of the key settlements.

The plight of these types of pressured rural settlement has often been underrepresented by the popular and academic press and yet the social ramifications of the key settlement policy in these areas are an important consideration for the future planning of counties such as Warwickshire.

No such lack of attention has been apparent concerning the remoter rural areas. The public outcry over the planned decline of Durham's "D" villages set the trend for future academic thinking on the subject of rural settlement policies. Although it is now recognised that the Durham policy was a special case because of the disused mining elements in the rural environments under consideration, there has nevertheless been a dramatic reversal of academic opinion in both planning and geographical circles about the wisdom of continued use of the key settlement type of policy in remoter rural areas. A series of papers (e.g. Ash, 1976; Hancock, 1976; Martin, 1976; McLaughlin, 1976A and Venner, 1976) has recently resulted in an anti-key settlement policy lobby of substantial proportions. It would therefore seem appropriate to match the findings of the Devon analysis against some of the criticisms levelled at key settlement policies in the rural situation.

As with the Warwickshire situation, we find that the Devon key settlement policy has been considerably more effective in the fulfilment of its economic rather than its social objectives. Despite the fact that there are

apparently too many key settlements of too small a size in Devon, some success has been achieved in the attraction of new facilities to the key settlements. In the private sector, new retail and employment opportunities have been located in some of the larger selected centres, although it is often the case that new ventures, if present at all in the current economic climate, will opt for the more sizeable urban locations of the key inland towns. Concentration of public sector services and facilities has also continued apace, although difficulties have arisen over the non-conformity of water, health and education authority plans with the overall key settlement policy. Nevertheless, Woodruffe (1976, 26) concludes

> "the operation of such a policy in a large county like Devon is naturally a long-term process, not one that can be wholly effective in a decade and even if rural depopulation continues in some parts, many village groups have benefited from the improved facilities and amenities that have so far been constructed in the key settlements."

McLaughlin (1976B, 55) agrees with the general conclusion that "for the residents of the key village and its commuting hinterland, there have probably been definite improvements."

The main emphasis of criticism against the key settlement concept concerns the second policy objective, that is the use of centralised facilities to improve or stabilise the opportunities for residents of hinterland settlements. Analysis of the Devon situation confirms that planners have concentrated primarily on the physical and economic aspects of the policy, perhaps because the tangible results of rural planning are most apparent in rising standards of service provision, or increasing housing levels, or the building of new industrial estates. However, little visible effort has been made to establish any formal linkages between the privileged centres of investment and the hinterland settlements which they serve. Indeed, the reliance on existing incidental linkages has been compromised by the decline both in primary public transport services and in the provision of mobile services.

Because of these factors, it has seemed to many rural people that the instigation of a key settlement policy has

brought with it a decreasing level of opportunities and benefits. For example, the designation of key settlements has coincided with the shrinking of rural transport services leaving the non-mobile rural population stranded and dependent on local shops and services. Moreover, these local facilities are also tending to concentrate in larger settlements, either due to competitive market forces or as part of a planned policy of concentration. Housing opportunities are also declining. Few, if any, houses are being built in small settlements and those that are constructed are often suitable only for affluent long-distance commuters or as second houses. Young people are forced to move into the key settlements or even further afield if they wish to buy or rent a house. The disappearance of the school, the shop, the bus and the young people all add up to the state of rural deprivation that is the summation of the problems facing some rural communities in remote areas.

It was suggested in Chapters 1, 2 and 3 that the key settlement policy was devised as a framework for promoting growth in remote rural areas. However, much of the recent policy criticism has concentrated on those specific aspects of rural life which have been found to be unsatisfactory under the key settlement system. There is a danger that the key settlement policy is being made a scapegoat for our own inability to come to terms with the fundamental problems pervading the rural areas. Therefore, it would seem sensible that the evaluation of key settlement policies should proceed at two levels. Firstly, some impression should be gained as to whether this failure to tackle rural social problems stems from the total ineptitude of the key settlement policy as a framework, or from the poor implementation both of the framework policy and of specific policies to deal with individual rural problems. Secondly, the performance of the key settlement policy should be compared with the planning possibilities offered by alternative overall settlement policies.

SPECIFIC POLICIES FOR SPECIFIC PROBLEMS

The key settlement policy's treatment of four specific rural sub-systems and their associated problems has attracted the bulk of recent criticism. McLaughlin (1976A) views rural settlements as a human body wherein "employment opportunities represent the heart that keeps the body alive and the transport system the veins that carry the blood throughout the body" (p.159). This analogy could be extended to include rural housing and population, which form the various limbs of the body (with differing degrees of mobility) and rural services which provide nourishment for both the body and the mind of rural settlements. This use of the systems analogue model serves to emphasise the inter-related nature of these sub-systems and although they are analysed separately here, the various facets of rural life have to be inter-linked in any planned rural system.

(a) Transport

The theme of rural transport is given priority here since the planning options in other sub-systems are often dependent to a large extent on the type and range of available transportation. In the analyses of both the Warwickshire and the Devon key settlement policies it was immediately evident that the provision of transport linkages was hopelessly inadequate to cater for even the basic needs of rural residents. In the pressured rural area, rural transport levels were available to link the key settlements to higher order centres, but few regular linkages had been established between key settlements and their hinterlands. Two trends resulted from these patterns. Firstly, the small non-key settlements were deprived of essential accessibility to various services and facilities; and secondly, the transport services that were available facilitated the by-passing of key settlements in favour of larger urban centres on the same route.

Rural transport in Devon was found to be on a predictably lower plane. In this case, not only did similar problems exist in the hinterland non-key settlements, but it

was also found that some selected key settlements were not regularly linked upwards in the settlement hierarchy let alone downwards to the outlying settlements which they are designed to serve. It was concluded in the Devon analysis that this lack of transport was one of the root causes of the failure of some key settlements to act as viable service centres.

Critics (e.g. MacGregor, 1976) point out, however, that the concentration of services and facilities in key settlements without concern for hinterland transport links has merely exacerbated the plight of the non-mobile population in small villages. High levels of car ownership cannot of themselves solve this problem. Maddocks (1975) points out that even if 75% or more households in a settlement own one or more cars, less than half the settlement's population will have free access to private transport to fulfil the various linkages required for everyday rural life.

The transport needs for journey-to-work are often fulfilled by high rates of personal mobility except for the fact that in one-car families the non-mobile wife is prevented from seeking employment by a lack of accessibility. Similarly, a weekly journey-to-shop can be successfully negotiated by the car owner but is a critical problem for non-mobile groups. Where bus services are available they are generally geered to meet those particular needs, but these services are too often less than satisfactory in terms of frequency and catchment range. Perhaps an even more vital form of deprivation concerns social and recreational trips, the irregular nature and timing of which are unlikely to be catered for by public transport services. Finally, access to welfare services, which again have been subject to concentration both as a direct and indirect result of the key settlement policy (see Chapters 5 and 8), is another need which is difficult to meet through the public transport medium. Thus a considerable social need has been created or at least highlighted under the influence of the key settlement policy.

The problems associated with rural transport are not new. Moseley (1977, 32) admits that "for twenty years official committees and academic researchers have described the decline of public transport and the demise of rural jobs and services which combine to pose real difficulties of accessibility for rural residents who lack a car." However, the 1970's have seen a number of major research projects designed to produce some answers to these problems (for example the studies by Moseley, 1977; Clout et al, 1973; and the Department of the Environment, 1971A, 1971B). Lack of space prevents a full analysis of these detailed findings. However, two major points have been established. Firstly, it has been suggested that the functional and locational scope of conventional stage bus services should be determined. For example, these services could sensibly be restricted to small town and key settlement interconnections. Then a concurrent effort could be made to establish a "low-cost package of policies" (Moseley, 1977, 34) which would be better suited to the needs of small rural settlements. These would include:-

1. the relaxation of route licensing systems so that fare-paying passengers may be carried by private vehicles.
2. the encouragement and organisation of community minibus schemes.
3. the wider usage of school bus facilites.
4. the revision of post-bus routing and timing so as to make the carrying of passengers a practical proposition.
5. the broader-scale establishment of welfare and hospital car schemes.

Experimentation with these themes has produced some success in solving the problems of rural accessibility. However, a comprehensive scheme of community transport is required for each and every hinterland rural area. This in turn dictates some recognised organisation structure whether this be part of the county or district authority's duties or else the duty of a specially employed community transport officer in each area. If such a comprehensive system of community transport could be brought about, then many of the rural social problems highlighted by policies of concentration would be appeased.

(b) Employment

Although the data concerning employment provision in Warwickshire and Devon were not as comprehensive as they might have been, it was clear from the above analyses that many employment inadequacies were persisting in both types of rural area. By definition the pressured rural areas, being close to major urban centres, are able to offer a wide range of employment opportunities within comfortable commuting distance. However, with the increasing cost of journeys to work, the distances that people are prepared to travel for employment may well become shorter in the future. Therefore, two main problems of employment in pressured rural areas have been isolated. In the first instance, the fringe areas within the pressured category are likely to offer an increasingly low level of accessibility to employment and therefore require some increase in employment opportunities, particularly in key settlement locations where concentration of services and housing is already taking place. Secondly, with the decline in primary employment, the residents of small settlements of low accessibility have become dependent on private mobility for the journey-to-work and there would appear to be a need for increased provision of jobs in key settlements to reduce the reliance on commuting.

In the remoter situation, similar trends are worsened by the fact that not only is there no source of employment within easy commuting distance, but it is also the case that any in-coming entrepeneurs have to be attracted to what has traditionally been viewed as a low grade area in terms of industrial location. The key settlement policy has attempted to guide any new employment into the key inland towns, and to a lesser extent, the larger of the key settlements. Some success has been achieved in this respect, but it is noticeable that the Exeter and Plymouth areas have attracted the cream of new employment while the concerns guided into rural centres have been the smaller residual types of enterprise.

Criticism of the provision of employment in rural areas has centred mainly around the planners' preference to set up industrial estates in key settlements, and their

consequent reluctance to allow small-scale entrepeneurial enterprises in the smaller non-key settlements. McLaughlin (1976A, 59) makes the claim that "the existence of such an estate is often a perfect justification for the planner when he refuses permission to develop small-scale enterprises in lower-order centres." It should be said that little evidence of such planning refusals was found in either the Southam or Okehampton case studies. Moreover, there are some overall signs to suggest that these local-scale concerns are being set up in the rural areas despite the vogue for industrial estate development.

There would appear to be two strands to the problem of providing much needed new employment in the rural areas. The first concerns the attraction of sizeable firms into centralised locations. Most critics appear to have assumed that this process has continued apace, to the great benefit of the settlements concerned. In fact, the evidence provided by the two case study areas suggests that the attraction of secondary and tertiary employment into rural centres has been a slow and painstaking process. Spooner (1972) outlines the advantages and disadvantages of the peripheral rural location as a possible destination for migrating enterprises. He argues that the problems associated with the sparse population distribution, the lack of services and the distance from market contacts can be overcome due to the environmental attractions and lack of economic, social and institutional rigidities displayed by the rural areas. However, he adds the proviso that centres of population, such as they are, provide the best employment locations. Gilg (1976, 166) agrees with this assessment in his verdict that

> "Within the rural regions as a whole, however, employment could be made to grow quite markedly by vigorously pursuing the type of approach employed by the Highlands and Islands Development Board, and by concentrating investment in key centres."

Thus, it seems clear that this broad-scale approach to employment attraction should continue, with additional efforts being made to attract new jobs, and perhaps the widening of emphasis to include tertiary and quaternary types of employment. In addition, Gilg's reference to

the Highlands and Islands Development Board approach introduces the second strand of the rural employment problem, namely the promotion of small-scale enterprises located at village level in order to provide small amounts of new employment in rural settlements. Recent expositions on the theme of rural settlement planning have been unanimous in supporting this method of bringing new opportunities to small rural settlements. Indeed, the Devon analysis highlighted the important role already played by established small-scale employers in the countryside and it would seem clear that this role could be expanded.

It should be stressed at this point that not all villagers are in favour of any form of growth. "Our village is quiet and peaceful and we want it to stay that way" is a comment typical of many replies received from parish clerks. Furthermore, where social needs do indicate a desire for small-scale workshops, the physical planning standards in villages must be maintained. MacGregor (1976, 526) stresses that "if we are to have workplaces in villages they must be very carefully sited, with strict controls on their expansion.

While the need for localised rural employment in many settlements is clear-cut, the mechanism through which such enterprises are to be encouraged is less well established. Peel and Sayer (1973, 10) suggest the establishment of government assistance in the form of "tax reliefs, allowing businesses with a small turnover, whether companies or not, a small amount of untaxed profit and perhaps a subsidised credit system to assist in capital works and the provision of starting capital." The Development Commission, and particularly CoSIRA are able to provide the organisational and financial facilities to aid these small-scale workshops and businesses. CoSIRA have already been instrumental in promoting a range of rural activities from the building of advance factories to the granting of financial and advisory aid to small-scale entrepeneurs. However, with a recent increase in spending power, this organisation is now able to play a

major part in the encouragement of small-scale businesses in rural areas. It is to be hoped that the pressured rural areas will also form part of CoSIRA's new horizons and that planners in all rural areas will be instrumental in establishing the organisational environment in which CoSIRA can work to its fullest effect.

Ash (1976, 629) has suggested that rural planners should "replace the concentration of new employment in trading estates on the outskirts of two or three towns by a network of new workshops in towns and villages throughout the area." However, the foregoing discussion has suggested that there are two strands to the problem of rural employment and that neither is able to provide sufficient new opportunities by itself. Therefore, while the attraction of larger-scale employment to the larger rural towns and key settlements is to be encouraged, it is clear that this policy should be accompanied by a flexible attitude towards smaller-scale workshops and businesses in non-key settlements.

(c) Housing

A call for flexibility of policy has also been forthcoming with regard to the problems of rural housing under the key settlement policy. In Warwickshire, severe restrictions have been placed on new housing in non-key settlements, regardless of size or need. Similarly, the initial Devon policy took a very strict attitude towards growth in non-key settlements, and even when these restrictions were relaxed after the 2nd Review of the Development Plan it has been apparent that much of the new housing permitted in non-key settlements has not been geared to the fulfilment of local need. MacGregor (1976, 527) sums up this situation:

> "When a local authority puts thirty council houses in one village, and none in surrounding areas, or when planning permission for cheap private housing likely to attract young families is refused and only expensive chalet bungalows are allowed which only the middle-aged and middle class can afford, this nice balance of age and social groups is lost".

Thus planners using key settlement policies have found it necessary to take away growth from rural hinterlands in

order to build up new housing in the key settlements. In doing so, they have placed themselves in the invidious position of having created an exaggerated breed of rural housing problems in small settlements. Not only have young families been forced to leave their villages because of private sector competition from the retired and second home elements of the market, but this migration is also enforced by the lack of new council dwellings in small settlements. These movements have led to the 'gentrification' of both pressured and remote villages alike.

It can be argued that planning priorities should be directed towards the needs of local rural people. Therefore, a more flexible housing policy is required for the success of any overall policy. After all, attempts to spread the opportunities and benefits from key settlements in order to revitalise small settlements will be nullified if the rural hinterland suffers from a state of planned stagnation or decline.

The social and political decisions to be enforced as part of housing policies differ in the pressured and remote rural contexts. In pressured rural areas it is not only the smaller settlements where growth has been prohibited. The Southam case study highlighted the problems associated with stunting growth in settlements of, for example, over 1000 population. It may well be that even with rigid growth targets to keep to, political pressures will be brought to bear to aid the continued growth of these settlements, if at a moderate scale. This decision would be part and parcel of an overall policy, but several individual schemes have been proposed to counteract the lack of housing for local people in both pressured and remote rural settlements.

Much rural housing research is currently being undertaken and so the forthcoming results should provide invaluable input into local-scale policy formation. However, an impressive appraisal of housing in rural areas has recently been produced by the Community Council of Devon (Scott-Miller, 1976). This outlines several less conventional means of increasing the housing stock in rural areas to cope

with local need. These suggestions are summarised below as they contain the essence of any future flexible housing policy in rural areas.

1. The council can require builders to construct a range of dwelling types through its powers as planning authority.
2. Compulsory purchase and Community Land legislation allow controls to minimise the land element cost in house prices.
3. The council can plan for there to be a controlled supply of land at current use value available for residential development.
4. Councils may build dwellingsto be sold to local needy families at cost price. Concomitant easy mortgage terms could be arranged.
5. The council can enter into more short-term letting agreements to ensure that houses do not stand empty unnecessarily.
6. Councils should regard rehabilitation of existing property as an integral part of an authority's housing programme.
7. Starter home, shell house, equity sharing and self-build schemes may be appropriate in rural settlements.
8. Even within a reduced private sector, councils can encourage local housing associations and societies to provide an alternative source of rented accomodation.

Many of these suggestions entail increased public expenditure and therefore particular schemes should be suited to particular local needs. It is again the case that not all rural communities wish to see further housing growth within their village. However, it is apparent that the implementation of schemes such as these where the need prevails would counteract some out-migration of young local families without necessarily prejudicing the overall objectives of a framework of investment concentration.

(d) Services

The final rural sub-system where specific policies could reduce social discrimination in non-key settlements is in the field of service provision. Key settlement policies

in both the pressured and the remote rural situation have allowed the continued decline in levels of service provided in non-key settlements. Moreover with inadequate public transport linkages between key settlement and hinterland, the benefits from centralised service investment are only accessible to the residents of smaller settlements through the ownership of private transport. In Chapters 5 and 8 it was suggested that public authority policy for the provision of infrastructure was likely to follow the key settlement policy guidelines to the detriment of the non-key settlements. This suggestion was substantiated in the main by the analysis of the surveys although the impression was gained, particularly in the remoter case, that levels of infrastructure are being gradually improved in the non-key settlements. However, the overall situation in small rural settlements is dominated by the reduction of retail, educational and welfare services and in many cases the key settlement framework policy has done little or nothing to redress the balance of service provision. Certainly, service levels in the key settlements have generally been improved but no outward linkages have been set up to spread the benefits of these centrally located opportunities.

Two basic methods of linkage are available to the planner. The first has been dealt with under the heading of transport. Should a comprehensive system of community transport be a practical proposition in rural areas then the centralised services in key settlements would be more accessible to the smaller hinterland settlements.

However, linkages may also be achieved centrifugally through the mobilisation of various services. The travelling shop has been a regular component of life in many of the smaller rural settlements, and has met with varying viability in different areas. As a means of providing "last-minute" or "additional"food items, the travelling shop continues to have a regular role to play in the countryside. However, as the only source of regular food items the travelling shop has obvious limitations concerning the range, quality and price of goods stocked.

Greater promise is offered by the mobilisation of public services. Moseley (1977) includes a system such as this in his suggested low-cost package of policies for low access areas. He proposes "an emphasis on various public sector peripatetic services clustering together in time and in space (e.g. mobile chiropodist, family planning clinic, library,,post office and 'play-school bus' meeting every Tuesday afternoon on a certain village green)" (p.34). To this list could be added the mobile doctors surgery and even the mobile bank which has been the subject of successful experimentation in the North Yorkshire Moors. Once again, the establishment of this mobile service market is dependent on a pre-conceived organisational system, and this is a form of 'initiative planning' which will be a new venture for most rural areas,

MacGregor (1976) reports on an educational experiment in Oxfordshire whereby five village schools were served by one headmaster and one set of specialist staff who move around from school to school. Similar experiments have also been taking place with team ministries in the churches. This type of alternative should be explored as a further method by which various services can be broughtto outlying settlements. If the mobile public service market can be allied with other itinerant services, then some of the benefits accruing to the key settlements can be spread to the rural hinterland.

POLICY ALTERNATIVES

Having reviewed the specific policies which have been proposed to deal with specific rural sub-systems, the question of an overall framework policy must be considered. The recent anti-key settlement lobby has resulted in a number of feasible alternative policy proposals, and these are summarised below.

1. The Village Unit is a concept concerned with the supposition that people who live and work in the countryside have a right to the continuation and proper functioning of their villages. Peel and Sayer (1973, 1) note that this approach requires "the preservation, restoration or introduction as the case may be of the necessary amenities,

and definite steps to assist the village unit and community." This approach has given rise to its own pressure group - the New Villages Association (Venner, 1976) - and represents the widest form of rural resource distribution.

2. The Village Constellation. Hancock (1976) proposes that rural planning should be carried out on the basis of a constellation of interrelated villages. He suggests that "social and infrastructure provisions should be made (often by voluntary effort and co-operative enterprise) to these groups" (p. 522), which would be increasingly represented by strengthened parish or neighbourhood councils.

3. Cluster-Dispersal. This concept was introduced by Barry Lewis in his study of the Cambridge sub-region (Department of Environment, 1974). Basically, rural development would be based on village clusters centreing around established and new rural settlements in which service and employment growth would be attracted so as to serve the entire cluster.

4. Functional Interdependence. McLaughlin (1976A) and Martin (1976) have revived the principal of functional interdependence whereby rural settlement planning would involve

> "a system of perhaps five to six villages or sub-systems over which public services, education, residential and employment opportunities would be spread." (McLaughlin, 1976A, 159).

In theory such a system would provide a collective population threshold equivalent to that of a key settlement while at the same time dispersing growth benefits over a wider area.

5. Maximum Accessibility. An approach based on the German model places a major emphasis on accessibility between settlements. Those rural villages which are located on or near the seemingly permanent transport routes between urban centres will receive public investment since they are considered viable settlements. Inherent in this type of policy is the withdrawal of support from those settlement in more peripheral locations.

These five proposals represent a continuum of policy

between the two poles of concentration and dispersal. It would be inappropriate to attempt a critique of each at this juncture, simply because these approaches warrant individual studies and therefore cannot be adequately described in the short space available here. However, several points of comparison should be made between these concepts and the key settlement policy in order to discover whether the key settlement inadequacies highlighted above are due to the policy itself or to the manner of its implementation.

The first striking conclusion to be drawn from this list of policy alternatives concerns the pressured rural areas. It was concluded from the Warwickshire analysis that stunting the growth of sizeable settlements was an inadequate method of curbing urban growth in the countryside. Consequent to this conculsion is the recommendation that growth could be spread more evenly amongst appropriate rural settlements where an impetus for suitable development had previously been established. The overall object of conserving high quality environments would remain under this dispersal. However, four of the five groups of policy alternative described above advocate the provision of at least some new facilities (in the fields of housing, services and employment) at village level rather than the establishment of linkages from a growth centre which would be more in keeping with conservation objectives. This is not to say that small pressured settlements should remain sterile. Specific policies for specific problems (as outlined above) should still apply, but it would appear to make environmental as well as economic sense to concentrate facilities and use these to serve small settlements in the manner suggested in the previous section.

Having said this, several further points applicable to both the pressured and remote situations may be made concerning the nature of an appropriate framework for the planning of rural settlements. Firstly, it should be stressed that "it is doubtful if the village has ever been a self-sufficient unit in social or economic terms" (MacGregor, 1976, 524). However, many facilities are located in each

village, some linkages with higher order centres remain a necessity. Therefore the policy alternatives open to the planner refer to the degree of concentration to be adopted rather than whether concentration should take place at all. On the other hand, high degrees of concentration (e.g. the maximum accessibility concept) do not give sufficient dispersal to meet the social and political demands of the planning system. Evidently some mid-continuum compromise is required.

The village constellation approach offers one form of compromise between dispersal and concentration. Hancock has advocated that "the classification of key villages and other settlements should be abandoned" and that "in its place should be plotted the groups of settlements which are interrelated, first to the city regions, second to small towns and major villages." (1976, 522). The interrelated nature of settlement systems has been stressed in both key settlement policy analyses. Rural settlements dominated by urban centres should be linked into that centre's planning system, rather than be subject to some obscure key settlement in the opposite direction. Many of the difficulties encountered with the establishment of an overall perception of the key settlement policy has been due to the inappropriate designation of key settlement spheres of influence.

Given this objective of interrelated settlement systems, the basic decision to be made by rural planners concerns the nature of the systems themselves. Should each system revolve around single growth points, clustered growth points, or functionally interdependent and mutually supporting groups of villages? It is obvious that the efficacy of single key centres will depend on the number and spacing of the settlements selected. For example, the Devon policy appeared to have named too many key settlements, leading to a thin spread of investment which in turn discriminated against the small centres in the most needy areas. On the other hand, the policy in Warwickshire is likely to cause hardship to thriving settlements because the designation of key status has been too limited.

With these problems involved with key settlement policy implementation the concept of village clusters presents an attractive proposition. On the surface, such a policy offers a share of development to a greater number of constituent settlements along with a greater spatial distribution of any growth that occurs. Indeed, it is evident that such policies have some potential particularly in the remotest of rural areas where single settlements are often not large enough to create an impetus for growth. But there are disadvantages inherent in a dispersed growth area; however tightly knit, as compared with one single growth settlement. For instance, the economies of scale gained from the building of a large number of dwellings or one discrete sewerage system would be lost if investment was divided between several locations. Also, transportation difficulties, already crucial in rural areas, would be magnified if radial transport routes had also to link several settlements in the centre of the growth area. Finally, the investment already placed in single growth settlements would be one compelling reason not to abandon those settlements in favour of the promotion of growth in entirely different locations.

In one sense, the choice between one key settlement and a growth area of a few smaller settlements is academic in that we have seen that the fundamental rural problems occur in the settlements outside the range of rural growth centres. Therefore, policies based on key settlements and on functional interdependence or clustering of smaller settlements share not only the problems of attracting employment and service growth but also the problems of ensuring that the benefits and opportunities derived from this growth are spread to as many parts of the rural settlement hierarchy as is practicable. If these problems are to be given priority in the future, then it seems appropriate to return to the original concept of a key settlement policy as an overview of the settlement pattern as a whole, laying special emphasis on the relationships between the key settlement and other settlements served by it.

There would appear to be two basic reasons why the key settlement framework should not be discarded at this point in time. Firstly, some counties have spent twenty-five years in building up a pattern of rural service centres whose fullest potential will only be realised if these relationships between centre and hinterland are fostered and strengthened. McLaughlin (1976B, 57) argues that key settlement policies "are in danger of sacrificing long-term improvement for short-term efficiency." However, the short-term stringencies of the key settlement policy's treatment of small rural settlements may be converted to longer-term benefits if the policy is used as a framework of linkages through which the levels of opportunities in non-key settlements are improved.

The second recommendation for the retention of some kind of key settlement framework stems from the evidence produced from this study. Clearly, some physical, economic and even partial social success has already been achieved through the use of key settlement policies. Therefore, if this framework can be socially strengthened by a package of specific policies for specific rural problems, then economic advangage may be retained alongside social and community advancement in small settlements. There is still a need for a pragmatic approach to rural planning. Moseley (1977, 32) stresses that "the public expenditure bubble has burst and that the state cannot continue to spend its way out of trouble." However, there would seem to be little reason why economic pragmatism should not be linked to a new form of 'initiative planning' in rural areas. Key settlement policies so far have only completed half of their task, that is the establishment of centralised growth. In order to attain the second objective, namely the democratic spread of these benefits, planners should liase closely with authorities such as CoSIRA and grasp the initiative by producing flexible but specialised rural sub-system policies.

The establishment of two-way links between growth in the key settlements and natural increase in the rural hinterland appears to be the most likely method by which the

long-term stability of rural areas in general, and village life in particular, can be assured. Any thought of abandoning the key settlement framework now could be akin to throwing out the baby with the bathwater.

EPILOGUE

This study has merely scratched the surface of the entire question of future planning strategies for rural areas. The intention of the study was to make some assessment of the advantages and disadvantages of the key settlement policy as seen from its actual implementation in two differing types of rural area. Such an evaluation has been attempted with the conclusion that the key settlement policy framework, when accompanied by specific policies to deal with individual rural problems, would appear to be a reasonable future approach for the planning of rural settlements.

There is, however, a glaring need for some kind of methodology whereby various rural planning policy alternatives may be evaluated in terms of both economic and social factors. It is obvious that present policies are weighed up in terms of exchequer costs rather than personal, social or opportunity costs. Therefore, policies of concentration are favoured without regard to the fact that the savings made by the public purse are simply passed on to rural residents in the form of increased travel and living costs.

Some attempts at the comprehensive costing of alternative patterns of development have already been made. The classic forerunner in this respect was the South Atcham Study (Warford, 1969) which dealt with the provision of water services. More recently, the Walsham Area Study undertook to test the hypothesis that the concentration of new housing development, on or around existing centres provides the greatest overall benefit at the least net cost to the community. Shaw (1976, 137) summarises the findings of this study:

1. "overall annual revenue costs would be about one-third higher under the Dispersal strategies than under Concentration."

2. "The non-monetary costs generally favour a strategy of Concentration with the exception of only two factors: a Concentration strategy does nothing to reduce the risk of school closure or to stimulate community groups activity."

In effect, the study concluded that the capital and revenue price of dispersal is high but that there are strong social arguments in favour of accepting this cost. Unfortunately, social costs were not actually included in the calculations.

Bather et al (1976) carried out a development potential analysis on alternative growth scenarios contained within the West Berkshire Structure Plan. However, their policy impact matrix was again able to isolate social arguments but not to include social factors into the analysis.

The range of present knowledge concerning evalutaion in the planning process has been fully summarised elsewhere (Lichfield et al, 1975). However, it is clear that current techniques such as the planning balance sheet, development potential analysis, potential surface analysis and so on cannot individually provide a comprehensive evaluation of alternative policies for rural areas. It may well be that some combination of these and other methods could provide the basis for a research project designed to effect this evaluation. Clearly, such a project is a vital prerequisite for any further progress in the discussion of future planning policies for rural areas.

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APPENDIX 1

Questionnaire

WYE COLLEGE
(UNIVERSITY OF LONDON)
Near ASHFORD Kent
TN25 5AH

School of Rural Economics
and Related Studies
Countryside Planning Unit
Ernest Cook Professor: G. P. Wibberley, Ph.D., M.S. C.B.E.

Phone: Wye ~~401~~
812401
Ext. 274-5.

GPW/SK.

26th September, 1975.

Dear Sir/Madam,

During recent years much has been said about how villages should be planned to suit the people who live in them. A good deal of this discussion has centred around the 'key village' idea; that is, the choice of certain central villages where additional houses, shops and other facilities are provided so that these services may also be used by surrounding settlements. No serious study has, however, been carried out to show whether this type of planning policy is successful.

We are trying to make such a study and, therefore, we need to collect information about the social and economic services available in every parish in the counties of Devon and Warwickshire, for it is at parish level that the real problems are encountered.

We would be grateful if you could complete the enclosed questionnaire and return it in the envelope provided. We have tried to make the questions as straightforward as possible hoping they take only a little of your time to answer. Any general comments you would care to make on the idea of key villages will be of great interest to us.

Of course, any information you give will be treated in the strictest confidence. I do hope you will be able to help us.

Yours faithfully,

Gerald Wibberley

Gerald Wibberley,

Professor of Countryside Planning.

KEY VILLAGE SURVEY

THE PARISH OF .....

Part 1 : SERVICES and INFRASTRUCTURE

Please tick the services which were and are available for the years listed. (Some approximate answers may be necessary because of the ten year time span.)

		1965	1970	1975
1.	Primary School	☐	☐	☐
2.	Secondary School	☐	☐	☐
3.	Grocer (selling food only)	☐	☐	☐
4.	General Store	☐	☐	☐
5.	Butcher	☐	☐	☐
6.	Baker	☐	☐	☐
7.	Chemist	☐	☐	☐
8.	Clothes Store	☐	☐	☐
9.	Antiques Shop	☐	☐	☐
10.	Delicatessen	☐	☐	☐
11.	Hairdresser	☐	☐	☐
12.	Electrical and TV. Shop	☐	☐	☐
13.	Bank	☐	☐	☐
14.	Post Office Facilities	☐	☐	☐
15.	Travelling Shop	☐	☐	☐
16.	Garage	☐	☐	☐
17.	Village Hall	☐	☐	☐
18.	Public House	☐	☐	☐
19.	Church/Chapel	☐	☐	☐
20.	Doctors Surgery (daily)	☐	☐	☐
21.	Bus Service (4 or more buses a day)	☐	☐	☐
22.	Other Bus Service	☐	☐	☐
23.	Train Service	☐	☐	☐
24.	Electricity to all Dwellings	☐	☐	☐
25.	Piped Water to all Dwellings	☐	☐	☐
26.	Mains Drainage from all Dwellings	☐	☐	☐

Part 2 : HOUSING

Please tick the approximate number of new private and council houses built in your parish during the periods listed (do not include houses built for holiday use).

		1965-1970		1971-1975	
		Private	Council	Private	Council
27.	None	☐	☐	☐	☐
28.	1 - 10	☐	☐	☐	☐
29.	11 - 20	☐	☐	☐	☐
30.	21 - 30	☐	☐	☐	☐
31.	31 - 50	☐	☐	☐	☐
32.	51 - 100	☐	☐	☐	☐
33.	101 - 200	☐	☐	☐	☐
34.	201 - 500	☐	☐	☐	☐
35.	501 +	☐	☐	☐	☐

Part 3 : EMPLOYMENT

Please state the number of new jobs of each type that have been provided in the parish for the periods listed.

		Factory	Office	Service (including shops)	Agriculture, Forestry or Mining	Others
36.	1965-1970	...	...	...	...	...
37.	1971-1975	...	...	...	...	...

Part 4 : KEY VILLAGES

38. Does your parish contain a key village or part of a key village? (Please tick)

Yes ☐ No ☐

39. If so which one? .....

40. If not which is the nearest key village to your parish?

.....

41. How far away is this key village from where most people live in your parish?

.....miles

42. How long does it take to get there by bus? .....

43. How long does it take to get there by car? .....

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School of Rural Economics
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Countryside Planning Unit
Ernest Cook Professor: G. P. Wibberley, Ph.D., M.S. C.B.E.

October, 1975.

Dear Sir/Madam,

I hope you have received from us recently a questionnaire dealing with the social and economic services which have been provided in your parish over the last ten years. We shall be most grateful if you can fill in as much of it as possible and return it to us in the stamped addressed envelope provided. Another copy of the questionnaire is enclosed with this letter.

Even if you feel that the "key village" planning policy does not affect your particular parish, we would still like you to tell us so, and also to say why. It is important that we collect information from as many parishes as possible so that we can obtain a representative overall picture.

We would stress once again that all replies will be treated in the strictest confidence.

Yours faithfully,

Gerald Wibberley

Gerald Wibberley,
Professor of Countryside Planning.

Please note: If you have already returned a questionnaire to us, kindly disregard this letter.

APPENDIX 2

Papers Published During The Study Period

Regional Studies, Vol. 11, pp. 31–46. Pergamon Press 1977. Printed in Great Britain.

SfB Aa3
UDC 308:711.3.001.57
(420 + 429)

An Index of Rurality for England and Wales

PAUL J. CLOKE
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(Received 7 May 1976; in revised form 6 July 1976)

CLOKE P. J. (1977) An index of rurality for England and Wales, *Reg. Studies* **11**, 41–46. Rurality is defined in terms of selected discriminating variables, from which an index of rurality is formulated using principal components analysis. Distributions of four classifications of rurality are presented and both problematical remote rural areas and those suffering extreme urban pressure are identified.

Data generated by the index formulation is found to be both a useful tool for studies involving comparison or contrast between rural areas, and an aid to the possible standardisation of planning solutions in areas with similar problems. An insight is also offered into patterns of rural change and the changing nature of rurality itself.

Rurality Principal Component Indexation
Areal Classification Rural Planning Spatial and temporal comparability

INTRODUCTION

THE DISTINCTION between 'rural' and 'urban' characteristics has provoked much discussion over the years. These terms are used habitually, yet the criteria employed in their definition have often been of a vague and intuitive nature. As it becomes necessary for special attention to be diverted to the planning problems encountered in rural areas, it is essential that attempts should be made not only to pin down the nebulous concept of rurality, but also to measure differences in the degree of rurality. It would then be possible to identify specific types of rural area where planning problems are similar, and perhaps to standardise the solutions to these problems wherever small-scale local differences allow this to be done. Indeed, the index of rurality presented here arose from the need to select comparable case study units for use in the author's study of key settlement planning policies in rural areas.

Definition of rurality

Until recently, planners have leaned heavily on sociological theories of rural and urban relationships. Two basic models have been invoked in this context. The original idea of 'rural' and 'urban' as two poles of a dichotomy was soon found to be unrepresentative of the real world situation (STEWART, 1958). As SOROKIN and ZIMMERMAN (1929, p. 16) pointed out, 'in reality the transition from a purely rural community to an urban one . . . is not abrupt but gradual.' Realisation that the extremes of the dichotomy were easily recognised but that the threshold between their respective influences was not readily identifiable, led to the conceptualisation of the rural– (or folk–) urban continuum pioneered by REDFIELD (1941). Support for this concept came from investigators such as QUEEN and CARPENTER (1953, p. 38) who noted a 'continuous gradation in the United States from rural to urban rather than a simple rural–urban dichotomy'.

However, the continuum model has also been seen to be unrepresentative in that it is both oversimplified and misleading (MITCHELL, 1973). By way of compensation, increasing complexity has been introduced into the theory of rural–urban relations. PAHL (1966, p. 327) argues that the continuum concept might be replaced by 'a whole series of meshes of different textures superimposed on each other, together forming a process which is creating a much more complex pattern.' A natural progression from this idea is outlined by BAILEY (1975, pp. 117–118) who argues that 'the crux for the sociologists is that the defining parameters of social problems are the same for rural as for urban areas.' Thus the treatment of the rural–urban distinction in sociology has changed from the study of two extremes to the recognition of common social variables in these extremes, which allow a unified field of

study, and preclude the separation of 'rural' from 'urban'.

When faced with a fluid conceptual framework such as this, it seems likely that an inductive approach might yield more positive and useful results when attempting a definition of rurality for use in the planning of rural areas. This approach inherently accepts some form of continuum model, and rightly so, for planners are not yet ready to follow sociologists into a non-spatial view of rural and urban as a unitary area, simply because of the vast differences in scale, resources and environment between the two extremes.

An inductive approach suggests that certain selected variables may be measured to ascertain whether an area inclines toward the rural or urban pole. The definition of rurality is therefore inherent in the choice of these variables, and so it is necessary to include some test of significance to ensure that the selected variables are indicative of rural or urban (and therefore non-rural) inclination. SCHNORE (1966, p. 135) warns that all such definitions incorporate a degree of arbitrariness. 'In this case, the major difficulties stem from the fact that the characteristics which have been singled out for attention . . . are literally variables, i.e. they exhibit differences in degree from place to place and time to time.' However, these difficulties would appear to be advantageous in the construction of an index. Areal variation is necessary to gain a widespread pattern of the distribution of rurality, and variation over time is likely to offer an interesting insight into the changing nature of rurality.

In 1971 the DEPARTMENT OF THE ENVIRONMENT (1971 and 1972) reported on an investigation into the nature of rural areas and small towns in England and Wales. Incorporated in this study was the measurement of three variables, discussed later, to define rurality, and the calculation of an index by which degrees of rurality could be measured. This study pioneered the inductive approach in this field, and it was the need to update the results and to improve the rurality definition by the introduction of multivariable statistical techniques that led to this present work being initiated.

Data base

Most of the details used in the indexation procedure were extracted from the population census of England and Wales. A statistical data input was required to prevent any subjective valuation of variables, and the census provides a convenient and concise compendium of such data. This source also allows continuity of data over time, thus presenting the opportunity of historical comparisons of rurality using the same basic variables and techniques for two census dates. It may even be possible to continue this comparison into the future, although the reorganisation of local government boundaries has complicated any moves in this direction.

Census data for rural administrative areas are provided at civil parish and rural district levels. Neither is an entirely satisfactory areal base for the measurement of variation in rurality. The parish offers a small-scale view, but 10% sample census data can be unacceptably unrepresentative at this level. On the other hand, there is a risk that some significant internal variation in levels of rurality will be ignored if the rural district is used as a base. This risk is greatest where a sizeable town is included within the boundaries of the rural district thereby distorting the overall measurement for the district. However, the use of multivariate analysis in the calculation minimises this risk of misrepresentation to a certain extent in that the aggregation of a number of significant variables will give a better overview of rurality than will the calculation of fewer individual variables in which internal variations are less likely to be counterbalanced. Moreover, a town or large village is often reflected through its level of service and employment magnetism in the rural areas which surround it, and thereby internal variation in such cases is not as important as it first appears. For these reasons, the rural district was chosen as the areal base for the index.

Selection of variables

Generally, the selection of variables was dictated by the expectation that each one chosen would vary appreciably with changing rurality, some increasing and some decreasing. The study of rurality by the DEPARTMENT OF THE ENVIRONMENT (1971, p. 3) used three variables as indicators and from them constructed an index. The three indicators were:

1. *Population density*
2. *Percentage of males working in the area employed in primary rural industries*
3. *Percentage of the resident occupied population working in another local authority area*

However, just as the original use of three all-embracing indicators (social rank, urbanisation and segregation) to distinguish variation between urban social areas (SHEVKY and BELL, 1955) has been replaced by multivariate analysis (HERBERT, 1968) and factorial ecology (MURDIE, 1969), so the measurement of variation in rurality can be improved by the wider scope of definition allowed by the inclusion of a larger number of significant variables.

A total of sixteen variables was measured for each rural district in England and Wales. The three variables used in the Department of the Environment study were included, these being traditional, if selective, pointers to the extreme rural position of low density, high involvement in rural primary industries and a consequent low level of commuting to employment outside the area. To these items were added several demographic variables in order to attain greater depth of definition than was present in variables concerned only with employment and density. Age structure is a particularly important indication of rurality. JACKSON (1968, p. 51) emphasises that 'depopulating areas are likely to have a disproportionate number of elderly persons', this being a major problem in the planning of extreme rural areas. Conversely, an age structure biased towards the 15–45 age group indicates non-rural trends. Three age-group variables are used in the index calculations. Of these, one measures population over the age of 65 and the remaining two illustrate the proportions of men and women present in the 15–45 age group. Variables for both men and women were included to monitor the misleading effects of changing institutional populations, and only the more significant of the two was used in the final index.

A measure of population change was included, to add a dynamic quality to the index. Consequently the index is able to isolate those rural areas under greatest urban pressure and can also give some indication as to the direction of change which is taking place in a given rural district. Similarly, certain migration variables were also thought to be worthy of inclusion. Originally both the 5-year and 15-year in-migration census categories were used in the primary calculation, but as the 15-year variable was not included in the 1971 census, it was eventually discarded from the index calculations so that continuity and comparability could be maintained between the two index dates. Thus, high in-migration is likely to be inversely correlated with rurality and, whilst an out-migration variable was also used, it is unfortunate that the census only records out-migration for the year prior to the census date.

FLETCHER (1969, p. 111), in a case study of rural housing in Tiverton rural district, highlights the problems caused by sub-standard household amenities in rural areas. A low level of household amenities in a rural district is seen as indicative of the rural extreme, thus warranting the inclusion of this variable. Alongside this factor, two occupancy rate variables were used to test the hypothesis that areas at the rural end of the scale have lower occupancy rates than those suffering urban encroachment.

Finally, the distance of each rural district from urban centres of various size categories was used in the calculation. This reflects the fact that remoteness and rurality are usually closely linked, and indeed, it is apparent that many of the problems of planning rural areas stem from this remoteness. Measurement of these variables was from maps, and again it was only the most significant of the group that was finally included in the index.

The definition of rurality inherent in these variables embraces employment, population, migration, housing conditions, land use and remoteness. These variables reflect the socio-economic and planning viewpoints for which the index was originally intended. Other, non-census, variables such as proportions of agricultural land or built-up area in the rural district might be included at a later date if the index is to be used for a different purpose from the one outlined here.

Selection of indexing variables

Values of the 16 variables listed in Table 1 were obtained for each rural district in England and Wales from the 1961 census. No single variable is able to distinguish accurately between areas of differing type, but in combination they reinforce each other and may provide a good discrimination. The best combination for discrimination is that which separates the areas as definitely as possible with the more urban areas at one end of the scale and the more rural areas at the other. This combination is the principal component of the data; that is the longest axis through the multidimensional space of the data, or the linear combination of the variables with a greater variance than any other.

Any linear combination for the jth rural district can be written as

$$Cj = a_0 + a_1x_1j + a_2x_2j + \ldots a_{16}x_{16}j$$

or $Cj = a_1'x_1j' + a_2'x_2j' + \ldots a_{16}'x_{16}j'$

where x_ij is the value of the ith variable in the jth rural district,

$$x_ij' = \frac{x_ij - \bar{x}_i}{S_i}$$

is the standardised value of the ith variable in the jth rural district, and a_i and a_i' are corresponding coefficients. The coefficients (a_i') of the standardised variables are called their loading scores. Numerically, large loading scores indicate the most important individual variables in the discrimination. This procedure was put into operation using principal components analysis. Some authors (e.g. SWEETSER, 1965) have considered the use of factor analysis in similar situations, but this would not be appropriate in this case as the emphasis is on the measurement of observable characteristics to comment on the general concept of rurality, rather than the formation of a factor called rurality in order to explain the groupings of individual variables.

The first component, unrotated, accounted for 35·8% of the total variance in the 1961 data. Table 2 demonstrates the loading scores for this combination. It is clear that the variables with large negative loading scores are those which correspond with characteristics which are evidently rural, such as a high level of agricultural employment. Similarly, variables with large positive loading scores are identified with more apparent urban characteristics, such as high levels of population increase.

Variables with small loading scores, between −0·5 and +0·5 contribute little to the differentiation between areas, and were discarded. In addition, the less important of the demographic and distance variables were discarded to reduce autocorrelation. Nine variables remained, for which a new principal component was determined, accounting for 50·4% of the current total variance. These revised loading scores are also shown in Table 2.

Indexation procedure

An index of rurality for 1961 was calculated for each rural district by evaluating the reduced principal component value for each district; that is by substituting the values of the nine variables in the principal component equation. This produced index values between −12 and +15 (Table 3). A highly negative index value denotes an extremely rural area, because that value is produced by high scores in those variables

Table 1. Variable list

	Variable name	*Census data*
1.	Population density	Population/acre
2.	Population change	% Change 1951–61, 1961–71
3.	Population over age 65	% Total population
4.	Population men age 15–45	% Total population
5.	Population women age 15–45	% Total population
6.	Occupancy rate	% Population at 1½ per room
7.	Occupancy rate	Households/dwelling
8.	Household amenities	% Households with exclusive use of
		(a) Hot water
		(b) Fixed bath
		(c) Inside W/C (1971)
9.	Occupational structure	% in socio-economic groups
		13. Farmers-employers and managers
		14. Farmers-own account
		15. Agricultural workers
10.	Commuting out pattern	% Residents in employment working outside the rural district
11.	In-migration	% Population resident for less than 5 years
12.	Out-migration	% Population moved out in last year
13.	In/out migration balance	% In/out migrants
14.	Distance from nearest urban centre of 50,000 Population	—
15.	Distance from nearest urban centre of 100,000 Population	—
16.	Distance from nearest urban centre of 200,000 Population	—

Table 2. Variable loading scores for 1961 index

Variable	*Loading Score*	*Revised loading Score*
Population change 1951–61	0·73984	0·77151
Household amenities	0·73780	0·73826
Population, women 15–45	0·72098	0·76131
Commuting out pattern	0·68591	0·73575
In-migration (5 years)	0·64610	0·58545
Population density	0·59345	0·66164
In/out migration balance	0·49956	—
Population, men 15–45	0·39421	—
Occupancy rate (household/dwelling)	0·30663	—
Occupancy rate (persons/room)	0·08919	—
Out-migration (1960–1)	0·05655	—
Distance from 200,000 urban node	−0·59700	—
Population over 65	−0·61408	−0·60623
Distance from 100,000 urban node	−0·67039	—
Distance from 50,000 urban node	−0·71716	−0·67525
Occupational structure	−0·78833	−0·81771
Percentage of current variance explained:	35·8%	50·8%

Table 3. Index scores, 1961 and 1971

	1961	1971
Bedfordshire		
Ampthill	0·6988	4·4914
Bedford	1·9144	3·7394
Biggleswade	0·5897	2·1929
Luton	11·6273	6·8183
Berkshire		
Abingdon	6·5077	5·7856
Bradfield	6·6922	7·3569
Cookham	5·6880	5·3871
Easthampsted	11·7899	9·9822
Farringdon	0·4807	0·4284
Hungerford	−0·7495	−0·3519
Newbury	3·5804	3·6060
Wallingford	5·7601	4·4123
Wantage	2·4180	3·9912
Windsor	9·0195	5·3882
Wokingham	8·2088	10·5329
Buckinghamshire		
Amersham	7·0822	6·0811
Aylesbury	2·1335	2·5193
Buckingham	−1·7877	−0·8992
Eton	11·7495	6·9045
Newport Pagnell	−0·7103	1·5571
Wing	0·6011	3·1988
Winslow	−1·3123	2·2328
Wycombe	5·3604	7·9875
Cambridgeshire & Isle of Ely		
Chesterton	2·1966	3·2119
Ely	−2·9132	−1·3781
Newmarket	−1·0855	0·0761
North Witchford	−4·0556	−6·8375
South Cambridgeshire	0·1191	2·6724
Thorney	−4·5925	0·7040
Wisbech	−2·9395	−3·3464

	1961	1971
Cheshire		
Bucklow	6·2466	4·0406
Chester	5·1617	5·5272
Congleton	1·9365	4·0029
Disley	5·0330	6·1867
Macclesfield	5·2152	3·0612
Nantwich	0·4752	2·2620
Northwich	4·7187	2·4054
Runcorn	4·4865	4·2548
Tarvin	−1·4142	1·7223
Tintwhistle	2·1353	−3·3464
Cornwall & Isles of Scilly		
Camelford	−6·2822	−5·7325
Kerrier	−4.9445	−5·9776
Launceston	−6·1507	−6·6312
Liskeard	−4·1135	−4·3728
St. Austell	−4·0087	−4·0095
St. Germans	−2·9986	−3·7017
Stratton	−8·0768	−8·5380
Truro	−3·8827	−4·5117
Wadebridge & Padstow	−3·0528	−4·3575
West Penwith	−7·8719	−7·5260
Isles of Scilly	−7·2634	−6·5789
Cumberland		
Alston with Garrigill	−4·6434	−5·5824
Border	−0·6799	−2·4301
Cockermouth	0·7937	−1·2227
Ennerdale	−0·4122	−2·5844
Millom	0·9032	−2·1726
Penrith	−2·7501	−3·8019
Wigton	−2·3361	−3·4675
Derbyshire		
Ashbourne	−2·9301	−2·0388
Bakewell	−1·3353	−2·6932

Table 3—continued

	1961	1971
Derbyshire (contd.)		
Belper	4·7833	1·3536
Blackwell	4·8827	1·3975
Chapel en le Frith	−0·7063	−1·4716
Chesterfield	6·8317	2·6005
Clowne	2·9967	−0·8432
Repton	3·9705	1·2319
South East Derbyshire	7·9231	3·7974
Devon		
Axminster	−3·7733	−5·5277
Barnstaple	−2·5061	−1·6271
Bideford	−6·8705	−7·3603
Broadwoodwidger	−4·9852	—
Crediton	−2·9482	−2·9176
Holsworthy	−8·0555	−6·4811
Honiton	−4·5556	−3·2835
Kingsbridge	−3·5270	−3·2754
Newton Abbot	−1·2451	−1·4956
Okehampton	−6·2182	−7·8254
Plympton St. Mary	3·6099	0·6676
St. Thomas	0·6166	−0·7890
South Molton	−7·5281	−7·0558
Tavistock	−1·8262	−1·8951
Tiverton	−3·0783	−3·7734
Torrington	−6·6319	−6·7611
Totnes	−1·6967	−1·9595
Dorset		
Beaminster	−5·0028	−5·2938
Blandford	−0·7905	1·5933
Bridport	−4·6616	−5·7425
Dorchester	−2·1628	−2·0108
Shaftesbury	−2·7306	−2·8895
Sherborne	−2·7849	−0·4442
Sturminster	−2·4115	−2·6909
Wareham & Purbeck	1·1248	1·0482
Wimbourne & Cranbourne	2·0009	3·8115
Durham		
Barnard Castle	−0·6319	−3·3216
Chester-le-Street	5·0634	5·2153
Darlington	10·8569	6·7452
Durham	4·9666	4·1817
Easington	5·7910	2·3998
Lanchester	0·9169	−0·4947
Sedgefield	2·4183	−1·2770
Stockton	3·7748	7·5618
Sunderland	10·6189	—
Weardale	−4·6117	−5.9890
Essex		
Braintree	0·9369	1·7666
Chelmsford	4·7902	7·6366
Dunmow	0·9094	1·1677
Epping & Ongar	4·4998	4·1399
Halstead	−3·9244	−1·1091
Lexden & Winstree	−1·0880	4·2885
Maldon	−1·8226	2·9327
Rochford	7·1770	6·5697
Saffron Waldon	−1·7561	1·5274
Tendring	−1·3287	0·4416
Gloucestershire		
Cheltenham	5·2845	4·5445
Cirencester	−0·9974	1·2713
Dursley	0·4667	0·6839
East Dean	−0·1322	−1·6072
Gloucester	5·3916	3·1891
Lydney	0·7814	0·7378
Gloucestershire (contd.)		
Newent	−2·6016	−1·0653
North Cotswold	−1·3610	−2·2145
Northleach	−0·9944	−3·2862
Sodbury	4·4021	6·9448
Stroud	1·8161	1·1904
Tetbury	0·5629	−1·2048
Thornbury	2:9172	5·4821
Warmley	13·4983	8·9019
West Dean	−0·0931	−1·5041
Hampshire		
Alton	0·9602	1·6108
Andover	1·2760	1·8081
Basingstoke	2·4765	4·0117
Droxford	0·4698	0·8130
Hartley Wintney	2·9803	10·1267
Kingsclere & Whitchurch	4·5375	3·7846
New Forest	4·1657	2·6356
Petersfield	2·2198	3·8194
Ringwood & Fordingbridge	−1·1805	−1·8061
Romsey & Stockbridge	1·3984	2·7986
Winchester	3·3116	3·4691
Herefordshire		
Bromyard	−4·6490	−3·8049
Dore & Bredwardine	−5·1801	−5·6632
Hereford	−1·1368	−1·4143
Kington	−7·0529	−9·8148
Ledbury	−4·4543	−4·9695
Leominster & Wigmore	−6·2572	−5·6429
Ross & Whitchurch	−4·0403	−4·5272
Weobley	−5·4753	−5·2645
Hertfordshire		
Berkhampsted	1·9642	1·4871
Braughing	−1·6867	3·1005
Elstree	14·2878	6·5672
Hatfield	10·8344	6·2499
Hemel Hempstead	4·5434	4·9081
Hertford	4·2025	4·7994
Hitchin	1·9179	2·9868
St. Albans	8·2179	6·3703
Ware	1·7939	2·1460
Watford	13·8896	8·9395
Welwyn	8·2091	7·8899
Huntingdonshire		
Huntingdon	2·7561	2·5739
Norman Cross	1·3777	5·2666
St. Ives	1·2849	4·0722
St. Neots	−1·6631	4·0222
Kent		
Bridge-Blean	−1·2962	1·6601
Cranbrook	−1·5523	−2·1370
Dartford	9·2130	6·8723
Dover	0·0445	2·7196
East Ashford	−1·8934	0·2830
Eastry	−1·9326	−2·2106
Elham	−2·1498	−1·2228
Hollingbourne	−1·0630	3·1635
Maidstone	1·8233	5·6066
Malling	3·1425	4·9159
Romney Marsh	−1·0790	2·4857
Sevenoaks	3·7267	1·9025
Sheppey	7·1684	—
Strood	6·0751	7·1330
Swale	0·3107	0·6632
Tenterden	−1·7830	−1·8386
Tonbridge	1·2676	3·3088
West Ashford	−0·4853	4·8399

Table 3—continued

	1961	1971
Lancashire		
Blackburn	5·9035	6·7934
Burnley	0·5276	1·9975
Chorley	2·5964	5·1804
Clitheroe	−0·1906	−1·1936
Fylde	3·2006	3·1756
Garstang	−0·1958	0·4857
Lancaster	0·3965	−0·2669
Lunesdale	1·7697	1·5421
North Lonsdale	−2·2934	−1·0907
Preston	5·7802	4·3568
Warrington	4·9992	11·7249
West Lancashire	10·1018	6·0339
Whiston	10·8848	14·8817
Wigan	7·5625	9·7234
Leicestershire		
Ashby de la Zouch	1·6470	0·2831
Barrow upon Soar	5·5469	4·0754
Billesdon	13·3226	5·4360
Blaby	9·8006	9·7165
Castle Donnington	2·6195	3·1320
Lutterworth	0·1469	2·2738
Market Bosworth	1·0656	2·0340
Market Harborough	−1·0210	2·0438
Melton & Belvoir	−1·2942	−1·3380
Lincolnshire–Holland		
Boston	−1·6178	−1·7773
East Elloe	−5·2524	−7·3870
Spalding	−3·2567	−3·6287
Lincolnshire–Kesteven		
East Kesteven	−1·3028	−0·0061
North Kesteven	2·9591	5·0952
South Kesteven	−1·4580	1·6631
West Kesteven	−0·0882	0·3592
Lincolnshire–Lindsey		
Caistor	−2·2192	−1·3919
Gainsborough	0·1216	−0·1270
Glanford Brigg	1·9579	1·2317
Grimsby	5·6002	9·8194
Horncastle	−3·7217	−2·2388
Isle of Axholme	−1·2473	−1·1872
Louth	−1·6166	−1·6667
Spilsby	−4·6276	−6·4887
Welton	2·5168	5·4731
Norfolk		
Blofield & Flegg	1·7041	1·5748
Depwade	−4·4767	−1·6505
Docking	−3·6124	−6·8900
Downham	−3·1923	−2·5039
Erpingham	−5·2717	−6·1348
Forehoe & Hemstead	1·4207	3·5631
Freebridge Lynn	−2·5185	−0·3732
Loddon	−2·8564	−0·6498
Marshland	−2·5254	−3·4330
Mitford & Launditch	−4·3322	−3·1344
St. Faiths & Aylsham	4·1996	4·8581
Smallburgh	−4·7438	−2·1295
Swaffham	−2·9581	−1·3996
Walsingham	−3·6133	−5·6942
Wayland	−3·8009	−2·9538
Northamptonshire		
Brackley	0·1670	2·0726
Brixworth	0·2677	1·1209
Daventry	−0·0861	0·8290
Kettering	0·9550	0·9928
Northampton	5·8481	6·0847
Oundle & Thrapston	−1·0758	−3·0325
Towcester	−0·0016	4·6609
Wellingborough	1·0349	5·1362
Northumberland		
Alnwick	−2·0114	−3·9543
Belford	−3·7850	−5·6113
Bellingham	−3·5268	−6·4775
Castle Ward	5·1179	6·9725
Glendale	−4·7862	−7·2164
Haltwhistle	−3·5400	−4·9575
Hexham	−1·2450	−3·0288
Morpeth	−0·2120	−1·1010
Norham & Islandshires	−5·8182	−6·7511
Rothbury	−5·1986	−6·3275
Nottinghamshire		
Basford	5·4814	4·2357
Bingham	3·4006	7·0896
East Retford	−0·7813	−0·8902
Newark	3·1567	3·3870
Southwell	3·6808	2·2701
Worksop	3·2578	3·0199
Oxfordshire		
Banbury	−0·7443	0·6753
Bullingdon	5·4395	6·4271
Chipping Norton	−0·5453	1·0292
Henley	3·4607	7·0108
Ploughley	4·2763	4·1460
Witney	1·8740	5·3068
Peterborough		
Barnack	5·3936	8·6341
Peterborough	2·5653	4·4394
Rutland		
Ketton	−0·5053	0·5471
Oakham	1·9643	2·5658
Uppingham	−3·0574	−0·7263
Shropshire		
Atcham	0·4084	0·3549
Bridgnorth	−3·0508	−0·3884
Clun	−7·1753	−8·4606
Drayton	−0·8587	−4·9721
Ellesmere	−7·0939	−0·7018
Ludlow	−4·2935	−3·3754
Oswestry	−1·7825	−2·8254
Shifnal	1·6359	3·5403
Wellington	1·9400	3·3490
Wem	−1·5494	—
Somerset		
Axbridge	0·3561	1·7254
Bathavon	3·0999	2·3196
Bridgwater	1·0870	1·3450
Chard	−2·1182	−3·5392
Clutton	−0·4574	1·6422
Dulverton	−4·4871	−6·5450
Frome	−0·8279	0·5276
Langport	−3·0964	−2·0939
Long Ashton	4·8083	6·8885
Shepton Mallet	−1·8305	−1·9244
Taunton	0·6543	0·8959
Wellington	−1·0237	−2·1814
Wells	−2·4073	−2·7256

Table 3—continued

	1961	1971
Somerset (contd.)		
Williton	−4·3084	−4·0426
Wincanton	−3·2808	−4·1051
Yeovil	1·1395	0·8957
Staffordshire		
Cannock	6·4056	8·0565
Cheadle	3·0042	2·0385
Leek	2·4079	−1·4692
Lichfield	2·7966	7·7789
Newcastle-under-Lyme	2·1022	3·0215
Seisdon	10·3833	6·0610
Stafford	1·6637	5·3106
Stone	3·6636	3·7852
Tutbury	4·5399	6·8824
Uttoxeter	−2·2920	−1·2187
Suffolk (East)		
Blyth	−4·5897	−5·9129
Deben	1·1275	−0·6489
Gipping	−2·7072	1·7604
Hartismere	−6·3382	−6·5349
Lothingland	−0·8070	3·2791
Samford	−1·2630	1·9715
Wainford	−4·5567	−2·0741
Suffolk (West)		
Clare	−3·5779	−1·5927
Cosford	−2·0088	−2·4018
Melford	−1·6652	3·4044
Mildenhall	0·5447	1·3991
Thedwastre	−2·7303	−2·2540
Thingoe	−1·0000	0·6512
Surrey		
Bagshot	5·0123	6·6790
Dorking & Horley	5·9292	3·5347
Godstone	5·5721	3·6565
Guildford	6·1585	4·9461
Hambledon	1·9798	2·8407
Sussex (East)		
Battle	−3·1537	−2·2147
Chailey	1·0222	2·7227
Cuckfield	3·5703	2·6882
Hailsham	−1·2595	−2·0657
Uckfield	−0·8849	1·6571
Sussex (West)		
Chanctonbury	−0·2535	−0·0761
Chichester	1·5634	1·0029
Horsham	1·6330	4·2233
Midhurst	−1·0752	−1·2217
Petworth	−2·0216	−0·8252
Worthing	2·0367	1·4312
Warwickshire		
Alcester	1·1324	2·4317
Atherstone	3·7993	4·6992
Meriden	9·6190	14·7064
Rugby	3·7567	3·3100
Shipston-on-Stour	−2·7729	−1·1638
Southam	1·2054	5·0972
Stratford-on-Avon	1·8296	2·3357
Tamworth	4·0972	—
Warwick	6·5683	5·8099
Westmoreland		
North Westmoreland	−4·4332	−5·8712
South Westmoreland	−2·8137	−3·1096
Isle of Wight		
Isle of Wight	−1·7807	−2·2746
Wiltshire		
Amesbury	0·8135	3·4492
Bradford & Melksham	0·2757	4·9574
Colne & Chippenham	0·1178	0·8685
Cricklade & Wootton Bassett	3·0910	5·0218
Devizes	−2·2035	−0·5538
Highworth	4·7479	10·2997
Malmesbury	0·1565	0·2972
Marlborough & Ramsbury	−1·5765	−1·5105
Mere & Tisbury	−3·6013	−4·3784
Pewsey	0·0496	3·2100
Salisbury & Wilton	−0·0640	1·2776
Warminster & Westbury	−2·6742	0·6785
Worcestershire		
Bromsgrove	7·1738	4·4844
Droitwich	1·3042	1·9251
Evesham	−0·4380	−0·8462
Kidderminster	2·2162	2·4188
Martley	−0·5037	0·2638
Pershore	0·3341	0·8199
Tenbury	−3·1025	−1·4758
Upton-upon-Severn	−2·2855	−1·3991
Yorkshire (East Riding)		
Beverley	1·5012	5·3066
Bridlington	−3·4831	−5·0866
Derwent	0·7514	4·3815
Driffield	−2·6074	−4·3072
Holderness	−0·0637	1·8198
Howden	−2·9032	−3·1120
Norton	−5·1602	−5·8049
Pocklington	−2·5086	2·8059
Yorkshire (North Riding)		
Aysgarth	−7·0687	−8·8636
Bedale	−0·3226	−1·1796
Croft	−0·9876	−1·1880
Easingwold	−2·3616	−2·1653
Flaxton	9·1756	6·6934
Helmsley	−4·3976	−6·5050
Kirkbymoorside	−4·7426	−5·9747
Leyburn	−3·9523	−4·1087
Malton	−4·6222	−5·1336
Masham	−6·5555	−8·1694
Northallerton	−1·4495	1·7954
Pickering	−6·2201	−5·2459
Reeth	−8·7134	−11·1006
Richmond	0·1172	2·4560
Scarborough	−4·3988	−0·9424
Startforth	−3·4572	−9·0993
Stokesley	5·6034	2·5854
Thirsk	−0·7514	−1·6358
Wath	−1·5629	−2·1678
Whitby	−4·8011	−3·7584
Yorkshire (West Riding)		
Bowland	−3·1917	−2·4183
Doncaster	6·7856	5·5014
Goole	−0·6060	−0·6293
Hemsworth	5·1212	1·8515
Hepton	0·0260	−2·2010
Kiveton Park	3·3538	6·5262
Nidderdale	1·1069	−0·2117
Osgoldcross	1·9996	2·0814
Penistone	1·8271	1·1810
Ripon & Pateley Bridge	−3·1868	−2·0690

Table 3—continued

	1961	1971
Yorkshire (West Riding) (contd.)		
Rotherham	10·2163	7·1192
Sedburgh	−5·2773	−5·7638
Selby	1·0752	5·1780
Settle	−2·8043	−4·9501
Skipton	−1·6166	−1·5979
Tadcaster	2·1869	3·8721
Thorne	5·2355	2·9050
Wakefield	5·3346	5·8334
Wetherby	3·4977	4·6572
Wharfedale	5·1013	2·2104
Wortley	5·6167	2·4303
Anglesey		
Aethwy	−6·8966	−3·7412
Twrcelyn	−8·3026	−5·2737
Valley	−5·2510	−3·2033
Breconshire		
Brecknock	−6·0344	−6·2776
Builth	−7·1669	−9·0386
Crickhowell	−0·9359	−0·4221
Hay	−5·3708	−5·2868
Vaynor & Penderyn	3·2065	0·1157
Ystradgynlais	0·8880	−3·1597
Caernarvonshire		
Gwyrfai	−5·6134	−6·6632
Lleyn	−9·5482	−10·9616
Nant Conway	−5·0409	−7·6967
Ogwen	−5·3930	−3·1195
Cardiganshire		
Aberaeron	−8·5928	−4·8836
Aberystwyth	−6·3754	−5·5626
Teifiside	−6·7975	−0·3070
Tregaron	−10·5027	−8·7149
Carmarthenshire		
Carmarthen	−3·2997	−9·0150
Llandeilo	−2·3121	−5·3910
Llanelli	3·3887	−6·9626
Newcastle Emlyn	−7·5328	−11·7423
Denbighshire		
Aled	−1·9134	−4·7393
Ceiriog	−2·3203	−4·6850
Hiraethog	−8·4933	−8·4569
Ruthin	−4·3980	−6·3243
Wrexham	1·2645	−0·7520
Flintshire		
Hawarden	2·8147	−5·7499
Holywell	−1·0666	2·7182
Maelor	−5·2013	0·8988
St. Asaph	−0·7632	−5·7499
Glamorgan		
Cardiff	6·8399	8·3637
Cowbridge	2·0849	4·8427
Gower	1·5645	3·3275
Llantrisant & Llantwit Fadre	4·5483	6·9173
Neath	1·8727	−1·0103
Penybont	5·9479	5·0804
Pontardawe	1·6319	−2·3595
Merionethshire		
Deudraeth	−5·0973	−7·2109
Dolgellau	−7·8247	−8·8609
Edymion	−5·3979	−5·5878
Penllyn	−6·9546	−10·0365
Monmouthshire		
Abergavenny	−1·3202	0·0849
Chepstow	1·4417	3·0638
Magor & St. Mellons	6·1022	2·9005
Monmouth	−4·5173	−2·8884
Pontypool	14·4459	5·3104
Montgomeryshire		
Forden	−5·0740	−6·0257
Llanfyllin	−6·8561	−10·4203
Machynlleth	−9·7260	−11·0400
Newtown & Llanidloe	−7·9965	−8·1660
Pembrokeshire		
Cemaes	−6·5548	−9·3203
Haverfordwest	−3·1480	−4·1061
Narberth	−5·9676	−5·4034
Pembroke	−4·5268	−2·8299
Radnorshire		
Colwyn	−7·2584	−5·1010
Knighton	−11·1467	−11·0331
New Radnor	−8·4781	−11·6030
Painscastle	−7·5493	−11·1780
Rhayader	−7·6153	−8·3058

directly correlated with rurality (Table 2) and lower scores in those variables which are inversely correlated with rurality. On the other hand, a highly positive index value has been brought about by a bias towards those variables which are inversely correlated with rurality and so extreme non-rural tendencies are indicated.

It is important to note that the index was calculated to four decimal places solely for use in the quartile classification process and in the measurement of intercensal change. This degree of accuracy should not be used when differentiating between two areas. Indeed, rural districts which differ by less than one unit of the index may be considered as showing very similar rurality characteristics.

The same procedure as above was used to calculate a comparable index using data from the 1971 census (Table 3). Loading scores for the 16 variables and for the revised subset are shown in Table 4. 39·3% of variance in the data was explained by the original 1971 rurality principal component and 52·8% of current variance was explained by the revised principal component.

Two basic operational difficulties arise from the comparison of the 1961 and 1971 indices. The first of these stems from the fact that the nature of rurality is changing over

Table 4. Variable loading scores for 1971 index

Variable	*Loading Score*	*Revised loading score*
Population, women 15–45	0·81910	0·83468
Population change, 1961–71	0·75264	0·78473
Occupancy rate (household/dwelling)	0·70324	—
Commuting out pattern	0·69741	0·72182
Household amenities	0·63919	0·65360
In-migration (5 years)	0·60671	0·61294
Population density	0·59169	0·62476
Population, men 15–45	0·53790	—
In/out migration balance	0·32784	—
Out-migration (1970–1)	0·12379	—
Occupancy rate (persons/room)	−0·19560	—
Distance from 200,000 urban node	−0·56135	—
Distance from 100,000 urban node	−0·68744	—
Population over 65	−0·70138	−0·69705
Distance from 50,000 urban node	−0·76455	−0·71370
Occupational structure	−0·79594	−0·82194
Percentage of current variance explained:	39·3%	52·4%

time as can be seen from the variation between the two sets of variable loading scores. Although an analysis of the loading changes exhibited by each individual variable is beyond the scope of this paper, such an analysis would provide an interesting insight into the reasons behind the varying contributions of different variables to the principal component of rurality. For example, there has been a marked decline in the contribution of the household amenities variable between 1961 and 1971. The level of these amenities in the most rural of districts is gradually being brought up to the standard of the more urban of districts, and so this variable has decreased in value as an indication of rurality distribution. Other variables have shown increases in differentiation over the intercensal period. These opposing trends have tended to counterbalance each other and have had little overall effect on the index. In any case, it was felt that the index should indicate the changing nature of rurality itself, as well as the spatial manifestation of this change.

One notable departure from the 1961 loading scores is the high value of the loading score of the occupancy rate variable of households/dwellings in the 1971 calculation. This is largely due to a change in the census definition of these terms. Consequently, this variable was excluded from the index calculation in order to retain the continuity provided by a nine variable subset, and to avoid the artificial weighting that would have been necessitated by the inclusion of a further variable. Furthermore, the occupancy rate variable was found to be significantly associated with the individual variables comprising the nine variable subset. The occupancy rate variable would therefore seem to have little to add to the index, and so in view of the potential distortion in the inclusion of an additional variable, it is concluded that the omission of this variable from the index is justified.

The second difficulty in comparing the indices for 1961 and 1971 arises from the administrative boundary changes which took place during this period. A few rural districts, at both ends of the scale of rurality, have disappeared altogether. Broadwoodwidger (Devon) and Sunderland (Durham) are examples of this. More frequent is the situation where a rural district loses territory and population to cater for the growth of adjacent urban administrative areas, or where the withdrawal of urban area status for a town situated within the bounds of a rural district produces a consequent increase of territory and population in that district.

It is evident that any analysis of the changing rurality of a specific rural district should take account of such boundary changes, and indeed these alterations are well documented and readily available in the census county volumes. However, this should not nullify the usefulness of an index of rurality, which, when used in time series comparisons, is designed merely as an indicator of rural trends and thus should only

be used as a preliminary to more detailed study of any specific rural area. Moreover it can be argued that many boundary changes may be viewed as an integral part of an upward spiral model of rural change and as such should be included in the indexation of rurality. Therefore, despite these difficulties, it is believed that the index provides a useful tool which is able to give an insight not only into the static distribution of rurality, but also into the processes of rural change over time.

Rurality in 1961

Figure 1 illustrates the spatial distribution of the rurality index for 1961. A simple quartile classification has been used to separate the rural districts of England and Wales into four categories ranging from extreme rural, through intermediate rural and intermediate non-rural, to extreme non-rural. The term 'non-rural' is preferred to 'urban' because the index is specifically designed to investigate rural indicators. Consequently, variables which are inversely correlated with the rural extreme are not strictly urban pointers, although the two meanings often coincide.

Four major belts of extreme rural (Category 1) areas are clearly visible from the index distribution. These are:

1. *The South-west peninsula, including all of Cornwall, the more remote parts of Devon, and the south-western extremities of Somerset, Dorset and Wiltshire*
2. *Wales and its borderlands, excluding the southern industrial belt and the extreme north-east*
3. *Most of Norfolk, north Suffolk, and the Wash areas of Lincolnshire*
4. *A discontinuous Pennine belt, stretching from north-east Yorkshire and Westmorland to western Northumberland*

Table 5 shows the index-derived extremes of rurality and non-rurality. From this it can be seen that Mid-Wales is the most rural of the four Category 1 belts outlined above. The general indication given by the 1961 index is that rurality is greatest in areas of remoteness (c.f. MINISTRY OF HOUSING AND LOCAL GOVERNMENT, 1967), and in particular the upland remote areas.

The distribution of intermediate rural areas (Category 2) falls into two distinct zones. These areas are much in evidence adjacent to the upland Category 1 belts, for example in south and central Devon, south and north-east Wales, and bordering much of the Pennine belt. Category 2 is also indicative of lowland agricultural areas such as those surrounding the Norfolk Category 1 belt, and those in localised patches, examples of which are to be found in the Kent–East Sussex and Worcestershire–Gloucestershire border areas.

Category 3 districts are classified as intermediate non-rural. Many districts in this category are to be found on the periphery of urbanised lowland England, demonstrating in some cases the outermost spread of urban pressure exerted on the rural environs both by the London conurbation, and by the Central Urban Region (as defined by OSBORNE, 1964) with its outliers in south Wales and Durham. Elsewhere, districts of this category denote the influence of smaller scale urban centres such as Hull, Cambridge and Exeter.

Rural districts showing extreme non-rural tendencies are found in Category 4. As expected, these areas (with the exception of the Peak District) form well-defined rings around the conurbations of the Central Urban Region, with the exception of the north-west conurbation where the ring is only partially formed. Table 5 highlights the fact that the areas around London are well represented among the most extreme non-rural districts. Indeed, only London has exerted sufficient pressure to extend this ring beyond those rural districts immediately adjacent to the urban administrative area. Here, a definite growth axis of Category 4 districts has spread into Oxfordshire and Berkshire. Extreme non-rural districts are also found away from the main conurbations. These districts illustrate the urban influence of more peripheral urban nodes such as Plymouth, Bristol, Norwich and Grimsby.

The overall picture of rurality in the rural districts of England and Wales in 1961 is one of a rather fragmented gradation from non-rural to rural. Generally, remoteness would appear to be highly correlated with rurality, but the rural districts in central England form a more diverse pattern of overlapping urban spheres of influence. There are very few examples, the best perhaps being to the south of Bristol, where a perfect continuum of rurality can be viewed in the form of a well-ordered concentric gradation of the four categories of rurality. The uneveness of the gradient from extreme non-rural to extreme rural is emphasised by the contrast between the gradual westward slope of increasing rurality from London, and the abrupt change from Category 4 districts in the West Midlands (particularly in the Seisdon area) to the Category 1 extreme rural areas of Shropshire. It is apparent from this change that distance is not the only factor which

Table 5. Extreme rural and non-rural districts

Extreme Non-Rural				Extreme Rural			
1961		1971		1961		1971	
Pontypool	14·4459	Whiston	14·8817	Knighton	−11·1467	Newcastle Emlyn	−11·7423
Elstree	14·2878	Meriden	14·7064	Tregaron	−10·5027	New Radnor	−11·6030
Watford	13·8896	Warrington	11·7249	Machynlleth	−9·7260	Painscastle	−11·1780
Warmley	13·4983	Wokingham	10·5329	Lleyn	−9·5482	Reeth	−11·1006
Billesdon	13·3226	Highworth	10·2997	Reeth	−8·7134	Machynlleth	−11·0400
Easthampsted	11·7899	Hartley Wintney	10·1267	Aberaeron	−8·5928	Knighton	−11·0331
Eton	11·7495	Easthampsted	9·9822	Hiraethog	−8·4933	Lleyn	−10·9616
Luton	11·6273	Grimsby	9·8194	New Radnor	−8·4781	Llanfyllin	−10·4203
Whiston	10·8848	Wigan	9·7234	Twrcelyn	−8·3026	Penllyn	−10·0365
Darlington	10·8569	Blaby	9·7165	Stratton	−8·0768	Kington	−9·8148

explains the spread of urban pressure, and a study must be made in particular of agricultural land use and the effects of planning restrictions in order to understand the complexities which complicate any continuum that might exist.

Rurality in 1971

A similar basic pattern of rurality is displayed in the 1971 distribution (Fig. 2). The four principal belts of Category 1 extreme rural areas remain, but of these only the South-west peninsula retains a virtually unchanged position. Those districts bordering the South Wales conurbation appear to have assumed an increasingly rural nature, while elsewhere in Wales, the peripheral urban centres of Milford Haven, Cardigan, Holyhead and Bangor appear to have exerted greater urban influence on their surrounding areas than was the case in 1961. This has resulted in a decrease in rurality in these districts. The number of extreme rural districts comprising the Pennine Category 1 block has increased, whereas a decrease in rurality may be noted in north Norfolk.

These observations comply with the general hypothesis that lowland areas are increasingly being subjected to urban pressures, causing a decrease in rurality, whereas in upland areas rurality appears to be self-sustaining. Once again, Table 5 shows that Mid-Wales is the most extreme Category 1 area. Intermediate rural areas have a similar distribution to that of 1961 except that in several areas this category has been eroded by intermediate non-rural districts, as the pressure from urban centres has increased, or where green belt policies have caused certain urban pressures to leapfrog to more peripheral rural districts. This erosion can be clearly seen in the northern parts of Kent.

At the other end of the scale, the intermediate and extreme non-rural classifications both appear to have spread outwards from the major urban nodes, especially in south-east England. The western axis of urban pressure from London, visible in 1961, has been consolidated and extended almost to Bristol, while a similar axis has developed north-westwards from London. In central England generally, the model of an urban hour-glass (SMAILES, 1961) or dumb-bell (BEST, 1965) linking the London and Central Urban regions is mirrored very clearly in the pattern of surrounding rural districts which are indexed as intermediate or extreme non-rural. It is interesting to note that although CHAMPION (1974, p. 69), in his work on the

changing extent of urban land, recognises a 'clear separation of the two regions by the only weakly urbanised belt extending from Wiltshire to the Wash', the 1971 rurality distribution demonstrates a substantial erosion of this separation. The indications are that these patterns of urbanisation are possibly evolving more towards HALL'S (1973, p. 302) projection of 'Megalopolis England', although there there are evidently pitfalls in the use of this terminology.

Also noticeable from the 1971 distribution is a spatial devolution of urban pressure away from the conurbations, and London in particular, towards the more provincial urban nodes such as Peterborough, Lincoln and Grimsby. Table 5 demonstrates that the London area is less well represented in the list of the most extreme non-rural districts than in 1961, and this gives further proof of increased urbanisation elsewhere in England and Wales. An exception to this trend is evidenced by the observation that the south-west cities of Plymouth and Exeter have suffered a relative decrease in their influence over their rural hinterlands.

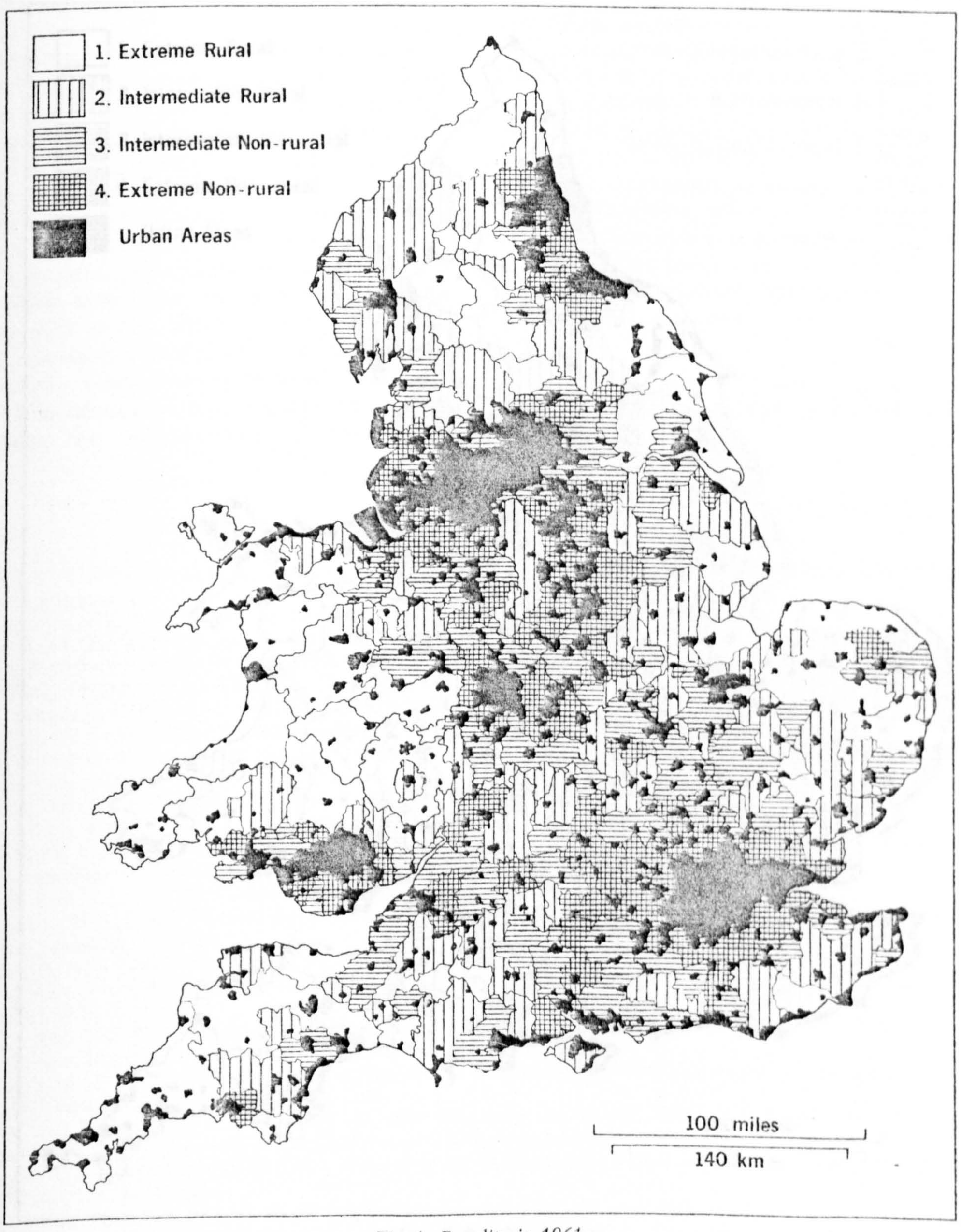


Fig. 1. *Rurality in 1961.*

Generally, the relationship between rurality and urbanisation in 1971 follows the broad pattern outlined by BEST and CHAMPION (1970) in their study of the conversion of agricultural land to urban use. However, two significant departures from their findings are apparent from Fig. 2. The first is that the 'rural gap' (p. 22) between the London and Central Urban regions is shown to be rapidly closing. Secondly, and perhaps more important, the 1971 distribution of rurality shows a significant spread of urbanisation from the London conurbation, both westwards towards Wiltshire and north-eastwards towards East Anglia. Neither of these trends are highlighted in the calculations of conversion of agricultural land, but nevertheless could be important pointers to future growth areas.

CONCLUSIONS

The construction of an index of rurality for England and Wales is an attempt to formulate previously subjective ideas into one concise

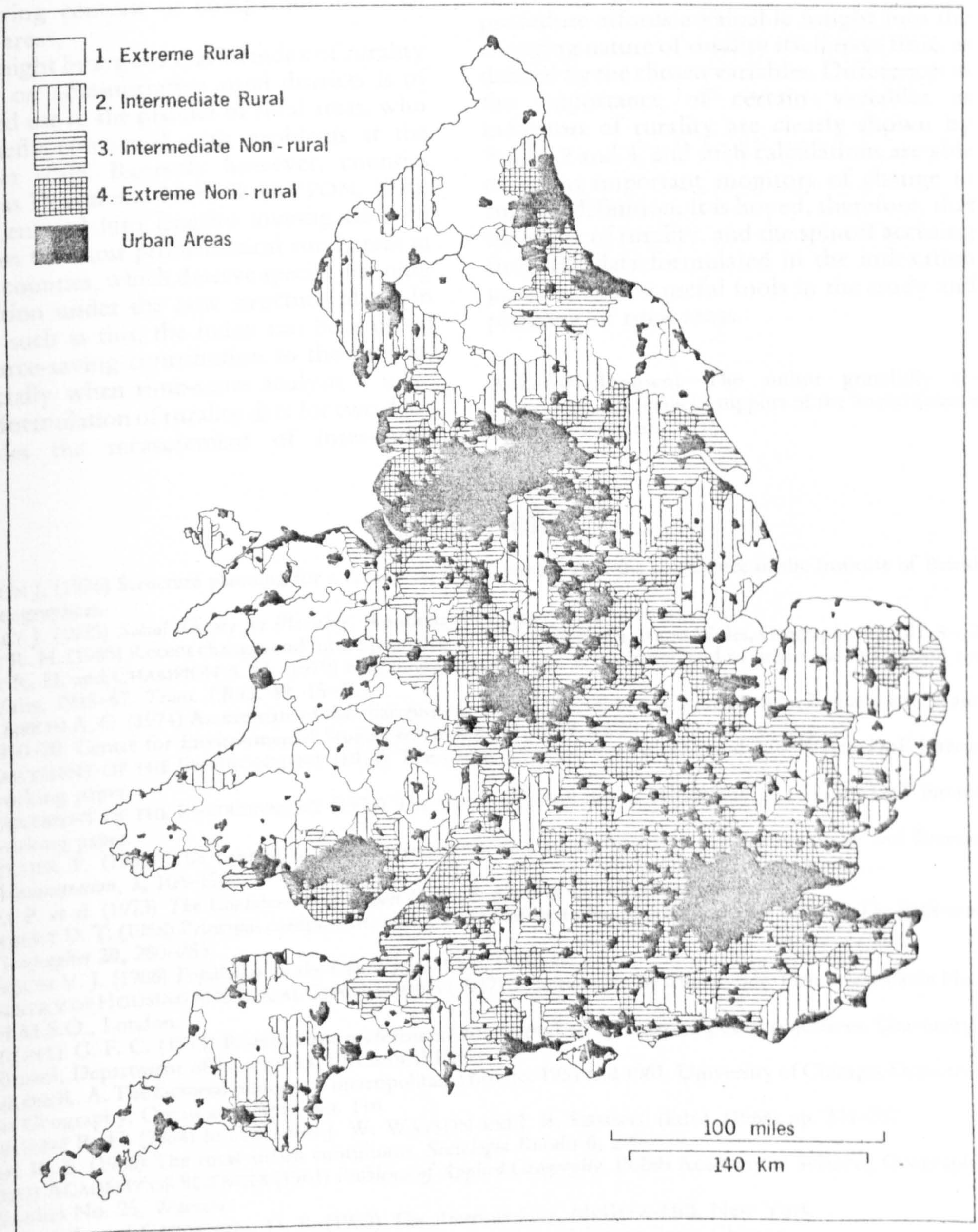


Fig. 2. Rurality in 1971.

statement of rural–urban differentials. Statistical indexation techniques have been used in order to introduce as much objectivity as possible into the classification of different types of rural district. As such, neither the index nor its resulting distributions encompass innovative thinking, but are rather a rephrasing of current theoretical developments into a more compact and workable framework. A numerical interpretation of rurality, and consequent differentiation between varying districts provides a fundamental and necessary starting point for research involving contrast or comparison between rural areas.

It might be argued that an index of rurality based on administrative rural districts is of limited use to the planner of rural areas, who is chiefly concerned with problems at the smaller scale. Recently however, counties such as Devon and Norfolk (AYTON, 1976) have entered into lengthy investigations to discern the most problematical rural areas in their counties, which deserve special planning attention under the new structure plans. In cases such as this, the index can be a useful resource-saving contribution to the process, especially when time-series analysis is used. The formulation of rurality data for two dates enables the measurement of inter-index changes in degree of rurality, and offers the capability of monitoring rurality trends in rural areas at different scales. It will be possible to measure changes in rurality between 1961 and 1971 in order to determine whether the mechanics of rural change are translated into any recognisable spatial problems which might give the planner some indication of the direction of future rurality movement.

Another important theme has arisen from the construction of the index, which is not dealt with in any detail in this paper. The use of principal component loading scores as weighting coefficients in the indexation procedure affords a valuable insight into the changing nature of rurality itself over time, as defined by the chosen variables. Differences in the importance of certain variables as indicators of rurality are clearly shown by Tables 2 and 4, and such calculations are able to act as important monitors of change in rurality definition. It is hoped, therefore, that the index of rurality, and the spinoff accruing from the data formulated in the indexation process, will be useful tools in the study and planning of rural areas.

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In defence of key settlement policies

Paul Cloke

Brian McLaughlin's article in the Autumn 1976 issue of *The Village* posed the question, 'have policies of rural settlement rationalisation based on the key village concept been successful in achieving the objectives set for them?' In short, Mr McLaughlin considered that although this type of policy offers hope for short-term efficiency in rural areas, such efficiency is gained only by sacrificing the long-term improvement of all levels of the settlement hierarchy. These views have made a valuable contribution to the ongoing debate about the future form and function of the village, especially at a time when the shape of our rural areas for the next decade or so is being moulded by the preparation and initiation of county structure plans with a substantial rural sector. However, there is a danger that the key settlement policy is being made a scapegoat for our own inability to come to terms with the fundamental problems pervading the rural areas.

Over the past three years, a research project funded by the Social Science Research Council has been carried out at Wye College which has investigated this very question of the efficiency and universality with which key settlement policies have been applied in differing types of rural area. It would seem appropriate at this point in the debate to present some of the preliminary findings and impressions gained from this research.

As a starting point, the notion of a key settlement policy should be defined. Planners and researchers have often been bogged down by definition and yet in this case certain rural settlement policies have masqueraded under the title of key settlement policies whereas in reality they have attained neither the form nor function of the true key settlement concept. A key settlement policy is distinct from other forms of rural planning in two major directions:

1. The key settlement itself is planned for comprehensive growth in terms of housing, services and often employment.
2. The key settlement policy incorporates an overview of the settlement pattern as a whole and lays special emphasis on the relationships between the key settlement and other settlements served by it.

It is this second factor which offers great potential for problem-solving in rural areas, and yet this important part of the policy has often been neglected in rural planning over the years. This might suggest that it is, in fact, the implementation of the policy rather than the policy itself which has often failed to live up to expectations.

It must be remembered that the key settlement concept was as much in vogue with planners in the 1950s as it would appear to be unfashionable today. Key villages were conjured up as a talisman, the merest touch of which would provide a panacea for all rural ills. Moreover, in the post-war period of uncertainty, this policy presented tangible evidence that the problems of the rural areas were

being tackled. These factors led to the widespread utilisation of key settlements without any positive forethought as to what their impact on the settlement pattern would actually be. Some theoretical support for the policy has been brought forward, but there remains a suspicion that this subsequent conceptualisation has been a cosmetic justification for a policy which was created merely out of economic expediency.

Any assessment of the success of key settlement policies in achieving their prescribed objectives should take account of this background. The use of this type of policy has been a learning process for the planning authorities, during which mistakes have been made and not always rectified. However, four main policy objectives have evolved from this process, and it is these which must be carefully examined. Key settlement policies have been used:

1. to provide a *framework* for promoting growth in remote rural areas;
2. to stem or reverse rural depopulation by creating locations of intervening opportunities within the depopulating settlement hierarchy;
3. to achieve the most efficient and economic servicing of a scattered settlement pattern; and
4. to act as a discriminating vehicle through which available resources may be concentrated in those growth centres which are situated in the areas of greatest need.

In the past, planners appear to have concentrated primarily on the physical and economic aspects of the key settlement policy, perhaps because the tangible results of rural planning are most apparent in rising standards of service provision, or increasing housing levels, or the building of new industrial estates. In the realm of service provision, for example, planners should in theory be able to supervise the channelling of public services into the key settlements and ensure that adequate transport facilities are available to link these centralised services with the rural hinterland. However, in reality, this schema has often been compromised both by the non-conformity of water, health, and education authority plans with the overall key settlement policy, and by the inability to provide sufficient public or private transport links between a centre and its hinterland.

So far as privately provided services are concerned, experience in some parts of Devon indicates that the housing stock in key settlements may be suitably increased without imposing an embargo on new dwellings in smaller villages. Some success has also been achieved in the attraction of new retail and employment opportunities, although it is often the case that new ventures, if present at all in the current economic climate, will opt for the larger urban locations of the key inland towns. It is certainly evident that not all key settlements have attracted sufficient impetus to act as service, housing or employment centres. The original settlement plans of the early 1950s tended to designate too many key settlements of too small a size. Many of the smaller centres are thus unable to meet the objectives outlined above and consequently they are bypassed by the rural population in favour of larger settlements. It is unfortunate that these smaller key settlements are usually situated in the remoter areas, and it is clear that the key settlement policy has not been used to its fullest potential as a

discriminating vehicle by which additional support can be given to the key settlements in these areas of greatest need.

All in all, however, the key settlement policy has been a moderate success from the physical and economic point of view despite the fact that improvements could have been made by better policy implementation, particularly in the size and spacing of key settlements, and by better policy co-ordination between planners and the various public service authorities. Even with these modifications, the eventual success of the key settlement framework will depend on specific concomitant policies for the attraction of additional employment and facilities within the area concerned.

The economic and physical merits of the policy have been suggested, if not proved, by the planners in the monitoring of their policies. However, the key settlement policy must also be judged from a social viewpoint. What impact does the policy have on the social and community lives of the rural population? Ideally, planners should be striving to use their influence in such a way as to provide the greatest possible opportunities and benefits for rural people within the limits set by the financial systems of central and local government. Unfortunately, it has seemed to many rural people that the instigation of a key settlement policy has brought with it a decreasing level of opportunities and benefits.

For example, the designation of key settlements has coincided with the shrinking of rural transport services, leaving the non-mobile rural population stranded and dependent on local shops and services. Moreover, these local facilities are also tending to concentrate in larger settlements, either due to competitive market forces or as part of a planned policy of centralisation. Housing opportunities are also declining. Few, if any, houses are being built in small settlements and those that are constructed are often suitable only for affluent long-distance commuters or as second homes. Young people are forced to move into the key settlements or even further afield if they wish to buy or rent a house. The disappearance of the school, the shop, the bus and the young people all add up to the state of rural deprivation that is the summation of the problems facing some rural communities in remote areas.

The benefits accruing from a key settlements policy would appear to be aimed at only those rural people living in or near the key settlements themselves. There has been some success in the stemming of rural depopulation, but even this has been due to the internal movement of population from hinterland to key settlement. For the residual rural population, the policy seems to have exacerbated the 'natural' trend of settlement rationalisation. The future planning of many rural areas will depend on whether this failure to tackle rural social problems is due to the ineptitude of the key settlement policy itself, in which case a replacement policy has to be found, or whether this policy has been poorly implemented, in which case the directions for appropriate future action must be highlighted.

Many people continue to believe that the key settlement policy remains the most workable planning framework for the rural areas. This belief stems from the success achieved in halting depopulation in some areas, and from a heightened awareness that a series of key settlements is the optimum system, within per-

mitted expenditure limits, for providing adequate services and facilities for the rural population. Many of the structure plans produced thus far to cover rural areas have emphasised the need to maintain levels of rural services within a rationalised settlement structure during the difficult period of economic recession. This clearly demonstrates that local authorities are not yet willing to include the social costs of rationalisation into their accounting systems. Perhaps, then, it is most practical to consider that the future of the rural areas will be best served by working at the social and community problems from within the key settlement framework.

The other plausible alternative policy would be to replace each key settlement with a group of villages and hamlets which collectively would create a population threshold sufficient to support a range of goods and services. This approach was used by East Sussex in the 1950s and has recently found renewed support from some leading planners. Such a policy has some potential in the remotest of rural areas where single settlements are often not large enough to create an impetus for growth. However, there are disadvantages inherent in a dispersed growth area, however tightly knit, as compared with one single growth settlement. For instance, the economies of scale gained from the building of a large number of dwellings or one discrete sewerage system would be lost if investment was divided between several locations. Also, transportation difficulties, already crucial in rural areas, would be magnified if radial transport routes had also to link several settlements in the centre of the growth area. Finally, the investment already placed in single growth settlements would be one compelling reason not to abandon that settlement in favour of the promotion of growth in entirely different locations.

In one sense, the choice between one key settlement and a growth area of a few smaller settlements is academic in that we have seen that the fundamental rural problems occur in the settlements outside the range of rural growth centres. Therefore, policies based on key settlements and on functional interdependence of smaller settlements share not only the problems of attracting employment and service growth but also the problems of ensuring that the benefits and opportunities derived from this growth are spread to as many parts of the rural settlement hierarchy as is practicable. If these problems are to be given priority in the future, then it seems appropriate to return to the original concept of a key settlement policy as an overview of the settlement pattern as a whole laying special emphasis on the relationships between the key settlement and the other settlements served by it. Some counties have spent twenty-five years in building up a pattern of rural service centres whose fullest potential will only be realised if these relationships between centre and hinterland are fostered and strengthened.

After all, attempts to spread the opportunities and benefits from key settlements in order to revitalise small settlements will be nullified if the rural hinterland suffers from a state of planned stagnation or decline. The establishment of two-way links between growth in the key settlements and natural increase in the rural hinterlands appears to be the most likely method by which the long-term stability of rural areas in general, and village life in particular, can be assured. It would be interesting to discover whether planning practitioners are

able to suggest any practical processes which would bring these linkages about and thus effect the necessary improvements in the key settlement framework for rural areas. This is an important task, as any thought of abandoning the key settlement framework now could be akin to throwing out the baby with the bathwater.

Note: The views expressed in this article are the author's and do not necessarily reflect the individual or corporate views of the county and district authorities with whose help this study has taken place.

The Community Council? What's that?

Peter Woodward

The Dorset Community Council is a link between the statutory and voluntary services in Dorset and provides a centre of information and assistance for voluntary services and organisations in the county.

'The Community Council—what's that? Something to do with the County Council?' (It's my friends speaking.) The Community Council is an independent voluntary organisation—not part of the county council—and I explain briefly what it tries to do. 'But that can't take you all day.' I try to explain that the work is not as simple as it might sound but obviously, because I enjoy it, I paint too rosy a picture. 'But you don't get paid for doing it, do you?' If that is what my friends think, what about my enemies?

So I have decided to record for your benefit (and for my enemies) the actual events of a day in my working life chosen at random. I decided on a Thursday in October last year. The day chosen proved to be not particularly busy, not particularly interesting, in fact not very particular at all, and so by luck it was rather a good day to choose. The events recorded really happened. All I have changed sometimes are names and places.

I arrived at the office a little after 8.30. One of the girls, Alex, was already there sorting the morning's mail. Like me, she likes to make an early start before the telephone starts ringing.

Up to my office on the next floor. We are heated by night storage heaters and the rooms are very stuffy in the mornings. I open the window but the wind blows my neatly arranged papers from the previous night all over the floor. I shut the window, recover the papers and open the door. Before I can even look at the programme of work for the day, the telephone rings. It is someone to say that