DEVELOPMENT OF SETTLEMENT SYSTEMS

DEVELOPMENT OF SETTLEMENT SYSTEMS

AKADÉMIAI KIADÓ · BUDAPEST

DEVELOPMENT OF SETTLEMENT SYSTEMS

Studies in Geography in Hungary 15

Ed. by
GY. ENYEDI and J. MÉSZÁROS

This volume contains 20 studies, presented at a British–Hungarian geographical seminar. The studies investigate the evolution of a uniform settlement system, the characteristics of urban development, the interaction of geographical environment and settlement system, and the changes in the system of rural settlements.

The book calls attention to the fact that the rapid spread of urbanization not only transforms the urban network, but effects rural development, too, and influences the relationship which settlements have to their geographical environment. As a result of these changes, there evolves — instead of the former dichotomy of rural and urban areas — a uniform settlement system. This joint British—Hungarian investigation of the above problems is particularly instructive reflecting as it does the numerous differences in the history, social structure, political system and long-term planning of the two countries.

AKADÉMIAI KIADÓ
Publishing House of the Hungarian
Academy of Sciences
BUDAPEST

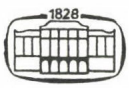
STUDIES IN GEOGRAPHY IN HUNGARY, 15

Research Institute of Geography
Hungarian Academy of Sciences

DEVELOPMENT OF SETTLEMENT SYSTEMS

DEVELOPMENT OF SETTLEMENT SYSTEMS

Edited by
GYÖRGY ENYEDI
and
JÚLIA MÉSZÁROS



AKADÉMIAI KIADÓ, BUDAPEST 1980

Translation revised by

PAUL A. COMPTON
The Queen's University of Belfast

ISBN 963 05 1898 8

Printed in Hungary

CONTENTS

FOREWORD

This volume contains the papers read at the second British–Hungarian seminar held in the Southern Hungarian towns of Szeged and Pécs between 29 August and 6 September 1977 on the topic "The development of settlement systems". The eight members of the British party also became acquainted with the urban geography of Budapest and the work of the Geographical Research Institute of the Hungarian Academy of Sciences.

Professional contacts between British and Hungarian geographers, which were traditionally weak, have shown a welcome growth during the last fifteen years. This has resulted in better mutual understanding and a more thorough appreciation of the respective value systems over and above the insights gained into geographical research techniques. The relatively small number of participants at the seminar allowed the establishment of personal contacts while field trips to villages, market towns, agricultural cooperatives and state farms gave the British delegation the opportunity to see the unique rural life of Southern Hungary.

The wide ranging nature of the topics covered at the seminar has made it necessary to group the papers in this volume into those dealing with the settlement network as a whole, those concerned with urban topics and those dealing with rural geography. It is of course realized that any classification of this sort is by its nature arbitrary, since the geographer in his work constantly comes across the interaction of the urban, rural and physical environments.

We hope that the papers presented at the seminar will arouse the interest of geographers both inside and outside the two participating countries.

György Enyedi

SETTLEMENT SYSTEM

THE RURAL–URBAN CONTINUUM: PERCEPTION AND REALITY

by

W. KIRK

United Kingdom

> "Might it not be more appropriate in studying urban geography to recognise more consciously that town and country are one and that to understand either we need to look at the whole."
>
> *(Robson, 1975)*

> "Though the peasantry form the bulk of the population in these (pre-industrial) societies the focal point of activity is the city. The vital institutional apparatus is urban, not rural. It is the city dwellers who have staffed the key positions in this type of social order, who have perpetuated the societies' heritage. Rural–urban contrasts, though differing from those in industrial societies, are observable in most fields of social activity."
>
> *(Sjoberg, 1960)*

> "Modern history is the urbanization of the countryside, not, as among the ancients the ruralization of the city."
>
> *(Marx, 1964)*

Within the field of settlement geography few topics have given rise to as much debate as the changing relationships of town and country. Almost inevitably questions arise concerning the nature of urbanization process in different cultural environments, variations in the cultural ideals of "urbanism" and "ruralism", and the operation of continuities and discontinuities in rural-urban interactions, and this paper seeks to contribute to the debate by examining urban and rural traits in both spatial and temporal contexts.

Since the classic paper by Wirth (1938) there have been a number of attempts to define the essence of urbanization as something distinct from the mere spatial translocation of people from rural to legally-defined urban places and to develop the concept of urbanism in behavioural terms. Whereas Wirth's examination of urbanism was developed from basic concepts of density and heterogeneity later authors have stressed the contribution of role analysis in the comparative study of urban and non-urban situations. Thus Southall (1973) has attempted to model a system by the formula ANRr (where A = the area or spatial extent of a city, community or social system; N = number of people inhabiting the area; R = number of culturally differentiated roles recognized in the population aggregate and r = the number of relationships entered into by persons in the population on the basis of such differentiated roles) – in essence a measure of the density of role-relationships – and

further qualifies this according to *Types of Role-Relationships or Domains of Action* (in which can be distinguished kinship or ethnic *(K)*, economic or occupational *(E)*, political *(P)*, ritual or religious *(L)*, and recreational, leisure, or voluntary *(V)* role-relationships ... *KEPLV*), and *Qualities of roles or role-relationships* (*B* = Broad/Narrow, the range of domains of social action comprised in the role; *D* = Diffuse/Specific, as the range of action of role is vaguely or precisely defined; *M* = Manifest/Latent, as the role-relationship may be inactivated for a longer or shorter period; *T* = Time duration of the role-relationship before it is terminated; *I* = inequality of distribution of the role-relationships throughout the population concerned). The *A* and *N* of Southall's system repeat Wirth's factors of size and density, but Southall argues that the assessment of role-relationships replaces the rather vaguely defined "heterogeneity" of Wirth as a mode of assigning urban status. Indeed he has seen heterogeneity as an outcome of progressive role differentiation, concluding that "In this formulation urban communities are more heterogeneous than rural communities in the sense that they comprise a larger number and greater variety of differentiated roles and also a larger number of role-relationships played in terms of them." Banton (1973) makes a similar point in terms of tighter social networks displaying higher levels of social density within cities – the degree of integration of the system being related to the measure of discontinuity between the urban social system and the way of life of the surrounding region.

From a social-anthropological point of view the immediate stimulus for such theorizing arose from studies concerned with social change in modern Africa, in particular the connections there between 'urbanization' and 'detribalization'. Gluckman (1961), Mayer (1961), Banton (1975), Lloyd (1959) and others have been concerned with the problems created by the migration of African people from tribal terrains to towns and the need to explain the psychological and behavioural changes consequent on such movement. But the central questions are common to most areas of the developing world where the rate of urbanization is increasing, namely ... What is the behavioural measure of a 'townsman'? At what point can one say that an in-migrant has left a rural behavioural system and has joined an urban system? What are the general characteristics of urban behavioural systems to which initiates must adjust?

For the geographer the KEPLV 'Domains of Action' of Southall offer a possible line of entry into the debate. Accepting for the present that the dichotomy between rural and urban behavioural systems is a reality – or at least a useful analytical concept – is it possible for us to identify a number of 'urban' and 'rural' traits representing polarities within particular domains or areas of activity?

The lists of traits represented in *Table I* are suggested as a basis of discussion. They are drawn from a variety of behavioural domains and are not ranked in any perceived order of importance. Some traits (e.g. 9 and 10) are clearly related but are listed separately since they imply different dimensions of measurement (e.g. space and time). Some are structural traits referring to major systems, whereas others are more concerned with individual activities. Some relate to characteristics of the phenomenal environment, some to the perceived or behavioural environment. They range across economic, occupational, sociological, political, psychological, environmental, recreational, educational and geographical areas of cognition, structure and behaviour.

Table I

Rural traits	Urban traits
1. Agricultural activities dominant	1. Commercial-industrial service activities dominant
2. Labour intensive systems	2. Capital intensive systems
3. Infrequent cash transactions	3. Frequent cash transactions
4. Competition less intense	4. Competition more intense
5. Retail establishments less specialized	5. Retail establishments more specialized
6. Primary groups dominant	6. Secondary groups dominant
7. Social mobility restricted	7. Social mobility less restricted
8. Seasonal routines dominant	8. Daily routines dominant
9. Residence and work place close	9. Residence and work place separate
10. Small amount of time spent in travel	10. Considerable amount of time spent in travel
11. Stress situations fewer and more irregular	11. Stress situations more frequent and regular
12. Politically conservative and passive	12. Politically radical and active
13. Low literacy requirements	13. High literacy requirements
14. Adolescent yearnings for town life	14. Adult yearnings for rural life
15. Organic, irregular environment	15. Inorganic, geometric environments
16. Quiet	16. Noise
17. Landscape changes few and usually gradual	17. Landscape changes many and often abrupt
18. Diffuse leisure activities	18. Focussed leisure activities

Each pair of traits can be regarded as polarities on axes of tendency – and each axis can be examined for continuities and discontinuities. Thus in *Trait 1* points could be established along an economic-occupational axis at which dominance of agricultural activities – measured, for example, by the proportion of the working population above 50% that were so employed – could be plotted against dominance of commercial-industrial service activities similarly measured. For *Trait 2* amounts of capital employed per unit of labour could be plotted on the same axis as amount of labour (time) spent per unit of product (value). *Trait 3* can be recorded as a single frequency curve or graphed as deviations (positive and negative) from an agreed norm. *Trait 4* could be measured, for example, as the number of acts of a competitive kind carried out by random samples of individuals at a series of locations over a given period (frequency) and similarly graphed. *Trait 5* can be recorded in the same way, as a spatial frequency or density measure. *Trait 6* involves the contrasts in group membership, and social/role relationships that are basic to Wirth's concept of heterogeneity which he concluded 'tends to break down rigid social structures and to produce increased mobility, instability and insecurity and the affiliation of the individuals with a variety of interesting and tangential groups with a high rate of membership turnover'. Multi-group membership with increasingly numerous and complex role-relationships is regarded as a trait of the urban way of life as opposed to kith-group dominated rural communities. Dominance here could be measured as density of relationship networks as suggested by Southall, or in a simpler fashion by the number of non-family groups to which samples of the adult population claim affiliation. Closely associated with this characteristic is the *Trait 7*

of social mobility, opportunities for which are considerably enhanced by the existence of multiple paths or domains of achievement. Again frequency of moves or density of paths provide possible measures. *Traits 8, 9 and 10* need little explanation – they provide insights and measures of periodicity of movement and can be explored by time budget/diary techniques. Similar techniques are also being employed by a research team in London to record the frequency of stress situations within the daily routine of the populace – and even if there are still problems in the definition of what constitutes a stress situation sufficient evidence is now being accumulated to suggest that this *Trait 11* could be a useful measure for distinguishing urban and rural ways of life. *Trait 12* expresses observed contrasts in the political behaviour of urban and rural populations – as recorded in history during which politics have tended to be an urban game, and more recently by the study of electoral geography. *Trait 13* represents the different educational needs of life in town and country, with many more instances in the former where behaviour, movement and indeed safety depends on the ability to read notices, instructions etc. *Trait 14* is somewhat tentative, springing from residential preference studies and the observed components of migrant streams to and from towns. *Traits 15, 16, 17* also have a perceptual content as well as landscape expression, dependent on the images (mental maps) urban and rural dwellers have of their respective environments. *Trait 18* falls within Southall's *V* – voluntary category, recognizing that recreational behaviour within towns tends to be more formally structured, in both time and space, than in rural areas.

It is not suggested that the traits selected form a complete list and no doubt members of the Seminar will wish to add to, or indeed subtract from, the list as presented. All that is intended is to demonstrate that the concept of urbanism as a product of the process of urbanization is a composite package, with many of its components only becoming definable in contrast to the traits of ruralism. In this sense it can be argued that one is dealing with a large number of axes or continua along which "rural" values, attitudes, forms of behaviour, and phenomena are transformed into "urban" values etc. On the other hand it can be argued that at certain points a change in frequency or density is so substantial as to constitute something new and different, that the phenomena one is observing may be outwardly the same but have acquired additional significance as a result of belonging to a different structure or system. For example in recording the cash transactions of Trait 3 a point could well be reached when the frequencies of payments increase so considerably as to indicate the presence of another system in which divisions of labour, role differentiation, time budgets, circulation patterns and valuation of services all combine to promote money flow of a different order. To take into account the existence of such discontinuities the field could then be modelled as in *Figure 1* showing rural and urban poles in which relationships within the contrasting systems have their fullest, densest expressions, and from which gradients decline to form an interface between the systems.

Such a model appears to have a number of merits:

(1) It does not deny the existence of continua in particular data sets or traits. Thus in the case of Trait 16 the basic continuum is provided by the measurements

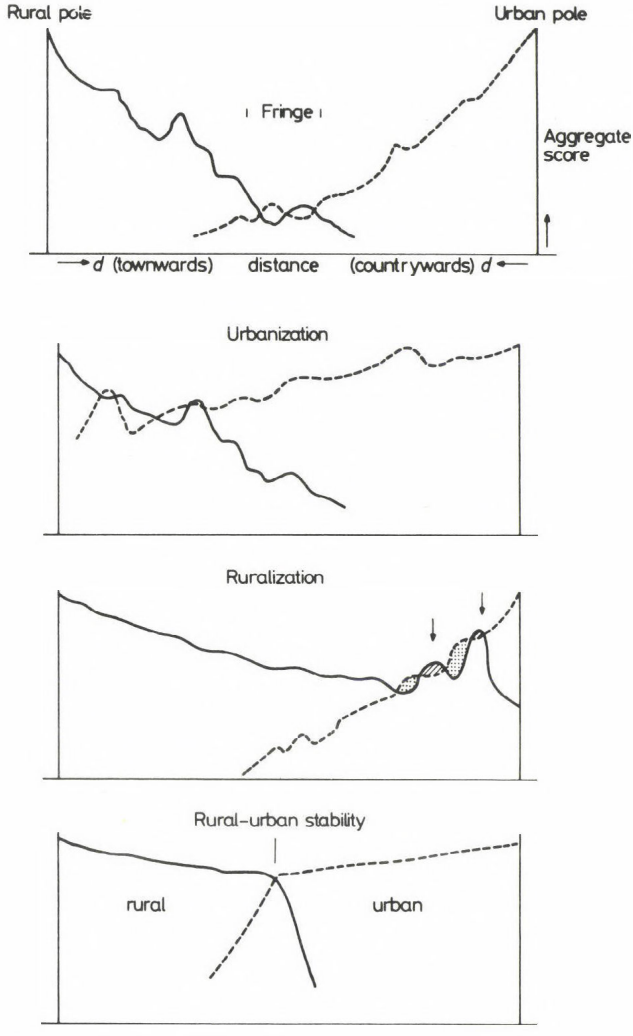


Fig. 1. Urban–rural continuum

(perception) of sound and one can either begin at the pole of maximum noise and record its decline away from the pole or inversely begin at the pole of quietness and record its decline away from that pole. At the point of intersection, of the gradients an observer could just as truthfully remark that it became quieter in one direction and more noisy in the other direction as to say that noise continued to decline in one direction. Indeed if the sensor was relating the percepts of "quietness" and "noise" with other ideas (e.g. "peace"

and "strife") the first description would have greater validity. Other traits involving measures of "frequency" and "infrequency", "dominance" and "non-dominance" could be used in the same manner.

(2) It allows for considerable variation in the gradients of decay of traits from the polar positions. Some traits like the degree of specialization of retail establishments or trading normally have steep gradients of decay. Others such as commercial-service activities tend to have more gentle gradients initially and then steepen towards the service margin; while others have stepped or undulating gradients.

(3) It can accommodate changes in the degree and form of gradients over time, necessitated by the changing spatial and temporal range of traits. The reach or range of urban services for example could vary quite considerably from one time to another, as could the intensity of other traits such as political radicalism, or the frequency of landscape changes etc.

(4) It depicts an interface which in spite of variations of gradients in time and space exhibits only a limited number of basic morphologies viz. (a) a linear form produced by a single intersection of opposed gradients (b) a zonal form produced by either multiple-trait intersections or repeated intersections by undulations of single-trait gradients (c) insular form, with exclaves and enclaves.

From a geographical point of view two main issues for debate arise from consideration of the model:

(A) The first issue concerns the spatial scale of the model. If for example the scale being utilized is that of the British Isles it could be argued, along with Robson (1975), that so deeply has urban traits penetrated the countryside that it is meaningless to distinguish between rural and urban ways of life (Pahl 1965) – that in virtually every respect the so-called rural areas have been absorbed within urban systems. On the other hand, if one uses the traits listed, within a prescribed range of perceived values, it is possible to discern rural as well as urban systems and elsewhere I have attempted to demonstrate that changing political policies with regard to British local government could not be explained without recourse to the influence of opposing rural and urban lobbies – that, whatever the realities of the economic situation the rural idyll is still so strong in Britain that the presence of rural–urban interfaces cannot be disregarded even in one of the most urbanized countries in the world. Another illustration of the same dichotomy can be drawn from the behaviour of families who move from towns to rural villages. Although continuing to work in the towns and being almost completely urban in their way of life such people are frequently found to adopt rural roles if "their countryside" is being threatened by continued urban expansion – and indeed often play leading parts in political pressure-groups organized against such encroachment. The policy of urban containment which has been so central to planning strategies in Britain since World War II can also be cited in this respect. But even if one accepts the continuum hypothesis for Britain the model is not invalidated if the scale is increased and one places the rural pole in an area of undoubted rural character – such as a village

in India. Britain would at this scale lie completely within the urban gradient – with extensions to urban India, and the interface would be located within India. In other words it is possible to construct a world interface between the highly urbanized and highly rural areas (systems) of the world, with many of the attributes and similar forms of that usually perceived at microscale. The continuum-dichotomy controversy thus appears to be simply a matter of scale.

(B) The second issue concerns the time-scale of the model. Following the publication of Sjoberg's *The Pre-industrial City* (1960) there has been a growing tendency to regard rural–urban interactions of great industrial cities as of a different order to those prior to industrialization, with rural-urban discontinuities much more pronounced in the earlier cities. Sjoberg's cities with their central elitist cores bound together by kinship and served by vast bureaucracies, with their commercial and low class peripheries, and essential separation from non-civilized rural areas are contrasted with the modern giant industrial metropolises whose urbanizing influences penetrate to the remotest corners of their commercial regions. Industrialization is regarded as synonymous with urbanization, and the creation of the ultimate continuum. Thus Robson (1975)

> "This idea that urban environment has a social significance different from the rural still informs much of our thinking, but in practical terms it made sense as a dichotomy only when town and country were in fact more clearly differentiated, when migrants were still flocking from their rural villages seduced by the glamour of the gas light and the promise of higher wages."

and Harvey (1973)

> "Historically, the antithesis between town and country has been a pivot of movement and conflict around which the whole economic history of society has unfolded."

and (quoting Marx and Engels in the *Manifesto of the Communist Party*)

> "The bourgeoisie has subjected the country to the rule of the towns. It has created enormous cities, has greatly increased the urban population as compared with the rural and has thus rescued a considerable part of the population from the idiocy of rural life. Just as it has made the country dependent on the towns, so it has made barbarian and semi-barbarian countries dependent on civilised ones, nations of peasants on nations of bourgeois, the east on the west."

The picture presented is of a long period in which urban–rural conflicts were the very stuff of history, followed by a short period of not more than two centuries in which the city has won out by a massive process of urbanization.

Although this interpretation of the history and time-scale of urbanization has some general validity – in that most of the world's great cities started life as alien expressions of colonization or colonialism in the broadest sense – there is a danger that the case may be overstated. Not all pre-industrial cities conform to Sjoberg's model, nor indeed are all industrial cities lacking in the Sjoberg characteristics. Many early cities, such as Islamic or Hanseatic, had commercial cores and in the case of city-states exhibited close integration of town and country. Many of the great industrial cities of the modern world have elitist cores and slum fringes – such

as those of South Africa and South America. Rather than simply accepting that the model we have been considering has explanatory power only in the long "pre-industrial" era, perhaps it can also be applied to shorter-term processes inherent in urbanization and societal change.

For such investigation I would contend that the nature of the interface between rural and urban systems as described above has as much diagnostic value as the degree of gradient, upon which much greater attention has been bestowed. Gradient form as an expression of decay with distance from a central place has attracted, understandably, a good deal of attention from urban geographers, but much less research has been applied to the morphology of interfaces as indicative of processes and stage in the changing relationships of urban and rural systems.

It is possible for example to suggest that the three basic forms of the interface suggested above, viz. insular, zonal, and linear, represent phases or states in a fluctuating process of urbanization involving concentration and dispersal of population. At certain periods of history, in various places, motivated by different forces, population has moved in from dispersed settlements to form or increase urban agglomerations, while at other times forces of expansion or dispersal from such nuclei have been dominant. In the initial phases of such movements, in either direction, I would suggest, the form of the interface will be found to be insular. People moving in to the agglomerations will carry with them rural value systems, and social structures and will tend to form nuclei within the agglomeration whose linkages continue to lie out with the urban system. This phase may be termed "ruralization" – and is illustrated, for example, by the recent history of many Indian cities, and elsewhere in the tropical world (Crane 1955; Ginsburg 1969; Jones 1975; Lynch 1967; Mangin 1970; Mayer 1961; Murphy 1972; Reissman 1968; Sovani 1966). In the opposite direction, in expansion from urban concentrations, again the form of colonization is usually by a scatter of insular urban nuclei whose links for some time continue to be with the mother city, rather than with their immediate environs. The birth of Indian civilization in the Gangetic forests provides an excellent example of such a process, as do many later colonial episodes in the history of the subcontinent (Kirk 1975).

Following such initial phases the process of consolidation appears to produce a zonal structure and interface. This may arise in various ways. The rural islands within the urban agglomeration may be absorbed within the urban system and external linkages be replaced by internal linkages – the role-relationships become urban rather than rural. The urban islands may amalgamate by the infilling of rural interstices between them – as occurred time after time for example in the growth of London (Thomas 1970; Hall 1973). As the urban agglomeration begins to achieve a new, more mature and integrated behavioural identity its external impact becomes more unified and it is less vulnerable to penetration by rural traits. The interface zones in consequence become more and more confined until, at least theoretically, the climax is achieved in linear form. It would seem therefore that Banton's (1973) hypothesis – viz. "Therefore the greater the discontinuity between an urban social system and the way of life of the surrounding region, the more highly integrated will that system be" – could be put alternatively. "The more highly integrated an urban social system becomes the greater will be the discontinuity between it and the way of life of the surrounding region."

In fact, however, it would be rare for this climax to be achieved. The technological and other changes generated within cities, and the winds of change that blow along the circulatory systems of which they are part, rarely allow equilibria to be reached. Once the integration is destroyed and conflict increases then the system appears to collapse back through the stages to insular form, and the process begins again. Northern Ireland and Belfast provides a now well-documented example of this type of occurrence (Jones 1961; Boal 1973).

REFERENCES

Banton, M. (1973): Urbanization and Role Analysis. In A. Southall (ed.): *Urban Anthropology.* New York, pp. 43–70.

Boal, F. W. and Poole, M. A. (1973): Religious residential segregation in Belfast in mid 1969. In B. D. Clarke and M. B. Gleave (eds): *Social Patterns in Cities,* I.B.G., pp. 1–40.

Crane, R. I. (1955): Urbanism in India. *Amer. J. of Sociology,* 60, pp. 463–470.

Ginsburg, N. S. (1969): Urban Geography and 'Non-Western' Areas. In G. Breese (ed.): *The city in newly developing countries: readings in urbanism and urbanization.* New Jersey, pp. 409–485.

Gluckman, M. (1961): Anthropological problems arising from the African Industrial Revolution. In A. W. Southall (ed.): *Social Change in Modern Africa.* London, pp. 67–83.

Hall, P. G. *et al.* (1973): *The Containment of Urban England.* London.

Harvey, D. (1973): *Social Justice in the City.* London.

Jones, E. (1961): *The Social Geography of Belfast.* London.

Jones, R. (ed.) (1975): *Essays on World Urbanization.* London.

Kirk, W. (1975): The role of India in the diffusion of early cultures. *Geog. Journ.,* 141, pp. 19–34.

Lloyd, P. C. (1959): The Yoruba town today. *Sociological Review,* 7, pp. 45–63.

Lynch, O. (1967): Rural Cities in India: Continuities and Discontinuities. In P. Mason (ed.): *India and Ceylon: Unity and Diversity.* London, pp. 142–158.

Mangin, W. (1970): *Peasants in Cities.* Readings in the Anthropology of Urbanization. Boston.

Marx, K. (1964): *Pre-capitalist economic formations.* New York, Int. Publishers Edition.

Mayer, P. (1961): *Townsmen and Tribesmen.* Cape Town.

Murphy, R. (1972): City and countryside as ideological issues: India and China. *Comp. Studies in Society and History,* 14, pp. 250–267.

Pahl, R. E. (1965): *Urbs in Rure: The metropolitan fringe in Hertfordshire.* Geog. Papers, No. 2, Lond. Sch. of Econ. and Pol. Sc.

Reissman, L. (1968): Urbanization: a typology of change. In S. F. Fava (ed.): *Urbanism in World Perspective.* New York, pp. 126–144.

Robson, B. T. (1975): The Urban Environment. *Geography,* 60, pp. 184–188.

Schnore, L. F. (1961): The statistical measurement of urbanization and economic development. *Land Economics,* 37, pp. 229–45.

Sjoberg, G. (1960): *The Preindustrial City.* New York.

Southall, A. (1973): The Density of Role-Relationships as a Universal Index of Urbanisation. In A. Southall (ed.): *Urban Anthropology: Cross cultural studies in urbanization.* New York, pp. 71–106.

Sovani, N. V. (1966): *Urbanization and Urban India.* New York.

Thomas, D. (1970): *London's Green Belt.* London.

Wirth, L. (1938): Urbanism as a Way of Life. *Amer. J. of Sociology,* 44, pp. 1–24.

URBANIZATION IN HUNGARY

By

E. LETTRICH

Hungary

According to the definitions given by Bobek, Ruppert and Schaffer, urbanization is a complex social process, which is not confined to the increase in the population number of towns, but pervades the whole society and results in urban ways of life becoming more and more general.

The characteristics of the urbanization process in Hungary will be dealt here under four main items.

1. THE MOBILITY AND REGIONAL CONCENTRATION OF POPULATION

As to the demographic characteristics of the population, typical agrarian features are fast disappearing, and those specific to urbanization are becoming more common. The birth-rate is decreasing, the average age of the population is advancing, resulting in demographic stagnation and the gradual "ageing" of the society. Following the development of the socialist system, social mobility has become a mass phenomenon, together with large-scale regional mobility of population. The high spatial concentration of secondary and tertiary places of work has determined the direction of migration, and the concentration of population in towns, above all in Budapest and the large towns, has speeded up. At the same time, extreme agrarian regions have become areas of population outflow.

2. OCCUPATIONAL CHANGE

During the 'extensive' period of industrialization the number of economically active population suddenly increased, but by the 1970's all labour-force reserves had been exhausted, and the employment level of men and women alike had reached the maximum possible. The division of earning capacity between the primary, secondary and tertiary sectors signalizes rapid industrialization.

Within the majority of families and settlements economically active family members have different professions, bringing to end the homogeneity so typical of an agrarian society. In a steadily growing number of families and settlements the latter is being replaced by heterogeneity of an urban kind.

3. CHANGES IN WORKING- AND DWELLING-PLACES

The spatial separation of working- and dwelling places is becoming more and more general in all sectors. The number of daily commuters and those travelling at greater intervals has increased considerably to 14% in 1970. The labour market has broadened due to differentiation within occupations and the proportion of workers with special skills has significantly increased. The high proportion of families with "double incomes" indicates a linkage continued with agrarian traditions, and only weak urbanization of the way of life. In such cases the working place, in the form of the household plot, has not yet been separated from the dwelling place.

Part of the population also spends its leasure time attempting to raise its potential income through further study; the use of leisure time for relaxation and recreation has not yet become general in our society. Because of this and the lower level of car-ownership, residential and leisure activities have not yet become spatially separated.

Changes in family structure including the increasing number of one-person households, high social mobility, population concentration chiefly in towns have all resulted in a steady rise in the demand for housing.

4. MODIFICATION OF THE RELATIONSHIPS BETWEEN "TOWN-COUNTRYSIDE"

The expansion of urbanization has tended to eliminate the dichotomy typical of agrarian society, forming an ever increasing town-countryside space continuum. The intensity of the spatial expansion of this process remains very strong in many regions.

GRAVITY MODELLING AND THE DETERMINATION OF THE SPHERES OF INFLUENCE OF SETTLEMENTS[1]

By

L. LACKÓ

Hungary

In regional analysis, the problems of preferred significance include the selection of regional units and the delineation of regions, appropriate as investigation units.

This has partly been the object of regionalizing efforts pursued in Hungary, but since the determination of regional units suitable for scientific and practical purposes has not been fully solved, experts engaged in regional questions have repeatedly dealt with tasks of this kind.

This has equally been proved by domestic and foreign examples. For example, in the Soviet Union, in recent years the concept of the territorial production complex has come into ordinary use not only in scientific research but also in planning. Similar manifestations can be observed in numerous capitalist countries (Great Britain, the Netherlands, France, Sweden, German Federal Republic, USA etc.) where, as a matter of course, the formation of regional units not conforming to the administrative framework plays rather an important role in research work, physical planning and various regional programmes. Regionalization has an important role in regional research and planning in the European socialist countries (Poland, Czechoslovakia, Bulgaria, GDR). Recent results in Hungarian regional research (Enyedi 1975; Krajkó 1976) indicate that Hungarian experts are also considerably interested in this problem at present, but stress that there are numerous questions to be answered.

The exploration of areas considered to be homogeneous in terms of regional economy is because of the non-existence of appropriate regional units equally serving research and planning, which makes the perception of the processes and relations concerning regional growth and change much more difficult. This kind of problem also arose during the investigation of backward regions in Hungary (Lackó 1976), as well as in connection with the analysis of regional structural change.

The experimentation with gravity or interaction models suggests a method which may be suitable for carrying out certain regionalization tasks thus contributing to the partial satisfaction of the relevant demands of regional research and planning.

1. MAJOR FEATURES OF GRAVITY MODELS

Most gravity models are concerned with generalizing flows between points, and are based on the law taken from classical physics, which states that the attraction between two masses is proportional to their individual masses and inversely proportional to the square of the distance between them. For the treatment of social subjects, mass may

[1] The research work was conducted in 1976 in the Institute of Economic Planning of the National Planning Office.

be expressed either in terms of flows or in the form of some attraction factor, such as population size.

The general basic hypothesis of gravity models used in regional analyses is that the spatial units being considered exert some kind of attraction or effect on each other, analogous to gravitational attraction. This basic analogy has stood the test of time although the fitting of the model has been subject to continuous development and modification.

In the modelling of regional interaction two elements of decisive importance are involved, one of them being the choice and numerical expression of "mass" and the other the appropriate interpretation of distance.

Depending on the subjects being examined, *mass* may be measured either simply or in a complex fashion. As a simple measure we could take the number of flats, the retail sales-outlets or the number of hotel beds. Very often population size is used, which is generally intended to represent the common effect of various factors, by virtue of the general connection existing between number of inhabitants and the importance of regional units. The attraction factors of complex character may also be of various kinds, for instance, purchasing power, tourist attraction, or accessibility. It is evident, however, that when choosing the measure of mass the aim of the analysis is decisive.

There are many different interpretations of *distance.* Distance may be measured in real terms, e.g. road, rail or air distances, or in terms of time. In the basic gravity model the power of attraction is inversely proportional to the square of the distance, it is therefore also necessary to determine the distance exponent in regional attraction models. In this respect trip purpose is very significant, for the maximum distance travelled will be very different in the case of journey to shop than for trips involving tourism. Differences in the role of the distance also exist between the use of various functions, and between different production relations. The appropriate exponent may be obtained by calculation or, with the knowledge of other factors, by deduction. The more specific the process being modelled, the more necessary it becomes to determine the exponent, although in general cases the square of distance can be satisfactorily used. For detailed description of gravity models the reader is referred to Cordey-Hayes (1971), Isard (1972), Korcelli (1975), Wilson (1974) etc.

The *main features of the gravity model used* in this investigation are the following:

– relatively large and important settlements serve as centres of gravitation, assuming that each settlement exerts a certain influence on all other settlements;

– the mass generating interaction is represented by a factor score containing the influence of many factors;

– straight line distances squared are used as the measure of distance;

– from the model the lines of equal mutual interaction among the settlements have been determined.

It is evident that the *model* as defined is both *general* and *of comprehensive character.* Although the initial data were real, the delineation of the spheres of influence has involved substantial abstraction.

In the field of regional economics and economic geography, gravity and interaction models have been used for several decades. It has turned out that these types of model are suitable for tackling many different questions while the needed data are generally readily available. This latter point is particularly significant, since many regional models are now published which are theoretical only due to the lack of real data.

2. STRUCTURE OF THE MODEL AND PRESENTATION OF RESULTS

The simplest kind of gravity model was used in determining the spheres of influence of the various settlements.[2] At the same time a certain advance in the field of methodology was achieved, partly with respect to regionalization and partly in the utilization of the type of model concerned.

It was assumed that the territorial structure of the country is made up of the network of so-called *preferred settlements* (79 towns and 53 settlements without the legal status of a town). These settlements contain 52% of the country's population and give employment to 80% of those engaged in industry. These places also contain 51% of the dwelling stock and the overwhelming majority of commercial, health, cultural and educational institutions. It was assumed that the various centres exert an attraction force on their surroundings as well as on each other.

For these settlements there were abundant data sources at our disposal.[3]

In the model, *mass* was expressed by means of *factor scores*, which is particularly favourable because the common effect of a considerable number of variables is thereby obtained.

On the basis of experience gained in the utilization of factor analysis we knew that factor scores obtained from an appropriate set of original variables would be the most appropriate way to express something as complex as the force of attraction of settlements.

Knowing that the validity of this procedure largely depends on the choice of the original variables, the latter were selected to give a multivariate representation of the settlements concerned.[4] The data set consisted of 30 variables relating to the number of inhabitants, occupational structure, retail supply, transport, telecommunications, tourism, public health, education and cultural matters (see *Appendix*).

The factor scores for each settlement computed from the factor accounting for the highest proportion of variance in the original data set are given below. The rank order of settlements gives a clear picture of how they relate to one another in terms of importance. The factor scores lie in the range + 11·183 (Budapest) to − 0·344 (Encs).

1. Budapest	+11·183	8. Szolnok	0·275
2. Miskolc	0·802	9. Székesfehérvár	0·271
3. Debrecen	0·753	10. Nyíregyháza	0·225
4. Pécs	0·731	11. Siófok	0·212
5. Szeged	0·682	12. Kecskemét	0·196
6. Győr	0·528	13. Tatabánya	0·158
7. Szombathely	0·292	14. Veszprém	0·151

[2] The principles for the solution were furnished by N. M. Hansen (1975) in which a report on the application of gravity models is given. The sphere of influence of settlements was determined by means of a gravity model, the equilibrium lines of attraction between settlements calculated and, on the basis of these, areas of attraction were delimited in the USA. It is of special significance that *mass* was determined by means of *factor scores* obtained from factor analysis.

[3] A központi szerepkörű települések adatai (Data of the settlements acting as centres). Vol. 1, Central Statistical Office, Budapest 1974.

[4] Thanks are due to Dr. László Francia for his valuable help in this stage of the work.

15. Békéscsaba	0·142	67. Szarvas	–0·154
16. Kaposvár	0·079	68. Mezőkövesd	–0·155
17. Eger	0·074	69. Sátoraljaújhely	–0·159
18. Szekszárd	0·069	70. Gyoma	–0·159
19. Zalaegerszeg	0·068	71. Fonyód	–0·159
20. Szentes	0·048	72. Karcag	–0·163
21. Sopron	0·046	73. Tamási	–0·167
22. Gyöngyös	0·044	74. Sárbogárd	–0·172
23. Salgótarján	0·037	75. Bácsalmás	–0·173
24. Kiskunhalas	0·024	76. Mór	–0·174
25. Ózd	0·024	77. Nagykanizsa	–0·176
26. Baja	0·018	78. Záhony	–0·176
27. Makó	0·017	79. Vásárosnamény	–0·176
28. Orosháza	0·016	80. Csorna	–0·177
29. Mosonmagyaróvár	0·008	81. Hajdúnánás	–0·177
30. Hódmezővásárhely	0·007	82. Szentgotthárd	–0·179
31. Tata	–0·001	83. Siklós	–0·184
32. Komló	–0·002	84. Törökszentmiklós	–0·185
33. Dunaújváros	–0·003	85. Ráckeve	–0·185
34. Szentendre	–0·004	86. Abádszalók	–0·186
35. Várpalota	–0·005	87. Kőszeg	–0·191
36. Balatonfüred	–0·007	88. Hajdúszoboszló	–0·191
37. Kalocsa	–0·015	89. Barcs	–0·194
38. Esztergom	–0·019	90. Püspökladány	–0·194
39. Vác	–0·029	91. Szigetvár	–0·195
40. Dombóvár	–0·032	92. Kunszentmiklós	–0·197
41. Kiskunfélegyháza	–0·040	93. Mezőkovácsháza	–0·197
42. Békés	–0·043	94. Gödöllő	–0·208
43. Kazincbarcika	–0·049	95. Tiszavasvári	–0·210
44. Hatvan	–0·054	96. Dunaföldvár	–0·210
45. Hajdúböszörmény	–0·059	97. Sümeg	–0·215
46. Cegléd	–0·070	98. Dorog	–0·216
47. Monor	–0·083	99. Nagyatád	–0·216
48. Pápa	–0·085	100. Sárospatak	–0·218
49. Berettyóújfalu	–0·088	101. Zirc	–0·218
50. Sárvár	–0·094	102. Bicske	–0·221
51. Gyula	–0·103	103. Heves	–0·222
52. Kapuvár	–0·108	104. Kunszentmárton	–0·223
53. Csongrád	–0·112	105. Marcali	–0·224
54. Balassagyarmat	–0·113	106. Kisvárda	–0·227
55. Szeghalom	–0·114	107. Nagykáta	–0·227
56. Balmazújváros	–0·114	108. Oroszlány	–0·228
57. Körmend	–0·118	109. Vasvár	–0·228
58. Keszthely	–0·118	110. Paks	–0·229
59. Komárom	–0·119	111. Ajka	–0·231
60. Dabas	–0·130	112. Bonyhád	–0·231
61. Mohács	–0·133	113. Szécsény	–0·234
62. Endrőd	–0·140	114. Tiszafüred	–0·240
63. Celldömölk	–0·140	115. Nyírbátor	–0·240
64. Tapolca	–0·142	116. Szerencs	–0·245
65. Mezőtúr	–0·146	117. Kisbér	–0·246
66. Százhalombatta	–0·149	118. Leninváros	–0·248

119. Jászberény	–0·250	126. Kisújszállás	–0·280
120. Mátészalka	–0·251	127. Kistelek	–0·280
121. Kiskőrös	–0·254	128. Zalaszentgrót	–0·289
122. Tiszaföldvár	–0·262	129. Pásztó	–0·291
123. Fehérgyarmat	–0·263	130. Túrkeve	–0·308
124. Lenti	–0·266	131. Nagykőrös	–0·340
125. Martfű	–0·269	132. Encs	–0·344

For computation purposes the squares of the straight-line distances between the settlements, determined from x, y co-ordinates were used in the gravity model.

Following the basic gravity model calculations, the equilibrium lines of mutual gravitation between pairs of settlements were calculated from a program developed by Helmut Exner, mathematician, Computing Centre of the National Planning Office. These are shown in map form in *Figures 1 to 3.* Before going on to the interpretation several points of detail deserve mention. In principle it may be assumed that all settlements exert an influence on each other, which is why every relation has been processed. However, due to the dimensions of the matrix, i.e. $\frac{132 \times 132}{2}$ the number of the calculated relations exceeds the number which can actually be interpreted.

An evaluation of the relations between settlements in extreme locations (e.g. Encs and Lenti, Sopron and Mezőkövesd etc.) is not able to provide information of primary importance. Moreover, it should also be noted that the settlements under investigation are of different size and importance, belong to different hierarchical levels and display functions of different quantity and quality. Consequently, it would not be valid to treat the mutual gravitational effect horizontally for the settlements as a whole, and for estimation purposes, groups of settlements had to be formed which are functionally linked together. Such a criterion may for example embrace settlements at same level in the hierarchy or, starting for example from the partial results of the investigation, those with positive factor scores.

It also had to be taken into account that the size and shape of areas of attraction are also influenced by the territorial distribution of settlements belonging to a given group.

With all these aspects taken into consideration the principle areas of attraction were elaborated at three scales, i.e.:

– Budapest and outstanding high-grade centres,
– Budapest and the high-grade centres,
– settlements with positive factor scores.

The mapping of the results was performed manually, although it is possible to use a plotter which facilitates the process. The plotting of the spheres of influence was, in most cases, a simple task, although in some areas a more thorough consideration was required, as around Mór, Kiskunfélegyháza and northern Pécs.

The spheres of influence of the *outstanding high-grade centres and Budapest (Fig. 1)* characteristically reveal the main features of the socio-economic configuration of the country. Budapest's sphere of influence includes the significant central part of the country, while, due to their peripheral location, those of the so-called counterpoles form an external ring. It can be observed that Győr and Pécs are excentrically located within their spheres of influence, and it is questionable whether they are capable of exerting their influence over their respective territories.

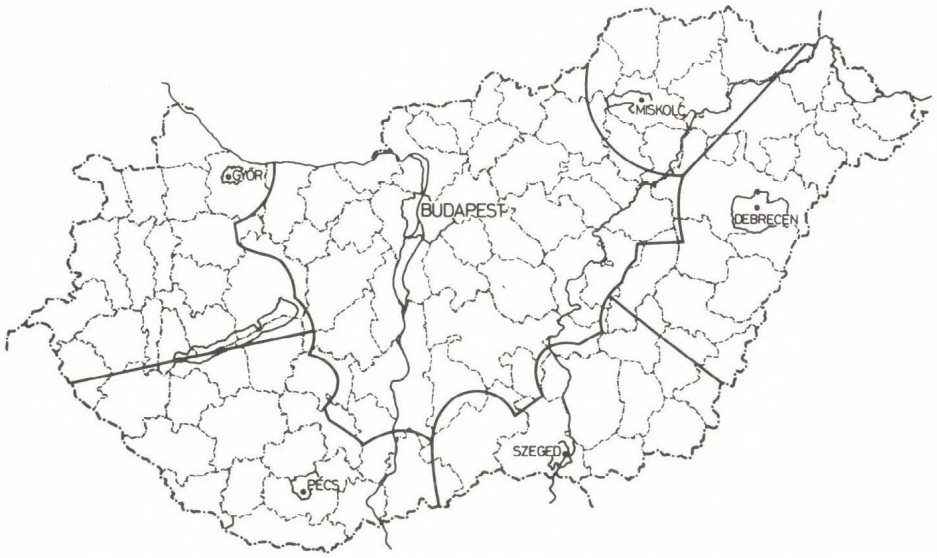


Fig. 1. Hypothetical spheres of influence of Budapest and the outstanding high-grade centres

The map also reflects the distribution of settlements by order of magnitude and their territorial structure. In doing so, it reveals the areas over which the largest settlements of the country exert their influence and promotes the appropriate interpretation of the regional macrostructure. When plotting the borders of the spheres of influence between the major centres the effect of other centres of minor order were taken into consideration as well.

Figure 2 supports in many respects existing opinions about the spheres of influence of *Budapest and the high-grade centres,* but in addition interesting findings have also emerged.

The spheres of influence of the individual centres are of quite different size: among the smallest are those of Hódmezővásárhely, Sopron, Eger, Salgótarján, while the largest belong to Miskolc, Debrecen, Győr and Nyíregyháza, not to mention Budapest. It is evident that the shaping of the "boundaries" primarily depends on the relative location of the settlements although other factors also play a part. So, for example, the delineation of the northern boundary of the sphere of influence of Pécs can only be drawn tentatively. Much more deserving of attention than this is the location of the centres surrounding the capital. Their spheres of influence, in many respects, can only be considered as notional, reflecting the difference in order of magnitude between them and Budapest. Moreover, the results cannot be interpreted horizontally, and this part of the map should be considered as if Budapest were a lofty steep-sided plateau with surrounding and other centres located on a lower level.

Regarding the spheres of influence of *settlements with positive factor scores,* in many aspects, the overall picture is similar, although the greater detail obtained with the processing of more centres points to numerous new features *(Fig. 3).* For instance, the gravitation districts of Sopron and Mosonmagyaróvár are approximately of the

Fig. 2. Hypothetical spheres of influence of Budapest and the high-grade centres

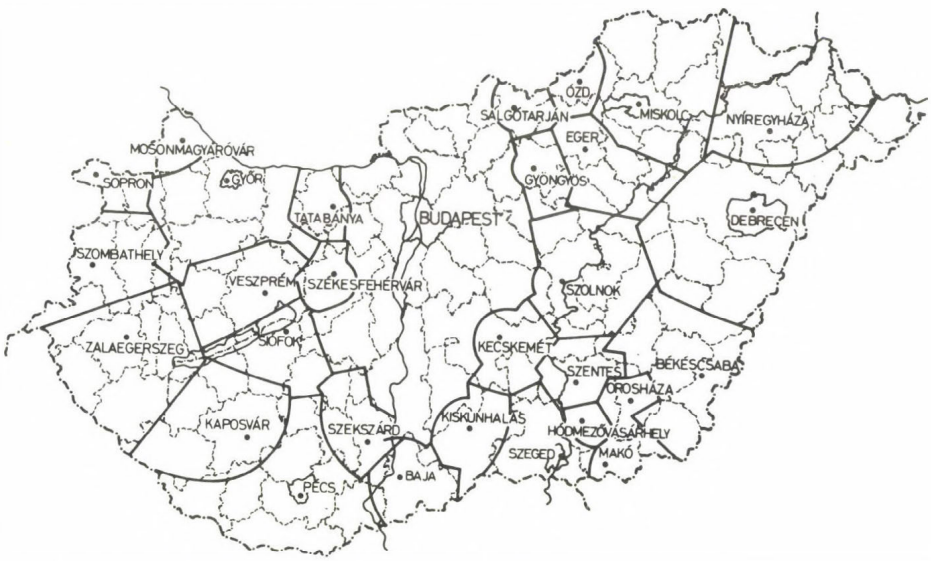


Fig. 3. Hypothetical spheres of influence of centres with positive factor scores

same size. Due to the similar size of and the rivalry existing between settlements located along and to the east of the Tisza, the spheres of influence appear to be too indented and too small, especially in view of the fact that they lie on the Great

Hungarian Plain. At first glance the rectangle representation of the sphere of influence of Budapest, lying overwhelmingly in a north-south direction, is striking but it turns out that in the area between the Danube and the Tisza there are very few centres whose attractive force is comparable with that of the capital.

In the light of this investigation, the practical applications would appear as follows:

– knowing the basic features of macro- and meso-regional structure, the method allows the various individual elements to be simply outlined and readily compared;

– temporal changes in regional structure are easily traced and related to medium and long-range planning; such calculations will be carried out in the future;

– spheres of influence can be fitted to administrative areas giving specific regional units for the analysis of regional processes and phenomena;

– the planned evolution of the national settlement network can be guided by the results from such investigations;

– the method may promote the establishment of cartographic bases corresponding to the essential features of society and economy. In comparison with early attempts to devise functional areas differing from administrative units (see Lackó 1966, 1976) this procedure represents a significant step forward.

3. THE MATHEMATICAL FEATURES OF THE GRAVITY MODEL USED IN THE INVESTIGATION[5]

In the following, the gravity model developed by Huff (1973) to demonstrate graphically the influence of major towns in the USA on surrounding regions, will be described. This model starts from the assumption that the probability of a person moving from settlement i to settlement j is equal to S_j/D_{ij}^{γ} where S_j is the force of attraction of settlement j, D_{ij} the distance between i and j and γ an exponent varying with the character of the trip.

132 settlements were examined and are henceforth denoted $P_i/i = 1, \ldots 132$). S_i was established by means of factor analysis to which the constant 0.345 was added to remove negative values, i.e. the lowest factor score was equal to – 0·344. The location of the settlements was determined by means of (x_i, y_i) co-ordinates mapped on to each P_i. The distance between settlements P_i and P_j is given by

$$D_{ij} = \sqrt{(x_i - x_j)^2 + (y_i - y_j)^2} \tag{1}$$

and the distance between an arbitrary point $P(x, y)$ and P_i by

$$D_i(x,y) = \sqrt{(x - x_i)^2 + (y - y_i)^2} \tag{2}$$

The attraction exerted by settlement P_i on point P is directly proportional to S_i and inversely proportional to the distance D_i expressed as

$$\frac{S_i}{D_i^{\gamma}(x,y)}$$

[5] This section has been compiled by Helmut Exner.

where γ is a constant. From this it follows that the attraction exerted by settlements P_i and P_j on point $P(x, y)$ is equal when the equalities

$$\frac{S_i}{D_i^{\gamma}(x,y)} = \frac{S_j}{D_j^{\gamma}(x,y)} \text{ and } \frac{D_i(x,y)}{D_j(x,y)} = \left(\frac{S_i}{S_j}\right)^{\frac{1}{\gamma}} \tag{3}$$

are satisfied.

It is easy to see (see Huff) that geometrically points $P(x, y)$ form a circle the parameters of which are a function of γ. Chosing the value of γ is a practical question. We worked with $\gamma = 2$ and in this case the parameters of the circle of attraction

$(x - a_{ij})^2 + (y - b_{ij})^2 = r_{ij}^2$ are

$$a_{ij} = \frac{S_j x_i - S_i x_j}{S_j - S_i}; \quad b_{ij} = \frac{S_j y_i - S_i y_j}{S_j - S_i}; \tag{4}$$

$$r_{ij} = \sqrt{\frac{S_i S_j}{(S_j - S_i)^2}}\, D_{ij}, \; (S_j \neq S_i).$$

From these relations it follows that the centre of the circle of attraction always lies on the straight line connecting settlements P_i and P_j.

Should the dimension of the two settlements be equal or approximately equal, then the circle becomes a straight line, bisecting the line connecting the two settlements.

APPENDIX

Basic data set for factor analysis (all variables relate to 1972)

1. Number of inhabitants
2. Net migration
3. Number of persons employed in industry
4. Number of workers in industry
5. Number of department stores
6. Number of shops specialized in clothing
7. Number of shops specialized in miscellaneous industrial products
8. Number of restaurants and self-service canteens
9. Number of confectioners and coffee-bars
10. Floor space of shops, in m^2
11. Floor space of commercial catering places
12. Retail trade turnover in industrial products
13. Retail trade turnover in catering
14. Number of persons employed in retail trade
15. Value of arrival per inhabitant, in Ft
16. Number of hotel beds

17. Number of beds in other lodging places
18. Size of local bus fleet (number of vehicles)
19. Number of telephones
20. Length of metalled roads as a per cent of total
21. Capacity of public and thermal baths
22. Capacity of open-air and indoor swimming pools
23. Number of physicians
24. Number of consultation hours
25. Number of hospital beds
26. Number of pharmacies
27. Number of secondary school pupils
28. Number of students in higher educational institutions
29. Stock in public libraries
30. Cinema capacity (number of seats)

REFERENCES

Cliff, A. D., Martin, R. L. and Ord, J. K. (1974): Evaluating the Friction of Distance Parameter in Gravity Models. *Regional Studies,* Vol. 8, No. 3/4.

Cordey-Hayes, M. and Wilson, A. G. (1971): Spatial Interaction. *Socio-Economic Planning Sciences,* Vol. 5. No. 1.

Enyedy, Gy. (1975): A magyar mezőgazdasági tér felosztása (körzetesítése) (Division (Regionalization) of the Hungarian Agricultural Area), *Földrajzi Értesítő,* 1.

Ewing, G. O. (1974): Gravity and Linear Regression Models of Spatial Interaction: A Cautionary Note. *Economic Geography,* Vol. 50, No. 1.

Hansen, N. M. (1975): A Critique of Economic Regionalization of the United States. International Institute for Applied Systems Analysis. Research Report. Laxenburg, September.

Huff, D. L. (1973): The Delineation of a National System of Planning Regions on the Basis of Urban Spheres of Influence. *Regional Studies,* Vol. 7, No. 3.

Isard, W. (1972): *Ecologic-Economic Analysis for Regional Development.* The Free Press, New York.

Korcelli, P. (1975): Urban Spatial Interaction Models in a Planned Economy: A Preliminary Appraisal. Presented at the 15th European Congress of RSA, Budapest, August 1975.

Kostrubiec, B., Loboda, J., Zagozdzon, A., Zipser, T. (1975): Application of Mathematical Methods in Analyzing and Forecasting Development of a Settlement System. Presented at the RSA Seminar in Zakopane, February 1975.

Krajkó, Gy. (1976): A gazdasági mikrokörzet-kutatás módszertani kérdései (Methodological Problems of the Economic Microdistrict-Research). Published in the volume "A regionális elemzések módszerei" (Methods for Regional Analyses). Akadémiai Kiadó, Budapest.

Lackó, L. (1966): Forma és tartalom a gazdasági térképészetben (Form and Content in Economic Cartography). *Geodézia és Kartográfia,* 5.

Lackó, L. and Francia, L. (1973): A területi tervezés és elemzés néhány módszere (Some Methods for Regional Planning and Analysis). OT. Tervgazdasági Intézet, Budapest.

Lackó, L. (1976): A térkép, mint a regionális elemzés egyik módszere (The Map as One of the Methods for Regional Analysis). Published in the volume "A regionális elemzések módszerei" (Methods for Regional Analyses). Akadémiai Kiadó, Budapest.

Nijkamp, P. (1975): Reflections on Gravity and Entropy Models. *Regional Science and Urban Economics.* Vol. 5, No. 2.

Tobler, W. R. (1975): Spatial Interaction Patterns. International Institute for Applied Systems Analysis, Research Report, Laxenburg, July.

Wilson, A. G. (1974): Urban and Regional Models in Geography and Planning. John Wiley and Sons, London.

REPRESENTATION OF THE SETTLEMENT NETWORK IN HUNGARIAN THEMATIC ATLASES

By

Á. PAPP-VÁRY

Hungary

Locational change is an important means of accelerating economic activity and of eliminating regional differences in living standards. For this reason sectoral and local investment must be directed towards the realization of optimal economic locations – developed within the framework of national regional planning.

The elaboration of long-term optimal economic distributions as well as medium- and short-term measures must be preceded by a comprehensive investigation of present locational patterns, including natural resources, and demographic and economic conditions. The mapping of these phenomena should constitute an integral part of such an investigation.

To promote regional planning, the National Atlas of Hungary was published in 1967, followed by a six-volume economic planning atlas series in 1974, in which data for the years 1964 and 1970 are mapped at the scales of 1 : 500,000 and 1 : 1,000,000, respectively.

The sections of these atlases entitled "Settlement Conditions" consist of the following maps:

1. The population size of settlements and their position in the administrative hierarchy.

2. The regional functions of settlements. Under this heading various socio-economic aspects of settlements are mapped including administrative and service functions, the social division of labour, sphere of attraction (grouped into 10 levels), number of inhabitants, amenities and public services. The depiction of the spheres of attraction reflects not only the present situation, but also future trends of development, i.e. the number of inhabitants in the spheres of attraction in the year 2000, and how the settlements belonging to the various levels should be developed to meet the needs of the expected population *(Fig. 1).*

3. The proportion of the population living in isolated settlements and farmsteads. As a result of the specific type of historical development in Hungary, the number of inhabitants, living in isolated settlements and farmsteads on the Great Hungarian Plain and in certain hill communities comprises one third of the total population *(Fig. 2).*

4. The distribution of population by occupation. The proportion of the population engaged in industry, agriculture, communications and transport, commerce and other branches is represented by pie-diagrams in the National Atlas of Hungary. Because of the relatively small symbols used at the scale of 1 : 1,000,000, only the dominant production branches could be represented for settlements with populations of less than 5000. To eliminate this problem the economic planning atlas series shows the different professional branches with the aid of separate cartograms.

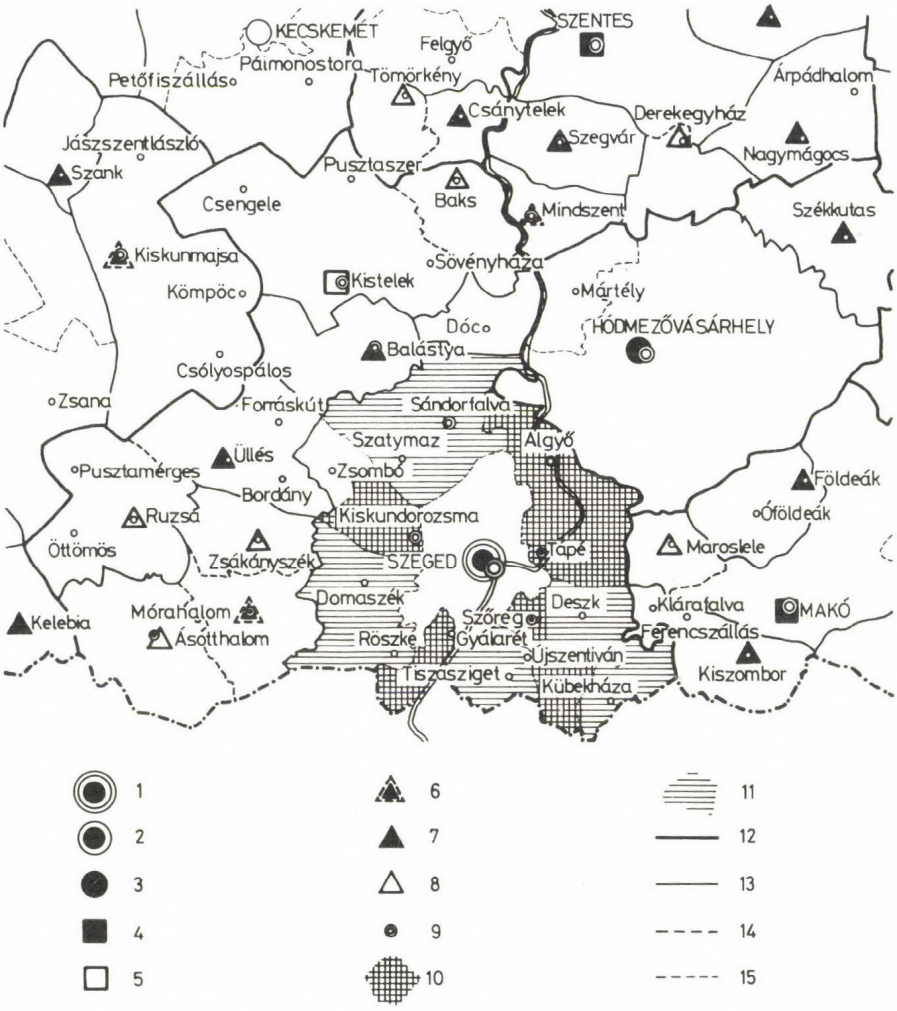


Fig. 1. Settlements in their regional context

1 = major first order centre; 2 = first order centre; 3 = partial first order centre; 4 = second order centre; 5 = partial second order centre; 6 = major third order centre; 7 = third order centre; 8 = partial third order centre; 9 = other settlements; 10 = part of urban agglomeration; 11 = city outskirts; 12 = boundary of first and second order areas of attraction; 13 = boundary of third order area of attraction; 14 = boundary of partial area of attraction; 15 = boundary of settlement

In our opinion the pie-diagram method of representation is more comprehensible, than the cartogram-map series, showing the given branches separately. By using a logarithmic scale to draw circles proportional to population size, and by increasing the size of symbols for smaller settlements, the graphic quality of the former map can be increased significantly, and this solution is proposed for future atlases.

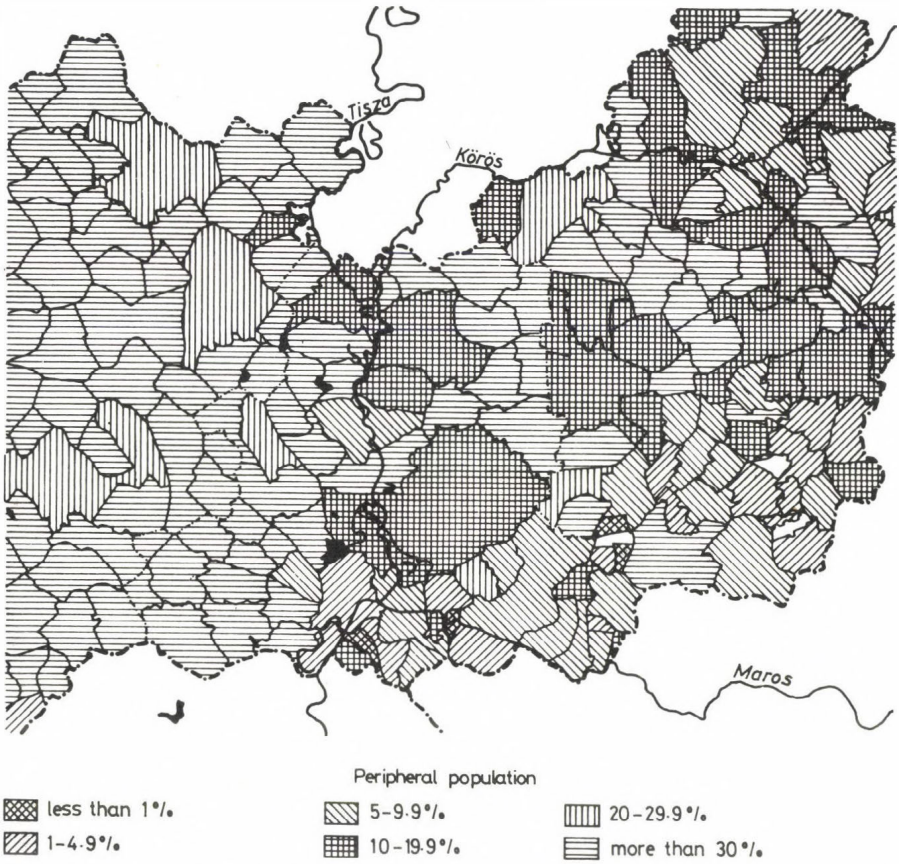


Fig. 2. Population residing outside the built-up areas of towns and villages in the southern part of the Great Hungarian Plain (the peripheral population)

5. Population change by settlements. The trend and size of population change during the last 100 years, and within this, during the last decade is shown. Areas of migration loss and gain are clearly represented *(Fig. 3).*

6. The growth of urban population. Urban population change during the last 25 years is represented by symbols, and the proportion of the population living within urban areas is shown by colour shading.

7. Settlement types. Maps of characteristic settlement types are included. A significant part of the data included in all sections of the atlas forms characteristic and indispensable indices of the settlement network in addition to the specific section relating to that theme.

In comparison with foreign atlases, it is worth noting that one tenth of the total content comprises maps showing the size of dwellings and the level of amenities.

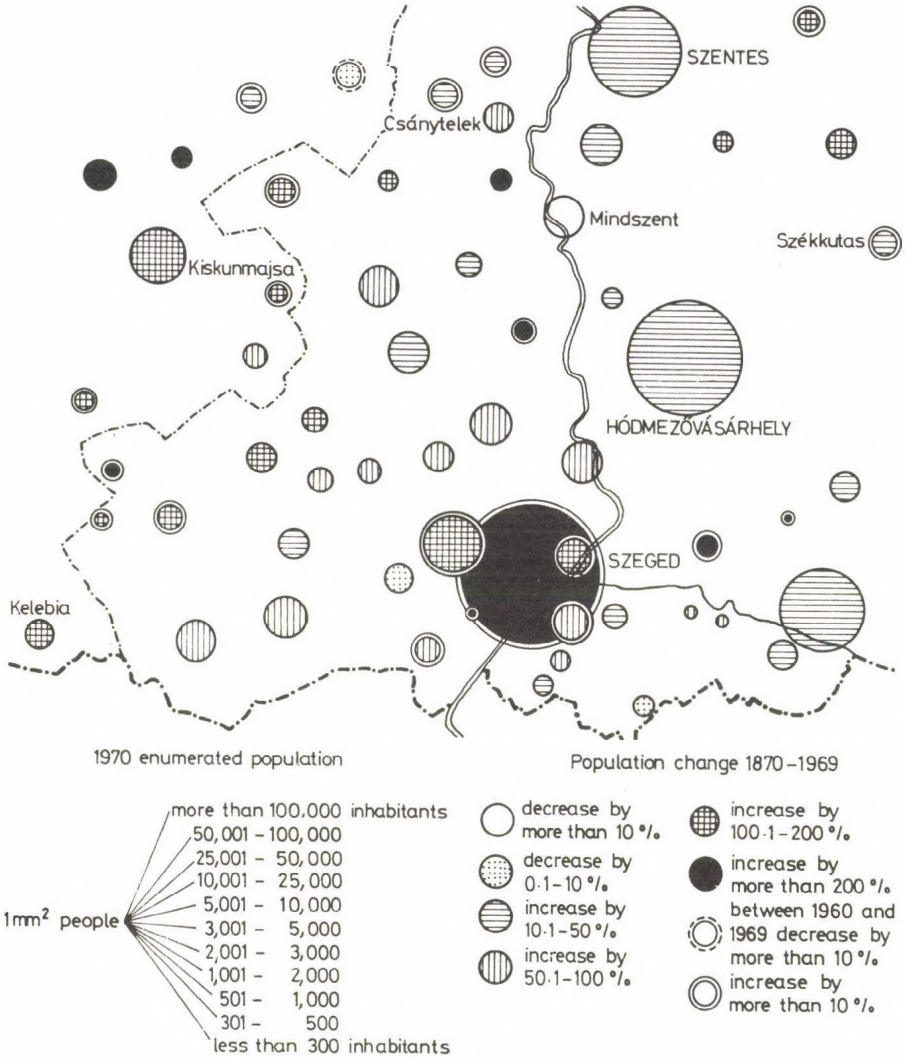


Fig. 3. Population change

Besides the cartogram-maps showing relative data (e.g. the proportion of two-roomed dwellings) the actual location and capacity of urban public utilities are represented in the atlases. From the point of view of settlement planning, the maps representing the mode of waste disposal, and the distribution of refuse tips, snow-clearance, traffic accidents, district heating, and the number and height of chimneys are also of great significance.

The sections relating to "Public Health", "Education", and "Culture" show establishments fulfilling central functions at different levels of the settlement hierarchy.

Internal commerce, namely the consumption pattern of food and clothing, and the distribution of hotels and restaurants, as well as data on tourism serve as indices that help in categorizing the settlements.

From the point of view of the settlement network the isochrone maps showing access to county-centres by bus and rail are of interest.

Preparatory work for the new national atlas, in which data from the 1980 Census will be mapped at scales of 1 : 750,000 and 1 : 1,000,000, is going on. On the basis of experience gathered during the preparation of earlier thematic atlases, some modifications are planned for the representation of the settlement network. The settlement network cannot be depicted adequately by merely mapping the various individual characteristics of settlements. The expression "network" supposes the examination of interaction among settlements, and the mapping of this as well. Therefore the atlas must include such synthetic maps as population potential, while maps of travel time must be complemented by those representing cost surfaces.

In the remaining sections qualitative information will be given as well as differences between the theoretically planned and actual supply of dwellings.

URBAN DEVELOPMENT

ADMINISTRATIVE AND FINANCIAL FRAMEWORKS FOR URBAN DEVELOPMENT IN HUNGARY

By
E. DARÓCZI
Hungary

ON PLANNED URBAN DEVELOPMENT

Controlling such a complex societal process as urbanization requires a comprehensive approach. The growing popularity of interdisciplinary research has substantially contributed to a better understanding of this complicated phenomenon and there is thus hope for further developments and achievements in this field. With the inadequate knowledge accumulated so far on the behaviour and the basic interdependence of urbanization one cannot expect interventions to influence urban development in its entirety. Development components (population, natural resources, industry, transport but also political and scientific development), while going through very rapid, sometimes sudden, changes according to their inherent properties, may break off and turn to an autonomous course. The resulting discrepancies risk irreversible damage or significant drawbacks and deformations in the life of society. It is clear that there is a great and urgent need for a scientifically established, complex urban policy.

Several urban development subconcepts have been elaborated and introduced both in developed socialist and developed capitalist countries: for instance, limiting the growth of large cities, the development of counter-poles through the decentralization of industry and intellectual potential, the creation of new towns, garden cities, satellite towns, and inner city reconstruction. Certain acute diseases could be more or less treated (e.g. inner city transport, living environment, slums), others recuperated (e.g. housing shortage, rapid population growth in the suburbs, increasing commuting distance) and new ones formed (e.g. new lifeless, dead-looking residential areas, unvaried townscape, lack of neighbourhood contacts). So the consequences are rather varied.

In Hungary, urbanization has developed more as a side-effect of industrialization than as a result of explicit urban policies. Although direct interventions made so far do not yet provide sufficient basis for overall judgment, in the field of physical planning quite an abundant experience has been accumulated. Architects nowadays constitute the largest part of urban researchers and urban planners. The participation of sociologists, historians, geographers and lawyers is scant, while the contribution of economists, management scientists is particularly unsatisfactory. The lack of a comprehensive, joint approach is reflected in the prevailing view according to which master plans form the basis of a purposeful urban policy. No doubt, master plans can be and already are being drawn up with the cooperation of representatives from various disciplines. However, master plans are inadequate since they merely define the physical framework for urban development. An explicit urban policy which should support the work of urban planners has only recently taken shape. It is considered great progress that, contrary to previous practice, a development concept based on extensive research and embracing not just several urban places but the entire settlement network was

elaborated in the sixties and codified in 1971.[1] According to this concept Hungarian settlements were classified into functional hierarchical groups. Central functions and the desirable population size of both core and ring areas were defined for each group of settlements. This concept was only the first, but very important fundamental step on the way to elaborate a complex urban policy to be worked out via an interdisciplinary approach.

All policies, urban policy included, involve a *system of instruments* to promote the realization of policy objectives. Considering the clear formulation of urban policy objectives, the system of instruments is still immature. Evidently, without a profound knowledge of the nature and interdependences of the process which is to be controlled and a systematic analysis of such a knowledge, a *cohesive system* of intervention cannot be built up. Instruments so far introduced influencing urban development are quite various. In the process of advancing urbanization and in the course of transforming and improving economic management in Hungary, these instruments have changed considerably. In the following we review some of the characteristics of the spatial administrative hierarchy and investment financing using two examples from the collection of legal and economic instruments – from the viewpoint of urban development.

URBAN DEVELOPMENT AND SPATIAL ADMINISTRATION HIERARCHY

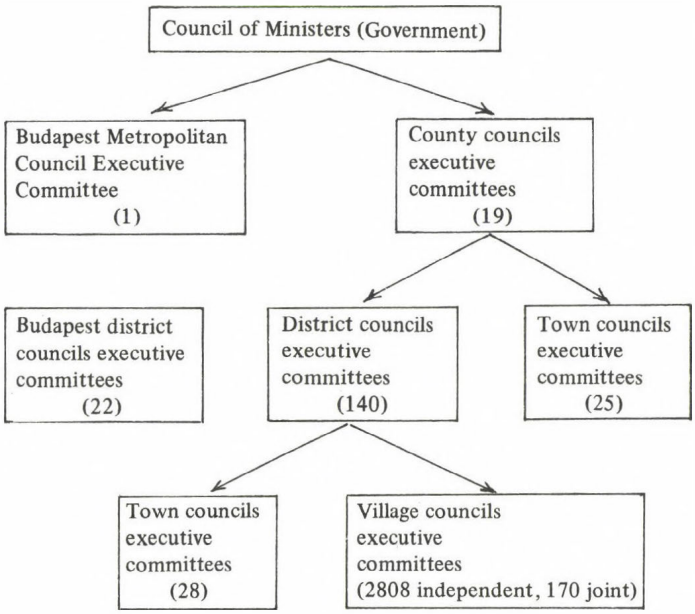
Societal development, of which urbanization is one essential projection is an endless process. Spatial organizational order may entail an achieved state of development or one which is aimed at or perhaps one which has already been surpassed. Obviously, it reflects not only the development of urbanization but political, economic, and cultural evolution and, to a more or lesser extent, the survival of traditions and the established forms. There is an interrelationship between urbanization and spatial administration. Urbanization plays an essential role, but the effect the latter has on the former also has to be considered.

The hierarchy of spatial administration in Hungary has changed a lot since the system of councils[2] was established in 1950. Changes are demonstrated with the help of the schemes set out below. The above hierarchies not only express legal subordination but are a real hierarchy of competences and financial means. For example, councils of different hierarchical order have the right to establish institutions at different spatial, i.e. regional, county, district, local levels.

There is an evident interrelationship between urban development and the hierarchy of spatial administration. Its most obvious signs are the increasing number of *towns* and their strengthening position. In 1950 it was exceptional that towns were subordinated directly to county councils, although almost half of them benefited from this

[1] Government resolution No. 1007/1971 (III. 16.) on the Concept of National Settlement Network Development.

[2] Councils themselves went through considerable development over time. This progress constitutes the content of the considered hierarchy as a form. However, the process of council activity developments will not be analyzed or introduced here because there is an extensive literature on the subject.



Total number of towns: 54, total number of villages: 3169
(*Note:* figures in brackets indicate the number of councils)

Fig. 1. 1950 (following the first council elections on October 22, 1950)

distinction. The need for specific control over urban places was generally acknowledged and their further development was facilitated by the second council act (Act No. X. of 1954) when all towns were taken out of the jurisdiction of district councils. Similarly, in subsequent years, the positions of towns and districts have changed parallel with each other but in opposite directions. In 1969 towns were given the right of control over villages[3] which earlier had been the prerogative of districts. This was a highly important step since it legally acknowledged the spatial organizational role of urban places and opened new possibilities for harmonizing the development of towns with their surrounding areas. The third council act (Act No. I of 1971) did away with district councils, and since then offices have been working at that level. The coincidence of an increase in the number of towns and a decrease in the number of districts is not a formal one. (In 1950 the number of districts was nearly triple that of towns and now their number is close to equal.) Clearly a more even spatial distribution of towns should make it possible for all the functions of district councils to be performed by town councils. This is neither strange nor new idea. On the suggestion of Ferenc Erdei, in 1946 István Bibó and Jenő Mattyasovszky in 1950 elaborated an

[3] Government resolution No. 1017/1969 (IV. 29.) on town control over certain villages.

administrative system, based on an urban network[4] but it was never put into practice. Its establishment, however, needs careful preparation, first of all in planning the attraction areas of present and future towns, taking into consideration possible overlaps and modifications over time.

It is worth considering how the status of *large cities* has changed. The outstanding international, administrative, economic, political and cultural role of Budapest is asserted and acknowledged by the fact that the capital has never been subordinated to any other spatial administrative unit. In 1954 similar status was given to Debrecen, Miskolc, Pécs and Szeged when they were designated by the name of "city with a county status", i.e. a county borough. Such a distinction did not prove to be as suitable as in the case of the capital and resulted in an artificial break from the environment of surrounding counties. Although in 1971 large cities – their number increased to five with the inclusion of Győr – were again subordinated to councils, they preserved a distinguished legal status and this is reflected in their name: "county cities".[5] There is no established administrative organization for the agglomerations taking shape around Budapest and other large cities. One cannot expect such an establishment to eliminate all contradictions in agglomeration development but organizational frameworks should not become a burden to sound spatial development; they should reflect actual processes and relationships among settlements.

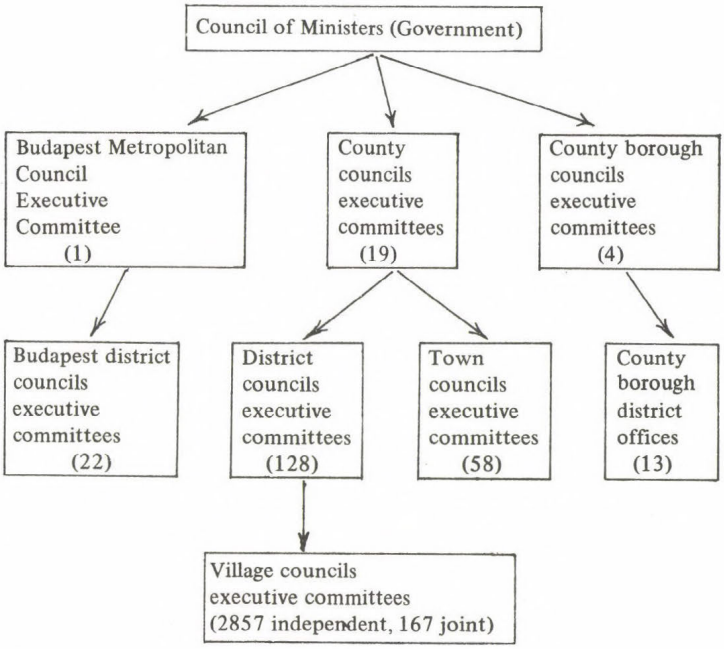
Changes in the administrative hierarchy of *villages* are demonstrated by the increasing number of villages with joint councils, the introduction of town control over villages and the organization of large villages which has meant wider competence.[6] The position of villages was improved by taking over some district council functions. Concentration of local resources (joint councils) and conferring larger authority on more developed villages were also called for. Urbanization, however, advances in a differentiated way over space, is concentrated in certain places, where development is more rapid than average. In most villages development of basic functions and improvement of transport and other communication facilities with higher centralized control should serve to avoid secession from urban development. Its importance is underlined by the danger of isolation of some villages belonging to joint councils.

Urban population is a rather formal, but the most widely used indicator of urban development. It is important to stress that the *notion of town* in Hungary is an administrative one, implying a legal status. The title of town is conferred on a settlement via a legal act by the Presidential Council. In statistics, urban population denotes the population living in these towns. Consequently, administrative changes – through conferring the title of town, or by attaching non-urban places to towns – also "contribute" to urbanization or more correctly to urban population growth. These actions are certainly destined to declare a given level of urbanization or eventually to accelerate the process. According to rough estimates, between January 1, 1960 and January 1, 1970, urban population growth amounted to 650,000 persons, out of which about seventy per cent was contributed by population growth in places with the title of town (via natural increase and migration), about one quarter by

[4] See Aurél Hencz: Területrendezési törekvések Magyarországon (Endeavours in Country Planning in Hungary). Budapest, KJK, 1973, p. 515 and 523.

[5] County cities also function as county seats. There are 19 county seats: the capital, 5 county cities and 13 towns.

[6] Government resolution No. 1016/1969 (IV. 29.) on the organization of large villages.



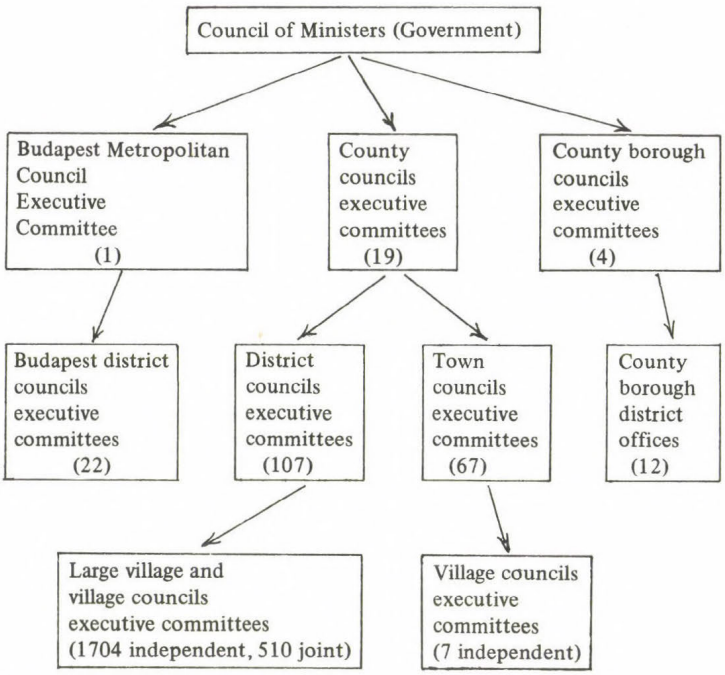
Total number of towns: 63, total number of villages: 3210)
(*Note:* figures in brackets indicate the number of councils/offices)

Fig. 2. 1960 (January 1)

promoting settlements from village to town status and the remaining five per cent by the attachment of villages or parts of villages to towns. More lately in 1974, 17 criteria have been laid down before the title of town should be conferred on a settlement.[7] They refer to population size (central urbanized area 8,000, outer ring 30,000 as minima), population dynamics, commuting, employment structure (minimum 30% in the tertiary sector), medical services, cultural and shopping facilities and other public amenities. (For settlements located within urban agglomerations the requirements are generally stronger, with the exception of central functions, for which they are lighter.)

Nothing has been mentioned so far of the *counties.* Their position within the hierarchy remains apparently unchanged, their number has not varied and apart from slight modifications their administrative borders have remained the same. With the decentralization of decision-making associated with the process of changing the system of economic management, counties were given more authority. For example, spatial development plans are approved and a large part of state subventions are distributed on a county level. Obviously, county councils play an important role in urban development. It is not indifferent whether their field of competence concerns a coherent area from

[7] Joint statement of the Ministry of Construction and Urbanization and the Council Office of the Council of Ministers No. 23/1974 setting out guidelines for declaring large villages towns.

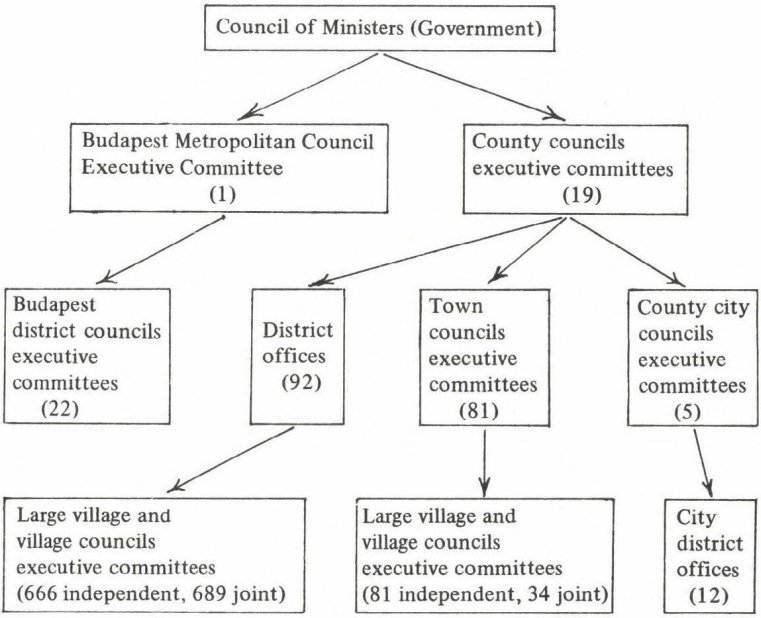


Total number of towns: 73, total number of villages: 3151
Number of large villages: 94
(*Note:* figures in brackets indicate the number of councils/offices)

Fig. 3. 1970 (January)

an economic point of view or from the aspect of settlement network. Other arguments (Hungarian land is subdivided into too many counties, administration costs are high) also call for a more rational arrangement. Hungarian planners, politicians and scholars have long concerned themselves with this problem. It is exactly the key position of counties between central and local administration that makes taking a decision on any change extremely difficult. At present it seems that only after the establishment of an administration system based on the urban network will it be possible to raise again the question of the counties.

In summary, changes in the spatial administrative hierarchy have been characterized by processes of decentralization, concentration and diversification running parallel and supplementing one another. Important areas of competence and finances have been shifted from a central level to spatial and local levels (decentralization); the number of identical spatial units (villages, districts) has been decreased (concentration) and new types of spatial units (county cities, large villages) have emerged (diversification). Further progress is expected in all three processes. From what can be foreseen today, the number of counties will decrease (concentration), greater competence will be given to urban places (decentralization), and agglomerations will receive special administrative status (diversification).



Total number of towns: 87, total number of villages: 3069
Number of large villages: 315
(*Note:* figures in brackets indicate the number of councils/offices)

Fig. 4. 1978 (January 1)

One of the ideas laid down in the Concept of National Settlement Network Development is the question of development standards of settlements placed at identical functional levels in the hierarchy. This will certainly take time but when it is realized the administrative status of settlements will have to be modified accordingly. This will, no doubt, have repercussions for the spatial administrative hierarchy.

FINANCING URBAN DEVELOPMENT

How much has been allocated to urban development in Hungary and from what resources? The question is not only closely connected with the process of urbanization but also with overall socio-economic policy and the system of applied economic management. It follows from the complex character of urbanization, that any socio-economic development can be connected with it. Nevertheless, one cannot give a reasonable answer to the above question without specifying factors influencing urbanization directly. Taking the spatial aspect, the type of activity and a pragmatic approach as guidelines, the following specification is suggested: council developments, central intervention aimed at spatial development directly and the development of

tertiary activities. Developments in the construction industry have a less direct but a very obvious rapport with urbanization. Finally, only agriculture and certain industrial developments remain which are not determined by urban growth aspects.

During the twenty years following the Liberation, the concentration of resources on industry in relatively developed areas and in the new socialist towns, plus the backwardness of the construction industry and tertiary activities did little to encourage sound and balanced urban development. Due to centralization of decision making and financial resources, councils and enterprises could not contribute very much to the development of urban places from their own funds, while relatively low personal incomes made it impossible for the population to bear significant financial costs related to urbanization.

Urbanization was mainly influenced by industrial locations, and within this, explicit programmes for industrialization in backward areas and for decreasing the overwhelming industrial potential of Budapest were taking shape from the middle of the 1960's. A 15-year housing programme launched in 1960 was another important central measure which had a direct impact on urban development.

The new economic policy elaborated at the end of the 1960's laid special emphasis on proportionate sectoral and spatial development, on increasing economic efficiency and on raising living standards. The new system of economic management introduced in 1968 – the essential elements of which were decentralization of decision-making and finances, better use of internal and local resources, and wide application of material incentives – brought about significant changes also in the financing of urban development. Hereafter a brief review follows of the experiences subsequently accumulated.

Resources devoted to urbanization have increased. Development of infrastructure serving the population (housing and public utilities, mass transport, medical, social and cultural services and shopping facilities) has been more rapid than previously and greater than the average growth took place in the national economy. The capacity of the construction industry has also been enlarged, primarily by way of increasing the labour force. These trends of development could by no means remove all the tensions which have accompanied urbanization; indeed, in several cases they have been sources of further aggravation but, for example, in the modernization of dwellings, in urban mass transport and in the provision of shopping facilities remarkable progress has been made compared to the 1960's. *(Tables I* and *II.)*

Most investment directly contributed to the development of urban places. This is demonstrated in *Table III* which contains data broken down by groups of settlements. Lacking a comparable time series, 1976 is taken for illustration, and although introducing investment data for a single year is open to criticism some conclusions can be drawn. One can see for example, that in large cities, concentration on communal, construction, commercial and transport investment is more intensive than that of industrial investment, while in smaller urban places industry still dominates.

Only that investment has been mentioned which was made in the socialist (state and co-operative) sector. This is met from central and council administrative budgets and from the funds of profit-making undertakings (state enterprises and co-operatives). Financial links are very complicated and resources cannot be clearly separated. Profit-making undertakings pay on various titles to central and council budgets and conversely, councils and the central administration credit them with allowances and

Table I. Distribution of investment by economic sectors (socialist, i.e. state and co-operative sector; in per cent)

	1961–1965	1966–1970	1971–1975
Industry	42·7	39·2	36·2
Construction industry	2·3	2·6	2·6
Transport, communications	14·0	14·0	13·5
Trade	3·3	3·5	4·6
Communal sectors*	20·3	20·4	24·0
Housing	7·3	7·0	9·3
Agriculture, forestry, water economy	17·4	20·3	19·1
Total	100·0	100·0	100·0

*housing, medical, social, cultural services and administration.
Source: Statisztikai Zsebkönyvek (Statistical Pocket Books). Budapest, KSH.

Table II. Distribution of active earners by economic sectors (at the beginning of the year; in per cent)

	1960	1965	1970	1975	1977
Industry	28·4	34·3	35·9	35·7	34·7
Construction industry	5·6	6·0	7·3	8·2	8·2
Transport, communications	6·2	6·9	7·2	7·7	7·9
Trade	6·6	7·3	8·0	9·0	9·4
Communal sectors	14·3	15·8	15·2	16·7	17·9
Agriculture, forestry, water economy	38·9	29·7	26·4	22·7	21·9
Total	100·0	100·0	100·0	100·0	100·0

Source: Statisztikai Évkönyvek (Statistical Yearbooks). Budapest, KSH.

subsidies. Grouping investment according to decision-makers provides some information as to the extent of central and decentralized participation in development decisions. There is no strict correspondence between the level of decision-making and the forms of finance but there is some correlation.

1. *Major individual projects* are decided by the Government and financed from the central budget in the form of credits and/or grants. They are large scale investments of national importance, new establishments or extensive reconstructions (e.g. the construction of the Budapest metro).
2. *Investment interlinked by a determined purpose.* The scope of this investment, i.e. the purpose is decided by the Government, is detailed by the sectoral minister(s) concerned. It constitutes a usually homogeneous investment serving integral network development, financed from mixed resources: central and state budgets, and the funds of profit-making undertakings (e.g. housing programmes).

3. *Other state investment* is decided at a ministerial or council level and financed, as a rule, from central and council budgets (e.g. office buildings, schools and nurseries).
4. *Investment by profit-making undertakings* (state enterprises and co-operatives) is decided by the managements of undertakings and financed mainly from their own funds. In case of preferences, central and council budget may contribute to these developments.

It is important for urban development that more than half the investment in the communal and transport-communication sectors was realized through central decisions (in the form of major individual projects and interlinked investment) between 1970–1976. Long-distance and local mass transport, health, social services, culture and administration is traditionally in the hands of the State in Hungary, so the high proportion of central decisions is understandable. What is surprising is the participation of profit-making undertakings in the communal non-productive sector, amounting to about 8%. Between 1970–1976 most investment in the construction industry – 90% average – was decided by enterprises and co-operatives. In industry, the proportion of major individual projects was stable at almost one third of the total during the same period. The location of major individual projects is also determined by the Government and which thus has a direct influence on the spatial distribution of economic and urban development.

Via credit preferences, reimbursements and allowances the Government assists and so indirectly influences both the realization of industrial investment by profit-making undertakings in preferred areas and the removal of industrial plants from Budapest. Subsidies are given for such purposes from the Central Spatial Development Fund. Between 1971–1975 allocations amounted to 2% of all capital expenditure in industry and 30–40% of the total cost of granted investment. There are similar central funds earmarked for promoting developments in the fields of tourism, environmental protection and services. Although all these funds are closely connected with spatial and urban development, they are nevertheless, administered and allocated by various authorities, and are therefore not satisfactorily coordinated or utilized.

In the *realization* of investment, especially of communal investment, councils have an important and increasing responsibility *(Table IV).*

Payments into the development funds of councils have necessarily increased as well, by 75·2% between 1971 and 1975. Only a small part of this income was derived from the population (under 10% at a national average). State subvention constituted the largest part, amounting to about 40% during the period mentioned. The rest was made up of payments from profit-making undertakings, credits and from the obligatory reserve fund. Extensive participation of state subvention is justified both by relatively low population contributions and by the fact that almost half the investment coordinated by councils is centrally decided – interlinked investment. Inspite of the significant increase in council funds, it is true that the amounts available do not meet all the councils requirements. After spending their earmarked funds and satisfying urgent needs, there is hardly anything left for councils to dispose of freely.

Finally, the contribution of the *private sector* to urban development should be reviewed. Within the private sector, there is an important difference between private profit-making undertakings and investment made by the population for their own use. Private profit-making involves, besides agriculture, small-scale industry, mainly repair,

Table III. Distribution of resident population and investment in the socialist sector by groups of settlements, 1976, in per cent

	1	2+	3+	4+	5	6	7	8	9
	Budapest				1+2+ +3+4	Other towns	All towns	Vil- lages	Hun- gary
Resident population	19·6	8·0	5·4	5·2	38·2	12·4	50·6	49·4	100·0
All investments	27·2	10·4	6·1	6·8	50·5	15·4	65·9	34·1	100·0
Investment in:									
Industry	18·7	11·4	6·0	8·7	44·8	26·0	70·8	29·2	100·0
Construction industry	50·9	14·4	9·4	8·9	83·7	8·5	92·2	7·8	100·0
Transport, communications	52·5	6·1	3·7	4·2	66·5	5·1	71·6	28·4	100·0
Trade	36·0	11·4	8·5	7·6	63·4	8·6	72·0	28·0	100·0
Communal sectors	40·8	17·3	10·0	8·0	76·1	10·4	86·5	13·5	100·0
Water economy	21·6	9·4	7·5	7·2	45·7	10·9	56·6	43·4	100·0
Agriculture, forestry	1·2	1·6	1·1	1·8	5·7	8·6	14·3	85·7	100·0

Source: calculated from figures in Területi Statisztikai Évkönyv (Spatial Statistical Yearbook). Budapest, KSH, 1977 and Statisztikai Évkönyv (Statistical Yearbook). Budapest, KSH, 1976.

+Groups of settlements classified by the functional hierarchy published in the Concept of National Settlement Network Development as follows (in descending order of importance): 2 = first order centres (Debrecen, Győr, Miskolc, Pécs, Szeged); 3 = second order centres (Békéscsaba, Kaposvár, Kecskemét, Nyíregyháza, Székesfehérvár, Szombathely, Szolnok); 4 = third order centres (Baja, Dunaújváros, Eger, Hódmezővásárhely, Nagykanizsa, Salgótarján, Sopron, Szekszárd, Tatabánya, Veszprém, Zalaegerszeg).

Table IV. Proportion of investment coordinated by councils within total investment, in per cent

Year	From total investment	From communal investment
1966–1970	16·6	54·2
1971–1975	22·6	63·3
1976	23·3	64·0

Source: calculated from figures in Területi Idősorok (Time Series over Space). Budapest, KSH, 1976 and in Területi Statisztikai Évkönyvek (Spatial Statistical Yearbooks). Budapest, KSH, 1976 and 1977.

retail trade, catering and personal services. The majority of the self-employed work on their own or with the help of family members. The number of employees is limited to 1–5 persons depending on the type of activity licenced *(Table V).*

Table V. Active earners in the private sector (January 1, 1977)

	1000 persons	Per cent of active earners in state and co-operative sector
Industry	40·8	2·4
Construction industry	23·7	6·0
Transport, communications	6·1	1·5
Trade	14·4	3·1
Water economy	–	–
Communal sectors	32·2	3·7
Non-agricultural sectors	117·2	3·0
Agriculture	97·5	11·0
Forestry	–	–
Total	214·8	4·4

Source: Statisztikai Évkönyv (Statistical Yearbook), 1976. Budapest, KSH, 1977, p. 89.

Their activity is indispensable in satisfying population needs – especially in small settlements – but their direct contribution to urban development, with the exception of housing, is insignificant at a national level. The share of private profit-making within total investment can hardly be detected. Indirectly, via taxation, this sector contributes to a small extent to financing state urban development.

Investment financed from population resources is far more important, first of all in housing. Between 1971–1975, the socialist sector represented two thirds and private sector one third of total communal investment. During the same period, 66% of newly built dwellings went into individual ownership. Although 81% of them were assisted by long-term state credit, this investment still laid a great burden on the population. The proportion of dwellings built under state ownership is of course larger in cities than in villages, but population participation is still considerable in towns as well.

With respect to urban development, one should not slur over the rapidly growing stock of private cars. Between 1960 and 1970 the number of registered private cars increased by 11·5 times and by 2·4 times between 1971 and 1976, their number exceeding 700,000 by the end of 1977.

Personal ownership of dwellings and cars contributes not only directly but also in an indirect way to urban development, via property taxes paid into the council funds.

The most direct participation of the population in urbanization is through so-called social work. Groups of colleagues or neighbours offer the income earned for work such as construction, gardening, and cleaning to the community. Such contributions may be considerable in settlements to which inhabitants are emotionally attached, or where there is a close relationship between enterprises and councils or where neighbourhood contacts are good, as in small settlements.

Summing up then, the money spent on urbanization has considerably increased during the 1970's. Government and councils continue to decide on and finance most investment related to urban development and are thus able to control it directly. At the same time, as a result of financial decentralization the participation of local councils, enterprises and the population has increased at a rapid rate. Fitting these funds into a coherent urban policy can primarily be influenced by indirect means. Further development of a coherent urban policy, involving that of proper instruments is an urgent task.

CORPORATE STRUCTURE AND URBAN GROWTH: SOME IMPLICATIONS FOR THE URBAN FUTURE IN BRITAIN

By

D. CLARK

United Kingdom

In 1975, the labour forces of Great Britain consisted of twenty-five million workers employed by a wide range of companies, government organizations, and voluntary bodies. Only a small number of these people, notably the self employed and those prepared to change jobs on a regular basis, have complete control over their place of work and residence, the expectations and achievements of the majority are closely bound up with the performance of the firms for which they work. This is especially true of those employed by the large corporations which are engaged in a wide range of activities over a large number of centres. Such is the dominance of large firms in modern Britain that their decisions as to which part of their operations to locate where have become a major factor in urban change. It is through their control over the number and types of jobs which they allocate to different centres that firms collectively determine the growth performance and environmental characteristics of cities.

Since the beginning of the industrial revolution there has been a tendency for the representative firm to increase in size from the workshop, to the factory, to the multi-department national corporation, to the multi-divisional national corporation, and now to the multi-divisional multi-national corporation. With each step, the business enterprise has acquired a more complex management structure to co-ordinate its activities and a larger brain to plan for its survival and growth so production, production control, administration, and decision-making have emerged over time as distinct activities in business. This organisational separation has been accompanied by important changes in the spatial structure of firms as these activities have expressed preferences for different types of location. Management for example, has been drawn to the centres of the largest cities whereas production plants have remained more widely distributed throughout the urban hierarchy so that the resulting mix of occupations present has become an important factor in determining the growth and environmental characteristics of individual cities. But this pattern is liable to change: one likely trend is the increased automation of routine tasks in production and administration leading to reductions in the number of jobs in manufacturing and clerical occupations, while another is the adoption of more flexible patterns of location by management in response to increases in the scale and complexity of business operations and improvements in business communication. Such developments could give rise to an urban future that is very different to the urban present. This paper focuses upon the firm and the city over time; it outlines the link between corporate structure and urban growth in the past and explores the urban implications of new and emerging forms of management organization and business communication for the future.

THE EVOLUTION OF THE FIRM

Although urban settlements have existed since neolithic times, the modern city is essentially a product of industrial society. Rapid urban growth in Britain in the last quarter of the eighteenth century was associated with the replacement of workshop activities by factory systems of industrial production which established cities such as Sheffield (steel), Manchester (cotton), Leeds (wool), and Birmingham (metals and engineering) as specialized centres of manufacturing. In any perspective upon contemporary growth processes, however, it is necessary to focus upon subsequent changes in the organization of industry associated with the rise of the modern firm. Hymer (1972), for example, has identified four stages in the recent evolution of the business organization:

(i) The factory: up to the middle of last century, industrial production in Britain was characterized by small single function single location factory firms controlled by individuals, families, or partnerships.

(ii) The multi-department national corporation: the demands of expanding production and more sophisticated technology led to the consolidation of many of these factory enterprises into national corporations typically engaged in many functions over many regions. Shannon (1931) saw this change occurring in Britain between 1844 and 1856 when joint stock companies with limited liability received the general sanction of parliament. To meet the needs of the new organization of production, notably the need to co-ordinate widely scattered plants, a new administrative structure evolved. This involved both a horizontal division of management into specialized departments and a vertical system of control designed to connet and co-ordinate departments. It gave rise to the head office, the responsibility of which was to organize, appraise, and plan for the survival and growth of the corporation as a whole.

(iii) The multi-divisional national corporation: the third of Hymer's stages of corporate development represents the appearance of the multi-divisional national corporation. In this stage, corporations are decentralized into several divisions each concerned with one product line and organized with its own head office. At a higher level, a general office, group head or corporate office is created to co-ordinate the divisions and plan for the enterprise as a whole.

(iv) The multi-divisional multi-national corporation: the fourth and final stage involves a broadening of corporate horizons to foreign countries. Typically the group head office controls overall corporate strategy from the country of the parent company while the firm's overseas operations are administered by head offices in each territory.

The trend towards the third and fourth stages of corporate development involves both a change in the management structure of firms and the increasing concentration of national production in relatively few enterprises. The multi-divisional structure was originated in the United States by General Motors and Du Pont between 1914 and 1920 and was first adopted in the U.K. by Imperial Chemical Industries (Reader 1975) though there were many large companies organized on a departmental basis in 1939. Indeed important industries such as steel (British Steel) and motor vehicle manufacture (British Leyland) did not adopt divisional structures until 1970 and 1972, respectively. Evidence of an increase in industrial concentration over the last sixty years is reviewed in Hannah (1976). The share of the largest 100 firms in manufac-

turing net output rose from 15% in 1909 to 26% in 1950, but fell back to 23% in 1939. There is substantial evidence however in the work of Hart, Utton, and Walshe (1973), that concentration has increased again during the last 20 years aided by large-scale mergers from 26% in 1953 to 45% in 1970. Similarly, the proportion of assets in the quoted public sector of manufacturing and distribution held by the largest 100 firms increased from 44% in 1953 to 62% in 1963 (Utton 1970). Over the same period, some seventeen of the manufacturing companies ranked in the largest 100 in 1953 were acquired by or merged with other manufacturing companies in the same group. Further evidence for concentration is found in the work of Samuels (1965) in which he argues that since the mid 1950's, larger firms have been growing faster than small ones thereby increasing the rates of concentration.

These changes of corporate structure have some important implications for urban growth. One consequence of the absorption of small businesses by large corporations is that manufacturing plants are being rationalized and reduced in number so that production activities contribute a declining share of the total number of jobs available in the city. Conversely, the responsibilities for organizing multi-product, multi-plant enterprises able to compete in world markets means that it is the control activities within the firm that are expanding most rapidly so that the growth prospects of individual cities will be increasingly determined by their attractiveness as centres of management functions. Such developments require the adoption of new perspectives upon urban growth since they imply a replacement of traditional explanations in terms of access to raw materials, markets, and bulk transport modes, by models which cite the availability of communication and business information which is essential to the management function. Given this link between urban growth and management occupations, at least in general terms, it is the locational preferences of business administration and control, rather than production, that requires detailed analysis and attention.

THE SPATIAL DIMENSIONS OF CORPORATE STRUCTURE

As firms have increased in size and complexity so they have added an elaborate management structure to control and direct their operations. Chandler and Redlich (1961) outline a simple scheme for classifying management activities. They distinguish "three levels of business administration, three horizons and three levels of tasks, and three levels of decision-making . . . and three levels of policies." Level III, the lowest level, can be designated production control and is concerned with managing the manufacturing operations of the firm. It involves those activities concerned with the receipt of raw materials, the dispatch of finished articles, and with organizing production runs. Level II, which is the administrative level, is primarily responsible for co-ordinating the production controllers and is concerned with ordering, buying, marketing, and with personnel management. The functions of level I, top management, are strategic and are to do with decision-making. They involve goal determination and the shaping of the framework within which the lower management levels operate.

An important additional dimension is added to this typology by Thorngren (1970) who has pointed out that these organizational processes operate with respect to different time-scales and generate different patterns of intra- and extra-firm communication *(Table I)*. The most important activities in a qualitative sense are those

Table I. Organizational levels in the multi-divisional corporation

Level of management	Function	Activity	Time-scale	Pattern of communication
–	Production	Manufacturing	Present	Intra-section
I	Production control	Programming	Short-term future	Intra-plant
II	Administration	Planning	Medium-term future	Intra-company (some external)
III	Decision-making	Orientation	Long-term future	External and intra-company

concerned with long-term scanning of socio-economic environments so as to identify future possibilities and alternatives for the business. These 'orientation' functions are chiefly the responsibility of the highest level decision-makers and are heavily dependent upon access to external sources of information about the likely future operating environment of the firm. This would involve contacts with individuals knowledgeable about the state of stock markets, the prosperity of national economies, the directions of government policies, and developments in research. At a lower level, the administrative activities of the corporation are concerned with 'planning' the development of the firm in the directions that have been identified through higher level orientation processes. Many of the contacts arising out of these activities are internal to the firm involving the receipt of directives from level I and the issuing of instructions to production managers, though the medium-term perspectives of level II activities requires the maintenance of a basic network of external relations with other firms and commercial organizations so as to synchronize forward planning schedules. Finally, level III activities are almost exclusively concerned with 'programming' the present activities of the firm and so largely involve internal channels of communication. Matters to be dealth with such as the receipt of raw materials and the dispatch of finished products occur on a regular basis and tend to involve production managers in consultation with shop floor workers.

Although these functions are present in all firms, the degree of separation of these individual levels varies with different forms of corporate structure. In the factory, the primary characteristic is labour intensive production and all three levels of management are embodied in, and are the responsibility of a single entrepreneur. In the multi-departmental corporation a partial differentiation is made in which the top two levels are separated from level III. In the multi-divisional corporation, the differentiation is complete: level I is split from level II and is concentrated in a general office whose specific function is to plan strategy rather than tactics. The separation of responsibilities is similar in the multi-divisional multi-national corporation though the corporate head office has considerably more power, controlling, though the divisional head offices, a wider range of activities in a large number of foreign countries.

Given the different functions of these levels and these levels and the different patterns of contact which they generate, it may be expected that they will assume different spatial distributions. Industrial location theory suggests that level III programming activities which control day to day production will spread themselves over

space along with production units according to the pull of manpower, markets, and raw materials. They will locate alongside manufacturing plants in locations which offer the best opportunities for minimum cost production. The principles involved here have been explored in depth by location theorists such as Hoover, Weber, Lösch, Greenhut, and Isard (Smith 1971). Level II activities, because of the need for white collar workers, communication systems and information tend to concentrate in large cities. Since their demands are similar, corporations from other activities and branches of commerce tend to place their co-ordinating offices in the same city and level II activities are consequently far more geographically concentrated than level III activities. Level I orientation functions must be even more concentrated since they must be located closer to the capital market, government, and research institutions. Their preference is for the very largest cities since it is these centres which offer the best access to controlled and random information sources which may be essential for determining the long-term strategy of the firm.

These spatial and temporal arguments are summarized in *Figure 1* in the form of a diagram which outlines the relationship between corporate changes and spatial changes in firms. Production activities are the dominant features of the factory system so only very small numbers are employed in management occupations and the single plant single product nature of industry gives rise to few inter-firm linkages. The emergence, through mergers between firms with similar product specialisms, of national corporations organized on a departmental basis, increases the numbers in management though largely at an intermediate administrative level: individual centres develop managerial specialisms for industries or groups of industries. The multi-divisional corporate economy is characterized by a significant growth in top level decision-making occupations in industry, and their concentration in one or two of the very largest cities. As a consequence, many of the major centres of the multi-departmental corporate economy experience a relative decline in size and status. A wider spatial perspective is added to this pattern as firms acquire international interests and operations. Production divisions become organized on a territorial basis under the immediate control of a regional head office but under the overall control of a corporate head office. If, with respect to a particular economy, the majority of firms are foreign owned and controlled, then corporate decision-making is exercised from overseas and the form of the urban system, previously manipulated by the national government though planning policies, is effectively determined by the locational decisions of the major multi-national corporations. Freed from their affinities with decision-making, administrative activities relocate in intermediate centres and the major cities, having lost planning and top-level orientation functions enter a period of decline.

Focussing in more detail upon the contemporary situation, which is transitional between the multi-divisional national and the multi-divisional multi-national corporate economy, one would expect to find general and head offices concentrated in the major cities which will be the major centres of high level corporate planning. Lesser cities throughout the space economy will be concerned with the medium-term and immediate operations of the firm. These in turn will be arranged in an hierarchical manner: the larger and more important ones will contain regional corporate headquarters while the smaller ones will be confined to lower level production control activities. Since business is usually the core of the city, geographical specialization will tend to reflect the hierarchy of corporate decision-making and the occupational distribution of labour

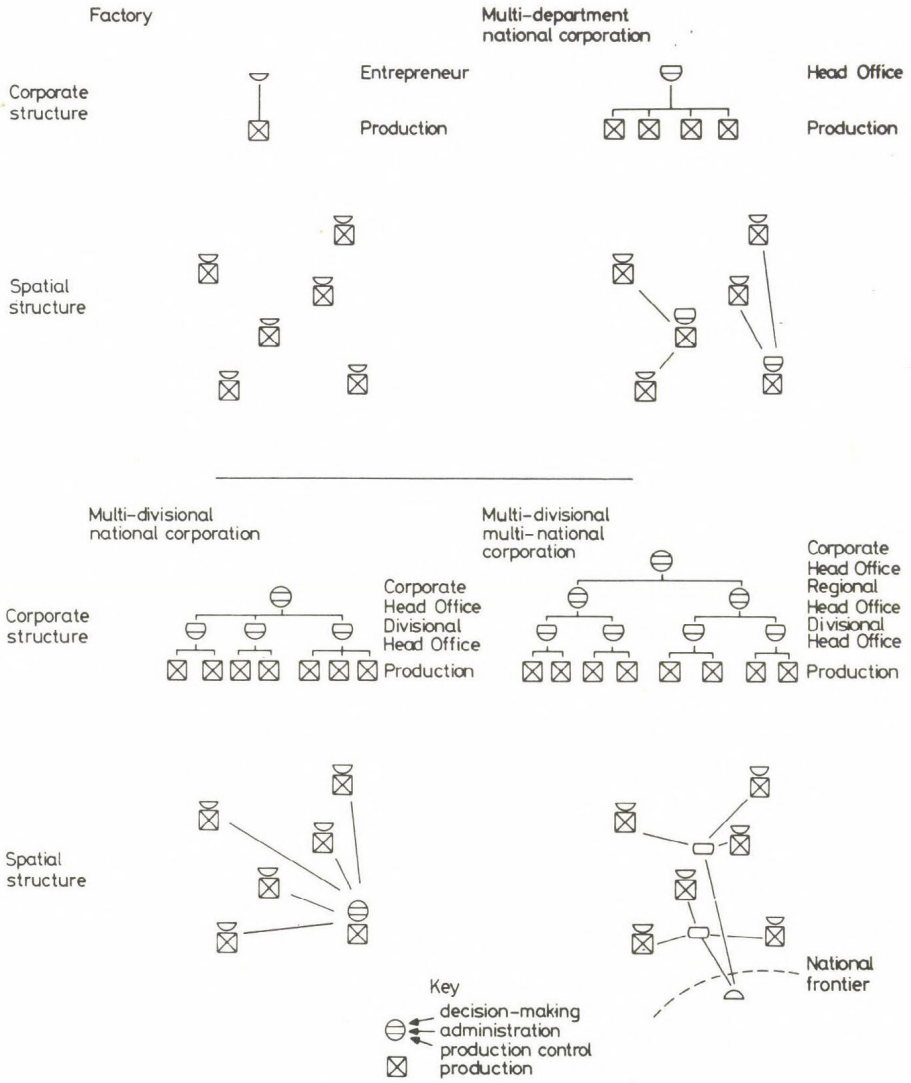


Fig. 1. Organizational and spatial changes in corporate structure

in the city will depend upon its function in the economic system. J. B. Goddard, in the EFTA report, *National Settlement Strategies: A Framework for Regional Development* (1975) has summarized this relationship, and its environmental implications, in diagrammatic form by classifying the occupational characteristics of cities in a hypothetical urban system *(Fig. 2)*. The diagram suggests that small and remotely located urban units are appropriate only for production plants or production control func-

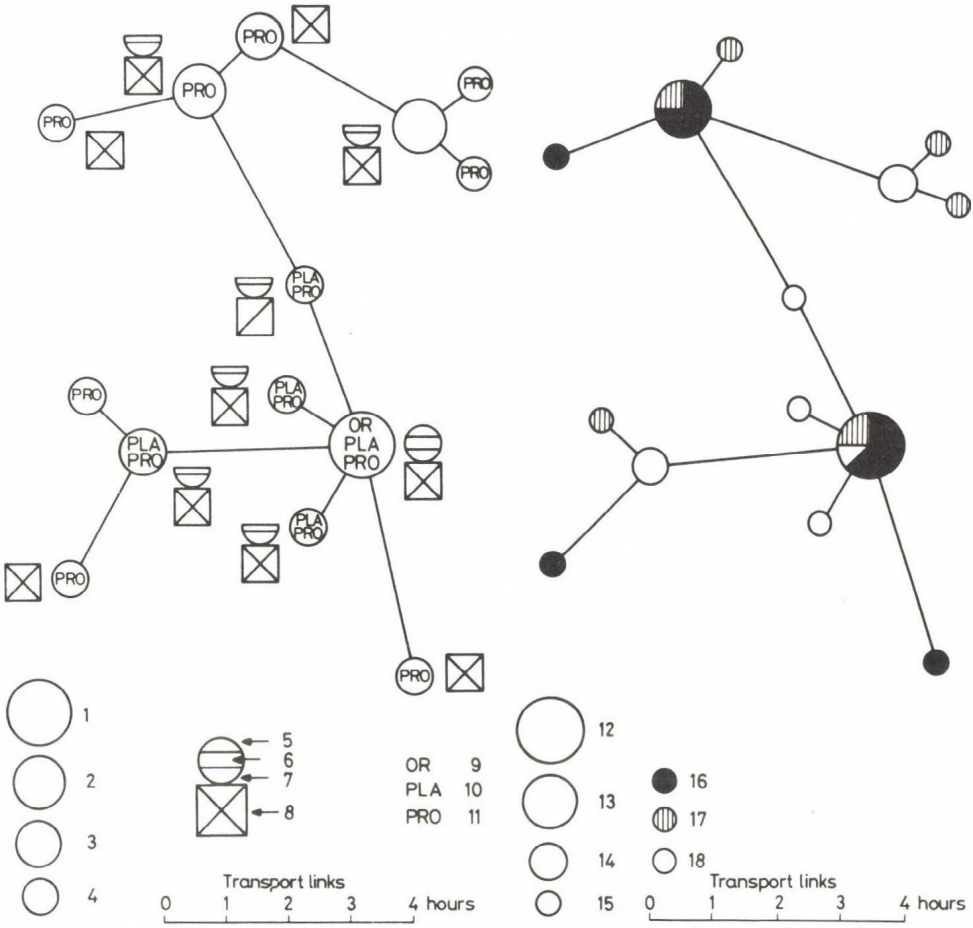


Fig. 2. A theoretical classification of urban contact environments for a hypothetical system of cities (*source:* EFTA 1975, pp. 106–107)

Rank/size of urban labour markets

1 = national (large); 2 = sub-national (large); 3 = regional (intermediate); 4 = local (small)

Structure of organizations

5 = decision; 6 = administration; 7 = production control; 8 = production

Decision processes

9 = orientation; 10 = planning; 11 = programmed

Rank/size of urban labour markets

12 = national (large); 13 = sub-national (large); 14 = regional (intermediate); 15 = local (small)

Relative distribution of households according to assess to employment opportunities and social amenities

16 = low level employment and pure social provision; 17 = moderate range of employment and social provision; 18 = high level employment opportunities and social amenities

tions. Intermediate-sized and well-connected urban units are often regional centres and may, therefore, contain both administrative and productive units with the former possibly carrying out planning functions. However, intermediate ranked units a long way from the capital or in regions with an oversupply of such centres may not have the status of regional centres and therefore contain only production plants or programmed functions. The national capital, because of its size can accommodate all units of an organization embracing all administrative functions. However, the environment of the metropolitan city is not suited to all of these types of business activity. Thus routine production and administrative units performing programming and planning functions can be relocated to small labour markets up to two hours travel time from the capital. In contrast, the control units and orientation functions need to remain heavily concentrated in the capital.

The mix of activities present determines the occupational structure, and through wages and salaries, the rewards for labour, the socio-economic environment of cities. Only the largest cities have a complete occupational profile by virtue of their attractiveness to production, production control, administration, and decision-making *(Fig. 2)*. The residents of these largest cities have access to the best jobs which typically involve the allocation of men and money at the highest level and planning growth and development, tasks which carry the highest rates of remuneration. Conversely, small centres offer the most restricted range of job opportunities as they are primarily attractive to manufacturing and to level III production control functions. Income differentials within such centres are more confined, and social mobility tends to be equated with geographical mobility as personal advancement is contingent upon migration to larger labour markets which offer a wider range of better jobs. Middle ranking centres have a more balanced occupational profile though they lack any number of top jobs. As a consequence of intermediate size however, they offer an attractive balance between urban amenity and access to the countryside so avoiding the worst excesses of pollution and congestion experienced in larger centres.

CORPORATE STRUCTURE AND URBAN GROWTH

Having outlined the major changes in the structure of firms it is now possible to examine the relationship between corporate structure and urban growth in historical terms. The growth of cities in the first half of the nineteenth century, in Geddes 'paleotechnic era' (Geddes 1915) was therefore the result of the build up of workers on the production side of industry in factory firms. This process was documented in great detail by Weber (1899) who identified the decade 1821–31 as the period of maximum urban growth. He observed that eight of the twelve biggest cities in 1871 owed their largest decennial increase to causes at work in that period and that with the exception of Bristol, all were manufacturing centres in the north. Weber's general conclusion was that this period represents in England a typical instance of the effect which the growth of manufacturing and the development of the factory system, or system of centralized industry, has upon the distribution of population.

A subsequent stimulus to urban growth was provided by the expansion of administrative jobs generated by the emergence of multi-department firms. The greatest increase took place in the number of 'commercial clerks' in industry who performed

the basic and routine tasks of recording, copying, book keeping and filing, these workers accounting for 1·0% of the total labour force in 1851, but 3·9% in 1901 (Reader 1966). Hall (1966) refers to the coincidence of minor inventions including the lift (1857), steel frame skyscraper (1883), electric light (1880), telephone (1876), and carbon paper (1890), which created the working environment and basic technology of the office, but modern aids such as typewriters, comptometers, adding machines, and payroll listing machines were not widely available until the 1930's (Hannah 1976), so that information gathering and processing in the nineteenth century office was a highly labour-intensive activity. The most important consequence of the growth of clerical occupations was that it was concentrated in the biggest cities and it was in the decade 1870–1880 that the development of city centres as specialized commercial areas first became apparent in the U.K. London gained disproportionately because of its attraction both as the commercial centre of Britain and the world but the benefits applied to most large cities. In fact with comparatively few firms engaged in a national scale of business operations, the first two decades of the twentieth century represent the heyday of the regional economy with provincial cities such as Birmingham, Leeds, Manchester, Newcastle, Cardiff and Glasgow providing low level management services for the surrounding area.

Despite the impressive performance of the post-war growth industries of motor vehicle manufacture, electronics, engineering, and paper, printing and publishing and their contribution through increases in employment in production to the prosperity of cities in the South East and Midlands, office employment has remained the most important factor in urban growth in the last fifty years. As Britain has evolved from a production to a managerial economy, so the requirement for executive and administrative skills has increased. Figures for England and Wales show that between 1951 and 1961, while total employment increased by 7%, employment in office occupations increased by 40%, and that by 1961, office workers accounted for 19% of all workers. Moreover, this growth was not merely confined to the service sector as 17% of those in manufacturing, 9% of those in construction, and 4% of those in extractive industries in 1961 were office workers. In fact, the net employment increase in the manufacturing sector over the period 1951–61 was virtually all in office jobs.

An important consequence of the big increase in multi-divisional national and multi-divisional international corporations which resulted from the merger and take-over activity of the post-war period was that most of this expansion took place in the highest level decision-making jobs. In England and Wales, while total office employment increased by 14·7% between 1961 and 1966, professional jobs increased by 20·6% and clerical jobs by only 11·8% (EFTA 1975). The occupational distributions resulting from this process have been mapped for functional urban areas in Britain in 1961 by Westaway (1974) in terms of location quotients. The location quotient compares each area's share of each occupation group to its share of all economically active males. Thus a location quotient of greater than 1·0 indicates that an urban area has more workers in an occupation group than one would expect from its share of all economically active males while conversely, a location quotient of less than 1·0 indicates that the occupation group is under represented in that area. Westaway's maps *(Fig. 3)* broadly confirm the previous arguments by outlining the basic contrasts in the occupational structure of British cities. As expected, professional and managerial (level I) occupations are heavily concentrated in the largest cities and especially in London

Fig. 3. The spatial distribution of occupation groups in Great Britain, 1961 (after Westaway 1974)

and the South–East, whereas production (level III) functions are more evenly spread throughout the country exhibiting many fewer cases of extreme under or over representation though with the highest concentrations in the old industrial centres of Scotland, Wales and northern England. Despite the distinctiveness of planning activities in the management structure of large corporations, however, their spatial separation from decision-making functions in British industry appears to be incomplete; administrative jobs are closely associated with professional and managerial functions in that their spatial distributions are similar, though they are spread more widely. There is yet, therefore, little evidence of any pronounced concentration of administrative occupations in intermediate size cities. Indeed the growth of the largest cities, especially London, up to 1961, is largely a function of their attraction of both professional and managerial, and administrative occupations.

This distribution of control functions in industry provides an important explanation of shifts in urban growth in the immediate post-war period. Eighteen of the twenty biggest metropolitan areas recorded major gains of population in the 1951–61 period though nearly three-quarters of this growth was concentrated in the South–East and Midlands. Conversely, of the twenty urban areas showing the poorest growth records in the 1951–61 period, the North–West registered eleven, and Yorkshire, Humberside, five (Hall *et al.* 1973, p. 159). Although only a third of all workers were employed in professional, managerial and administrative occupations in 1971, the distribution of these jobs is a major factor accounting for the pattern of urban growth in Britain in the post-war period.

THE URBAN FUTURE

The argument so far has been that increases in the size and complexity of business organizations lead to the emergence of production, production control, administration, and decision-making as major functions in industry. The locational requirements of these functions, and in particular, the communications needs of management, give rise, over time, to distinctive geographies of production, production control, administration and decision-making so that the size and socio-economic environment of urban centres will be largely determined by the mix of activities present in individual cities. On account of the comparatively recent emergence of the multi-divisional national corporation there is as yet an incomplete functional and spatial separation of orientation and planning activities in management so that much of industry remains both administered and directed from large multi-purpose offices occupying city centre locations. The previous analysis suggests however that important changes in the direction of urban growth may be expected in the next ten years as administration and decision-making emerge as organizationally separate and geographically distinct aspects of corporate structure.

Such developments appear more likely in view of the scale of current changes in the occupational structure of employment in British industry. For example, the most recent census statistics, for the decade 1961–71, reveal a further massive increase of 476,500 jobs in professional and managerial occupations (24·52% rise) compared to a decline of 768,110 jobs in manual occupations (9·04% fall) so that five million economically active males are presently engaged in management activities whether at

the decision-making or administrative level *(Table II)*. Shifts of this magnitude mean that urban growth will be increasingly determined by decisions taken by firms as to where to locate their non-production activities. If the judgement of firms is that city centres still represent the best locations for both administrative and decision-making functions, then further growth, especially of cities in the South–East, can be expected. Conversely, the growing numbers of decision-makers in industry, coupled with the increasingly specialist nature of the orientation function could serve to displace many lower level administrators so contributing to the dispersal of office employment. In view of the locational requirements of business administration, this latter scenario implies the increased growth of intermediate size centres at the expense of the largest cities.

Although the number of office workers in central London stabilized during the 1961–66 period, pressures for the dispersal of office employment have increased significantly during recent years. One stimulus is financial and is a reflection of the escalating costs of maintaining city centre office activities whether measured in terms of rents, or in terms of the commuting and housing costs bourne by employees. Other powerful inducements to movement are provided in the context of office location policy which since 1963 has had the aim of reducing office employment in the South–East and Midlands. The strategy is designed to work through both coercion and example in that office developments over a specified size require an Office Development Certificate while the benefits of dispersing office employment from central London are publicized by the Location of Offices Bureau, established in 1963, and are demonstrated by the government through the dispersal of its own civil servants. Contrary to the broad policy objectives, however, 42% of the 98,000 office jobs which were decentralized during the 1963–71 period remained within Greater London and 75% of moves were less than 60 miles from the centre of London (Rhodes and Khan

Table II. Changes in occupation of economically active males in England and Wales, 1961–71*

	1961		1971		Change 1961–71	
	Number	Per cent	Number	Per cent	Number	Per cent
Professional and managerial	1,942,770	13·26	2,419,270	16·79	476,500	24·52
Administration	2,415,790	16·49	2,547,970	17·68	132,180	5·47
Manual	8,492,220	57·97	7,724,110	53·61	−768,110	−9·04
Other	1,798,300	12·28	1,716,610	11·92	− 81,690	−4·54
Total	14,649,080	100·00	14,407,960	100·00	−241,120	−1·64

*Occupation categories derived from Registrar General's Socio–Economic Groups:

Professional and managerial occupations:	SEG 1–4
Administrative occupations:	SEG 5·6
Manual occupations:	SEG 8–11
Other occupations:	SEG 7·12–17

Source: Census 1961 (England and Wales) Occupation Tables, Census 1971 (Great Britain) Economically Active Tables Part IV, (10%).

1971). Of the top 30 receiving units, none were in the development areas, and interviews with managers involved in dispersal revealed that they deliberately avoided urban units which contain a high proportion of manufacturing employment. Significantly, however, most dispersals were to small or medium size urban units which had a particularly desirable residential image.

Reinforcing these financial and government pressures are developments in the technology of business communication which might make wholesale dispersal of office employment a practical possibility. A wide range of telecommunications services is now available which provides for easy and cheap transmission of audio, visual, digital, and graphical information which might enable "blocks of work" in business management to adopt highly flexible patterns of location (Clark 1975). Such services include teleprocessing systems (such as the Post Office Datel Service) which provide remote connection to computers, and facsimile transmission and remote writers, as well as private wires, the telephone, and telex (Smith 1975) *(Table III)*. Particularly important for management functions are teleconferencing systems which link several participants in two or more locations. The most sophisticated, and the only service commercially

Table III. Current and expected business telecommunications services

Service	Description	Status
Telephone	Two-way audio link via public switched network	Initiated 1876. Virtually complete penetration of business market
Private wires	Private rental of telephone lines for exclusive use	13,600 private wires rented 1974
Teleprocessing	Remote connection to computers	Widely available
Conference call	Telephone calls linking more than two locations	Commercially available
Loudspeaking Telephone	Audio-only teleconferencing system without speaker identification	Commercially available
Remote Meeting Table	Audio-only teleconferencing system with speaker identification	Pilot network of 11 terminals being operated in UK by Civil Service
Confravision	Audio-visual conference link between purpose built studios	Available between 5 UK and 3 European cities
Telex	Public message service using typewriter-like terminals in customer premises giving both national and international access	50,000 terminals currently in use
Facsimile Transmission	Copies of documents produced at remote locations by transmission of signals over telecomms links	Several types of terminal commercially available
Electrowriter	Two electronic 'pens' linked allowing writing at one location to appear simultaneously at the other	Operational

available is the Post Office's Confravision which currently operates from studios in London, Birmingham, Bristol, Manchester, and Glasgow. Each studio is equipped with a monochrome closed circuit T.V. for up to five people while a further camera can be used to display objects and documents. The aim is to create an interactional environment in which conferences can be conducted without the need for participants to travel to a central meeting place.

Some important questions surround the implications of these developments for the organization and location of management functions. The University of London Communications Studies Group have approached the first of these problems by surveying the reason for and the nature of business meetings which can then be used as a basis for estimating the total amount of substitution afforded by advanced telecommunications. These substituted modes are then allocated to the major telecommunications services and in this exercise the Group draw heavily upon the results of their psychological research into the usefulness and acceptability of different technologies. One of the main findings that has bearing on this allocation is that the two most important reasons for the choice of meetings are the need for a number of people to take part, and the need to consult, exchange and sign documents. To date, the findings of three separate estimates of telecommunications substitution based upon surveys of business communications, have been reported, with broadly similar results (Reid *et al.* 1973; Pye *et al.* 1973; Connell 1974). The general conclusion is that up to 66% of all business meetings could, in fact, be conducted by telecommunication without significant loss of effectiveness; 45% of meetings it is estimated could take place using narrowband 'audio only' links such as telephone, telex, facsimile transmission or the Remote Meeting Table, while a further 21% could be replaced by broadband teleconferencing systems such as Confravision, which involves both an audio and video link up *(Table IV).* Despite the technical sophistication of advanced telecommunications, and their projected use by experienced and highly qualified business managers, however, 34% of all meetings it is predicted cannot be effectively substituted and would continue to be conducted on a face to face basis. Such meetings involve negotiating and decision-making and so typically involve managers engaged in the highest level orientation activities.

Developments in management organization combined with the communications implications of advanced telecommunications point to important changes in the structure of firms, and hence of urban growth, over the next decade. A major consequence of the continued expansion of management activities will be the increased separation of level I decision making and level II administration as distinctive and self-contained activities in management. Comparatively few of the contacts maintained by decision-makers will be substituted by telecommunications since they are mostly of a non-programmable nature involving bargaining and negotiation and the establishment of trust between individuals so these highest level management functions will continue to be attracted to those city centre locations which offer the best opportunities for the maintenance of face-to-face dialogue with advice and information sources in research, government, and industry. In contrast, those personnel not normally concerned with contacts outside the firm, and this include the majority of level II administrators, will be dispersed to low cost but accessible locations linked to the centre for intra-firm communication purposes by a number of advanced telecommunications services. What is envisaged is the organizational and geographical split

Table IV. Estimates of proportion of meetings which could be conducted by telecommunication

Name of survey		Medium of communication		
		face to face	audio-video ('wideband')	audio-only ('narrowband')
Contact Record Sheet		34%[1]	23%[2]	40%[3] (+ 3% by telephone)
DACOM	definite	0%[1]	10%[2]	12%[3]
	tentative	37%[1]	12%[2]	29%[3]
	Total	37%	22%	41%
GSG 1973 Survey	definite	17%[1]	3%[2]	24%[3]
	tentative	13%[1]	14%[2]	28%[3]
	Total[4]	30%	17%	52%

Notes:

[1] These meetings could not be conducted by telecommunication without probable loss of effectiveness.

[2] These meetings could also be conducted face to face but could not be conducted by audio-only communication without probable loss of effectiveness.

[3] These meetings could also be conducted face to face or by audio-video telecommunication.

[4] These totals do not sum to 100% because of rounding errors.

Source: Christie and Elton (1975).

between decision-making and administration; decision-making activities retaining their city centre locations but administration being drawn to intermediate size and small urban centres which offer high quality residential and amenity environments, in combination with reasonable access to the centre for the occasional meeting.

Important changes in the location of top level decision-making functions may also arise as a consequence of the absorption of firms into multi-divisional multi-national corporations. In 1968 it is estimated that some 2000 British firms were foreign owned of which 50% formed part of United States corporations (Hodges 1974). Significantly, foreign ownership is particularly strong in key sectors such as distribution, mechanical engineering, chemicals, paper and printing and the overall involvement is such that the location of 40% of total U.K. manufacturing employment is determined by foreign decision-makers. The criteria considered by these managers can best be appreciated by adopting a firm-based perspective upon the world economy. Viewed from the corporate head office in New York, the British associates and subsidiaries are merely one element in a wider European operation which involves many plants producing many products in many places. Each production division will have its head office, normally in the largest centre in the country, but there will be only one office responsible for coordinating and controlling operations across the whole region. Again, advanced telecommunications technologies give rise to a wide range of possible locations for this key activity but the constraints imposed by the need to be placed close to centres of political power, research, and business intelligence effectively limits

the choice to one of the major European capitals, so that London could well lose some of its highest level decision-making functions to Paris, The Hague, Bonn or Brussels.

Such changes of corporate structure and the relocation of industrial decision-making and control imply a reversal of the established pattern of urban growth. They point to the decline of the largest cities as a consequence of the long-term reduction in the number of jobs in production and the loss of jobs in management, especially at the administrative level, alongside the growth of those intermediate and small centres which act as receiving points for dispersed management employment. Whereas the expansion in office employment in recent years chiefly benefitted the urban cores of the largest cities, so the detrimental effects of any relocation of that employment will be most strongly felt in those cities. Evidence of this trend is already apparent in the changing fortunes of British cities as the L.S.E. Urban Charge Project has shown (D.O.E. 1976). In the period 1951–61 there was a positive relationship between absolute change and city size with the largest cities in 1951 recording the greatest absolute population and employment gain in the next decade. The period 1961–71 was in contrast characterized by an inverse relationship with the larger cities in 1961 recording the smaller population and employment increments. The reversal of fortunes was such that London's gain of 263,571 jobs between 1951 and 1961 was almost completely wiped out by its loss of 243,496 jobs between 1961 and 1971, the other main losers in the 1961–71 period being Manchester (84,220 jobs), Glasgow (59,733), Liverpool (34,120), Leeds (24,010) and Sheffield (15,600). Gains however were recorded by intermediate size cities in the South such as Portsmouth (32,120 jobs), Southampton (30,020), Bristol (25,470), Basildon (25,370), Oxford (25,130) and Reading (19,690) so that since 1966 there has been a significant shift in the pattern of urban growth away from the largest cities and in favour of intermediate sized and smaller centres.

In this way, urban Britain in the year 2000 will bear only a superficial resemblance to urban Britain today. The inertial momentum provided by cumulative investment in basic infrastructure will ensure the continuation of the major cities as centres of population although with a much changed role, producing manufactured goods and providing some decision-making functions but with a comparative absence of employment in administrative occupations. London will be a major exception by virtue of its control functions for British, European, and some multi-continental corporations, but the scale shift effects associated with the multi-national context of industry will downgrade the relative importance of the decision-making responsibilities of the other major cities so that Birmingham, Glasgow, Liverpool, Manchester, Leeds, and Sheffield will discharge an increasing number of branch office and a decreasing number of divisional head office functions. An important characteristic of all these centres, however, will be the growing divergence of rich and poor as a result of the polarization of job opportunities giving rise to a range of housing, transport, education, and welfare provision problems.

Intermediate centres, the main beneficiaries of administrative decentralization, will become the major growth points in the postindustrial managerial economy, characterized by a preponderance of middle income middle status group. Examples of such centres will be found in all regions but with a marked concentration in the South, West, and East Anglia. The process of managerial change and relocation, which has been the central focus of this paper, will have few implications for the old industrial

cities of the North, Wales, and Scotland. They will remain the dominant centres of manufacturing activities, their prosperity and expansion depending upon their level of employment in 'growth' industries. In summary, the urban system will be organized around a set of specialized production, production control, administration and decision-making centres distributed on a size and regional basis. This pattern is projected as the urban product of long-term changes in corporate structure.

REFERENCES

Chandler, A. D. and Redlich, F. (1961): Recent developments in American business administration and their conceptualisation. *Business History Review,* Spring, pp. 103–128.

Christie, B. and Elton, M. (1975): Research on the differences between telecommunication and face-to-face communication in business and government. Department of the Environment Working Group on Telecommunications Impacts Review, Paper No. 3 (Mimeo.).

Clark, D. (1975): The spatial impact of telecommunications: a review of some empirical research and policy implications. Department of the Environment Working Group on Telecommunications Impacts Review, Paper No. 6 (Mimeo.).

Connell, S. (1974): The 1973 office communications survey. University of London Communications Studies Group, Report No P/74067/CN (Mimeo.).

D.O.E. (1976): *British Cities: Urban Population and Employment Trends 1951–71.* Research Report, No. 10.

EFTA (1975): *National Settlement Strategies: A Framework for Regional Development.* Geneva, EFTA.

Geddes, P. (1915): *Cities in Evolution.* London.

Hall, P. (1966): *The World Cities.* London, World University Library.

Hall, P. *et al.* (1973): *The Containment of Urban England.* Vol. 1. London, Allen and Unwin.

Hannah, L. (1976): *The Rise of the Corporate Economy.* London, Methuen.

Hart, P. E., Utton, M. A. and Walshe, G. (1973): *Mergers and Concentration in British Industry.* Cambridge, University Press.

Hodges, M. (1974): *Multinational Corporations and National Government.* London, Saxon House.

Hymer, S. (1972): The multinational corporation and the law of uneven development. In J. N. Bhagwati (ed.): *Economics and World Order.* London, Macmillan.

Pye, R. *et al.* (1973): The description and classification of meetings. University of London Communications Studies Group, Report No. P/73160/PY (Mimeo.).

Reader, W. J. (1975): *Imperial Chemical Industries: A History.* London, Weidenfeld and Nicholson.

Reader, W. J. (1966): *Professional Men: The Rise of the Professional Classes in Nineteenth Century England.* London, Weidenfeld and Nicholson.

Reid, A. A. L. *et al.* (1973): Communications Studies Group: Final Report September 1973. University of London Communications Studies Group, Report No. P/73273/EL (Mimeo.).

Rhodes, J. and Kahn, A. (1971): *Office Dispersal and Regional Policy.* Occasional Papers No. 30, Department of Applied Economics, University of Cambridge, C.U.P.

Samuels, J. M. (1965): Size and growth of firms. *Rev. Econ. Studies,* 32, pp. 105–12.

Shannon, H. A. (1931): The coming of general limited liability. *Economic History,* 2, pp. 31–46.

Smith, D. M. (1971): *Industrial location: An Economic Geographical Analysis.* New York, Wiley.

Smith, R. C. (1975): Telecommunications Technology: Current Trends. Department of the Environment Working Group on Telecommunications Impacts Review, Paper No. 1 (Mimeo.).

Thorngren, B. (1970): How do contact systems affect regional development? *Environment and Planning,* 2, pp. 409–427.

Utton, M. A. (1970): *Industrial Concentration.* Harmondsworth, Penguin.

Weber, A. F. (1899): *The Growth of Cities in the Nineteenth Century.* Ithaca, Cornell University Press (reprinted 1963).

Westaway, J. (1974): Contact potential and the occupational structure of the British urban system 1961–66: an empirical study. *Regional Studies,* 8, pp. 57–73.

URBAN SETTLEMENT PATTERNS AND AMENITY IN NORTH EAST ENGLAND

By
W. B. FISHER
United Kingdom

As one of the very first areas to undergo industrialization, with phases of rapid growth alternating with periods of decline and decay, urban settlement patterns in North East England show especial complexity. Earliest growth, from the late 18th century onwards, closely reflected the expansion of coal mining, with later development during the nineteenth century of the iron and steel, shipbuilding and heavy and mechanical engineering industries. All these activities underwent considerable decline after 1918, then a temporary phase of stimulus and growth during the Second War years, following by renewed decline. At the same time however, development of a heavy chemical industry (including glassmaking, and petrochemicals), partially offset this decline mainly in coastal areas; and the final phase has been a selective growth of small-scale 'light' industry in certain areas: a single factory, a small industrial estate, or a cluster of diverse manufacturing activities related only by their common reliance on, in the main, female labour.

A programme of pit closures, initiated as early as 1918, but especially extensive after 1950, and the decline of railway engineering (Durham was of course the home of railways, and there are still the original Stephenson workshops) tended increasingly to make the settlement patterns developed during the 19th and early 20th centuries increasingly obsolete. Parallel with this was an awareness that the region had fallen behind most of England in social infrastructures, of the kind referred to by Coates and Rawstron (1971) and others: housing, often built initially to poor standards, had undergone decline due to lack of repair and upkeep, with at the same time, much overcrowding and unduly high rates of occupancy. Pollution, both of the atmosphere and of streams and rivers was widespread, due to coal washing, chemical effluent and vapour from chemical combustion, and a heavy concentration of smoke from industry and the very dense railway network. Colliery waste heaps, some burning and intractable, up to a hundred metres or more high, were common features of the landscape.

Three types of coal mining settlement could be recognized:

(i) where pits were small, and short-lived, as in the north west and south west of the Durham coalfield, houses were often almost randomly scattered or in small clusters, and often of hasty unplanned construction. When one pit closed and another opened, new houses would be rapidly put up near the new site, as topography allowed. Overall, this produced a series of straggling, irregular settlements.

(ii) where the pits were small and also widely scattered, as on the western margins of the coalfields, housing similarly tended to be dispersed, hamlets at most. The same applies to the lead and fluor mining that were characteristic of 19th Century Weardale and Northumberland.

(iii) in the east, towards the coast, the coalfield is often concealed (as in Durham, where it is covered by Magnesian Limestone). Pits were larger, with a much greater investment of capital; and miners' houses were also in larger units, with a planned layout in some cases, and a wider extent of ground occupied. In sharp contrast to the mining areas of the west, some pits in the east have been in continuous operation for over a century, or even a century and a half; so that housing, even if initially randomly placed, has often been renewed, with infill over the years to produce compact units of larger size often clearly differentiated by expanses of open countryside from neighbouring settlements.

ADMINISTRATIVE UNITS

Before discussing settlement in more detail, it is necessary to consider the administrative basis of the region, since this has a close bearing upon finance and local planning policies. However, "perceived" and defined (field research has shown interesting variations over what even local people regard as "The North East") the area as defined for the present study consists of two 'historical' counties, Durham and Northumberland, with the parts of the North Riding of Yorkshire that lie to the north of the Cleveland escarpment, making up the southern section of the Tees lowland. Included with these counties were various County Boroughs: Newcastle upon Tyne, Gateshead, Tynemouth, South Shields, Sunderland, Hartlepool, Darlington and Teesside (so named after 1968 and formed by amalgamation of Middlesbrough, Stockton, Thornaby and adjacent townships). In 1974 a major reorganization took place, as the result of which two new major units were formed: the Metropolitan District of Tyne and Wear, which includes Newcastle, Gateshead, the riparian areas of the lower Tyne, and Sunderland. The other new County is Cleveland, that takes in lower Teesside and the coastal industrial areas to include Billingham and Hartlepool. Northumberland has lost a few boroughs on north Tyneside to Tyne and Wear but is otherwise unchanged; the lower Tees basin is now one unit, with the influence of the North Riding encing at the Cleveland Hills – North Yorks Moors area. Greatest effects of the 1974 boundary changes have been felt by Durham County, which previously included the municipal boroughs of south Tyneside and the coastal areas where these were not County Boroughs. In compensation Durham County has taken in an unwilling Darlington; and also the southern part of the upper Tees valley previously in Yorkshire, thus gaining, as one disgruntled County official put it "a lot of sheep", but losing heavily populated and industrialized areas on south Tyneside. This has reduced the rates income of Durham quite considerably, but enlarged its area: the effects on planning are thus significant. Unfortunately there has been no national census since the formation of these new territorial units, and as the changes are on a moderately important scale, this inhibits a detailed examination of certain demographic aspects.

It remains to particularize the socio-political situation of these four units. Northumberland is in the main a rural area, with a few interior market centres, a string of coastal towns that have a limited seasonal tourist activity, and an outer segment of the coal basin that lies to the south east and is now mostly included within Tyne and Wear County. In politics Northumberland is divided between a small radical group from the industrial zone of the south east, and the larger therefore dominant con-

servative, rural interior, where much of the area is held by wealthy landowners, chief of whom is the Duke of Northumberland.

Tyne and Wear is essentially a heavily industrialized urban area involved in shipbuilding (the Tyne and the Wear are the headquarters of the newly nationalized shipping council, and production of ships now greatly exceeds that of the Clyde), heavy engineering, glass and chemicals. In politics it is very much of the left (President Carter recently commented humorously on its being one of the few 'safe' areas to which Prime Minister Callaghan could bring him as a visitor), and its problems are very much those of decaying inner urban areas and declining employment. Durham County, now almost cut off from the coast (special representations were made in 1974 to retain a token small segment) is predominantly industrial – partly mining, and partly smaller, newer 'succession' industries that have been started with government and local subsidies to provide employment. Most of West Durham (which is in effect the two valleys of the Tees and Wear since the intervening plateau is almost uninhabited) is rural; and thus, whilst Northumberland is mainly rural but with some industry, Durham is chiefly industrial but with an increasingly rural element located mainly in the west, but also in the south east, which is now also being taken over either by commuters, or as 'second homes' by the urban populations further east. In politics, Durham has been consistently socialist for over fifty years. County Cleveland, again an industrial strip mainly centred on the lower. Tees, has in some years since 1900 been the fastest growing industrial region of Britain. Its main activities centre on chemicals, and now, with the construction of an oil terminal from the Scandinavian fields of the North Sea, oil refining and petrochemicals. As well, it has a very large iron and steel complex. Billingham, a 'company town' par excellence, where almost 75% of the economically active population works directly or indirectly for Imperial Chemical Industries Limited is an extreme case, but Redcar, the designated centre eventually for Britain's major new steel plant, is already somewhat similar, and could evolve like Billingham. The higher proportion of technologically sophisticated economic activity, with much capital involved in relation to workforce, means that Cleveland includes more of a 'liberal' intellectual middle class, which has just voted in a conservative majority. Cleveland's rateable value per head of population is almost 50% higher than that of Durham.

In the main, however, as an area of extensive industrialization, the North East is overall strongly socialist in politics. This, as locals are now slow to point out, has disadvantages: when the Left is in power in London, the North East tends to be taken for granted; when the Right, as an 'impossible' area that can be 'written off'. The North East has seen stirrings of the idea of regional devolution ("we should be next after Wales") and this led to a group of Socialist MP's committing the unthinkable in recently leading a parliamentary rebellion and voting against a Socialist government. Hence the recent Devolution Bill was lost, but the idea of more regional autonomy persists, particularly in N.E. England.

CONTEMPORARY PROBLEMS

At the present day, there are three principal 'clusters' of problems. The first arises from the 20th century economic decline in much of the north east, which has led to an outward migration that in the western coal field areas has amounted to 1% per

annum since 1961. It is strongly selective of younger people, leaving in turn a high proportion of elderly, who tend within the region to be very attached to strengthening the remaining family links and continuing to reside in their locality: they thus become very much the opposite of mobile and migrant, and will undertake increasingly long and complex journeys to work whilst employed, and then prefer to remain in the same locality on retirement. The phenomenon of industrial Lancashire – migration to the coast on retirement, is nothing like so widespread in the North East: the Northumberland coast remains largely empty, and almost all of the former Durham – North Riding coast (Tyne-Wear and Cleveland now) is industrialized: there are few counterparts of Lytham St. Annes, Cleveleys or Morecambe on the north east coast, other than possibly at Whitley Bay, which is mainly a commuter town. A pattern of migration to a new centre of employment has thus built up: many former mining centres still retain a population that works elsewhere. For example, Tow Law, a town located at 300 m altitude on a bleak hill ridge lost its iron smelting plant, and now has very little local employment, but it retains a sizeable population, and is far from being a 'ghost town'. Durham, a town of only 28,000, draws in a daily commuting work force of 8,000 from neighbouring pit villages – though this is a special case, since many work either at a large prison, a government department on a national scale, or within various educational establishments.

The third problem is related to quality, availability and spatial distribution of housing. We have already noted the basic factor involved: persistence of poorly built and badly located survivals from the earlier Industrial Revolution. Much effort has gone into attempts to improve the situation: re-habilitation of housing stock where possible (this is something of a new phenomenon of the 1970's); replacement by new buildings on green-field or cleared urban sites, which has been by far the most common; and the development of new towns. There are no less than five such new towns: Cramlington, Killingworth, Peterlee, Washington and Newton Aycliffe – a high concentration within an area only 60 km from north to south. As in many other parts of the heavily urbanized Western world, there is a very marked tendency for the suburbs of the larger towns to accrete and expand. As the North East has very few Asian or West Indian immigrants there is no racial factor involved, but purely an economic one related to amenity – a newer house on the periphery of a large town is much preferred. This extension of city area has become very important, almost critical, in the Tyneside – Wearside area; and the creation of New Towns in the region was largely justified because it was urged that they would control and obviate growing urban sprawl, which had been recognized by the 1960's as the most dynamic element in the settlement pattern of the region.

Attention has been given to the problems of settlement in the north east: it is also necessary to mention several special local advantages, which to some extent mitigate the difficulties experienced. The first advantage could be called topographical. The North East is an eastward-dipping *cuesta,* heavily eroded by rivers, and in the recent past by glaciation, which has also led to lowland deposition. This means that there is a good deal of topographical variation on a small, local scale: valleys; deep, open, gorgelike; extensive rolling plains; varied hill country; and a coastline that is partly high and bold, partly flat and shelving. This, together with the small scale of settlement often once related to mining, means that except in the largest cities (which in themselves are not enormous) there are open spaces, and an irregularity in building

pattern – even Newcastle has managed to retain its very large, open 'Town Moor'. Unlike, for example, South Yorkshire or South Lancashire, or the northern Black Country of the English Midlands, there is relatively little of the continuous built up pattern on a flat plain that characterizes all these three regions. This means in turn that agriculture interpenetrates closely into many industrial areas; and in other areas such as the 'denes' (short, deeply incised valleys near the coast) topography is too steep for building, and some have been preserved (in part, as sites of environmental and scientific interest).

A second advantage is relatively good communications. From the early 18th Century, economic life has been 'conditioned' to moving bulky minerals or manufactured goods, and enormous effort has gone into banking and bridging. It is no accident that the railway and the turbine were invented in the north east; and the entire region is crossed by mineral tracks, originally animal-operated, then by rail, now sometimes converted to motor transport or tourist walks. The first stone 'railway' bridge in the world (Causey Arch 1727) is now preserved as a tourist amenity. Modern road building, partly initiated in the 1930's as relief for the unemployed, has continued in the 1960's; and though there is still congestion in some town centres – notably Middlesbrough, the road network is good, with relatively light traffic densities due partly to the lowest level of car ownership in England, contrasting strongly with conditions, say, of S.E. England.

The Counties of the North East 1975

Counties	Population (1975 est)	Area (hectares)	Total rateable value (£)	Rateable value (£) per inhabitant
Cleveland	565,600	57,000	68,642,000	121
Durham	610,900	241,000	51,482,000	84
Northumberland	285,700	497,000	26,480,000	93
Tyne and Wear	1,187,500	53,000	116,016,000	98

AMENITY AND ENVIRONMENT IN THE NORTH EAST SINCE 1950

Major tendency over the last quarter-century has been the increasingly selective channeling of capital investment, both public and private, into specific locations, with consequent witholding investment in other areas. The second highly significant evolution has been increasing emphasis on private sector housing; whilst the third feature has been a policy shift towards expansion of owner-occupation, involving (since overall financial resources have remained limited – in fact diminished) a reduction in building within the public sector. This is particularly well shown by the proposals made in 1977 by the Northern Region strategy Team as regards housing (it should be noted that the 'Northern Region' is not co-terminous with the North East, since it also includes Cumbria).

NRST Recommended Public Expenditure on Housing for the Northern Region (£m)

	1975/76 (estimate)	1979/86 (projected)	1985/86 (recommended)
Subsidies	72·9	76·1	41·0
Option Mortgage Scheme	8·0	10·8	15·0
Housing Association grants	7·4	18·7	19·0
Improvement grants	24·4	20·7	25·0

Source: (1977 N.R.S.T. Strategic Plan for the Northern Region Vol. 3 p. 34)

Prior to the recent channelling of funds into the 'private' sector, there had been principal emphasis on the development of New Towns on green-field sites. Aycliffe and Peterlee in (former) County Durham were developed following the New Town Act of 1946; the two in Northumberland (Cramlington and Killingworth) under the Town Development Act, and it is perhaps worth remarking that the chief development officer for Killingworth and also for a time for Peterlee later became a full-time lecturer on urban geography in Durham University. Washington (the original home of an ancestor of the first American President) was designated in 1964 as an urgent and specific attempt to counter massive unemployment; Peterlee was at first little more than an attempt to provide better housing for miners on a totally new site, rather than attempt piecemeal regeneration of older mining villages such as Easington. The three 'Durham' New Towns have recently been studied in detail, and the following observations based on sample surveys in 1974 summarize certain of the results obtained. Aycliffe and Peterlee clearly reflect the function of 'overspill': at Aycliffe 50% and at Peterlee 64% of the incomers were from adjacent areas, but only 30% at Washington; conversely, migrants originating from out of N.E. England were respectively 38%, 23% and 47%. Principal reason for moving was stated as 'better housing' at the first two towns, but 'other reasons' by those settling in Washington, who were chiefly designated as 'key workers' in sophisticated industry. Respondents to questions on quality and rent levels agreed strongly that "the New Towns had been successful in raising the quality of the region's urban environment", especially in Washington, but less so in Aycliffe; and in Aycliffe and Washington there was agreement that their own town had "high quality housing", whilst there was more dubiety in Peterlee. Less detailed studies have been carried out in Cramlington and Killingworth, but evidence there suggests somewhat diminished satisfaction as regards these two questions, particularly over Killingworth, which as compared with Cramlington is perhaps slightly more idiosyncratic in concept and design. It was also significant that whilst general satisfaction was expressed as regards the New Towns providing generally better quality urban environment and living quality, there was less agreement over the quality of their own individual house or flat, especially in Peterlee. There is one further significant difference: Aycliffe developed round a cluster of existing factories (the first of these manufactured the plastic 'bakelite'), and thus industry has always been close at hand, with no commuting to work for a substantial proportion of the inhabitants; the same is true of Washington. Miners form a sizeable group in all the other towns, though by no means a majority, and so there has been a good deal of daily migration out to work.

Industry has been attracted to Cramlington, Killingworth and Peterlee, but it came slowly and on a less developed scale, especially at Peterlee. These five New Towns have provided the greater proportion of new public sector housing in the North East: in (old) County Durham, between 1952 (when full data on comprehensive slum clearance became available) and 1972 some two-thirds of all 'public sector' housing built was to be found in the New Towns. The same is broadly true of Northumberland, but of course not so for lower Teesside, which has had no New Towns in its vicinity.

New Towns of the North East Houses/units completed: mid 1973

Towns	Public	Private	Population	Target population	Date
Aycliffe (1949)	6355	230	24,750	45,000	
Peterlee (1964)	6822	326	25,754	30,000	
Washington (1964)	4274	2170	35,900	80,000	1984
Cramlington (1963)	892	3693	21,500	62,000	1986
Killingworth (1963)	1360	654	7,000	17,000	1978

With sharply declining inputs of 'council housing' within the North East, as distinct from New Town construction, greater interest has centred upon private housing and the growth of Housing Associations. Private sector housing has developed chiefly round Teesside and in Northumberland, and one major factor has been the growth of a middle class, especially related to the petroleum and chemical industries, which is naturally the chief buyer in the private sector. Because of the prevalence of agricultural villages, some of which go back to Saxon times, often built round a green (which is a particular feature of the North East – Durham especially) there has been a great deal of improvement and infill of the older villages. Durham is notable in that many mining settlements did not take a new name, but used that from which the mines or others had migrated: thus we have for example, Cornsay and Cornsay Colliery; Esh and Esh Winning; Brancepeth and New Brancepeth; Trimdon and Trimdon Grange – the latter in each case being a later mining settlement. These mining villages are not on the whole attractive to modern settlement, but the other villages are. This also especially true of Northumberland, but here greater distances and remoteness has limited (though not inhibited) commuter colonization – instead, second homes are more usual here.

The recent decline in numbers of houses for rent (the reasons for which are too complex for mention now) has meant that there is increasing need of alternative approaches, and this has led to a growth of Housing Cooperatives. I must declare interest here as Chairman of such a Cooperative that is currently building in Hartlepool, Sunderland, Gateshead and Durham. My committee of 12 has no financial or political interest whatsoever, regarding our efforts wholly as social service, and we have access to cheaper loans and certain subsidies from central government through the national Housing Corporation. In return we offer our housing units to a 'mix' of applicants: elderly wishing to exchange a large house for a smaller; incomers to the region who are debarred by city council rules from access to council housing; deprived

problem, or one parent families; married students; 'key workers'. Other Housing co-operatives specialize in, for example, elderly or problem tenants. The relevance of co-operative building (including re-habilitation) to environmental amenity is that private architects are employed, and minimum cost standards are not necessary, as in council housing. Location and type of building can thus be varied to accommodate to a particular district.

PLANNING AND AMENITY

The sheer ugliness of certain parts of the North East, due to badly built and poor quality housing, pit wastes, quarrying, subsidence due to coal, lead, anhydrite and other mining (the Ruhr learned the lesson that N.E. England failed to apply – that of 'packing' waste underground) and pollution, has led to vigorous efforts to improve. Besides the desire to reclaim for its own sake, there is the knowledge that a derelict landscape is a disincentive to the implant of new industries, and a social charge in various ways.

Durham, with the greatest problem, has taken the lead here, and a rolling programme of improvement has now been under way for over 15 years, aiming at handling about 200 hectares per annum, at an annual cost of about £1 million. Land is cleared of derelict industrial buildings (chiefly pits) or housing, and either returned to agricultural use, or planted in grass and trees, or used again for building. A scheme of categorization was adopted by planners:

A settlements were expected to grow, *B* to remain static,
C to decline and then stabilize, and *D* to decline irreversibly.

About one-third of Durham's 370 settlements were classified as of *D* category: a wholly sensible and logical decision in abstract, but one which broke down in part over human elements. Quite a number of settlements were in effect abandoned and razed; but the policy of providing no further amenities or continuing infrastructures for *D* villages produced adverse reaction. Elderly people refused to move to newer settlements, and as property values slumped in *D* villages, individuals bought houses in them at trivial figures, improved them, and demanded re-categorization or better facilities without re-categorization. When the near-impossible occurred (Socialist Cabinet ministers who were incautious enough to visit certain *D* villages were physically attacked by the inhabitants) the *D* policy was quietly abandoned, and some limited improvement allowed. Here is an interesting example of sound but doctrinaire ideas breaking down in the face of irrational public sentiment, with strong and complex political 'overtones' of a very direct kind.

So far, the principal influences on settlement patterns have been identified. It remains to indicate how these have brought about change. First, it is undeniably obvious that a good deal of improvement, on a piecemeal scale, has taken place. Pollution has declined as the authorities and general public have become more aware of the situation. My own Department monitors SO_2 and grit concentration for the Durham area, and average values have fallen to 7 mg/100m^3 (suspended matter) and 9 μg/m^3 of SO_2 in the past ten years from former mean figures of 8 and 310, respectively. River water is slowly becoming clearer and fish are returning. The small-scale reclamation of pit working is now showing results, and the worst of the *D*

villages have disappeared. Town improvement exercises, based on network analysis techniques, have resulted in better housing, transport and shopping facilities: the former gloomy coal-basin of Crook-Willington, twenty years ago covered in a heavy pall of fumes from coke ovens, is one example of improvement. Much however still remains to be done, and perhaps the most intractable areas are now the centres of the three large cities – Newcastle, Sunderland and Middlesbrough, where large areas of substandard housing and low-grade industrial buildings remain. Newcastle has a varied record. Some of its new schemes are imaginative and successful, though like some other British cities, planning may have gone too far in destroying 19th century building that could have been rehabilitated – and the urge to create inner city motorways has possibly been too strong. The open spaces of cleared slum areas are also extremely difficult problems: unattractive to new building, either domestic or industrial, and allowed to sink into vandalized ruin at their periphery. This remains as the most intractable aspect.

One further trend is the appearance of a central 'corridor' of growth on a north-south axis from Newcastle through Washington and Durham to Darlington. This has developed partly as the effect of deliberate and strict planning – housing development is banned in parts of the west, and partly the result of improved communications: a new motorway, the Tyne Tunnel, improvements on the Great North Road (the old A1), and an improved main rail system to allow speeds up to 150 mph (240 kph). There is a marked zonation of settlement and activity: indeed there has been a formal proposal to designate the zone as a single 'linear city', that world extent from Newcastle to Darlington.

As a result, we now have in effect a zonation that covers much of the North East. From east to west, we can delimit first a coastal zone, of high amenity in the extreme north and south, but heavily industrialized at the mouths of the three rivers, now undergoing some improvement, but still lacking in first class environmental amenity. Then a zone of a few medium sized mining towns, commuter villages, and suburbs, where much has been done lately to re-plan and improve. Next, the linear corridor, as just described – an area free of housing stress and now even becoming a tourist area due to the historical monuments – Durham, Washington Old Hall, Lumley etc; succeeded to the west by an area of considerable regeneration from former squalor as the area of straggling pit villages. Finally, much of the west remains extremely rural, with some houses, especially in upper Weardale, becoming commuter areas and second homes.

Overall, it is certainly possible to reckon that the North East now has distinctly better housing overall than twenty years ago, though progress has been uneven. Flexibility in accommodating mobile, elderly, transient and socially handicapped groups is still however less than is required. Reference was made earlier to the differing political outlook within the four component administrative regions. Two points of view tend to prevail: there are those who believe that market forces should be invoked as the main solvent of economic and social problems relating to settlement and housing – with the corollary that private ownership and development are an investment goal. On the other hand, many regard housing as a social benefit, or service, with the system of the market wholly incompatible with housing policies and planning – housing is thus a consumption goal. Divergencies in planning policy arising from these opposed views have been sharp, but the effects have produced a complexity and

vagueness in settlement pattern. We have however in the North East been spared much of the monolithic housing that characterises outer Glasgow; and we have also managed to retain small 'green belts' in a way that London has not.

*

The writer wishes to acknowledge considerable assistance from Dr. R. Hudson, of the Department of Geography, Durham University, who has kindly made available as yet unpublished results of his research team's work on New Towns of the North East.

REFERENCES

Coates, B. E. and Rawstron, E. M. (1971): *Regional Variations in Britain.* London.
Northern Region Strategy Team (1977): *Strategic Plan for the Northern Region.* Vol. 3, London.
Dewdney, J. C. (ed.) (1970): *Durham City and Region.* Durham.

CONFLICT AND ITS IMPACT ON THE URBAN ENVIRONMENT OF NORTHERN IRELAND

By

P. A. COMPTON, R. C. MURRAY AND R. OSBORNE

United Kingdom

Ireland is unique in Europe in having experienced a declining population during the second half of the 19th and first half of the 20th centuries. The peak of over 8 million people was achieved in 1841, and although some recovery from the all time low has occurred, the 1971 population still numbered but 50% of the maximum achieved 130 years earlier. While the extent of the decline, brought about entirely by emigration, was greater in what is now the Irish Republic, Northern Ireland was also severely affected, and many areas now contain but a small fraction of the 1841 population maxima. Such a population history has vitally affected the settlement network of the Province, which, outside Belfast, is dominated by small towns in the range of 5 to 30,000 population, and dispersed rural settlement. As in Hungary the urban hierarchy is strongly primate, and the built-up area of Belfast contains over 600,000 people or 40% of the Provincial total. Belfast is also more than 9 times larger than the second city of Londonderry.

Northern Ireland is now in its eighth year of civil disturbance since 1969. The general background to the 'troubles' has generated considerable interest and academic research and is thus better understood now than earlier although interpretations still vary with individual perceptions, attitudes and sympathies rather than with more objective criteria. For this reason we do not intend to comment on these background factors but rather to concentrate on the impact of terrorism on the human geography of the Province. In particular we wish to consider the impact on retail patterns, residential segregation, housing, the location of employment and planning. Suffice it to say that the problem arises from a divided community – some would say two communities – split along ethnic and religious lines and with apparently irreconciliable national aspirations.

The impact of terrorism is most clearly seen on the fabric of the towns and cities of the Province. Since the beginning of the troubles there have been several thousands of bomb attacks on commercial property and most towns bear the resulting scars *(Table I).*

Table I. Violence in Northern Ireland 1970–1975

Number of	1970	1971	1972	1973	1974	1975
Bombings	153	1022	1382	978	685	398
Shootings	213	1756	10 628	5018	3206	1808
Armed robberies	437	1931	1215	995	1229	not available

Source: Fortnight, Issue 118, January 1976.

The most favoured targets seem to be public houses, hotels, warehouses and retail establishments. For instance no hotel has been able successfully to operate in central Belfast for well over a year and the response has been the springing up of small hotels in converted properties on the city's periphery which themselves are now coming under attack. Interestingly though industrial plants have been largely left untouched.

RETAIL PATTERNS

The impact of the troubles on retailing and commerce has been greatest in the Belfast area. Many tens of establishments in the city have been completely destroyed by bomb attacks, several more than once, and to date the total bill for repair and reconstruction amounts to around £100 million. The commercial centre was attacked with particular ferocity in 1971 and 1972 and at first the authorities met with little success in tackling the serious security problem. Restrictions placed on unattended car parking proved relatively ineffective in dealing with car bombs and the cursory searching of pedestrians entering shops did little to curtail the planting of incendiary devices. The predictable consequence was that the public stayed away from the central commercial area, and the business of city centre traders plummeted by between 35 and 45% in 1971 and 1972 (Hudson 1973). Indeed the position deteriorated to such an extent that three long-established family retail businesses on prime central sites were forced to close because of loss of business, and it is probable that even more establishments would have been forced to shut their doors were it not for government financial assistance with the payment of rates (local property taxes).

With time, however, security in central Belfast has become more effective. Under emergency traffic regulations, the central parts have been designated a control zone in which the parking of unattended vehicles is prohibited with the aim of permitting the quick identification of suspect vehicles. Any breach of these regulations can literally lead to the loss of one's car for good. Two types of zone exist: the first covers the main shopping and commercial district in which unattended parking at any time is prohibited. Regulations are somewhat more relaxed in the second outer zone *(Fig. 1)*. Control zones also exist in most local neighbourhood shopping areas.

The second and more effective measure taken to defeat the terrorist has been the sealing off of the commercial centre to pedestrians and vehicular traffic. Pedestrian access is restricted to a number of gates, at which individuals are subject to a rapid body and baggage search. While being reasonably effective, the resulting increase in security and safety has had to be balanced against impedence to the flow of traffic and inconvenience to the shopper; for while the central area could be made absolutely secure by placing severe restrictions on access, the implications for business life would have been disastrous. For these reasons traders have tended to adopt an ambivalent attitude towards security measures, on the one hand wishing for increased security but on the other fearing loss of trade because of curtailment of free access to the shopping area. Also to be taken into consideration is the disruption caused to through-traffic by the closure of main arteries in the central area which because of the configuration of the road network inevitably causes congestion.

For the initial sealing the central area was subdivided into six segments so as to minimize disruption to motor traffic. Although reasonably successful in raising the

Fig. 1. Belfast Central Business District – controlled parking zones and sealed securitv area

1 = security barriers; 2 = control zone: no vehicle may be left unattended Monday–Saturday 8 a.m. to 6. p.m.; 3 = control zone: no vehicle may be left unattended at any time

general level of security, premises lining the main arteries still open to traffic remained vulnerable to car bomb and incendiary attack and subsequent to the initial sealing terrorists were still able to cause severe damage at the large city centre Woolworth and C and A stores. To prevent such incidents and also to ease pedestrian access, the main shopping and commercial area was sealed off as one unit in 1975 (see *Fig. 1*).

The security measures have, on balance, increased the confidence of the population to shop in the central commercial area of the city and business has slowly picked up from the low of 1971–72. But the creation of the security area has also had its adverse effects. For instance, it has cast a blight on businesses located in streets peripheral to the sealed area, which are still attacked with some ferocity. Moreover, precise location within the security zone is important and sites close to access gates have become favoured locations.

Yet potentially the most important impact, with possibly long-term consequences for shopping patterns in the city, has been the boost given to suburban and out-of-town shopping centres. Although this trend emerged in the early 1960's and is largely a product of increased population mobility resulting from rising car ownership, the troubles have undoubtedly accentuated the process. The movement away from city centre shopping is reflected in less frequent trips to central shops and also less time actually spent shopping there (Sheppard 1976). The lure of suburban shopping centres does, however, vary from one residential area to another, being comparatively great in middle class districts where car ownership is high, but less significant in working class neighbourhoods. It also varies according to the general location of peripheral shopping centres and tends to be more strongly developed on the south and east sides of the city than elsewhere.

Allied to this has been a negative impact on retail expansion in central Belfast with firms unwilling to risk new investment. The last two decades have seen British cities take on an increasingly uniform retail image as local establishments have given way to the multiple chains operating nationally. Belfast has also participated in this process with Marks and Spencer, British Home Stores, Littlewoods and Boots opening branches in the city in the early and mid-1960's. But compared with other towns of equivalent status in the United Kingdom the move into Belfast was very late and has now completely stopped in mid-stream. As a result Belfast is without many of the multiples that one would expect to find in a city of its size, and it is reasonable to infer that if it had not been for the troubles such stores would have located themselves there.

Even the troubles have had their positive aspects, however, one being the pedestrianization of virtually the entire city centre. Although forced upon the authorities and not tastefully planned as in other cities, the effect has been to remove the conflict between car and pedestrian to the positive benefit of the latter. It is also clear that although the terrorist campaign had marked initial effects upon shopping behaviour, long established habits and perceptions have proved resistant to change and recent surveys demonstrate that business in the central commercial area is reasonably buoyant again.

Most provincial towns outside Belfast have also been subject to terrorist attack. The impact has been similar in each instance, custom initially falling and then picking up with the return of confidence following the implementation of security measures. The response to terrorism has varied from town to town; some like Ballymena (McQuillan

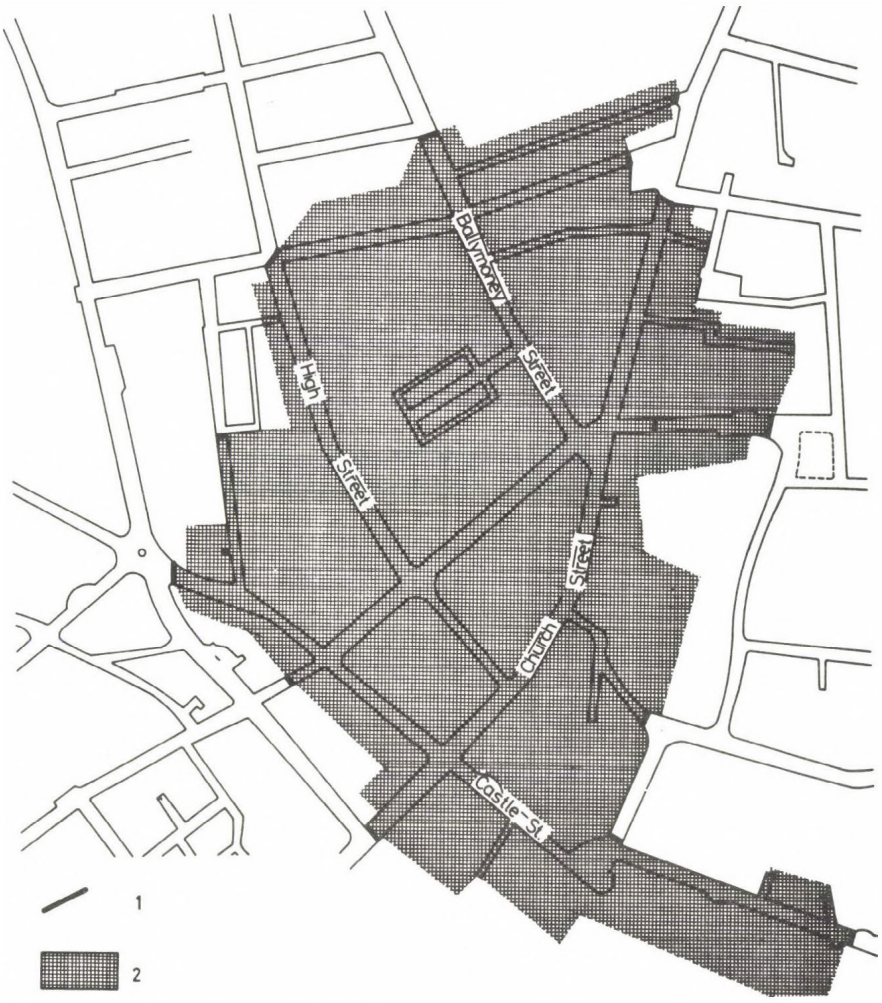


Fig. 2. Ballymena – controlled parking zone and security area
1 = security barriers; 2 = control zone (approximate area)

1975) have followed the Belfast pattern and pedestrianized the town centre *(Fig. 2)*, others like Omagh (McKane 1975) have sealed off the centre but allow in motor vehicles after search, while smaller places have established control zones only, regulating unattended car parking. It is interesting to note that the resistance to the exclusion of traffic from central areas has been much stronger in Provincial towns, where there is a much greater reliance on passing trade, than in Belfast. This is not without justification for survey results, although admittedly limited, suggest that traders located on streets along which traffic has been rerouted have generally experienced a rise in business compared with a fall for those sited in secure areas, but much depends

upon the provision of adequate car parks and their precise location. It must also be said that the rerouting of traffic in small provincial towns creates additional problems to those experienced in Belfast since it inevitably involves the use of narrow ill-suited streets in residential areas and generates local resentment.

RESIDENTIAL SEGREGATION

In the urban areas of Northern Ireland, particularly within Belfast, residential segregation and overt inter-group conflict are inextricably linked. Conflict is both a cause and an effect of segregation and the current unrest has consequently resulted in a general increase in the levels of ethnic segregation. This process, however, has not been manifest throughout the Province and only two instances of major shifts in the residential patterns of Catholics and Protestants have been reported outside the Belfast urban area, although this may simply reflect the disproportionate attention given to events in Belfast by politicians, the news media, and academic researchers.

The Lurgan-Craigavon-Portadown complex is one such area where segregation has increased as a consequence of the present disturbances. This interlocking conurbation has been the scene of bitter clashes between rival groups and of bombing and shooting incidents. The resultant movement of households has often involved the direct exchange of homes between Protestant and Catholic families (Darby and Morris 1974), and the effect has been to create more homogeneous residential neighbourhoods. This outcome is particularly tragic as the new town of Craigavon was planned from the outset as a place where Catholics and Protestants would live side by side in harmony. Neighbourhoods in the new town were provided with schools for both groups and in the early years genuinely mixed areas were formed.

Londonderry has been the other city to experience greater segregation *(Fig. 3)*. Before 1969 that part of the town on the western bank of the River Foyle, which includes the original walled settlement founded by Protestant settlers in the seventeenth century, contained areas of mixed private housing, as well as segregated Protestant and Catholic areas. Since the beginning of the troubles, however, many Protestants alarmed by the preponderance of Catholics have moved away from the west bank to the relative safety of the predominantly Protestant housing estates across the river.

Although it is very likely that the extent of change in the rest of Northern Ireland has been underestimated, there is no doubt that in both absolute and relative terms the impact of the 'troubles' on segregation has been most acute within the Belfast urban area *(Fig. 4)*. Yet even here segregation has not increased uniformly. In general, working class districts have seen more change than middle class neighbourhoods, and areas of public housing have been more affected than areas of private housing. An indication of the overall impact of the conflict on the levels of segregation is provided by Boal *et al.* (1976). Using survey data they estimated that in 1972 77% of households within the county borough lived in segregated streets, i.e. streets where at least 90% of households were of the same group, compared with 67% in 1969, before the present troubles began.

Such shifts have come about essentially because of violence or the fear of violence. Since the early years of the last century many outbreaks of communal conflict have

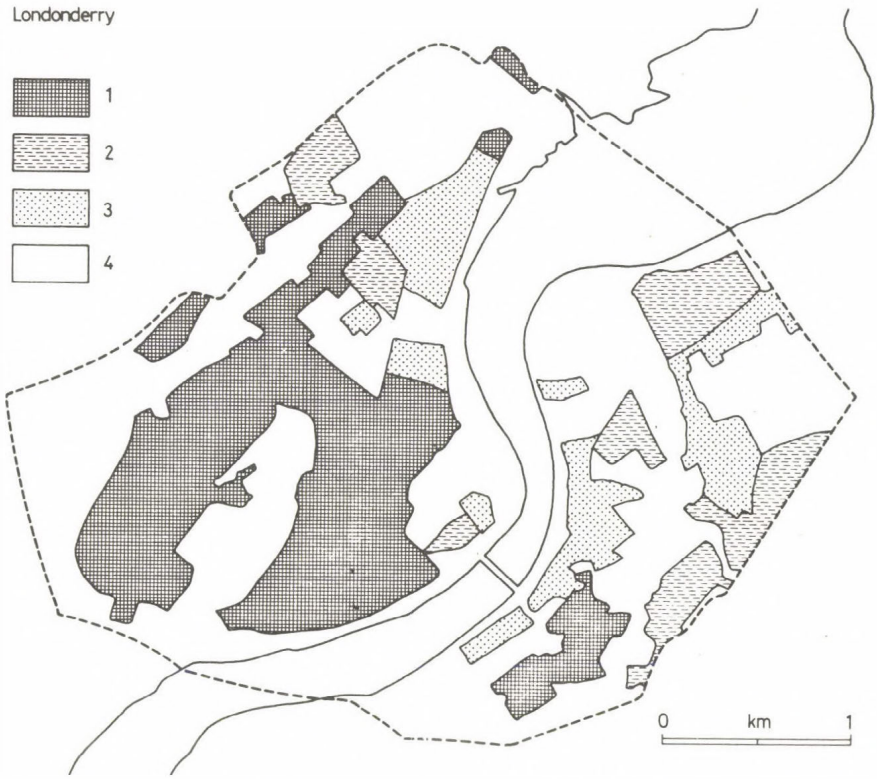


Fig. 3. Londonderry – residential segregation by religious denomination
1 = over 80% Roman Catholic; 2 = over 80% Protestant; 3 = mixed; 4 = non-residential

punctuated the years of relative amity. During tranquil periods households move into areas where they are in a minority only to find themselves the first targets when trouble next breaks out, at least in working class districts. Protestants in Catholic areas, Catholics in Protestant areas become the victims of intimidation as the majority tries to remove potential enemies from their territory (Boal and Murray 1977). During the present outbreak such intimidation has taken many forms, ranging from direct attacks on houses or persons to anonymous threats. In many cases the knowledge that intimidation had taken place elsewhere or in earlier times has been sufficient to induce families to flee. Such movements have often followed a step-by-step pattern with, for example, Catholics being forced out of area A to provide homes for Protestants who had been ejected from area B to make room for Catholics intimidated from area C. The total number of people forced to move in this way since 1969 may never be known but it probably runs into many thousands; one report described it as "the largest forced population movement in western Europe since the Second World War" (Darby and Morris 1974).

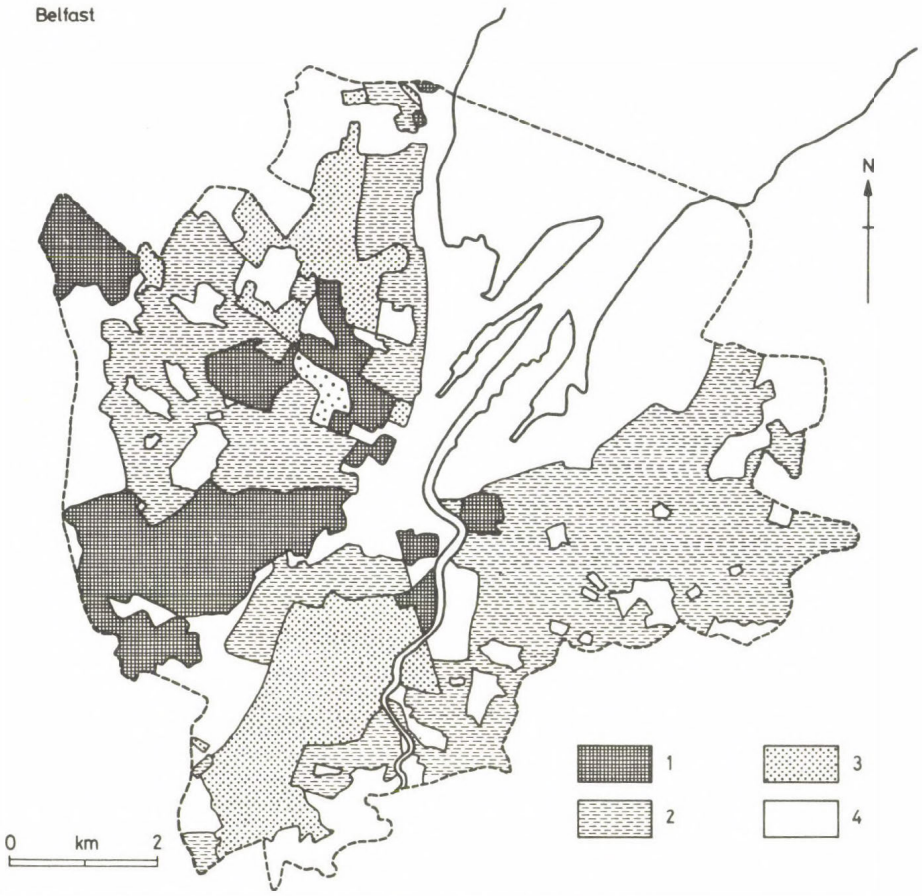


Fig. 4. Belfast – residential segregation by religious denomination
1 = over 80% Roman Catholic; 2 = over 80% Protestant; 3 = mixed; 4 = non-residential

In addition to its effects on residential segregation this phenomenon has other important consequences for the urban environment. One outcome is extensive illegal squatting in both Protestant and Catholic districts as intimidated families by-pass official channels and occupy empty homes, even houses still under construction, in safe areas. A second consequence has been confined to the Catholic areas of West Belfast. Because these districts are regarded by most Catholics as the only safe areas in the city they have received a considerable influx of households intimidated from elsewhere in the urban area. Furthermore existing residents have been most reluctant to move out to other towns, such as Craigavon or Antrim. These population changes, reinforced by a high rate of natural increase, have coincided with a shortage of land for new building and the problem of overcrowding thus created can only be relieved by breaching the 'stop-line' which limits the growth of Belfast.

Although the net effect of the present conflict, in common with earlier outbreaks, has been to increase segregation attention should also be drawn to an opposite tendency, albeit on a small scale. Numbers of middle-class or aspiring middle-class Catholic households have chosen to move out of segregated areas because they have become battle-grounds of urban guerilla warfare. They have chosen areas of private housing that have been relatively unaffected by the conflict particularly in the south of the city. These districts have consequently experienced an increase in the level of mixing (Murray *et al.* 1975).

HOUSING

Inevitably both the causes and the consequences of these population movements, and the 'troubles', in general, have affected many aspects of housing. The most dramatic effect has been the widespread destruction of homes. This has been most marked along the interfaces separating opposed segregated areas where numerous dwellings, and in a few cases entire streets, have been burnt out in deliberate attacks or shot-up in the cross-fire as rival groups clash. In west Belfast the boundary between the Protestant Shankill Road area and the Catholic Falls Road area is now marked by the so-called 'Peace line', which takes the form of a very high barrier and prevents the two groups from even seeing one another across it.

Where households have been forced to move they have often deliberately wrecked their home before leaving to prevent it being re-occupied. Many other buildings have been caught by the blast from bombs. In 1973, for example, the Northern Ireland Housing Executive, the body responsible for emergency repairs and rehousing in both public and private sectors, reported that 14,000 dwellings in the Belfast area alone had been damaged by bombs in the previous year.

The effective housing stock has been further reduced by the presence of houses that lie vacant because their former owners or tenants have fled and no one can be found to re-occupy them due to their location. Such dwellings tend to be in fringe areas or adjacent to popular terrorist targets such as army or police posts.

Apart from such direct effects, the conflict has operated on housing through the interaction of two further processes. One has been the division of the city, referred to above, into safe and dangerous zones with the demand for housing being far stronger in the former. To some extent this has merely accentuated existing preference patterns particularly for Protestant and for middle-class households; the zones which they now regard as unsafe are, for the most part, areas that they would have rejected in the past on social grounds. It is the Catholic section of the population whose effective freedom of choice is most restricted at present.

The second process has been a reduction in the supply of new dwellings both private and public. The rate of building has dropped steadily since 1971 and is now under 10,000 dwellings a year, a figure that is insufficient even to keep pace with the potential growth of new households let alone replace the considerable stock of sub-standard dwellings. Apart from diverting manpower and materials to the repair of terrorist damage the 'troubles' have impeded new building in at least three ways. Firstly, there is the problem referred to above of finding suitable sites in safe areas. Secondly, squatting has slowed the clearance of redevelopment areas and the comple-

tion of new dwellings. Finally, there are difficulties in persuading men to work in certain areas because of the fear of violence. Closely related to this is the issue of payments to local paramilitary groups. Extortion of 'protection money' to allow firms to carry out their work is common, and a major British construction company has recently ceased operations in Northern Ireland rather than continue on such a basis.

Since the Northern Ireland Housing Executive has proved better able to cope with these problems than the private builder (and has less financial problems) new building in Northern Ireland today is predominantly in the public sector, the reverse of the situation in England and Wales. This state of affairs, however, is not entirely the result of the 'troubles'. The relatively depressed state of the Ulster economy, and difficulties in getting planning permission in rural areas for new developments have been contributory factors.

The strength of these two processes, and of their interaction, has varied from area to area and from group to group. For example, Protestant households who wish a public tenancy in North Belfast appear to have been almost unaffected. In general, however, there is an excess of demand over supply, and as a result people have been forced to accept accommodation that does not meet their needs or expectations in terms of size, condition, tenure, location or cost.

Although the public sector has been least affected as far as new building is concerned, the reduction in building rates has meant that the targets set in the five-year housing plans have not been met. As a result insufficient progress has been made in tackling the massive problem of sub-standard housing, and this has undoubtedly been a factor in the recent decision to emphasize the rehabilitation of the existing housing stock as a solution to the housing problem.

In the private sector, except in the case of dwellings where rents are controlled by law, the balance between supply and demand has had the predictable effect of forcing up the cost of housing, increasing it most in those areas where effective demand most outstrips supply. Within Belfast because there is no real scope for any significant new development of private housing this in effect means the 'safe' areas. For example before 1969 there were two major areas of rented flat accommodation. One lay to the north of the city centre, the other to the south around the university. In recent years, however, the former area has been increasingly caught up in the territorial struggles between Protestants and a locally expanding Catholic population and its attractiveness to outsiders has declined accordingly. Demand is thus mostly confined to the university area where, as a result, rents have risen sharply.

As far as owner occupied housing is concerned the general effect of the conflict has been to accentuate differences in house prices between areas rather than to alter the existing rank order. The poor building record of the private sector in recent years has brought about a general increase in home prices throughout the Province particularly in the last two years. The average cost of a new house now differs little from that in the wealthier areas of England whereas in the past house prices in Northern Ireland were the lowest in the United Kingdom. Indeed in Belfast houses in 'safe' areas have increased in value at an even faster pace and now stand on a par with homes in South East England. Conversely, householders whose homes are located in or adjacent to areas of conflict have frequently been forced to sell at a loss and there are consequently very sharp differences in the price of identical dwellings from one part of the city to another. In many instances buyers cannot be found for property in unsafe

districts and the problem has become so acute that the Northern Ireland Housing Executive has been forced to set up a special fund to help such people by purchasing their houses for the public sector.

PLANNING

One of the less well documented aspects of the recent conflict is the ramifications sectarian issues raise for planning and for land use zoning. The system of planning is similar to that which operates in England and Wales (Murie 1973). Essentially, there has been a regional strategy based on the concept of 'growth' and 'key' centres, coupled with restraints on the growth of Belfast. Two major reports laid the basis of this strategy, the Matthew Report (1964), and the Northern Ireland Development Programme (1970). The main features of the Matthew Report were the containment of the growth of Belfast through the imposition of a 'stop-line', emphasis on re-development and improvement within the city, the location of a new city, Craigavon, at Portadown-Lurgan and the designation of a number of growth centres in the rest of Northern Ireland. The Development Plan confirmed the growth centres and raised several others to the status of 'key centres for development' *(Fig. 5)*. Under this umbrella area plans seek to translate regional demographic, industrial and recreational targets into specific land use proposals.

At the regional level, the designation of the towns which were to be growth centres provoked considerable controversy within Northern Ireland, which coincided with other major public investment decisions such as the location of the new town and the siting of the Province's second university at Coleraine rather than at Londonderry. The general thrust of the criticisms came from the leaders of the minority Catholic population who suggested that the decisions, which represented the designation of major areas for economic growth and prosperity in the future, were not made solely on 'objective' planning criteria but deliberately favoured areas which were predominantly Protestant in population.

No thorough examination of these decisions has yet been reported although Hoare (1976) has recently queried the criteria underlying the choice of growth centres and Douglas (1973) has similarly pointed to fundamental weaknesses in the location of the new city, Craigavon. Moreover, Birrell (1972) in proposing a 'relative deprivation' component to the growth of unrest among Catholics in the years 1968–1971 has suggested that the severest violence was in areas of the greatest perceived and actual deprivation in terms of housing and jobs – the areas and towns not selected for growth and development. The criticisms of the growth centre policy were finally acknowledged by the Government in 1975, with the publication of a discussion paper outlining a number of possible physical development strategies for the Province. The option preferred, a district towns strategy, was confirmed in the Regional Physical Development Strategy 1975–1995 (1977) in which no less than twenty-three district towns were designated for growth and industrial development.

While the suspicions surrounding macro-planning have been voiced particularly at the political level, the gut realities of sectarian conflict can be seen at the micro-level of specific land use planning proposals. An illustration is the proposed Poleglass development. The increased demand for public authority housing in West Belfast has

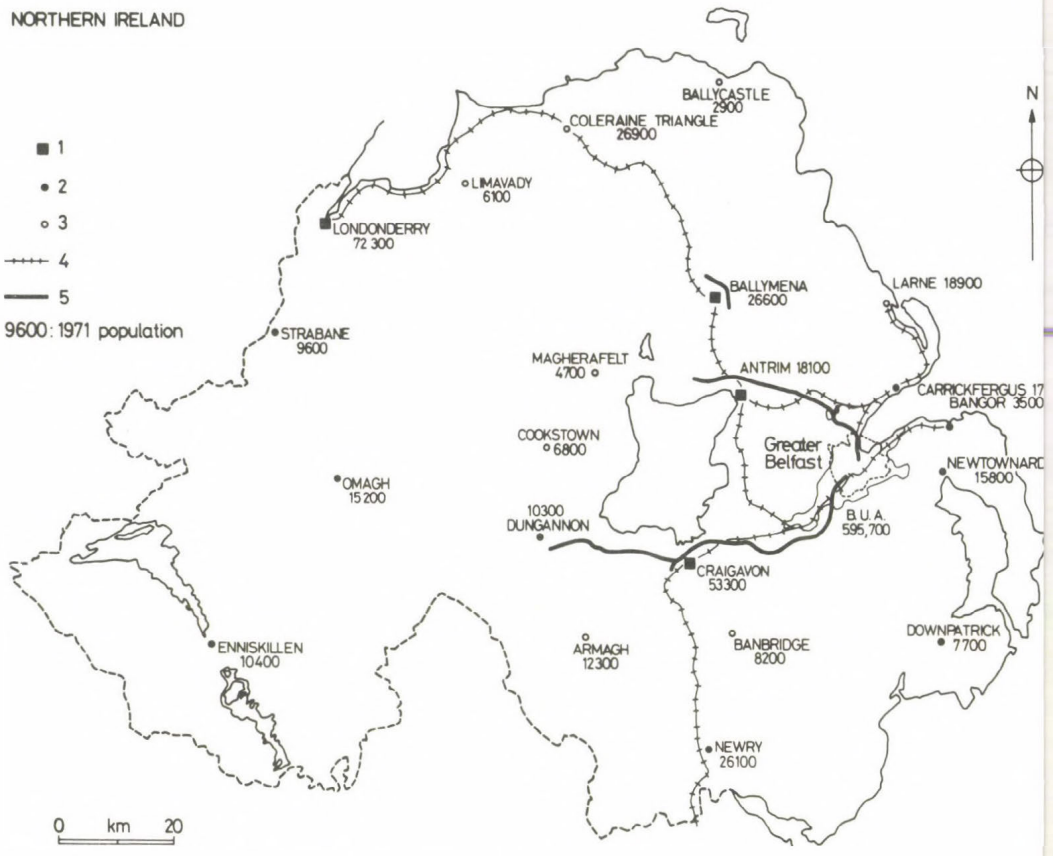


Fig. 5. Northern Ireland: growth and key centres with additional district towns

1 = growth centre; 2 = key centre; 3 = additional centre in "District Towns" strategy; 4 = railways; 5 = existing motorways

been logically met by the proposal to build a new housing estate on a greenfield site at Poleglass, breaching the 'stop-line' *(Fig. 6)*. Far more significant, however, is that this new estate which is designed to meet essentially Catholic demand will extend the Catholic west sector of the city into an area of previously wholly Protestant domination associated with the suburban town of Lisburn. The objections of the leaders of the Protestant community in Lisburn to this proposed intrusion forced the holding of a public inquiry. Although the results of the inquiry are not yet known the hearings were notable for the expressions of fierce resistance from Protestant spokesmen and the announcement by the Ulster Defence Association (U.D.A.), the main Protestant paramilitary group, that it would physically prevent any attempt to build the estate. It should be stressed that conventional planning objections were only advanced to further the main purpose of the opposition: to prevent the invasion of Protestant 'territory'.

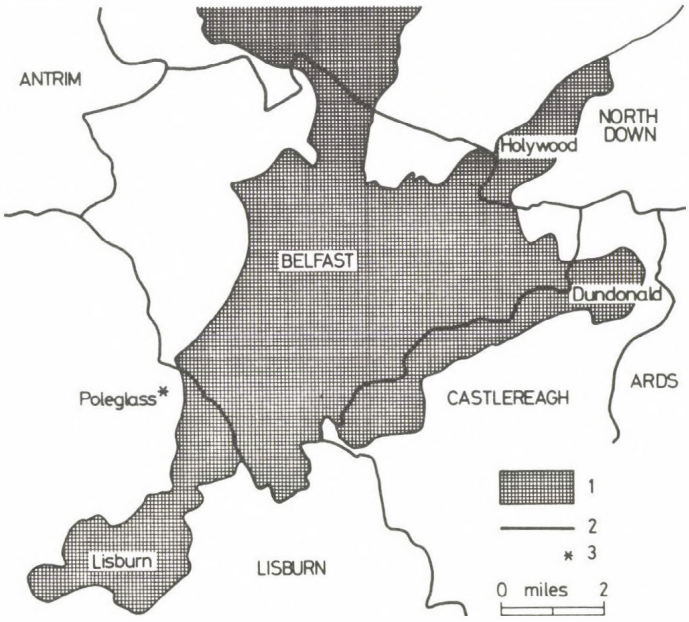


Fig. 6. Site of Poleglass development

1 = Belfast urban area; 2 = local government boundaries; 3 = area of proposed housing: a stop-line extention

The resistance to the perceived violation of Protestant territory represented by the Poleglass proposals demonstrates the strength of political and social polarization in generating a spontaneous social geography and creating virtually insuperable problems for land use planners. It is now accepted that in some cases the location of industrial sites and the screen planting of vegetation are used to reduce the potential for violent interaction between opposed housing areas.

EMPLOYMENT

The impact of the recent troubles on employment has been manifested in at least two ways. The first relates to the overall economic situation of the province. The decline of the traditional industrial employers – shipbuilding and textiles – and the continued fall in agricultural employment has forced the Northern Ireland government to promote a series of inducements to attract new industry, particularly in manufacturing. As a result, by 1968 240 new firms employing 60,000 people had located in the Province (Steed and Thomas 1971), although the siting of in-coming firms has tended to accentuate the pre-existing pattern of industrial activity. Over half of the new industries are located within 15 miles of Belfast and only 30 per cent are sited at a

distance of over 30 miles from the city (Common 1971). The distribution of unemployment has, however, tended to show the reverse of this pattern (Salt and Johnson 1975; Murie 1974), with the pockets of high unemployment within Belfast, often masked by the overall percentage rates.

In the last few years two major developments have hampered attempts to maintain the flow of incoming investment and efforts to steer new plants to the areas of highest unemployment. The first has been the economic crisis experienced by much of the western world since 1973. In Britain, many firms have contracted in this hostile financial environment, not only stemming the potential flow of new investment to the Province but also causing the closure of existing branch factories. The potential supply of new investment has, therefore, been drastically reduced. In this situation the troubles have provided a further disincentive for new investment. Such firms that have located in Northern Ireland have tended to steer clear of the areas characterized by violence, often those which also have the highest unemployment rates, and have stuck to the already favoured areas. In the face of these facts the government has been forced to develop strategies to develop indigenous enterprise particularly at a small scale (Busteed 1976) and to consider a policy of direct investment in manufacturing.

The impact of these various economic, social and political factors can be illustrated with reference to one area in particular, the west sector of Belfast, and is based on a so far unpublished report carried out for the Northern Ireland Department of Commerce (1974). The West Belfast area is the main Catholic sector of Belfast and has been the principal reception area for Catholic families leaving other districts of the city. It is homogeneous on the basis of religion but less so in socio-economic terms. The population of the area is characterized by a young age structure and, in relation to Great Britain, low activity rates *(Table II).* No specific unemployment rates are available but it is known that in some parts of the area male unemployment exceeded 30% in March 1974 when a total of 2400 males and 700 females were registered as unemployed. Young adult unemployment has increased rapidly since then, and a simple projection involving the advancement of age bands suggests that 6300 additional male and 1900 additional female jobs will be required by 1981, assuming no large scale out-migration.

The problems associated with meeting current and projected job demand stem not only from the overall regional problem of generating employment but also from the specific problems of West Belfast. The area is virtually wholly devoted to residential land use with little or no provision for industrial activity. In the years prior to the troubles this did not pose any real problem as residents were able to travel to other districts of the city to work but this has since changed as a result of the conflict. The influx of refugees from other parts of the city coupled with the significant inward migration of families residing on or near the interfaces of the district has hardened up the community boundaries, increased polarization and created the idea of the safe home neighbourhoods surrounded by hostile areas. This has seriously curtailed labour mobility for reasons perceived or real. Not only are many residents unwilling to commute to work-places outside West Belfast but also some of the commercial activities actually located in the area have experienced a reluctance on the part of, for example, representatives and essential skilled artisans to travel into the area. Hence the "accessibility" of many workplaces has been reduced. In places this has given rise to the seemingly incredible situation of large scale unemployment sharply juxtaposed

Table II. West Belfast – Population 1971

Age	Male			Female		
	total	econ. active	%	total	econ. active	%
15–24	7,101	5,129	72·2	7,202	4,435	61·6
24–44	7,798	7,664	98·3	8,243	2,806	34·0
45–59/64*	5,578	5,226	93·7	5,155	2,135	41·4
Totals	20,477	18,019	88·0	20,600	9,376	45·5

*Retiring age, women 60, men 65.

West Belfast – Workforce Estimate 1981

Age	Male			Female		
	total	activity rate %	econ. active	total	activity rate %	econ. active
16–24	9,077	72·2	6,554	8,507	61·6	5,240
25–44	11,177	93·3	10,987	11,429	34·0	3,886
45–59/64*	6,513	93·7	6,103	5,793	41·4	2,398
Totals	26,767	88·1	23,644	25,729	44·8	11,524

*Retiring age, women 60, men 65.

with job vacancies for all types of labour; a situation which only makes sense when the objective and subjective roles of the sectarian boundaries are understood. Government is faced with the additional task of trying to provide a large number of job opportunities wholly within the area. The lack of mobility is increasingly shown in the short distances involved with the journey to work.

CONCLUSIONS

This paper can only begin to examine some of the geographical implications of almost a decade of civil unrest in Northern Ireland. Even were a solution to emerge and the conflict to stop overnight the adverse effects, especially in the economic field of attracting new employment to the Province, would not immediately disappear because of the cumulative build-up of adverse publicity. Similarly the social problems of housing and segregation will take many years of determined effort along with commensurate investment and changed attitudes to overcome. Yet despite the conflict, life in the Province has remained remarkably resilient largely because the troubled areas are very localized in occurrence. Even in Belfast where violence and unrest are at their most intense, the majority of the city has remained peaceful and, on the surface at least, largely oblivious to the conflict.

REFERENCES

Birrell, D. (1972): Relative deprivation as a factor in conflict in Northern Ireland. *Sociological Review*, 20, pp. 317–343.

Boal, F. W., Murray, R. and Poole, M. A. (1976): Belfast: the urban encapsulation of a national conflict. In S. C. Clarke and J. L. Obler (eds): "Urban ethnic conflict: a comparative perspective." Univ. of N. Carolina, Inst. for Research in Social Science, Comparative Urban Studies Monograph Series, No. 3. Chapel Hill, pp. 77–131.

Boal, F. W. and Murray, R. (1977): A city in conflict. *Geogr. Magazine*, Vol. XLIX, No. 6, pp. 364–371.

Busteed, M. (1976): Small-scale economic development in Northern Ireland. *Scottish Geogr. Magazine*, 92, pp. 172–181.

Common, R. (1971): Some concerns of regional geography; with illustrations from Northern Ireland. *Scottish Geogr. Magazine*, 87, pp. 166–85.

Darby, J. and Morris, G. (1974): Intimidation in housing. Northern Ireland Community Relations Commission.

Douglas, J. N. H. (1973): Politics. In J. A. Dawson and J. C. Doornkamp (eds): Evaluating the human environment – essays in applied geography. pp. 159–183.

Greer, A. J. (1974): A comparative analysis of two public housing estates in Belfast and Manchester to investigate the effects of civil disturbances in Northern Ireland on consumer travel patterns. Unpublished undergraduate dissertation, Geography Department, Queen's University Belfast, 75 pages.

Hoare, A. G. (1976): Spheres of influence and regional policy: The case of Northern Ireland. *Irish Geography*, Vol. 9, pp. 89–99.

Hudson, J. D. (1973): The effects of the civil disturbances in Northern Ireland upon shopping patterns and other patterns of movement within Belfast, with particular reference to the city centre. Unpublished undergraduate dissertation. Geography Department, Queen's University Belfast, 70 pages.

Johnson, J. H. and Salt, T. (1975): Recent trends in the level and distribution of unemployment in Northern Ireland. T.E.S.G., 66, pp. 225–233.

Matthew, R. (1964): Belfast regional survey and plan. H.M.S.O., Belfast.

McKane, L. (1975): Security restrictions in Omagh. An analysis of the direct effects on traffic and the indirect effects on the commercial and social functions of Omagh. Unpublished undergraduate dissertation. Geography Department, Queen's University Belfast, 77 pages.

McQuillen, R. (1975): Ballymena town centre 1974: an example of a premature pedestrian precinct. Unpublished undergraduate dissertation. Geography Department, Queen's University Belfast, 64 pages

Murie, A. (1973): Planning in Northern Ireland: a survey. *Town Planning Review*, Vol. 44, No. 4, pp. 337–358.

Murie, A. (1974): Spatial aspects of unemployment and economic stress in Northern Ireland. *Irish Geography*, Vol. 8, pp. 53–67.

Murray, R., Boal, F. W. and Poole, M. A. (1975): Psychology and the threatening environment. *Architectural Psychology Newsletter*, 5, pp. 30–34.

Northern Ireland Development Programme 1970–75. (1970): H.M.S.O., Belfast.

Northern Ireland Regional Physical Strategy 1975–1995. (1975): H.M.S.O., Belfast.

Northern Ireland Physical Development 1975–1995. (1977): H.M.S.O., Belfast.

O'Connor, F. (1975): Road closed: some barrier effects of the border. Unpublished undergraduate dissertation. Geography Department, Queen's University Belfast, 45 pages.

Sheppard, A. W. (1976): A geographical analysis of shopping behaviour in Belfast city centre (1969–1975). Unpublished undergraduate dissertation. Geography Department, Queen's University Belfast, 62 pages.

Steed, G. and Thomas, M. (1971): Regional industrial change in Northern Ireland. A.A.A.G., 61, pp. 344–360.

West Belfast Industrial Development Study. (1974): Unpublished report, Department of Commerce, Northern Ireland.

THE IMPACT OF CHANGING MARKETING PRACTICES ON THE URBAN ENVIRONMENT

By
J. A. DAWSON
United Kingdom

1. THE MARKETING SYSTEM

The marketing system lies in that section of the economy which is responsible for moving goods (and services) between their points of production and final consumption. The structure of the marketing system depends to a considerable extent on the socio-economic processes operating in a society. The institutions and flows in the system are quite different in Britain from say Nigeria and even within one culture zone, such as Western Europe, there are significant differences in marketing system as for example amongst France, West Germany and Britain. The marketing system exists to close *space, time, quantity* and *ownership* gaps between, in general, production in large quantities at few points and consumption in small quantities at many points. In this marketing system goods are moved, stored, sorted and their ownership pattern change.[1]

The processes in the system operate through a series of institutions which are linked together by flows of goods and money. For a particular good the linked institutions, which serve to distribute the good, usually, are collectively termed the *market channel.* Within the marketing system, therefore, the institutions play a central role. Common to most of these systems are producers, retailers and consumers and many systems also have middlemen, usually wholesalers of some type, between the retailer and the producer. These may be termed primary institutions. Goods often pass through a simple channel of:

Producer – wholesaler – retailer – consumer which links these primary institutions. This is the most common channel for the general distribution of goods but there are many variations either shortening this channel by vertical integration or lengthening it, for example, through the operation of marketing boards in agriculture or through agencies for imported goods.[2]

[1] There is an extensive literature on the marketing system and on comparative marketing. Major texts are those of G. Fisk: *Marketing Systems.* Harper and Row, New York, 1966 and D. Carson: *International Marketing.* Wiley, New York, 1967. Geographical implications of the study of marketing systems are detailed in R. J. Holloway and R. S. Hancock: *Marketing in a Changing Environment.* Wiley, New York, 1973 and J. A. Dawson; Marketing. In J. A. Dawson and J. C. Doornkamp: *Evaluating the Human Environment,* Edward Arnold, London, 1973.

[2] The relative power relationships of the various members of the channel are all important to the changes occurring in the channel and in the spatial distribution of channel institutions. Comparisons of different channel structures and of various power relationships are contained in several contributions in L. P. Bucklin (ed.): *Vertical Marketing Systems.* Scott, Foresman, Glenview, 1970; W. G. Moller and D. L. Wileman (eds); *Marketing Channels.* Irwin, Homewood, 1971; L. W. Stern (ed.): *Distribution Channels.* Haughton Mifflin, Boston, 1969. Channel administration and channel environments are analyzed in many papers and an important recent contribution is M. Etgar. Channel Environment and Channel Leadership. *Journal of Marketing Research,* 14, pp. 69–76.

Facilitating the flow of goods through the marketing channel there are a set of secondary marketing institutions. Usually these secondary institutions do not take ownership of the goods but provide some service which allows the goods to pass, efficiently, from institution to institution. The flow of goods requires financing (banking institutions), to have risks covered (insurance institutions), physical transport (physical distribution institutions) and goods usually have to be advertized. Almost all the institutions, primary and secondary, in a particular channel are located in urban areas. There are notable exceptions, to this broad rule, particularly in the developing world. But certainly within western capitalist societies even the marketing activities of agriculturalists have an urban element. As a producer, the farmer performs marketing functions as well as production functions. The marketing functions are often urban based, with the farmer selling his produce to an urban wholesaler or to a food processing factory in a town, whilst the production functions are rural based. As a consumer the farmer also acts as a marketing institution but again he usually performs his marketing activities in urban areas. He will purchase equipment from dealers in a town, or stock from an urban livestock market. Whilst there are exceptions, marketing institutions tend to locate in urban areas. Even the consumer, the ultimate marketing institutions, increasingly is more urban orientated. Consequently changes in marketing processes which affect marketing institutions will cause considerable reaction in urban areas.[3]

CHANGE IN THE SYSTEM

From the viewpoint of the marketing institution change in a marketing system can have two forms. First, there is change of the total system with the emergence of new groups of institutions or the closure of existing groups. An increase in vertical integration particularly involving direct links between producer and retailer means that the traditional wholesale institution is now absent from many channels. Marketing channels have shortened and existing institutions have been bypassed. A second example of a major change in the institutions in a system is the change consequent on a fundamental re-organization of the production and marketing of a particular product. The nationalization of the British shipbuilding industry, for example, will result in a completely new set of marketing institutions. Such a system change perhaps could be thought of as revolutionary rather than evolutionary.

More commonly, institutional change is evolutionary and changes come about slowly within a broad group of institutions. Thus, changes occur within the retail sector, wholesale sector or consumer sector. These sectors of groups of institutions are defined in terms of the functions they perform within the distributive process. The retailer, for example, sells to the final consumer. But within this broad function there

[3] The concentration of marketing institutions into urban areas is a major explicit themes in R. Cox: *Distribution in a High Level Economy.* Prentice Hall, Englewood Cliffs, 1965 but is implicit in many studies both of channel structures in particular products as in O.E.C.D., *Changes in the Processing and Distribution of Milk Products, Vols 1 and 2.* O.E.C.D., Paris, 1973, 1974, and of channel patterns in particular countries, for example, M. Y. Yoshino: *The Japanese Marketing System.* M.I.T. Press, Cambridge, Mass, 1971, and L. P. Bucklin: *Competition and Evolution in the Distributive Trades.* Prentice Hall, Englewood Cliffs, 1972 which studies the U.S.A.

are many ways of satisfying the consumer's demands. Within all the major sectors institutions differ from one another, on the basis of their functioning. The operational patterns of specific institutions evolve constantly. In retailing, trading techniques have changed from market traders to fixed stores, to self-service shops, discount stores, department stores, hypermarkets, mail order houses etc. and organizationally consumer co-operatives, voluntary chains, and multiple retailers are all evolving new techniques of selling goods. New types of retail institution emerge and each operates in a particular way. These new particular institutions need not be shops – both automatic vending and door-to-door selling constitute retail institutions but neither use shop premises.

Within all the institutional sectors changes occur. Consumers, for example, form sub-groups each with particular demand patterns related to their income, social position and psychological background. Not only do the demand patterns of these segments differ but also so do their shopping patterns. Different segments prefer different types of shop, different segments shop with different frequencies, and different segments respond in different ways to their particular degree of personal mobility.[4] An immigrant Pakistani clothing worker's wife in a large British city both demands different goods and uses the shops in a different way from the wife of a Welsh steel worker in urban South Wales. Just as new types of retailing evolve, so new types of consumer also evolve and, similarly, within the broad wholesale sector, or in physical distribution. new specific institutions emerge.

The new institutions, at all levels, impact upon the city by locating within it. Both city structure and city environment are affected. The specific location of the new institutions creates new activity centres within a functioning city. For a variety of reasons within a capitalist economy, many marketing institutions operate most efficiently in suburban locations. Marketing institutions and the economics of their operation have been a factor, arguably the most important factor, in the suburbanization process affecting western cities in the last 30 years.[5] New retail forms such as hypermarkets, shopping centres, discount warehouses have all sought suburban locations where new consumer segments have chosen to live. New warehousing and new transport depots have also sought suburban sites and increasingly, within North America at least, many of the office activities associated with insurance, banking, advertizing etc. are moving to suburban office complexes. This differential in growth of marketing institutions has led to a concentration of investment in the suburbs often to the detriment of city centres where older, less affluent, marketing institutions are residuals in the evolutionary process. Small inefficient shops, small multi-storied warehouses, low demand consumer groups all characterize inner city areas in North

[4] Much of modern merchandizing depends on this segmentation of consumers and there is considerable literature on how the various segments change. Much is summarized in J. Arndt: *Market Segmentation: theoretical and empirical dimensions.* Universitetsforlaget, Bergen, 1974 and R. E. Frank, W. F. Massey and Y. Wind: *Market Segmentation,* Prentice Hall, Englewood Cliffs, 1972.

[5] J. H. Johnson: *Suburban Growth,* Wiley, London, 1974 and E. P. Cox and L. G. Erickson: *Retail Decentralization.* Michigan State University, East Lansing, 1967 show the extent of growth in suburban marketing.

America and increasingly this is the case in Western Europe.[6] Only by the intervention of government has the process of the suburbanization of marketing activities been halted. In Britain, a refusal to allow development at suburban sites and a positive investment in city centre re-development together have forced the new retail institutions to locate in the established city centres and both new urban and marketing environments have been created here rather than in the suburbs. Shopping areas have been closed to traffic, weather protected air conditioned shopping centres have been built and consumers have been forced to travel from suburban residential areas to central city shopping areas. The processes creating the new institutions and locating them in the suburbs have been controlled and manipulated to encourage the development of pre-determined central city environments.

Retail suburbanization is only one aspect of the impact on cities of changing marketing institutions. Warehousing has sought new sites related to inter- and intra-urban transport networks.[7] In this case the marketing pressures have run parallel to the designs of city planners and warehousing has been encouraged to move from dispersed inner city and C.B.D. frame locations to concentrated edge of city sites or even out of the city altogether. This change in the marketing institution of wholesaling has had a major effect on urban structure particularly in respect of traffic movement. By the nature of the concentration of marketing into urban areas the evolution of marketing institutions is likely to have considerable impact on the way cities function.

EVOLUTION OF THE MARKETING SYSTEM

CHANGES IN SCALE OF OPERATIONS

At several levels in the marketing system the scale at which institutions operate is changing. Some wholesalers are seeking larger warehousing operations, groups of consumers are buying goods in bulk and within the retail sector new techniques of retailing consistently evolve and operate at successively larger scales. In retailing, at least, this increased scale of operation results in relatively widely scattered large shops but also it allows the successful operation of small shops serving local neighbourhoods. There is an increasing polarity in operating scale in retailing and this trend is emerging as a major factor in the planning of retail provision in the cities of western Europe.

It is widely acknowledged that larger establishments are economically more efficient than small ones. Economies gained from mass production methods in manufacturing industry mean that increased plant size results in lower unit product cost but

[6] Examples are provided by major studies of Retailing in Chicago by B. J. L. Berry: *Commercial Structure and Commercial Blight,* University of Chicago, Department of Geography, Research Paper 85, 1963 and of consumers by D. Caplovitz: *The Poor Pay More.* Free Press, Glencoe, 1963. See also N. E. Cox: A Commercial Structure Model for Depressed Neighborhoods. *Journal of Marketing,* 1969, 33, pp. 1–9; P. Carusone: A Shift in the Point of Patronage, *M.S.U. Business Topics,* Autumn, 1970, pp. 61–69; C. H. Haines, L. S. Simon and M. Alexis: The Dynamics of Commercial Structure in Central City Areas. *Journal of Marketing,* 1971, 35, pp. 10–18, and by the same authors, An Analysis of Central City Neighborhood Food Trading Areas, *Journal of Regional Science,* 1972, 12, pp. 95–105.

[7] C. Watson–Gandy: Warehouse and Depot Location, In: M. Christopher and G. Wills (eds.): *Marketing Logistics and Distribution Planning,* Allen and Unwin, London, 1972.

scale economies in marketing institutions also occur.[8] Within retailing the relationship between economic efficiency (however this is measured) and size is more complicated. As establishment size increases so the form of establishment changes. Most studies of scale economies in retailing ignore the changes in techniques of retailing associated with increases in scale and merely point to large shops having both relatively high profit levels and high levels of labour productivity. There is evidence to suggest that when individual techniques are considered then dis-economies of scale begin to occur above critical size levels – employee productivity falls, wage costs increase, rates of stock turnaround stabilize etc. Most retail techniques have an optimal size of operation but retailers, in search of higher profits, consistently have devised new techniques which have a larger optimal operating size. Within the grocery trade in Western Europe, for example, the supermarket (typically around 1000 m^2) followed the self-service store, then came the discount store (around 1500 m^2), superstore (2500 m^2) and the hypermarket (7000 m^2). There are critical differences other than of size amongst these techniques but the more recently evolved technique has always been larger than the existing ones. If operating ratios at the typical size level of each technique are compared a higher economic return (capital : profit ratios) exists for each new technique. Regular analyses of supermarket and hypermarket operating figures in France and Germany and statistics on the discount and supermarket industries in the USA show that the newer techniques yield a higher financial return. *Table I* shows typical figures for supermarkets and hypermarkets in France.[9] The figures show a consistently higher potential economic return for the average hypermarket than for the typical supermarket.

Table I. Operating characteristics of typical hypermarket and supermarkets in France in 1976

	Supermarkets	Hypermarkets
Size range m^2	800–1200	4000–6500
Number in sample	515	90
Average size	973	5157
Gross margin/m^2 (F)	2386	3117
Operating costs as % sales	13·32	11·92
Labour costs as % sales	7·33	6·17
Operating costs/m^2 (F)	2169	2519
Sales per employee ('000F)	526	536

[8] C. F. Pratten: *Economies of Scale in Manufacturing Industry.* Cambridge University Press, Cambridge, discusses some scale advantages in secondary industry whilst in marketing a thorough treatment is provided by E. Douglas: *Economics of Marketing.* Harper and Row, New York, 1975, and empirical materials on retailing are provided by National Commission on Food Marketing: *Organization and Competition in Food Retailing,* U. S. Govt. Printing Office, Washington, 1966, and W. G. McClelland: *Costs and Competition in Retailing.* MacMillan, London, 1967.

[9] The source of these figures is the annual survey presented in *Libre Service Actualités.* Some further comparisons are made in E. Langeard and R. A. Peterson: Diffusion of Large-Scale Food Retailing in France – Supermarché et Hypermarché. *Journal of Retailing,* 1975, 51(3), pp. 43–63, 80.

The development of a new, large, store inevitably creates conflict between the new technique and existing techniques and the new store and existing shops. The birth of new large stores in a district invariably means either the rapid death of some existing stores or the rapid closure of the new store itself unless, within the district, consumer spending is increasing extremely rapidly. The more efficient operation of the new store, in this situation, means that it begins from a more powerful economic position than its existing competitors. Usually this conflict is resolved in a drastic fashion with the closure of stores using older retail techniques (see below for further discussion of hypermarket impact).

The second size related trend in retailing is the increased importance of small stores. Activity at the two ends of the size spectrum has polarised much of the newer retail development in western capitalist society. There are several reasons for the renewed development of small shops.[10] The most important is their convenience value. As major stores become larger they require a larger catchment population in order to be successful and so have to locate relatively distant from each other and from a considerable number of their customers. There is scope, therefore, for much smaller stores to operate, at a profit, convenient to customers and providing services not available at the large mass merchandizing stores. Many local shops provide delivery, cash cheques, give credit or other extra services. The American convenience store has grown in importance in this way.[11] From a few hundreds in the late 1950's this type of shop now numbers in excess of 25,000 in the USA. It is basically a small shop opening long hours (even 24 hours a day) and providing basic convenience goods at locations close to consumers. Convenience stores are also becoming common in Western Europe and particularly so in those countries (notably France and F.R. of Germany) where large scale retailing is well established.

A second aspect of small store development is in meeting the demand for specialist (technical or fashion) goods. Such 'boutique' type shops carry a deep assortment of a very specialized line of goods. Antique shops, specialist clothes shops, hobby goods shops are of this type and all three are increasing in number in both USA and Western Europe.

By adjusting either their location or their product mix, large and small shops can complement each other rather than be in conflict. In some cases the two retail techniques are operated by one firm. The major hypermarket group in Britain also controls a chain of small grocers usually located in residential areas or in small shopping centres. The two branches of the organizations have been developed such that conflict between large and small does not arise. It is the shops of intermediate size and the small ones which are unwilling to adjust to their changed situation for which the outlook is bleak and who's numbers are falling rapidly.

[10] Some of these reasons are discussed in J. A. Dawson and D. A. Kirby: Problems and Policies Affecting the Small Shop – A Review. *International Journal of Physical Distribution* 1977, 7(5), pp. 244–54, and in the papers in P. Jones and R. Oliphant (eds): *Local Shops: Problems and Prospects.* Unit for Retail Planning Information, Reading, 1976.

[11] Reports in the American magazine *Progressive Grocer* frequently show the continued growth in this type of shop in North America see also D. A. Kirby: The Convenience Store Phenomenon. *Retail and Distribution Management,* 1976, 4(3), pp. 31–33. Their increasing numbers and ability to exist alongside hypermarkets in Germany are points made by B. Litke: Renaissance du Magasin de Proximité? *Libre Service Actualités,* 1976, 600, pp. 38–39.

A second major trend in marketing is for the life-cycle, at least of commercial institutions, to be shortening. Again retailing provides a typical example. Each retail technique has a life-cycle.[12] The techniques pass through an introductory phase as innovation occurs. This is followed by a period of growth and the attainment of maturity. Other new, innovatory, techniques then begin to compete, seriously, with the established institutions. Maturity leads to saturation which is followed by decline. A marked trend in retailing is the shortening of the time span between introduction and maturity for each successive innovation. It took 50 years, or more, for department stores to achieve a mature status. Pasdermadjian shows how their development was a gradual evolutionary process[13] and only since about 1970 has there been evidence of a serious decline. Supermarkets developed more rapidly and have taken about 25 years to reach maturity.[14] Franchizing, in its current form, is expected to reach maturity in less than 20 years. Hypermarkets are close to a mature position after barely a decade.

Some of the most important implications of this shortening of the life-cycle and acceleration of growth processes lie in the rapid outdating of the physical structures housing the techniques. Many department stores operate in buildings 100 years old and are suffering from the consequent problems. Some supermarket buildings are already coming to the end of their economic life but not their physical life. Will hypermarket structures have an economic life of more than 25 years? It seems unlikely. From this it seems likely that the speed of succession of uses associated with the physical stock of buildings in the city is increasing. The movement from low rent to high rent property associated with a maturing technique is speeded up. There is a more rapid turnover in low rent sites which often means a more rapid rate of physical deterioration. The move, by the institution, from city centre to suburbs is often associated with the achievement of maturity. Poor quality inner city commercial property is abandoned in favour of purpose built suburban units. The longer term implications of this process are interesting for as decline occurs it is the purpose-built suburban sites which will become low rent units which attract the innovators and inner city sites become totally abandoned unless, the unlikely happens, and maturing techniques move from cheap suburban sites to inner city areas.

The acceleration of life-cycle processes in marketing has not been studied in any detail. The broad concept of the life-cycle is closely related to the wheel and spiral theories of retail development. The spatial diffusion of techniques during their life-cycle has had limited study but much remains to be done. A study of self-service

[12] The life-cycle idea is similar to the *wheel of retailing* approach to retail development originally argued by M. P. McNair: Significant Trends and Developments in the Postwar Period. In A. B. Smith (ed.): *Competitive Distribution in a Free, High-level Economy and its Implications for the Industry.* University of Pittsburgh Press, Pittsburgh, 1958. The idea has been tested in many places and developed along several lines, for example, J. Arndt: Temporal Lags in Comparative Retailing, *Journal of Marketing,* 36, pp. 40–46, and E. Agergard, P. A. Olsen and J. Allpass: *The Interaction Between Retailing and Urban Centre Structure,* Institut for Center-Planlaeging, Lyngby, 1968.

[13] H. Pasdermadjian: *The Department Store.* Newman, London, 1954.

[14] R. J. Markin: *The Supermarket: an Analysis of Growth, Development and Change, Washington State University,* Bellingham, 1963.

retailing within Nottingham, England, has shown both a spatial movement from city centre to suburbs as the technique matured and also an organizational shift as first the consumer co-operatives developed the idea, subsequently there were multiple retailer innovators and finally, when the consumer co-operatives were well on the way to maturity, the technique was still at innovation stage with small private retailers.[15] From introduction to saturation in Nottingham will have taken about 25 years. Supermarkets which were introduced about 5 years after self-service stores will reach saturation at about the same time as self-service. Even in this local example the acceleration of life-cycle processes is clearly seen.

SCRAMBLED MERCHANDIZING

A common feature of retailing in Europe and North America is the increasing extent to which *lines of trade* conventions have been abandoned since the early 1960's. It is estimated that, in the USA, more than one shop in four sells automotive products and 40% of grocery stores sell motor oil. In Britain, in 1975, 87% of grocery stores sold ladies tights, 77% sold light bulbs.[16] The first is a traditional clothing shop line whilst the second is hardware. Neither of the items is a grocery good. Similar expansion of product mix is occurring in all types of shop and the traditional delimitation of shop types no longer operates. Both small and large stores have grasped the opportunity to stock a wider range of goods particularly extending into high profit or rapid turnover lines. These were formerly the main trade item of specialist shops. The loss of this trade by the specialist stores means their closure as their main profit lines are pirated by more general stores usually selling from a grocery base. A study of a small town in South Wales suggested that the expansion of non-food items and specialist food sales taking place in general grocery stores (usually supermarkets) was a major factor in the decreasing number of specialist shops in the town.[17]

The three retail trends mentioned above do not operate independently of each other. The movement to scrambled merchandizing methods is closely related to the increased operating scale of shops and to the emergence of new retail techniques. The three trends are very closely inter-related.

INCREASED CONSUMER MOBILITY

The three trends discussed so far are integral to the retail sector and have implications for consumers in respect of the provision of retail facilities of different types. There are other trends apparent in the consumer sector with implications for the other institutions in the marketing system. One of these consumer based trends is the increase in a personal mobility of consumers.

[15] J. A. Dawson: The Development of Self-service Retailing in Nottingham. *East Midland Geographer*, 1973, 5(7), pp. 355–360.

[16] C. J. Wallis: Grocery Trading in 1975. *Nielsen Researcher*, 1976, 17(2), pp. 1–5.

[17] J. A. Dawson and R. H. Morgan: *Shopping in Carmarthen.* Mimeo report, Department of Geography, University of Wales, Lampeter, 1976. See also C. E. Vincent: The Retail Hardware Decline. *Journal of Marketing*, 1964, 28, pp. 26–29.

Car-ownership and more importantly two car-ownership, has a drastic effect on shopping behaviour. A mobile consumer is no longer restricted to visiting nearby shops. The central area shopping facilities of modern cities developed, in the early part of this century, with the growth of public transport. With the massive use of private transport in the last 30 years these city centres no longer provide shops which attract the personally mobile consumer. Over 80% of families in the USA own a car; over 50% in the United Kingdom. Of greater importance, perhaps, is that a third of families in the USA own two cars. A two car family certainly uses a car for almost all shopping trips. With this increase in mobility the consumer is able to choose from a wider range of feasible shopping centres and furthermore is likely to choose those centres and shops which provide particular facilities for car borne shoppers such as easy vehicle access and a parking area close to the shop. The growth of 'drive in' shops of almost all types in the USA and Australia and their emergence in Western Europe is witness to this demand for car orientated shops. Along major roads and in the suburbs drive-in chemists, drive-in off-licences, drive-in tobacconists, drive-in banks all prosper.

The increase in mobility has affected consumer behaviour in other ways than affecting the choice of shop. As well as searching for an acceptable shopping environment the consumer "may wish to avoid the drudgery of several shopping trips per week and complete all purchases for a seven-day period during a single outing".[18] To achieve this the consumer will have to visit either a single store with a wide range of food and non-food goods on sale (for example a hypermarket with a scrambled merchandizing policy) or a group of shops which together offer a full commodity range but operate off a combined parking area and sell under a corporate image. The planned suburban shopping centre and the integrated central area shopping development both meet this latter need. The demands of the mobile consumer add to the free market results of economic processes in retailing and together create new retail and urban environments.[19]

CONSUMERISM

There is a second important change in consumer processes taking place in western type marketing systems. This is the growth of *Consumerism.* Consumerism is a movement towards positive consumer power in the marketing system. Consumers become organized and voice unified opinions on items such as product packaging and labelling but also on shopping environments and the types of shops consumers want.[20] In several

[18] R. J. Johnston and P. J. Rimmer: *Retailing in Melbourne,* Australian National University, Canberra, 1969, p. 31.

[19] Other recent examples of changes on consumer behaviour consequent on car ownership are C. J. Thomas: The Effects of Social Class and Car Ownership on Intra-Urban Shopping Behaviour in Greater Swansea, *Cambria,* 1974, 1, pp. 98–126; C. G. B. Mitchell and S. W. Town: Accessibility of Various Social Groups to Different Activities. *Transport and Road Research Laboratory, Report SR258, 1977; R. L. Davies:* Patterns and Profiles of Consumer Behaviour, *University of Newcastle, Department of Geography, Research Series,* 1973, 10.

[20] Whilst the movement has origins in North America it is of growing importance in Western Europe, R. O. Herrmann: Consumerism: its Goals, Organizations and Future, *Journal of Marketing,* 1970, 34, pp. 55–60; H. B. Thorelli and S. V. Thorelli: *Consumer Information Handbook.* Praeger, New York, 1974.

countries consumer groups are launching campaigns to halt the decline of the small shop. By publicity and also by political lobbying the consumerism movement is attempting to influence the pattern of shopping provision and hence the retail and urban environments. The movement also advocates the provision of large suburban or out-of-town mass merchandizing stores to meet the needs of the mobile sections of the population. Small corner shops are seen as providing for the shopping needs of the low mobility groups. In this instance consumer groups are campaigning with the marketing institutions themselves but are in conflict with governmental agencies responsible for equating consumer demand and retail provision. In other instances consumer groups advocate views counter to the major marketing firms. The emergence of consumerism means that a new set of processes have developed to influence the evolution of the retail and urban system. Having become established it seems likely that these processes will become more important and will have to be considered alongside other processes creating change in marketing institutions.

The changes in marketing institutions outlined above are not the only ones to affect the marketing system.[21] There are other institutional changes such as the growth of non-store trading in the retail sector and the rapid growth of vertically integrated marketing systems. The changes outlined serve to indicate some major changes which have a direct influence on urban environments. Additionally there are much more specific changes in marketing institutions which create change in the urban environment. The change in activities in terminal wholesale markets, such as Covent Garden in London, or Les Halles in Paris, has forced these city centre institutions to seek suburban sites with the consequent creation of problem districts in the inner cities. Not only London and Paris have had this problem. North American and Australian cities also have been affected by the same process. Again in the wholesale sector there is the growth of cash and carry wholesaling which requires a different set of locational criteria from the traditional wholesaler and consequently wholesale institutions have changed their location within the city.[22] Marketing institutions are central to the functioning of the city system and change in marketing institutions inevitably leads to changing urban processes and the creation of new urban environments.[23]

[21] These and other trends are discussed in W. Gross: Retailing in the Seventies: a Projection of Current Trends. *Baylor Business Studies,* 1969, 79, pp. 19–31; J. S. Hensel: Environmental Change and the Future Structure of Retailing. *Arizona Business,* 1973, 20(2), pp. 14–20; L. Bogart: The Future of Retailing. *Harvard Business Review,* 1973, 51, pp. 16–32; H. McNearnie: Retailing in the 1980's. *Estates Gazette,* 1975, 235, pp. 281–285; R. E. Thomas: Change in Distribution Systems of Western Industrialized Economies. *British Journal of Marketing,* 1970, 62–69.

[22] Some of changes in wholesale institutions are discussed in J. C. MacKeon: Conflicting Patterns of Structural Change in Wholesaling. *Economic and Business Bulletin,* 1972, 24(2), pp. 37–53; D. Walters: Physical Distribution Futures for the U.K. Food Industry. *Retail and Distribution Management,* 1975, 3(5), pp. 42–47; Cash and Carry and its Place in Town Planning. *Grocer,* 1975, 6196, pp. 70–82; Cash and Carry Wholesaling. *Retail Business,* 1976, 225, pp. 19–24.

[23] Historically the importance of marketing in city systems is shown by J. E. Vance: *The Merchants World: The Geography of Wholesaling.* Prentice Hall, Englewood Cliffs, 1970. In respect of future impact some ideas are floated by A. F. Doody and W. R. Davidson: The Next Revolution in Retailing. *Harvard Business Review,* 1967, 45, pp. 4–20, and in C. M. Crawford: *The Future Environment for Marketing,* University of Michigan, Ann Arbor, 1969.

3. ENVIRONMENTAL IMPACTS OF MARKETING CHANGE

Marketing activities tend to be concentrated in urban centres and consequently the impact of change in marketing institutions is likely to be most strongly felt in cities. The linkages existing amongst the many marketing institutions in the city have never been studied fully and the operational processes of the institution are incompletely known.[24] Some linkages have been studied at a general level, for example those between consumer and retailer,[25] but most of the inter-sectorial links have had limited study. Within a sector the institutional linkages have been studied even less frequently. Within the consumer sector for example little is known of links between different consumer segments and the influence of one group on the buying habits of others.[26] Assumptions have been made about social class and the copying by some classes of the behaviour of other classes but little has been proved in this connection. Within the retail sector there has been some study made of the relationships between the different retail institutions. Even here a complete picture is not present. What does exist are a series of studies of how new retail institutions, which have emerged as a consequence of the trends discussed above, have had an impact on existing institutions. These studies have shown how inter-institution links have changed and how the retail environment, which is composed of these links, has altered.

The most satisfactory way of showing this environmental change is to consider two new institutions, first the hypermarket and its impact on existing institutions and secondly town centre renewal as an adaptation of the existing environment.

HYPERMARKETS

Marketing processes at all levels have combined to make large retail units the most profitable form of retailing. In this pursuit of ever larger shops the hypermarket has evolved. A hypermarket is a food and general merchandize store of at least 2500 m^2 sales space selling on self-service principles and operating a mass merchandizing policy including direct purchasing from manufacturers. The store is open long hours and provides large areas of customer car parking. A hypermarket often contains a small number of specialist 'boutiques' within the store, a cafeteria/restaurant, garden centre and car service station. Such stores typically have a sales figure in excess of that expected of all shops in a small town of 10–12,000 population.

The idea of the hypermarket is essentially French with the early developments taking place in that country around 1965. There are, in 1977, 337 of these stores

[24] Recent studies on office activity in city centres have shown some of the links amongst secondary institutions and marketing. For example, R. B. Armstrong: *The Office Industry: Patterns of Growth and Location.* Cambridge, 1972 and J. B. Goddard: *Office Location in Urban and Regional Development.* Oxford University Press, London, 1975.

[25] Much of this work is summarized in J. F. Engel, D. T. Kollat and R. D. Blackwell: *Consumer Behaviour,* Dryden Press, Hinsdale, 1973.

[26] A few studies are reviewed in R. E. Witt and G. D. Bruce: Purchase Decisions and Group Influence. *Journal of Marketing Research,* 1970, 7, pp. 533–555, and V. J. Cook: Group Decision, Social Comparison and Persuasion in Changing Attitudes. *Journal of Advertising Research,* 1967, 7, pp. 31–37.

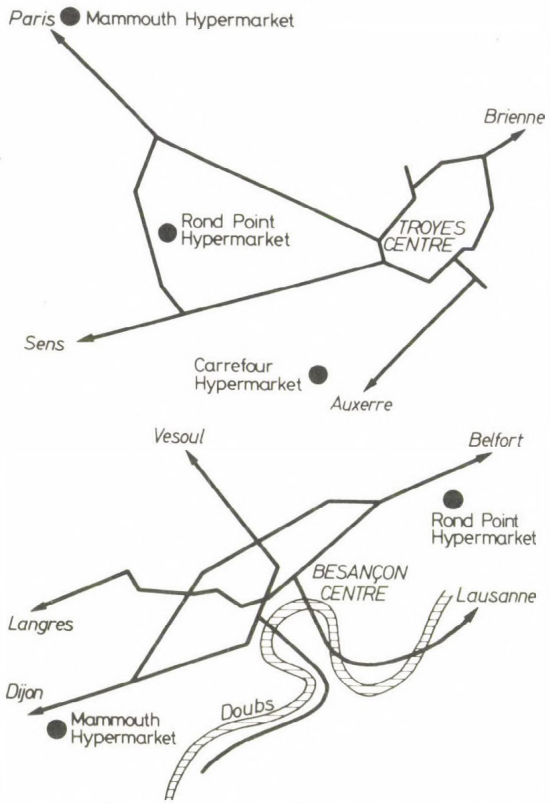


Fig. 1. Hypermarket locations in two French towns: Troyes and Besançon

operating in France, around 80 in Britain (although here many trade under the title of a superstore), several hundred in the F.R. of Germany and throughout Scandinavia, and also an increasing number in Spain, Italy, the former French colonies in Africa, Australia, Brazil but, surprisingly, only a scatter in North America. In all countries their numbers are increasing and the stores are also becoming larger.[27]

The physical space requirements as well as the relative cost of land between town centre and suburbs often means that hypermarkets are located on greenfield sites towards the edges of the built up areas. Hypermarkets are very much an activity of the urban fringe and create for fringe belts a new function, namely that of retail provision. The typical locations of hypermarkets in two medium sized French towns are shown in *Figure 1.*

[27] The spread of hypermarkets in France is outlined in J. A. Dawson: Hypermarkets in France. *Geography,* 1976, 61(4), pp. 259–262, and more generally in M.P.C. and Associates, The Changing Pattern of Retailing in Western Europe, The Author, Worcester, 1973, and in J. A. Dawson: Hypermarket Happening. *Geographical Magazine,* 1975, 48(2), 118.

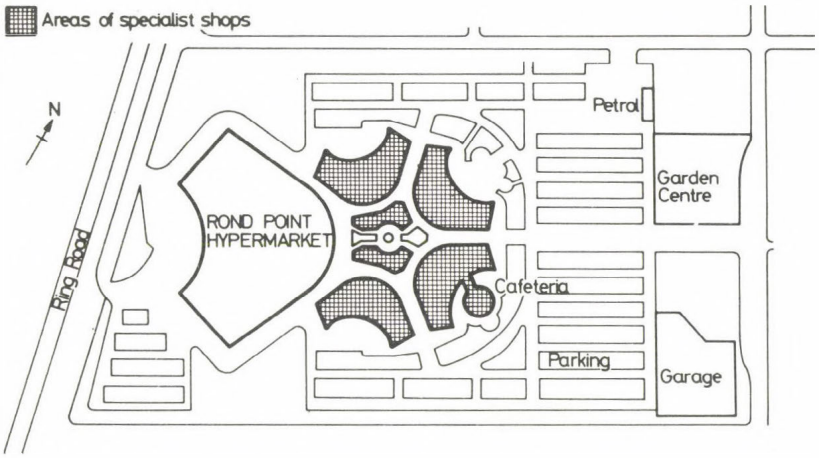


Fig. 2. Site plan of the Rond-Point hypermarket at Troyes

In Troyes (population 126,000), for example, the Rond-Point hypermarket which opened in March, 1976 is the key tenant for a shopping development of 28 shops. On a site at the edge of the town the development, for which original permission was given in October, 1974, is functionally related to residential suburban growth which by the end of 1977 is planned to house 35,000 population in the immediate suburbs. The centre which has a total area of 78,744 m^2, represents the central shopping building. The hypermarket element consists of 7500 m^2 total floorspace of which 3520 m^2 is sales space. The hypermarket thus represents a major pole of retail attraction within the urban structure of Troyes. The hypermarket provides for the general retail provision of an estimated 50,000 households. Associated with the hypermarket are specialist shops having a combined floorspace of 5358 m^2. A furniture store of 1350 m^2 and 344 m^2 textiles shop are the major elements of this specialist retail provision. On the same site are a filling station, garage and garden centre (see *Fig. 2*), and parking for 850 cars.

The second example in *Figure 1* is the hypermarket operated by the co-operative movement at Besançon, a town with a population of 123,500. A similar edge of town site is used to that at Troyes but the hypermarket (also opened in March, 1976) is rather larger with 6800 m^2 sales area and parking for 1150 cars. Only 11 specialist stores (each of average 110 m^2) operate alongside the hypermarket. By late 1976 the monthly sales were over 8 M Fr, per month (approx, £1 M stg). The first 4 days of opening yielded 4 M Fr. Clearly consumers want to visit such stores and the store environment created is attractive to consumers. Among the hypermarket giants in France is a 10,000 m^2 store operated by Carrefour on the northern fringe of Marseille. This store opened in April, 1976 and in 4 days took a record 7·8 M Fr. in sales. Sales in February, 1977 were 18 M Fr. but this is well below the largest Carrefour stores which regularly had sales of over, and some considerably in excess of, 40 M Fr. per month in early 1977. At the then current exchange rates (April, 1977) the largest store had monthly gross sales of £6.5 M stg. Most of the large regional shopping centres

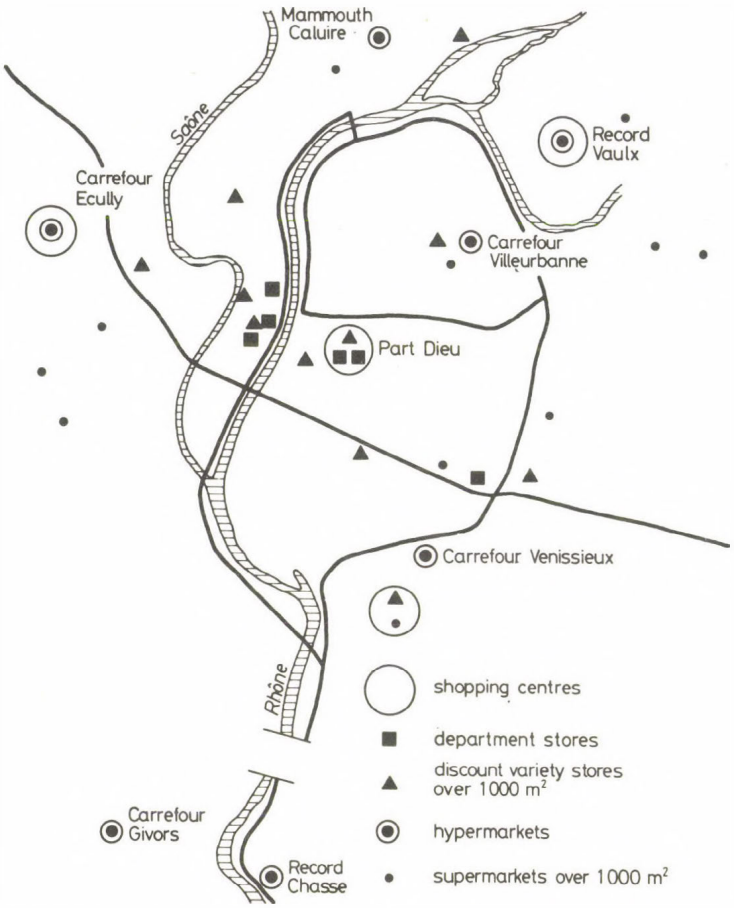


Fig. 3. Major retail developments in Lyon

around Paris had gross total monthly sales of around 40 M–50 M. Fr. in early 1977. Belle Epine, Rosny 2, Parly 2 were all pulling around 45 M Fr. each. The very large hypermarkets therefore are, in sales terms, as large as major regional shopping centres.

Around the larger French towns are a ring of hypermarkets and other large suburban stores. *Figure 3* summarizes the pattern for Lyon with 7 hypermarkets and several supermarkets of over 1000 m^2 within the urban fringe. *Table II* provides some detail on the hypermarkets. Typical is the Record hypermarket within the Grand Vire centre. The site area is 53,000 m^2 containing parking for 1200 cars, the hypermarket and 36 specialist stores. In little more than the last 10 years a new set of marketing institutions have established themselves in suburban Lyon. The shopping environment has been radically changed with a new set of alternative retail institutions being presented to the consumer. The hypermarkets alone, in early 1977, account for approximately 150 M Fr. per month retail sales. The central shopping centre with two

Table II. Hypermarkets in the Lyon urban area, April 1977

	Date opened	Sales area m^2	Parking spaces	Employee numbers	Sales in M. Fr.*
Carrefour Venissieux	1966	11 300	1750	600	49·4
Villeurbaine	1964	2 500	170	210	12·3
Ecully	1972	8 800	1900	300	41·8
Givors	1976	6 500	1950	280	13·5
Mammouth Caluire	1969	5 700	1200	300	18·8
Record Vaulx	1976	5 600	1200	215	c. 10
Chasse	1973	5 500	1000	175	c. 8

*Sales figures refer to gross turnover in March 1977.

department stores and 86,000 m^2 G.L.A. in 154 shops by comparison accounts for only 43 M Fr. per month. Retail structures in the city have been fundamentally changed by the changing marketing institutions.

Suburban hypermarket growth such as that at Lyon, Besançon, Troyes and throughout the French urban system has had implications for the existing traditional retail provision in city centres and suburbs alike. Attempts to study the impact of edge-of-town hypermarkets have occurred in most countries of Western Europe for hypermarkets have been seen as having a potentially disasterous effect on city centre trade. All sorts of claims are made as to the impact of hypermarkets. A popularly held view in local administration in West Germany is that one new 10,000 m^2 hypermarket leads to the closure of 60 small shops.[28] Another often used statistic in hypermarket folklore is that supermarkets in towns where a hypermarket develops may expect a 30% fall in sales volume.[29] Alternatively a report of a survey on the impact of a hypermarket in South Wales claimed, "the findings controvert the lines of argument which forecast catastrophic decline of established shopping centres as a result of the opening of hypermarket".[30] Other studies in Britain have suggested both that hypermarkets affect medium scale supermarkets more than small shops and also that there are great variations in the degree of impact amongst shopping centres and amongst shops.[31]

It is extremely difficult to determine precisely the effects of a hypermarket development. "It is not possible to isolate the effect of a hypermarket opening from

[28] P. Norman: Small retailers are implacable enemies of Germany's growing hypermarkets. *The Times,* October, 1976.

[29] This sort of figure was used frequently in the enquiry for a new hypermarket on the edge of Bristol, England. See E. J. L. C. Steen: *Cribbs Causeway Out-of-Town Shopping Centre Enquiry – A Report of the Proceedings.* City Planning Department, Bristol, 1972.

[30] D. Thorpe and P. J. McGoldrick: *Caerphilly – Consumer Reaction.* Retail Outlets Research Unit, University of Manchester, 1973.

[31] Capel-Cure Carden and Co.: *Living with a hypermarket,* Authors, London, 1973; Donaldsons Ltd.: *The Caerphilly Hypermarket Study.* Authors, London, 1973, and from the same source *Caerphilly Hypermarket Study Year Two,* 1975; J. F. Pickering: Economic Implications of the Hypermarket, *European Journal of Marketing,* 1972, 6(4), pp. 257–269; J. A. Dawson and D. A. Kirby: Retailers' Reactions to Cwmbran, Woolco. *Estates Gazette,* 239, 113.

other factors which may have affected shopping and shopping centres during the year of study ...".[32] The usual survey method is to carry out surveys of consumer shopping patterns and retailer attitudes prior to opening of the hypermarket and a similar survey after opening. Occasionally two post opening surveys are mounted. From the analysis of these surveys statements are made on the effect of the hypermarket. With this methodology no attempt is made to estimate the *natural* trend of retailing in an area prior to the hypermarket opening. It is important to know, for example, whether the sales of a shop or even a shopping centre were decreasing or increasing prior to the opening of a hypermarket. A single survey does not provide this information. Perhaps it is not surprising that it is in France that there has been carried out the most sophisticated surveys of hypermarket impact, including retail sales time series and studies of individual shops of different types and sizes at different distances from the hypermarket and in various financial situations. No longer do these surveys make general, bold statements that a sales decrease of X or Y% will occur after a hypermarket opening.

The facts to emerge from the many French surveys, several are summarized in an important review by the Centre de Recherche et de Prospective Commercial,[33] is that hypermarket impact on retailing in a host town can range from none at all through to the closure of previously financially viable shops. It is worthwhile to provide here a very brief review of the effects of hypermarkets on different types of shop, as summarized from French material.

As far as generalizations are possible it appears that large stores are affected least and supermarkets most by new hypermarkets. There are few studies of the effects new hypermarkets have on existing hypermarkets around a town. There are studies, however, of the effect on department stores and variety stores in town centres. *Table II* shows how sales in department stores and variety stores have changed in towns with and without hypermarkets. The immediate effect of a hypermarket opening would seem to be a slight reduction in sales in town centre department stores but by 2 years after opening there seems little evidence of adverse impact. By comparison variety and discount stores with food halls have been more affected by hypermarket development. The lower of *Table III* shows data for 3 towns with hypermarkets and three without. Consistently, in towns without hypermarkets the index of sales volume is high when compared with towns with hypermarkets. It would seem that the presence of food sections in the variety/discount stores compounds the effect of hypermarkets and it seems likely that it is food sales particularly which are lost to the new hypermarkets.

Assuming it is in food retailing using mass merchandizing methods that hypermarkets excel, then it might be expected that supermarkets, attempting this method of retailing, will be heavily hit by hypermarket competition. *Figure 4(A)* shows the change in sales volume of 50 French supermarkets over 3 years spanning the opening of a hypermarket in the immediate vicinity.[34] The index plotted is the percentage

[32] D. Ward: *The Eastleigh Carrefour – a Hypermarket and its Affects.* Department of Environment, London, 1976, p. 74.

[33] Centre de Recherche et de Prospective Commerciale: *Grandes Surfaces et Petits Commerces: Mythe et Réalités.* Author, Paris, 1973.

[34] Institut Français du Libre Service: *Hypermarchés contre Supermarchés: Trois Années de Concurrence.* Author, Paris, 1971.

Table III. Change in index of retail sales, to common base, of shop types in contrasting environments

A. Department stores

Year	Towns without hypermarkets			Towns with hypermarkets		
	Town A(1)	Town B(1)	Town C(2)	Town D(1)	Town E(2)	Town F(2)
1965	100	100	100	100	100	100
1966	103	101	104	103(3)	106	105
1967	107	104	109	104	107(3)	111
1968	109	108	116	108	109	113(3)
1969	114	108	118	111	109	116
1970	121	111	123	116	113	120
1971	129	115	130	122	113	126

Note:
(1) Department stores without food sections; (2) Department stores with food sections; (3) Year of hypermarket opening.

B. Variety/discount stores with food sections

Year	Towns without hypermarkets			Towns with hypermarkets		
	Town G	Town H	Town I	Town J	Town K	Town L
1965	100	100	100	100	100(1)	100
1966	104	119	103	102	93	105
1967	106	128	109	96(1)	95	110
1968	110	130	115	98	96	117
1969	117	137	113(2)	101	101	110(1)
1970	120	140	115	101(3)	107	111
1971	125	146	118	110	114	117

Note:
(1) Year of hypermarket opening; (2) Year of Superette opening; (3) Closure of food section.

comparison between monthly sales and those in the same month of the previous year. Three or four months after the hypermarket opening sales are approximately 10% down on the previous year and then remain for several months at this level of 10% below sales immediately prior to opening. There is then a gradual growth with sales after about $2^1/_2$ years back at the pre-hypermarket opening level. It would be wrong to assume all supermarkets will respond in this way. Within the sample of 50 some (8) had a sales graph as shown in *Figure 4(B)* in which impact is slight and sales losses are soon recovered. In the sample a group of 7 supermarkets had a sales graph which averages out as shown in *Figure 4(C).* In this group the absolute effect of the hypermarket is less than average for the whole sample and recovery is fractionally

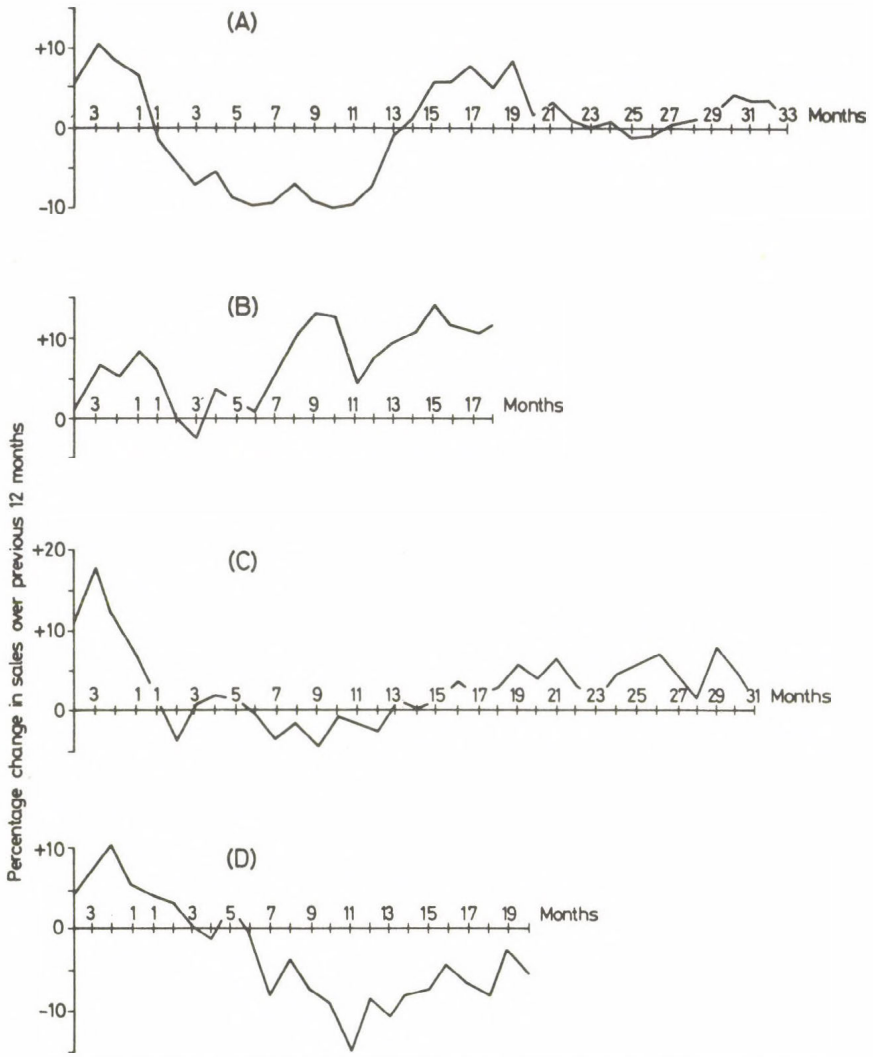


Fig. 4. Change in sales volumes of supermarkets subsequent to the opening of hypermarket competition

more rapid. *Figure 4(D)* shows a graph of 8 supermarkets which closed subsequent to hypermarket development.

Amongst small traders the variation in impact is even greater. A detailed study in Angers showed that when two hypermarkets opened in 1970 the smallest shops were badly hit but shops in the 30–50 m^2 size range in the town centre fared better than

Table IV. Change in sales during 1970 of a sample of independent food shops in Angers, France

Change in sales	Age of retailer percentages		
	Less than 45	46–55	over 55
Increase or less than 5% decrease	45	44	11
Decrease 5–10%	5	44	11
Decrease over 10%	40	11	77
Total	100	100	100
Number in sample	20	9	9

did larger shops and supermarkets.[35] Particularly badly hit appeared to be shops with relatively old operators. *Table IV* shows change in sales in food shops in 1970 related to age of operator. Within the town 3 major retail developments, including 2 hypermarkets opened between October, 1969 and September, 1970. What is not clear, however, from these figures is the pattern of movement in sales prior to 1970. It is quite possible that in the shops operated by older owners sales were falling before the advent of new major developments. The evidence from towns without hypermarket competition also shows small shops, and particularly those operated by older retailers, are becoming less viable as economic units.[36] The extent to which hypermarkets affect small independent shops is, to a large extent, in the hands of the independent retailers. The two trading methods, small shop and hypermarket, are so different both operationally and in the customers they attract, that they do not effectively compete with each other. Only when small independent stores attempt to compete with, rather than complement, hypermarkets do real problems arise.

The study of Angers and similarly detailed ones of Chambourcy and Bordeaux point to six instances when hypermarket impact is at its greatest.[37]

1. In non-specialist shops selling by mass mechandizing methods,
2. In general goods shops rather than quality or specialist shops,
3. In very small shops which are marginal economic enterprises in any case,
4. In large, self-service, stores of the same general type as hypermarkets,
5. In stores operated by older retailers (inability to adapt) and very young retailers (lack of finance to adapt),
6. In shops very close to the hypermarket.

This example of the changing marketing environment in urban areas consequent on the hypermarket institution shows how the equilibrium within the marketing environment changes with a greater importance attached to a suburban location and the greater retail power of a few giant stores.

[35] J. Beaujeu–Garnier, A. Delobez, A. Grandmare and J. M. Pages: *Les Effets de la Création des Grandes Surfaces sur le Commerce du Centre-Ville d'Angers.* A.U.R.E.G., Paris, 1972.

[36] M. Roy: *Les Commerçants.* Seuil, Paris, 1971.

[37] A. Delobez: *Étude d'une Grande Surface de Vente: Le "Montreul" de Chambourcy.* A.U.R.E.G., Paris, 1970; J.-Y. Duyck: *Contribution à l'étude des effets d'un hypermarché Carrefour à Bordeaux-Mérignac.* Institute of Business Research, University of Bordeaux, Bordeaux.

An alternative urban environmental change may occur due to institutional change in marketing. Central area renewal and the provision of new down-town shopping centres has occurred throughout Europe and to a lesser extent in North America. A re-styling of retailing in the city centre can involve either a complete re-building and the provision of a new shopping centre or the less drastic change of the introduction of pedestrianization into shopping streets.

Pedestrianization is, to a large degree, a response to the pressures of changing consumer institutions.[38] Governmental response to growing consumer pressures for improved urban environments has been to create traffic free precincts in city centres. The idea of pedestrian only shopping areas dates back many centuries with arcade development commonplace in many cities. The bomb damaged city centres of post-war Europe provided, in the 1950's, an opportunity to create the rather different concept of a full scale pedestrian shopping area. Bird suggests that the development of Coventry and the British New Towns marked early key phases in the spread of pedestrianization principles.[39] *Table V,* from Bird, shows some significant dates in the spread of pedestrian precincts.

Most pedestrianization schemes have proved successful despite forebodings by retailers affected by the schemes. Retail sales per unit of sales area in a shop are directly proportional to the pedestrian flow passing the shop. By providing a more attractive environment for shoppers so pedestrian flows are increased. "Experience has shown, however, that when the main High Streets in particular are pedestrianized then more crowds tend to be generated and sales of individual businesses actually increase".[40] Myatt reports in a study of Carnaby Street,[41] from which vehicles were excluded in 1972, "contrary to the widely held view that pedestrianization creates uncertainty and an unwillingness to invest amongst local commercial interests, the evidence at Carnaby Street points towards increased business commitment. The opening of new shops, and the installation of modern shop fronts, appears to have been accelerated by the re-surfacing of the pedestrianized streets."

An additional advantage of pedestrianization schemes is that they allow large retailers to remain at city centre sites which they have occupied for many years. By changing the city centre environment there is less need for retailers to become involved in expensive decentralization exercises. The increased adoption of pedestrian schemes in British central cities undoubtedly has taken some of the force out of the suburbanization process.

The second city centre response to the whole range of changes in marketing institution is the creation of new down-town shopping centres. On the one hand

[38] A useful description of shopper movement is provided in E. Dalby: Shopping Centres, Pedestrians and Shopping Centre Layout. *Transport and Road Research Laboratory Report,* LR577.

[39] J. Bird: *Centrality and Cities.* Routledge and Kegan Paul, London, 1977.

[40] R. Davies: *Marketing Geography,* Retail and Planning Associates, Corbridge, 1976, pp. 184–185.

[41] P. R. Myatt: Carnaby Street Study. *Greater London Council, Research Memorandum,* RM 466, 1975, p. 33.

Table V. Key dates in the spread of pedestrian precincts and the mall movement

1951–54	Upper precinct, Coventry, England
1953	Lijnbaan, Rotterdam, Part 1 completed
1957	Vallingby, satellite of Stockholm, completed with shopping plaza
	Ten-day trial of pedestrian mall in Springfield, Oregon, 15–26 August, called Shoppers Paradise
1957–60	Lower precinct, Coventry
1959	D. H. Lutes, architect of Shoppers Paradise and
1960	V. Gruen warns that a mall (pedestrian street) is only a part of a necessarily integrated programme to revitalize downtown, and other measures include traffic/pedestrian separation, parking facilities, proper business location, and commercial area rehabilitation
1959	Toledo, Ohio, 110-day mall experiment; Kalamazoo, Michigan, first permanent mall in the United States, and subsequent publicity
1960	23. February. By this date M. C. Moody, Executive Assistant, Kalamazoo County Chamber of Commerce had given 274 presentations of his slide talk
	Stevenage, England: shopping area completely pedestrian-based in a new town, first phase complete.
	Mall, Miami Beach, Florida; also Ottawa, first temporary experiment, later made permanent
1961	Mall, Knoxville, Tennessee
1962	Mall, Pomona, California; Midtown Plaza, Rochester, New York, with covered mall
	Stevenage, completed (and other British new towns with pedestrian-free shopping areas)

Government has been involved in these schemes in order to improve amenities and the visual environment in city centres and, on the other, large commercial property development companies have seen such centres as attractive financial investments. The more successful, and larger, of these centres involve the creation of a completely artificial shopping environment in which everything is controlled. The centres are air conditioned, advertizing, lighting, and fitments are controlled, pedestrian flows are manipulated, soft music is played. Eyes, ears, even the nose, of the consumer are stimulated in a controlled way.[42] The success of such centres prove, however, that they supply a customer demand. Furthermore, in Britain such centres have been

[42] R. I. Northen and M. Haskoll: *Shopping Centres – Planning and Design.* C.A.L.U.S., Reading, 1977; D. Gosling and B. Maitland: *Design and Planning of Retail Systems,* Architectural Press, London, 1976; C. Darlow: *Enclosed Shopping Centres,* Architectural Press, London, 1972; R. J. McKeever: *The Community Builders Handbook.* Urban Land Institute, Washington, D.C., 1968; J. Holliday: *City Centre Redevelopment.* Charles Knight, London, 1973.

instruments of government policy to enhance the shopping power of the central city and again reduce the suburbanization pressures.[43]

In Britain, of the 155 largest shopping areas, 105 have had a major shopping scheme (at least 4600 m^2) developed in the period 1965–77.[44] *Table VI* indicates the regions where these developments have occurred. Schiller and Lambert point out, "The contrast between London and the rest of the country is very marked. Only a third of London centres have schemes compared with over two-thirds elsewhere. It is also interesting that there has been very little comprehensive shopping development in Central London – certainly nothing to compare with the scale of that in Birmingham or Manchester".[45] *Table VII* shows the dates of opening of the new centres. The peak in 1976 represents a commitment probably taken 10 years earlier in some towns for it takes a considerable time to accumulate sites, obtain permission and build a centre. The regional pattern of new floor space corresponds to the density of new schemes so that new floor space totals have been highest in the Northern regions and lowest in the South East.

The effects that new central area schemes have on existing retailers is difficult to determine. In some cases existing retailers re-locate into the new centres but in such instances little is known about operating characteristics, profit, etc., before and after re-location. In other instances retailers take the re-location opportunity to move to the suburbs or even to cease trading. Invariably, however, a new centre reduces the number of shops in the town centre, although not necessarily in the streets around the new centre.[46] The sites of many small shops together provide the space for a smaller number of large shops. Whether the response to marketing changes is a pedestrianization scheme, a new shopping centre, or both, a new urban environment is created and the retail system within the city responds to the new environment.

From the rather limited range of examples above some useful conclusions, none the less, can be drawn. First, some firms within the marketing system are developing into very large and powerful organizations capable of having, individually, a significant effect on urban structure and the urban system. Policy decisions of such firms usually relate to the maximization of company profit and the effect of the companies activities on the urban system is not costed in any way. In many cases this impact is not known. It seems likely that in the future these forms will grow larger and also increase in number. In particular there is likely to be a growth in integrated marketing companies operating through multi-national urban systems. Within the grocery trade a

[43] Ministry of Housing and Local Government: *Town Centres – Approach to Renewal.* Ministry, London, 1962, and from the same group: *Town Centres – Current practice,* 1963, and *Town Centres – Costs and Control of Redevelopment,* 1963.

[44] R. Schiller and S. Lambert: The quantity of major shopping development in Britain since 1965. *Estates Gazette,* 242, pp. 359–363.

[45] *Op. cit.* p. 359.

[46] One of the problems of small scale retailing is the difficulty small shops experience in moving into shopping centres. This was found to be so in Britain in J. E. Bolton: *Report of the Committee of Inquiry on Small Firms.* H.M.S.O., London, 1971, and in M. Hall: *The Small Unit in the Distributive Trades,* H.M.S.O., London, 1971. A similar problem exists in France and is discussed in C. Liepmann: *Intégration des Indépendants dans les Centres Commerciaux,* Institut Français du Libre Service, Paris, 1973.

Table VI. Proportion of Town Centres in England and Wales with town centre developments of at least 4600 m² in use or under construction in 1977

A. Towns with a central area sales over £10M in 1971

Region	With scheme	Without scheme	Per cent with scheme
1. Yorkshire and North East	16	6	73
2. North West and North Wales	21	3	88
3. Midlands and East Anglia	23	9	72
4. South Wales and South West	9	6	60
5. London	10	19	34
6. Rest of South East	26	7	79
Total	105	50	68

B. Towns with a central area sales over £25M in 1971

North (1 + 2)	14	1	93
Midlands and South West (3 + 4)	13	3	81
South East (5 + 6)	10	1	91
Total	37	5	88

Table VII. Total of new shopping developments of over 4600 m² opened each year in England and Wales

Year	Gross area 000 m²
1965–67	259
1968	227
1969	245
1970	291
1971	389
1972	361
1973	495
1974	384
1975	616
1976	700
under construction	509

few of these already exist and certainly within Western Europe their growth seems assured.

The growing power of such companies will lead to conflict with the institutions currently responsible for balancing the demands of commercial companies and con-

sumers. Local and central government agencies mainly through land-use planning attempt to resolve consumer-commerce conflict. The growing strength of both groups may place the urban planner in a relatively weakened position. In most countries the urban planner is constrained to planning only marketing land-uses. Many of the changes in the marketing institutions have implications for urban systems far beyond simple land use allocation. The planner is powerless in such situations. Of the capitalist countries only in Japan has an attempt been made to develop a national planning framework for marketing. Until other countries appreciate the need for such plans urban environments will continue to change at the whim of marketing institutions operating to maximize their own commercial power.

CHARACTERISTIC FEATURES OF THE DEVELOPMENT OF TOWNS ON THE GREAT HUNGARIAN PLAIN

By

J. TÓTH

Hungary

1. OBJECTIVE

The development of town is mainly influenced by socio-economic factors. The effect of these factors varies with time and as far as the situation of the town is concerned, urban development cannot therefore be the same everywhere. Generally speaking, there are periods of increase, stagnation and reversion in the development of each town. The intention of this study is to discuss the growth of towns on the Great Hungarian Plain in relation to both their own past and the expansion of other towns, i.e. in the context of the advance of urbanization between 1870 and 1970.

The objective of this study makes it possible and necessary to approach urban growth and development through change in population numbers. This leads to some simplification but it is the method resorted to the literature in this field. Since the factors which played an important role in urban development are reflected in numerical changes in the population, differences in the rate of change give us a reliable picture of differences in the development of groups of towns. The research covered 83 urban centres defined according to administrative and legal criteria. This still leaves large areas devoid of towns for the most part on the Great Hungarian Plain *(Fig. 1)*.

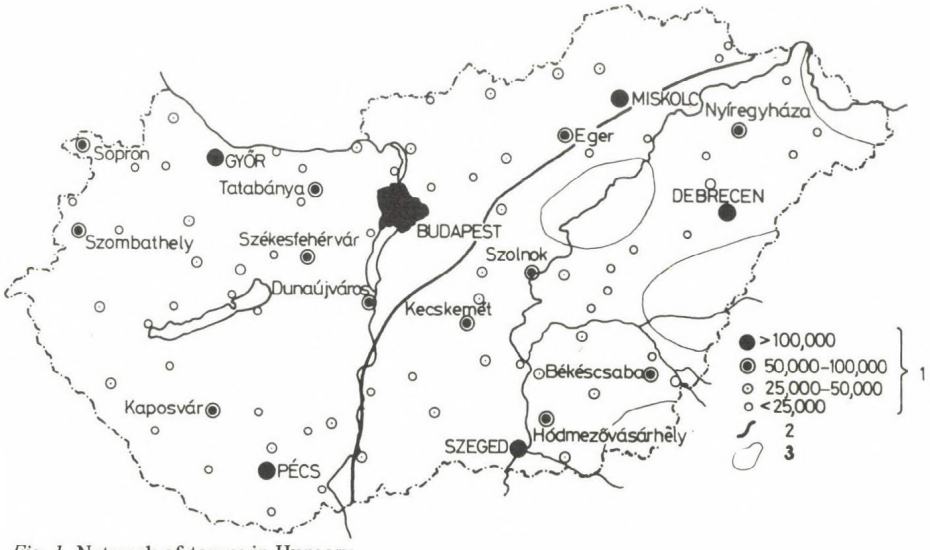


Fig. 1. Network of towns in Hungary

1 = number of population; 2 = boundary of the Great Hungarian Plain; 3 = areas without towns in the Great Hungarian Plain

2. THE GROWTH OF TOWNS ON THE GREAT HUNGARIAN PLAIN

An integral part of the research into the growth of towns on the Great Hungarian Plain is the so-called C co-efficient which expresses the relative concentration of population (Tóth 1972), and can be used to evaluate spatial variations in the rate of urban growth. The C co-efficient is derived from the following equation:

$$C = \frac{P_1 \cdot Q_2}{P_2 \cdot Q_1}$$

where:

P_1 is the number of population in the given area at time t_1;
P_2 is the number of population in the given area at time t_2;
Q_1 is the number of population in a sub-region of the given area or a sub-set of the population of the given area at time t_1;
Q_2 is the number of population in a sub-region of the given area or a sub-set of the population of the given area at time t_2.

A decennial investigation of the urban population growth on the Great Hungarian Plain during the last 100 years shows higher rates of growth before than after the Liberation. Indeed the rate of growth after the Liberation was much lower than at the turn of the century and the values after the Liberation only became higher when we take relative concentration into consideration *(Fig. 2)*.

The C co-efficient shows the same results for the leading towns of the Great Hungarian Plain *(Fig. 3)*. It is notable that although the value of the C co-efficient did not change for ordinary towns between 1870 and 1949, the situation in the case of leading towns* is different.

During the period of the investigation there were sudden increases in the rate of relative population concentration between 1890 and 1900, 1920 and 1930, and finally since 1950. The last being the most dynamic as shown by the steepness of the lines.

On studying the pattern of relative concentration we can see that the towns of the Great Hungarian Plain, both individually and as a whole, have developed most rapidly during the decades after the Liberation.

3. COMPARATIVE ANALYSIS OF THE RATE OF DEVELOPMENT OF TOWNS ON THE GREAT HUNGARIAN PLAIN

Tracing the development of the towns on the Great Hungarian Plain during the past 100 years, it is obvious that urban expansion and population growth since the Liberation has been phenomenal. As a result of the dynamic development of the

*All towns of high rank according to the concept of the development of the settlement network are considered leading towns. In the Great Hungarian Plain they are: Szeged, Debrecen, Kecskemét, Szolnok, Nyíregyháza, Békéscsaba, Baja, Hódmezővásárhely; in the other parts of the country they are: Miskolc, Pécs, Győr, Eger, Salgótarján, Sopron, Székesfehérvár, Szombathely, Kaposvár, Veszprém, Nagykanizsa, Tatabánya, Szekszárd, Zalaegerszeg and Dunaújváros.

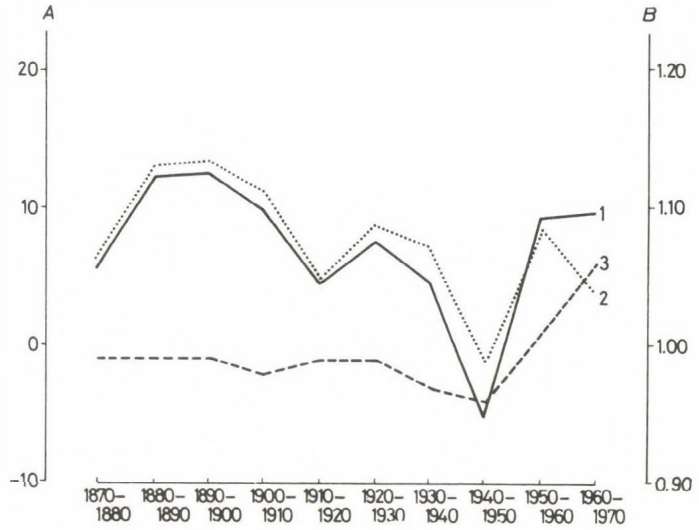


Fig. 2. Changes in the number of urban population on the Great Hungarian Plain

A = changes in the number of population (%); *B* = the value of the *C*-co-efficient; 1 = the rate of urban population increase (per decade) on the Great Hungarian Plain; 2 = the rate of population increase (per decade) in Hungary; 3 = the value of the *C*-co-efficient (per decade) for the towns of the Great Hungarian Plain

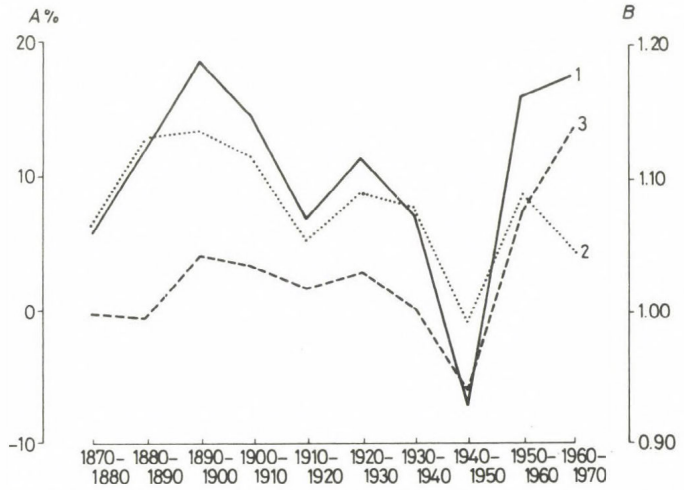


Fig. 3. Changes in the number of population in the leading towns of the Great Hungarian Plain (1870–1970)

A = the changes in the number of population (%); *B* = the value of the *C*-co-efficient; 1 = the rate of population increase (per decade) in the leading towns of the Great Hungarian Plain; 2 = the rate of population increase (per decade) in Hungary; 3 = the value of the *C*-co-efficient (per decade) for the leading towns of the Great Hungarian Plain

country, it is now appropriate that we should compare the current development of towns in the Great Hungarian Plain not only with that of their own past, but also with the expansion of other towns in different parts of the country. If we compare the development of towns in the Great Hungarian Plain with urban growth in other parts of the country, we find that the position of towns on the Great Hungarian Plain has declined during the past one hundred years. For instance, in 1870 13 of the 20 largest towns in Hungary were located in the Great Hungarian Plain but by 1975 this number had fallen to 7 *(Fig. 4)*. Regional differences can be traced in many respects, even during the period 1960 to 1970.

Thus the towns of the Great Hungarian Plain are less dynamic and migration plays a less important role in their rate of population growth than is the case in the northern part of the country or in Transdanubia. This is clearly shown by an analysis of rank co-efficient which demonstrates that the average order of towns on the Great Hungarian Plain gradually rose between 1870 and the Liberation because of slower population growth than elsewhere. Significant differences with towns in other parts of the country only emerge, however, after the Liberation when the average rank of the towns in the Great Hungarian Plain went up from 31·3 to 38·7 *(Fig. 5)*.

The same phenomenon applies to the leading towns also, both on the Great Hungarian Plain and in other areas, with the average rank of these places falling especially after the Liberation. This is a result of the fall in the average rank of towns outside the Great Hungarian Plain, plus the initial stagnation and subsequent post-Liberation rise in the rank of towns on the Plain itself. For this reason the difference between the leading towns is even greater *(Fig. 6)*.

A rank co-efficient can be derived for any given period, say a decade, and is found by means of the following equation:

$$R = \frac{\sum_{i=1}^{n} r_i^{(j)}}{\sum_{i=1}^{n} r_i^{(j+k)}}$$

where:

R is the rank co-efficient;
n the number of settlements;
r the rank of each settlement;
j the length of the time interval under study;
k the time between successive investigations.

With the help of this rank-co-efficient relative shifts in rank order can be traced. Thus, if the value of R is greater than 1, the given town or group of towns developed more rapidly than average improving their position in the rank order. The reverse interpretation holds when the co-efficient is smaller than one.

Analyzing R by the decade *(Fig. 7)* shows that there were differences in development disadvantageous to the towns in the Great Hungarian Plain even before the Liberation, although there were small – R varying between 0·95 and 1·0 for the towns of the Plain and just above 1·0 for other towns. But after the Liberation the divergence

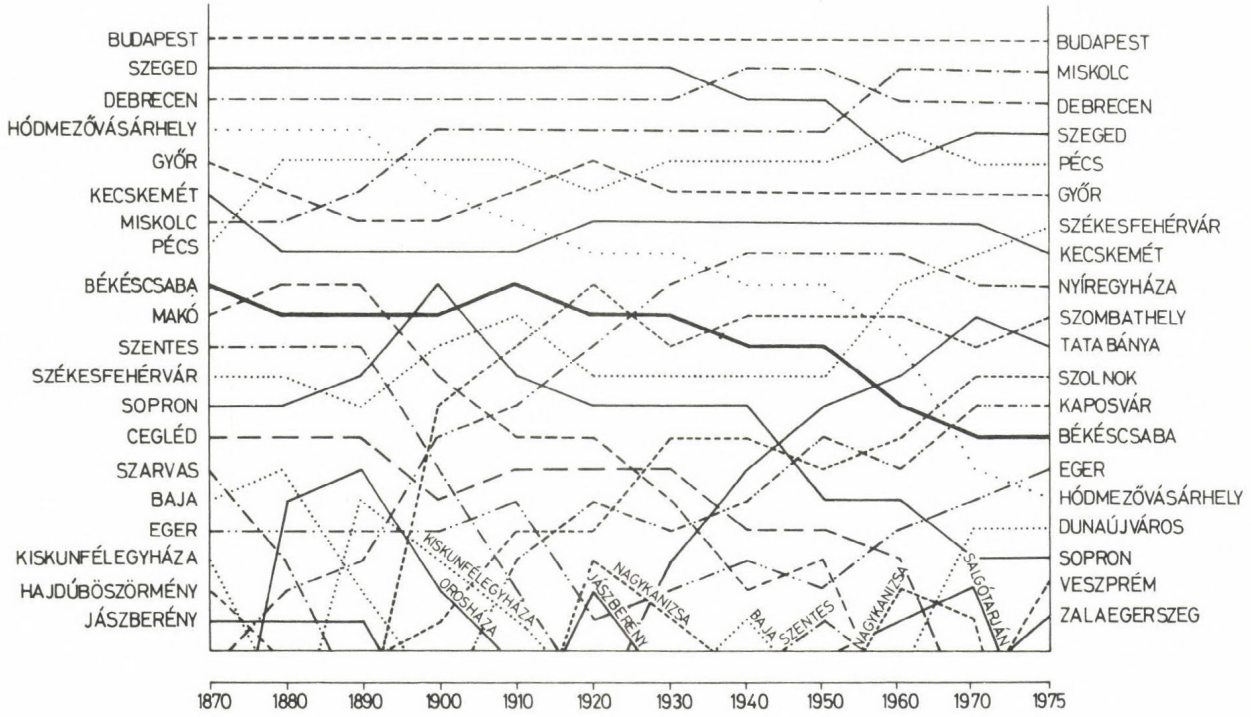


Fig. 4. The position of towns of the Great Hungarian Plain among the 20 largest towns of Hungary (1870–1975)

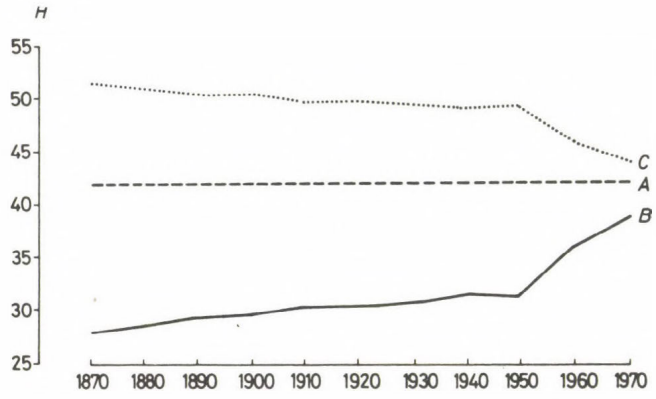


Fig. 5. Changes in the average order of Hungarian towns (1870–1970)

A = Hungarian towns (83); *B* = towns of the Great Hungarian Plain (33); *C* = other towns (50); *H* = average order

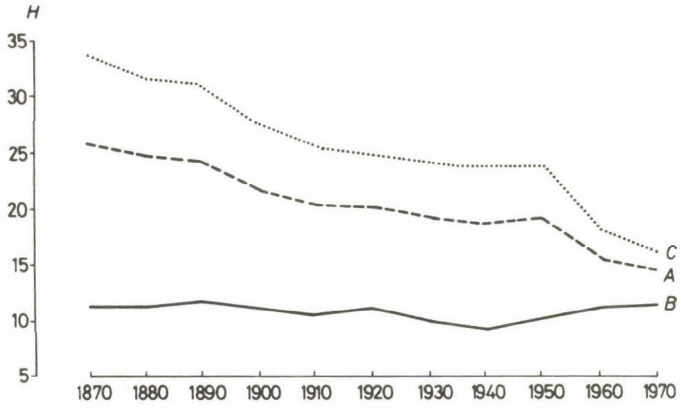


Fig. 6. Changes in the average order of leading towns (1870–1970)

A = all leading towns (23); *B* = leading towns in the Great Hungarian Plain (8); *C* = other leading towns; *H* = average order

expanded greatly, *R* falling below 0·90 for the towns of the Plain and rising above 1·05 for other urban places. This in large part was because the new socialist towns with high rates of population increase were located either in the northern part of the country or in Transdanubia (Boros 1968). Moreover the divergence is even more pronounced when the leading towns are examined only *(Fig. 8).*

One is thus led to the conclusion that urban development on the Great Hungarian Plain has never lagged so far behind than in other parts of the country as during the years since the Liberation.

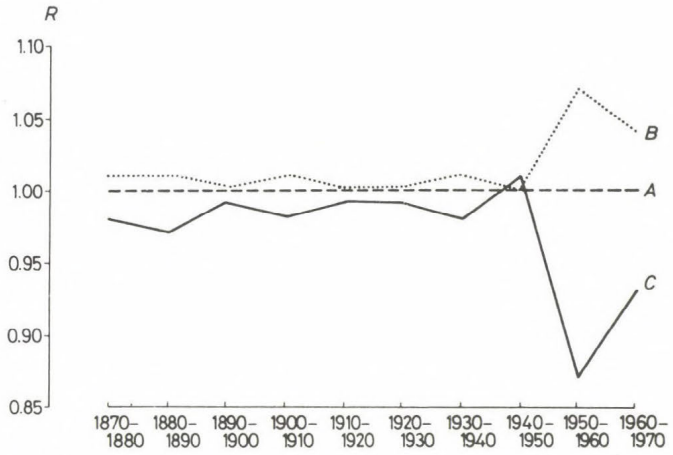


Fig. 7. The value of the rank co-efficient R (per decade) for the towns of the Great Hungarian Plain and other places (1870–1970)

A = all Hungarian towns (83); B =towns outside the Great Hungarian Plain (50); C = towns within the Great Hungarian Plain (33); R = value of the rank co-efficient R

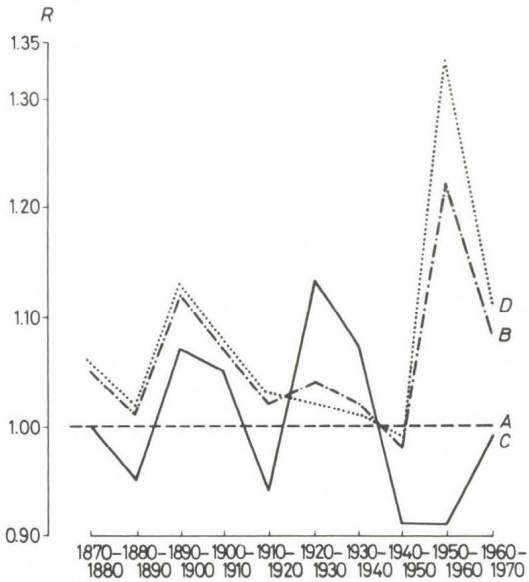


Fig. 8. The value of the rank co-efficient R (per decade) for the leading towns of the Great Hungarian Plain and other places

A = average for all Hungarian towns (83); B = average for leading towns (23); C = leading towns of the Great Hungarian Plain (8); D = other leading towns (15); R = the value of the rank co-efficient R

4. SUMMARY

It is obvious that the conclusions from our research are somewhat surprising. No doubt, the omission of the population living on the suburban fringe of towns has heightened the contrasts but its inclusion would not have removed them altogether.

The economic development, industrialization and urbanization manifested in urban population increase since the Liberation accelerated to such an extent that the contradictory conclusions concerning the development of the towns of the Plain can both be right at the same time. Economic development since the end of the 1960's has been intensive with questions like effectiveness and regional development in accordance with energy sources coming to the surface.

The results of this process can be traced in the rising proportion of intra- as opposed to inter-regional migration, and the expanding population–concentrating role of the urban centres of the country. The same facts are reflected in another conclusion of our study, which is the pace at which the towns of the Great Hungarian Plain were lagging behind other urban places was slowing down in the 1960's (see *Figs 7* and *8*).

Nevertheless, the fact that the towns of the Plain lag behind other towns must be taken into consideration when dealing with the ramified problems of urban planning. Because the development of the towns of the Plain is slower than in the other parts of the country, their impact upon the environment is weaker and the resulting damage is smaller. Research into these impacts is very important in the context of prevention.

REFERENCES

Berend, T. I. and Ránki, Gy. (1972): *A magyar gazdaság száz éve* (A Hundred Years of Hungarian Economy). Budapest, Kossuth – Közgazdasági és Jogi Könyvkiadó, p. 329.

Boros, F. (1968): A magyar városhálózat új elemei (New Elements in the Network of Hungarian Towns). *Földr. Közl.*, XVI. (XCII.), No. 3, pp. 251–266.

Kornai, J. (1972): *Erőltetett vagy harmonikus növekedés* (Forced or Harmonic Increase). Akadémiai Kiadó, Budapest, p. 86.

Lettrich, E. (1965): Urbanizálódás Magyarországon (Urbanization in Hungary). *Földrajzi Tanulmányok 5*, Akadémiai Kiadó, Budapest, p. 83.

Szauter, E. (1975): Új tendenciák a belső vándorlásban (New Tendencies in Internal Migration). *Területi Statisztika*, XXV., No. 5, pp. 486–499.

Tóth, J. (1972): A külterületi – tanyai – népesség területi különbségei és változási tendenciái a Dél-Alföldön (1960–1970) (Regional Differences and Change in the Suburban-Farmstead Population in the South Hungarian Plain). *Földr. Ért.*, XXI., Nos 2–3, pp. 247–258.

Tóth, J. (1973): A központi települések 1960–1970 közötti népességnövekedésének néhány jellegzetessége Magyarországon (Some Characteristic Features of Population Increase in Leading Towns between 1960 and 1970). *Földr. Közl.*, XXI (XCVII.), Nos 3–4, pp. 252–262.

Tóth, J. (1975): Az alföldi városok szerepéről, népességföldrajzi megközelítésben (The Role of the Towns on the Great Hungarian Plain: a Population-Geographical Approach). *Városépítés*. No. 5, pp. 18–19.

Tóth, J. and Simon, I. (1976): Aspects Showing the Role of Development of Towns in the Hungarian Plain. *Acta Geographica*, Tomus XVI, Szeged, pp. 157–165.

MAIN TENDENCIES IN THE DEVELOPMENT OF SZEGED

By
GY. KRAJKÓ
Hungary

At the turn of the century, Szeged was the second most populous town in Hungary. Its development was promoted by the fact that it was a railway junction, and was situated near the river Tisza. It became a centre for the emerging light and food industries, had an extensive sphere of attraction and was a market centre. The dynamic growth of the town is reflected in population growth which between 1880 and 1910 increased from 49,000 to 79,000.

The floods of 1870 practically destroyed the town, and the period of reconstruction coincided with an acceleration of the urbanization process. This permitted the working out of an ordered, aesthetic town plan, with a structure of avenues perpendicular to ring-roads, on the example of Budapest. This period saw the final merging of the various parts of the town, and the formation of an areally uniform closed settlement *(Fig. 1)*.

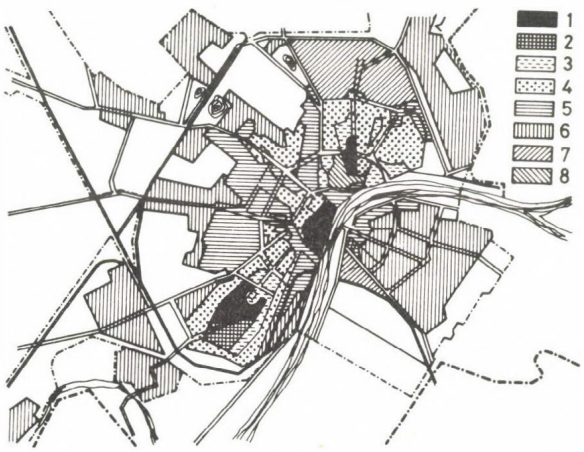


Fig. 1. The settlement of Szeged

1 = 13th–15th century; 2 = 15th–16th century; 3 = 16th–17th century; 4 = 18th century; 5 = 19th century; 6 = 19th–20th century; 7, 8 = 20th century

The situation of Szeged was very unfavourably affected by the new national boundaries following the First World War. The town lost a significant proportion of its area of attraction, and its communication situation worsened. Between the two World Wars, industrial development throughout the entire country was stagnating, while the lack of agricultural advance curbed further expansion in the food industry in the town.

Between 1910 and 1950 population growth's lackened, rising by only 10,000 from 79,000 to 89,000. The only progress was made in the fields of public health.

Stagnation not only slowed down the growth of the population, but also had an adverse effect on communal investment and the development of the town's infrastructure.

The urbanization of Szeged since the Second World War has been a smooth process. Several stages can be distinguished primarily attributable to the nature and dynamism of industrial development. Accordingly, a somewhat more detailed treatment of the industry of the town is justified.

Szeged is an important industrial centre contributing close on 2% of the industrial production of the country. For some products the contribution is very high: e.g. more than 50% of the Hungarian output of mineral oil, natural gas, red peppers, salami, hemp yarn and textile fabrics is produced in Szeged. Some 15% of the national production of block board, fruit and vegetable preserves and cotton fabrics also originate from Szeged.

In 1949 industry employed 8500 workers, 1·1% of the national industrial labour force, and the per capita number of industrial workers slightly exceeded the national average. In the first half of the 1950's, the rapid increase in industrial production was achieved mainly by the better utilization of the existing equipment, the doubling of the number of workers, and the improvement of the working intensity. Industrial investment was low. Moreover, Szeged received practically nothing from the building programme of the first five-year plan, which subsequently influenced the development of the town.

During this period, in contrast with other regional centres, Szeged was placed in a disadvantageous situation by the following factors:

(a) in accordance with the principles of economic policy then prevailing in the country, all resources were concentrated on the development of heavy industry, mainly the basic materials industry. Since Szeged was a centre of light industry and food processing and did not possess mineral raw materials it was bypassed during the first phase of industrialization;

(b) the new national boundaries resulting from the First World War deprived the town of its favourable communication situation and a significant part of its area of attraction. Transit traffic stopped completely;

(c) strained political relations with Yugoslavia impeded not only the development of industry, but also of the town;

(d) the necessary agricultural produce for the major development of food processing were not available.

Szeged nevertheless did possess some advantages, e.g. an ample labour force, a position as the largest cultural centre after Budapest, and the availability of industrial water. It could not, however, capitalize on these at the time.

The urbanization of Szeged during the 1950's was very slow, but a new stage in the development of the city began in 1958–1960, when substantial modifications in the above-listed disadvantageous conditions began to emerge.

(a) Firstly, changes have occurred in economic policy with more emphasis being laid on labour-intensive branches and on the development of provincial areas.

(b) Normalization of relations with Yugoslavia has permitted a considerable increase in tourism and transit traffic.

Table I. Increase in number and proportion of commuters

	1960			1964			Increase 1960–64	1968 (Szeged)			Increase 1964–68	1975		Increase 1968–75
	Abs. No.	%	%	Abs. No.	%	%		Abs. No.	%	%		Abs. No.	%	
Agglomeration zone joined to Szeged in 1973	4,763	56·0		5,437	50·9		14·0	6,800	46·3		25·1			
Inner belt	1,733	20·3	46·1	2,411	21·6	45·9	39·2	2,900	20·0	37·6	20·0	3,984	29·4	37·4
Towns	783	9·2	20·9	800	7·5	15·3	2·2	1,040	7·1	13·5	30·0	1,070	7·9	2·9
Outer belt	700	8·2	18·6	1,450	14·5	27·6	107·0	1,960	13·6	25·5	32·5	6,003	44·3	206·2
Other areas	534	6·3	14·4	587	5·5	11·2	9·9	1,800	12·4	23·4	206·6	2,493	18·4	38·5
Total	8,518	100·0		10,685	100·0		24·4	14,500	100·0		35·6			
Total without agglomeration belt	3,755		100·0	5,248		100·0		7,700		100·0		13,550	100·0	75·9

(c) The socialist reorganization and development of agriculture has provided the means for the constant expansion of food processing.

(d) Transfer of the county seat of Csongrád to Szeged has increased its functions, and has resulted in an expansion of its sphere of attraction.

(e) The factors favouring the establishment of industry in the town have come to the fore, e.g. the labour force, specialist training, industrial water supply, the possibilities of cooperation and the cultural background.

(f) The development of the town has received a new impetus since the middle of the 1960's with the discovery of hydrocarbon fields in the vicinity.

With this favourable change in conditions, the more rapid development of industry in Szeged became possible: between 1960 and 1970 industrial employment rose by 70%, from 21,600 to 33,800, while productivity increased roughly threefold. A number of new plants were established: e.g. a cable factory, a rubber factory, a textile mill, and a milk plant, while oil and natural gas has appeared as a new branch of industry. The industrialization first drew on the manpower reserves of the town and later on those of the surrounding districts, but since 1970 an ever increasing labour shortage has been experienced. During the 1970's the number of industrial workers has not changed substantially, although industrial production has risen as a consequence of higher productivity. Thus, the period of extensive industrial development has finished and the confirmed growth of the population of the town is mainly through employment in the tertiary sector.

As regards the supply and sphere of attraction of the town, changes in the number of commuters are of great importance *(Table I)*. Disregarding the area joined to Szeged in 1973, between 1960 and 1975 the number of commuters increased fourfold, from 3755 to 13,550. The extent of the change differs from zone to zone. The increase has been the largest in the outer belt, where the number of workers commuting to Szeged increased almost ninefold in the given period. Parallel with this has been an expansion in the labour attraction area of the town *(Fig. 2)*. In 1968 72% of commuters lived

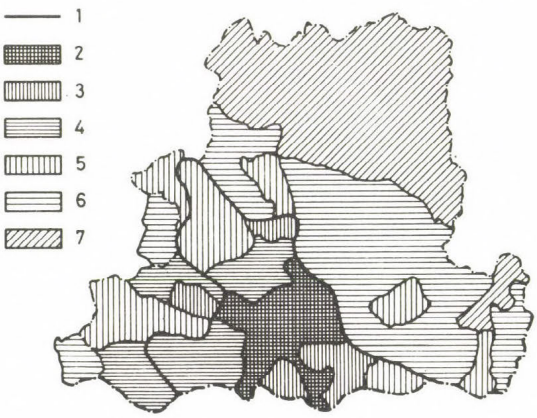


Fig. 2. Manpower attraction of Szeged in 1975

1 = boundary of the attraction region in 1960. Percentage of employees working in Szeged: 2 = Szeged; 3 = 30; 4 = 20–30; 5 = 10–20; 6 = 2–10; 7 = 2–

within 30-minute travelling distance and only 15% travelled for more than 1 hour. By 1975 only 35% of commuters lived within the 30-minute zone, and nearly 22% were forced to travel for more than 1 hour. In recent years there has been a rapid increase in the number of settlements from which more than 30 people commute to work and the number of settlements connected to Szeged in this way has increased from 19 in 1960 to 45 in 1975. Correlating with this has been an increase in the average distance travelled by the commuters from 12·9 km in 1960 to 23·8 km in 1975. The number of commuters is not expected to rise substantially in the future, since there is no further available labour in the surrounding settlements, while daily commuting from the more distant settlements would be irrational.

Industrial development in the town during the last 30 years has been intermittent, which is particularly obvious in the individual branches. Up to 1960 the structure of industry did not change appreciably. During the following 15 years, however, the previously one-sided structure, in which the light and food industries predominated was transformed as a consequence of the extremely fast development of heavy industry. In 1960 the proportion of those employed in heavy industry was only 13·2%, but by 1975 it had advanced to second place with nearly 33% of the total, while technical indices showed that it had become the most important branch. The number employed in the food industry changed at the average rate for industry as a whole and its proportion therefore remained unchanged.

The development of light industry lagged behind the national rate. Not only did it thus decline in importance compared to other branches of industry in the town, but during the last quarter of the century the proportion of those employed in this branch fell relative to the national average from 4·8 to 2·2%.

During the next decade the structure of industry will be modified only to a slight extent, although heavy industry may be expected to increase its proportion further.

In spite of the change that has occurred in industrial structure, Szeged is still a centre for light industry which is the reason of having more than 50% females employed in industry.

With regard to the location of industry in the area in addition to the historical inheritance, the main transport routes are important *(Fig. 3)*. Although the river has attracted comparatively few plants (a sawmill, a ship-repair yard, the New Szeged hemp works and the salami factory) the western industrial belt has developed in association with the railway and main road. Exploitation of the hydrocarbon field covers the area to the north of the town and has generated an independent industrial zone.

Less transport-oriented plants are scattered widely and are incorporated into the housing belt.

This spatial distribution is not advantageous in all respects.

(a) The prevailing wind is from the NW, so there is a fairly high pollution of the housing belt.

(b) The industrial zone limits the expansion of housing towards the north and west.

(c) Most of the large companies have grown from relatively small plants, and since they are interspersed with housing they have no appropriate area for expansion. Further, the unfavourable features of the sites, which were not obvious initially, are nowadays more sharply defined. Relocation is a serious and expensive problem for the future development of the town.

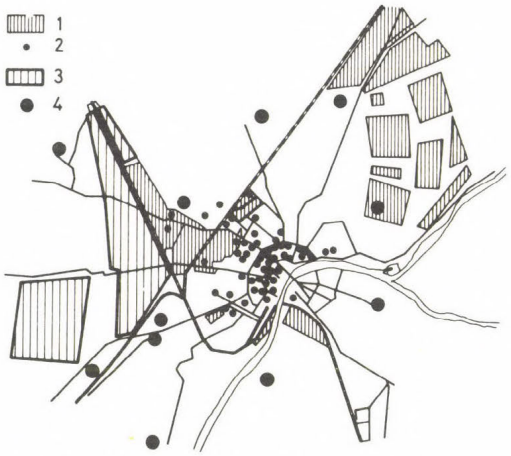


Fig. 3. Szeged and its environment

1 = continuous industrial region; 2 = factories having interfering effect; 3 = suitable territory for location of industry; 4 = centre of the agricultural area

(d) The south and south-eastern parts of the town are not very suitable for industrial location. With the building of the new road bridge, the residential area of New Szeged can expand considerably, but because of the absence of a railway bridge it is not practical to locate industry there. Thus, the free area suitable for industrial expansion is primarily found to the west of the town.

The changes in the population of the town, as with the development of industry, were again intermittent *(Fig. 4).* Up to 1956 natural increase was relatively high, but as a consequence of the slow development of the town, in-migration was low. During the subsequent period, lasting up to the early 1970's, natural increase was very low but in-migration rose markedly. The increase in migration was a national tendency, and was connected with the socialist re-organization of agriculture. Nowadays population growth is more balanced between natural increase and in-migration, and annual increase is between 2000 and 2500 people. In 1977 the population of Szeged numbered 171,000 and by 1990 will reach 200,000.

The periodicity observed in the rise of the population of the town followed the development of industry but with a marked delay. This correlation also occurs in several other towns of the South Hungarian Plain.

Since the 1960's in-migration to Szeged has affected surrounding settlements to an ever increasing extent. Migration frequently proceeds in two stages, people first migrate into surrounding settlements and move into the town later. In the present phase of extensive urbanization the development of the agglomeration is forming from external inflow, and the population of the settlements surrounding the town is also increasing.

In 1973 a significant part of the agglomeration, the 5 settlements of Tápé, Szőreg, Kiskundorozsma, Algyő and Gyálarét, was incorporated into Szeged. At present the agglomeration still is undergoing transformation as it expands to embrace new settlements *(Fig. 5).*

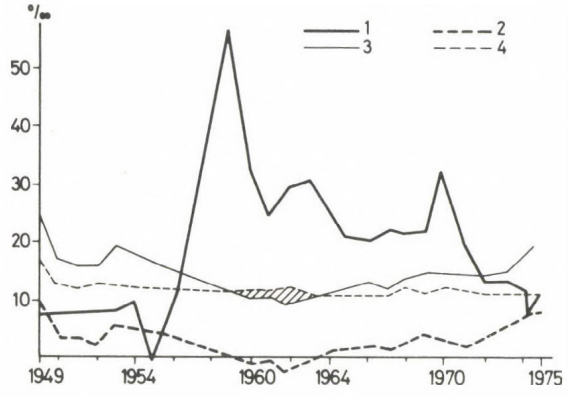


Fig. 4. The demography of Szeged

1 = migration; 2 = natural change; 3 = birth-rate; 4 = number of still-births

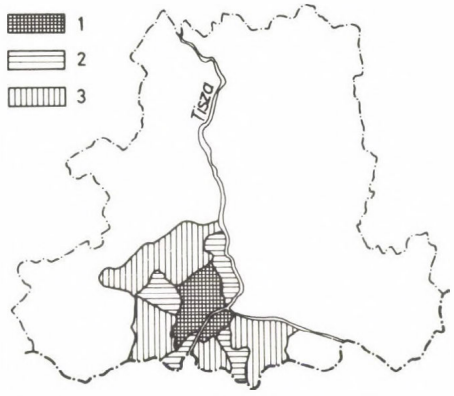


Fig. 5. The agglomeration of Szeged

1 = boundary of Szeged in 1973; 2 = the agglomeration joined to Szeged; 3 = the actual agglomeration

In the past decade Szeged has developed more rapidly than other regional centres, but with the exceptions of education and health, the infrastructure of the town is still unfavourable, i.e. the 40-year lag has by no means been made up for. Of the 5 regional centres, Szeged occupies 4th place as regards housing, communal provision, transport, trade and sports facilities and first place in the fields of health, and education.

The most important trends in the development of the town are as follows.

1. The establishment of larger industrial plants in the near future is not practical: development can proceed by the enhancement of productivity and by the expansion

Table II. Number of people employed in industry (1975)

Branch	Szeged		National		Employees per 1000 inhabitants	Employees per 1000 inhabitants nationally	Proportion of Szeged to the national figure	
	Abs. No.	%	Abs. No.	%			1975	1949
Heavy industry	11,280	32·8*	1,020,404	58·4	70	100	0·7	0·23
Light industry	15,694	45·6	456,310	24·2	90	40	2·25	4·8
Others	1,636	4·8	71,243	4·1	30	10	1·0	–
Food industry	5,774	16·8	196,521	11·2	30	20	1·5	1·6
Total	34,384	100	1,744,478	100	200	170	–	–

*In 1949: Heavy industry, 9%, light industry, 76%.

of the already existing plants. In accordance with the principle of selective industrial development, the production profiles of the less efficient plants must be changed or they must be closed.

2. It is necessary to develop the service network more rapidly than hitherto.

3. An important task is the strengthening and further extension of the non-productive functions of the town. Szeged is a cultural, educational and health centre, which has won recognition internationally for its clinics, universities, Biological Research Centre and Open-Air Theatre. The development of these institutions is a continuing task. The town has fallen behind appreciably as regards sport facilities although great attention is devoted to the creation of the conditions necessary for the further increase of tourism.

4. It is not only the number of inhabitants that makes a settlement to be a town: urbanization assumes communal provision at an appropriate level. During the past decade the level of such provision has improved substantially, but in spite of this, Szeged is in the last place among regional centres because of the rapid rise in population, the joining of the agglomeration zone to the town, and insufficient investment in the preceding period. Retail provision has lagged behind the increases in the number and demands of the population.

5. In the expansion of the town, its role as a regional centre must be taken into consideration, for the demands of the population in its hinterland must also be satisfied. Moreover, in accordance with the principle of decentralization, Szeged must be developed as one of the counter-poles of Budapest *(Table II).*

THE DEVELOPMENT OF THE CITY OF PÉCS

By
J. KOLTA
Hungary

The city of Pécs is an economic, social, cultural and administrative centre situated in south-western Transdanubia, within the open triangle formed by the Danube and Drava rivers. Its sphere of influence spreads over several counties and contains one eighth of the population of Hungary.

The natural geographical surroundigs of the city are diverse. The urban territory lies at an average height of 180–200 m above sea-level ranging from 121 m at its lower point to 360 m at its highest. On the north it is bordered by the Mecsek Mountains trending in an east-west direction, which are very characteristic of the hill-country of Hungary and contain significant mineral deposits. Beside the drawing of building and road stone, coal and uranium mining have played a decisive part in determining the site established form and structure of the city. Mining likewise forms a significant basis for the future development of Pécs.

The favourable climate has also contributed to the formation and development of the city. The mild humid Mediterranean air masses of spring reach the vicinity of Pécs first, and in this zone, where the continental and Mediterranean climates meet, one finds the characteristics of a submediterranean climate, i.e., an early spring, a warm not too hot summer, a long autumn, a mild winter, rich sunshine and abundant rains in satisfactory distribution. The Mecsek wards off the northern winds and, also shelters the city from the prevailing wind.

The mean annual temperature at Pécs is between 10·5 and 11·0 °C, and average sunshine reach 2000 hours annually.

The first frost reaches the southern slopes of the Mecsek about the end of October and the danger of spring frost ceases around the first week of April. There is only an average of 8 days annually when the mean daily temperature drops below – 10 °C.

Annual rainfall varies between 550 and 1200 mm, the long-run average being about 650–700 mm. The annual average number of rainy days is 130 but only on 25 days can more than 10 mm rainfall be expected. The days with snowfall are 20–30, and with snow cover between 26 and 50.

The varied geographical structure, the different endowments of mountain and plain, the angles of the hill slopes and superficial conditions have contributed to the appearance of a characteristic flora and a very rich fauna. Botanists have so far counted about 2500 species of plants on the Mecsek mountains among them 17 botanic rarities which can only be found in Hungary. The species of animals number about 10,000 according to zoologists living on the Mecsek, among them several relics originating from former geohistorical eras.

The geographical situation of the Mecsek and its vicinity ensured at an early stage the necessary conditions for human life. The limestone caves of the mountain ensured

refuge, the forests fruit, seeds, wood and game, and the streams bursting down the mountain, forming lakes on reaching the plain, gave fish to the collecting and later hunting and fishing ancestors. Indeed, findings prove that man lived in the vicinity of Pécs 60–80,000 years ago.

We have no material proof as to whether man lived in the region of the Mecsek between 6000 and 60,000 B.C., although well-known archeologists consider this is to be likely.

We do have findings, however, which prove that in the late stone age (about 6000 years ago) a closed settlement was formed on the site of the city.

We will probably receive more details on the history of the thousand years before our era from the archeological research which has recently begun on the Celtic mounds and tumul dating from the Halstatt and the La-Tune era, which can be found on Jakab Hill.

A few years before our era (12–9 B.C.) the territory of Pécs became part of the Roman Empire. The Romans built their stone houses where the huts and tents of the migrating peoples' stood. Several significant architectural relics from that time have remained from which the significance of the settlement of that time can be established. The Roman Empire's most important strategic road crossed here where it branched into five directions.

It is known that in Roman times the first name of the city was Sopianae, which, according to linguists is of Celtic origin. The name alludes to the Romans' predecessors, the Celts, who had come from near the Gallic river Suippes and settled down here. The river's Celtic name is said to have been Supia or Sopia and this was absorbed without change into the name of the city. Other explanations are that Sopianae originates from a person of that name.

At the end of the 3rd century the Emperor Diocletian divided the two provinces of Pannonia into four parts of which the province bordering the Danube was named Pannonia Valeria and in which Sopianae became the city where the praeses lived. It was then that the former Celtic settlement became a "city", the centre of a larger territory. Roman rule ended in the 5th century (433 A.D.) and with it the first period of the development of Pécs ended.

After the Romans, Sopianae, for a span of 450 years was the dwelling place of the peoples of the great migrations who settled in the area one after another, Huns, Gepids, Goths, Longobards and Avars followed by German and Slavic tribes until in 896 A.D. the Hungarians (Magyars) moved in from the east and occupied the land.

The city had obtained a new name by that time. A document originating from the middle of the 9th century informs us that the Archbishop of Salzburg consecrated a church "ad quinque basilicas" in the city of five churches. The city of five churches was Sopianae. The name Quinque Basilicae became permanent later becoming Quinque Ecclesiae, and this name in its Slavic form (Pet Crkve–Pécs) and in German (Fünfkirchen) is still used today.

Most researchers consider that the town's name is derived from the Slavic "five churches" (Pet Crkve–Pécs) although there are many contrary opinions to this. We first meet the name "Pécs" in a document from 1093.

The Hungarians occupied the city and its vicinity in 899, and the first Hungarian king founded an episcopate in Pécs 100 years after the original settlement of the Magyars. From this time the city has developed continuously although the progress has

not been smooth. Periods of development and the periods of decline succeeded one another and every change has left its mark upon the settlement's form and structure.

The first period of development began in the centuries when the Romans developed Sopianaes' "city's" province. At the same time the centre of the city which has not changed very much since was established. The Dom Square of today was the centre of religious life and here the Roman Age built temples and buried their dead. The "Forum", lying about 500 metres south of the religious centre was at the heart of public life. The religious and public centres were separated by an empty area (see *Fig. 1*, where "a" locates the religious centre and "b" the Forum; the pecked lines show the town walls which were built later).

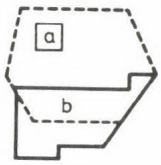


Fig. 1. 100–400 (Sopianae) a = Roman religious centre; b = Forum subsequently to become the city centre

The cultivated and residential districts in addition to the two centres – stretching from what is now Jakab Hill on the western outskirts of the town to Havi Hill in the east – were densely populated. Outside of these, at the base of the hills stretching over a distance of 19 kilometers, archeologists have found houses and villas dating from the Roman Age. The city thus covered a wide area, and the population only concentrated around the urban "centre" during the last part of Roman rule, when the menace of the oncoming "barbarians" forced them to seek defense.

The migrants who succeeded the Romans were so ephemeral that they left no lasting marks on the structure of the city. For this reason, the second period of development began after the Hungarian Conquest at the beginning of the 10th century, and lasted until the beginning of the Turkish Rule, which includes the feudal period.

As mentioned before, at about the same time as the establishment of the Hungarian Kingdom, Pécs became an episcopate. On the Roman religious centre, on top of a 4th century burial chapel, a basilica was built followed by the Bishop's residence, and later the fortress. The city developed within the square defined by the Roman religious centre and the Forum. The density of the building was probably higher than during the Roman period suggested by the fact that the southern part of the Forum was not rebuilt.

After the devastation caused by the Tatars in the 13th century, walls were erected around the settlement *(Fig. 2)*. In this second period of development a new settlement

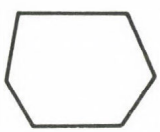


Fig. 2. 1300 – after building the city-walls

was begun beside the eastern walls of the town as mentioned in documents such as "Malomszeg vicus" (Millcorner vicus). To the northeast of the town, a karst spring gushed to the surface along the banks of which handicraft workshops were built side by side using the motive power of the stream. At the same time adjoining the western outskirts of the town, a new settlement was formed whose inhabitants tended the vineyards in the vicinity.

In the 14th and 15th centuries the city became widely known as a centre of cultural and scientific life. Proof of this is found in a document which states that King Louis I of the House of Anjou – who was called Louis the Great by the Hungarians – "not just for Hungary but for the benefit of the neighbouring territories" founded a university there in 1367, since it was an especially suitable appropriate place for it. This was the first Hungarian university, and stimulated the scientific life of the town, especially after the scientist and poet Janus Pannonius became the Bishop of Pécs and collected around himself many famous scientists and artists. Tragically, the advancing Turks put an end to this dynamic cultural life in 1543 when Pécs fell. *Figure 3* shows the structure of the city at the beginning of the Turkish rule ("a", "b" and "c" representing the different centres).

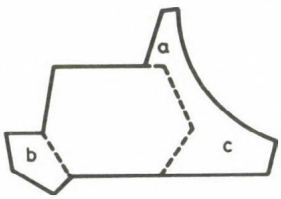


Fig. 3. 1550–1650 – epoch of Turkish rule a = industrial zone near the river Tettye; b = Szigeti quarter; c = Budai quarter

During the 150 years of Turkish rule Pécs grew in eastern direction. The many different peoples the "poturs" arriving with the occupying army, built their small houses along the winding streets of the slopes of Cock Hill beside the Tettye stream. The Turks settled down in the area which was surrounded by the town wall and was the town's centre. The churches and houses were torn down or converted into mosques, baths and palaces according to Turkish taste. This accounts for the lack of relics from the gothic period and the existence of only one renaissance style building. The humanist city was converted into a rich Turkish commercial town, into an eastern bazaar. A few architectural relics from that time still stand, the large Turkish mosque on the main square functioning as a christian church today.

After the expulsion of the Turks, growing industries brought a new period of development to the city. The liberating battles and subsequent internal strife necessitated the rebuilding of the town. In the 18th and 19th centuries row after row of tradesmen and burgesses built their homes which give today the city its baroque aspect.

With the formation and strengthening of capitalism, this period also saw coal becoming the effective factor in development. The coalmines of the Mecsek were opened up in the immediate neighbourhood of Pécs, and attracted industrial establishments and factories to the eastern and southern outskirts of the town. In the vicinity

of the shafts, settlements of miners' homes arose while industrial workers built their houses around the factories. Home building was also significant in the western part of the city *(Fig. 4)*.

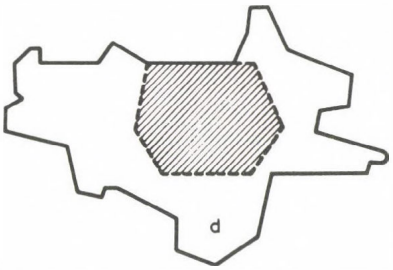


Fig. 4. 18th century d = Siklósi quarter

After the First World War population increased, due to the poverty in neighbouring villages and to the transfer of the University at Pozsony to Pécs in 1923. New residential areas consisting mostly of family homes were built, but, due to the different classes of society which they housed, they differed in external characteristics.

To the southwest mostly people working on the railway built their homes at "Mozdonyvezető-telep" ("Enginedrivers quarter"). To the south, about 2 km from the centre of Pécs, on a slightly elevated area above the marshy plain, small functionaries built their homes in "Kertváros" ("Gardentown"). To the east agricultural labourers and vineyard workers built "Kovács-telep" and "Cupi-telep", the latter consisting of three independent estates. Amongst the vineyards of the Mecsek, rich people built their summer homes and villas.

As a result of almost 2000 years of development, the structure of Pécs, at the Liberation (1945) was as follows *(Fig. 5)*. Inside the ancienct town walls was the town centre, with its narrow winding streets adapted to the topography and the city

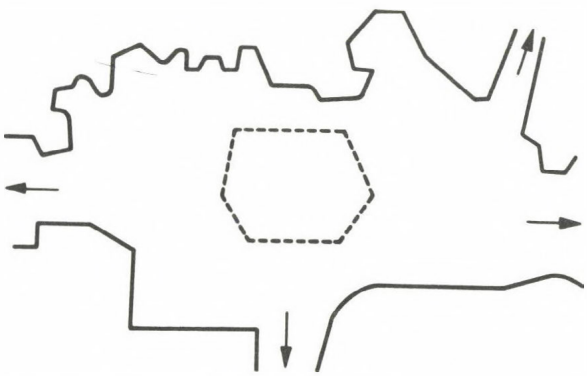


Fig. 5. 1930 – direction of further growth

walls lined with mostly 2–3 storied houses. Most of the public buildings and the town's more important shopping centres were here.

The central area was bordered on the east, south and west by family homes while to the north, on the slopes of the Mecsek, scattered villas stood. In the vicinity of the continuously built-up area were small independent settlements consisting of a few homes, especially around the mining-shafts, but a separate industrial district could not be defined.

This was the inheritance of Pécs at the beginning of socialist development. At first coal-mining became more important and the demand for miners stimulated the construction of new settlements consisting of multi-storey blocks of flats on the eastern side of the city. In 1954 uranium ore mining began at the western part of the town and a new quarter was built for the labour force, housing 30,000 people on the site of the former airport. This estate, again of multi-storey blocks, was named Újmecsekalja (Newmecsekfoothills) by the Town Council but the population call it "Uranium City".

The city has grown southwards also, and between the present commercial centre and the railway on the site of the old Roman Forum, the new administrative, cultural and commercial centre of the city is under construction. To the north, on the slopes of the Mecsek, where only a few scattered houses had stood at the time of the Liberation, a new quarter has been erected with modern multi-storey buildings.

The structure of Pécs has been developing in another direction since the end of the 1960's. The new modern quarters on the west and east are separated from the centre city by small homes lacking amenities whose demolition is inevitable. These quarters have been marked by the Council for redevelopment, which has already been completed on the western side of the town. In this area the new University campus is under construction.

The rapid development of Pécs causes grave concern to the leaders of the city. The Mecsek is an isolated mountain, rising up above the marshy plain stretching from the Drava to the southern outskirts of the city. Building in this marshy area is impossible or disproportionately expensive, so, only a 3–4 km wide strip is suitable for high density development. This strip was used by the Celts for their settlements, here the Romans built Sopianae, and here has developed Pécs, during the one thousand years of the Hungarian Conquest.

This narrow strip bounded on the south by the railway, was crossed only once up to the turn of the century when the iron works (now leather factory) was built on an area at a somewhat higher level. After the turn of the century the city broke its former bounds, and in the 1920's and 1930's "Kertváros" was built about 2 kms south of the railway where the groundwater level was lower. The building of a new quarter, "Lvov Kertváros", adjoining this settlement began in 1970 and is at present coming up to completion; 15,00 people are presently living here in several multi-storey blocks. To the northwest, the building of "Siklós quarter" has commenced.

Keeping in view the construction going on at present, the development of the city is taking place in four directions:

(a) the construction of Lvov Kertváros,
(b) the construction on the new city centre,
(c) the re-development of the inner western quarter,
(d) the commencing of construction of Siklós quarter.

The territory occupied by Pécs has also increased since the Liberation. Urban expansion has reached and in many cases merged the villages fringing the city, making it not only reasonable but necessary to absorb them into the administrative framework of Pécs. Among these two have been completely absorbed architecturally into the city, while four stand as yet separated but in view of the rapid rate of development their absorption is only a matter of time.

*

Keeping the above in view, the city's present territory is 148 km^2, its population according to the last census data over a span of 100 years was as follows:

1869 = 28,967
1900 = 74,395
1941 = 88,473
1949 = 88,302
1960 = 114,742
1970 = 145,335

At present the population reckoning with the statistical estimation is 163,000.

PHYSICAL ENVIRONMENT

NATURAL RESOURCES AND ECONOMIC DEVELOPMENT IN THE SOUTH HUNGARIAN PLAIN

By

M. ANDÓ

Hungary

The economic planning district of the South Hungarian Plain comprises one-fifth of the area of Hungary, and contains 18% of the total population. It is one of those regions of the country where the economic structure inherited from the past is at present undergoing transformation, and where population redistribution is taking place.

The industrial profiles, developed to the greatest extent, in the South Hungarian Plain are those, which depend on raw agricultural production: canning, meat processing, sugar refining, milling and textile manufacturing. Development is currently under way in the oil industry and in those aspects of agricultural production which depend on irrigation and thermal energy: grapes, fruit, wheat, maize, industrial crop and vegetable production, and animal breeding.

Labour released from the mechanization of agriculture is making a large contribution to the transformation of industrial structure as is the economic exploitation of natural resources *(Fig. 1)*.

A significant role in the structural transformation of industry is played by heavy industry, based on oil and natural gas production. It is well known, that the oil industry of the South Hungarian Plain is relatively young, but promises energy reserves of considerable magnitude. At present, this district provides more than 40% of natural gas production and 60% of the mineral oil production of the country.

Production is greatly promoted by favourable geological characteristics. The wide variety of geological structures in the South Hungarian Plain make the area relatively rich. It is well known that the basin structures with crystalline basements possess rich mineral oil and natural gas reserves, and also hot-water and medicinal-water springs of various mineral compositions *(Figs 2* and *3)*. It is expected that ever more intensive and wide ranging research will increase the economic and social importance of the Great Hungarian Plain.

If we examine the geology of the South Hungarian Plain, we find that it cannot be differentiated in either structure or form.

At depths of about 1500–3000 m, the basement is comprised of Palaeozoic and Mesozoic block structures; thus one can find Palaeozoic crystalline rocks, mainly gneisses and slates, and also Mesozoic rocks, for the most part dolomite, limestone, clay and marl, all of which form prospectively useful reserves for the economic development of the country.

The Palaeozoic and Mesozoic basement consists of strongly faulted blocks, which define smaller basins and deep trenches. Deep drilling indicates that the greater part of the Great Hungarian Plain was dry land during the Eocene, Oligocene and Lower Miocene periods, but subsidence at first affecting the edges of the current basin,

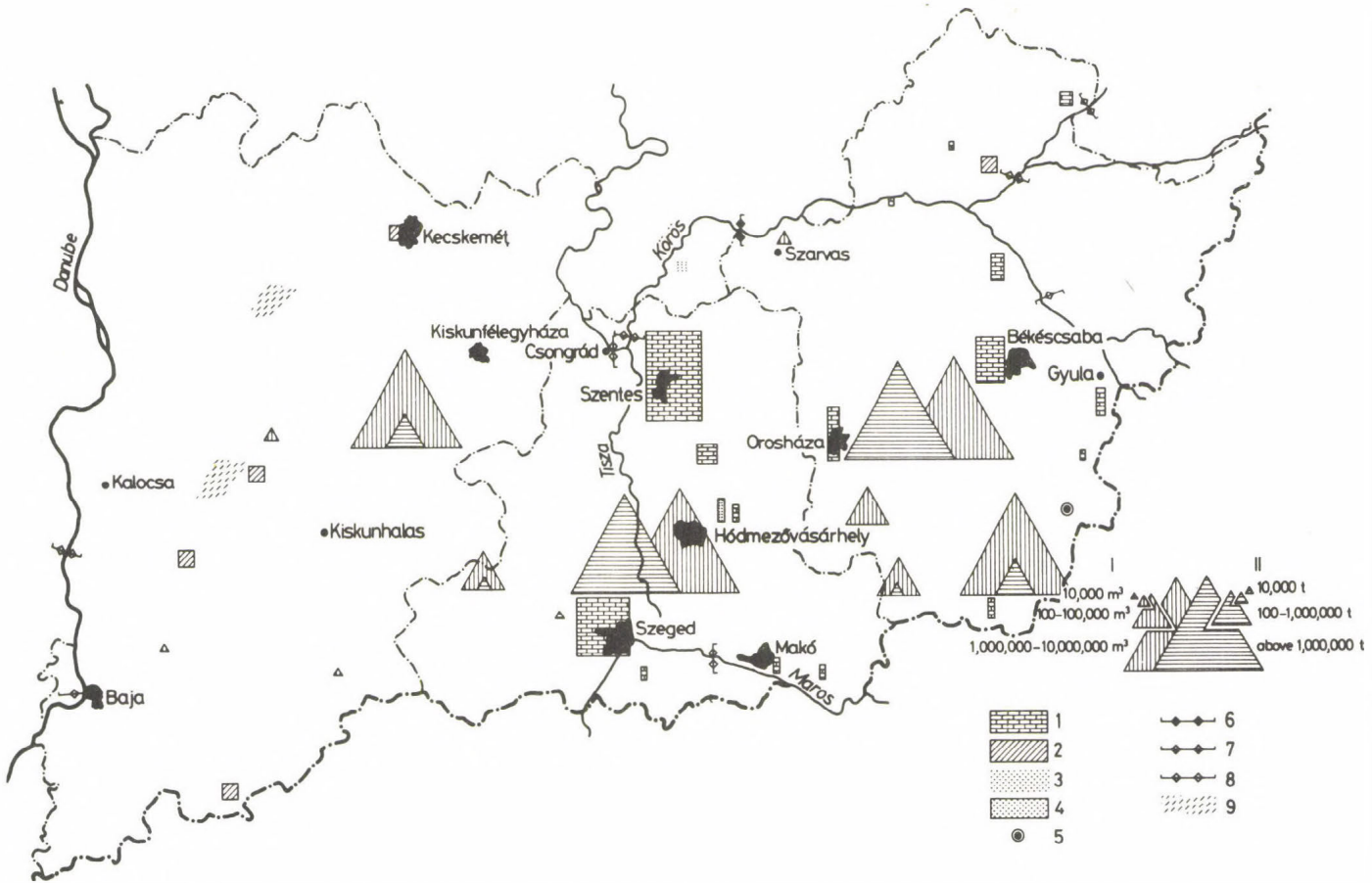


Fig. 1. Inventory of mineral raw materials and primary energy sources (based on the atlas of the South Hungarian Plain)

I. exploitable natural gas; II. exploitable crude oil; 1 = important brick-works; 2 = working and defunct brick-works; 3 = working and defunct brick-works without calculating inventory; 4 = fine ceramic raw material; 5 = important sand quarrying; 6 = hydroelectric power plant and river barrage; 7 = projected hydroelectric power plants and barrages; 8 = projected hydroelectric power plants and barrages to be established in the long run; 9 = turf cutting

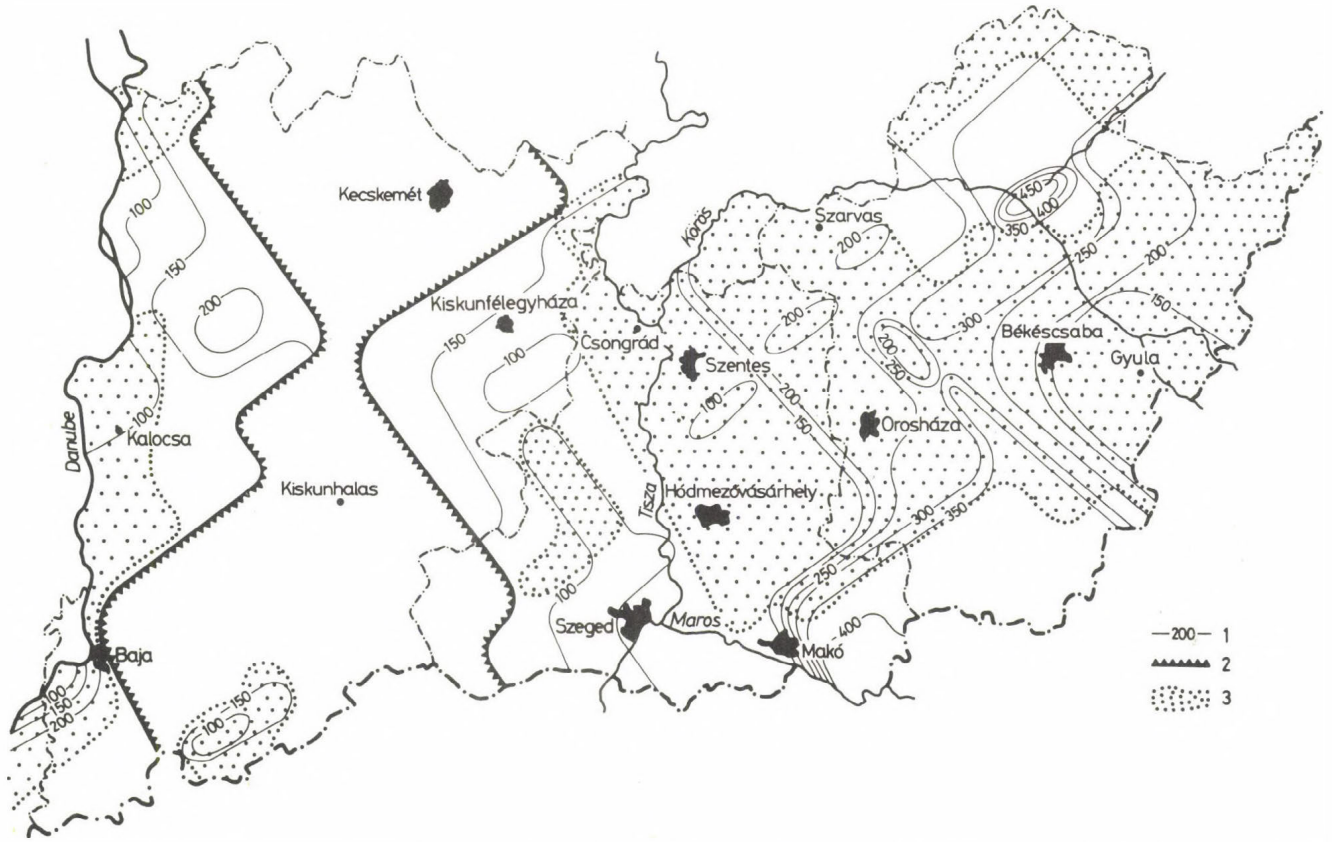


Fig. 2. Hydrostatic and under hydrostatic layer pressure and gaseous area (based on the atlas of the South Hungarian Plain)
1 = ground water aquifers; 2 = water under hydrostatic layer pressure; 3 = gaseous area

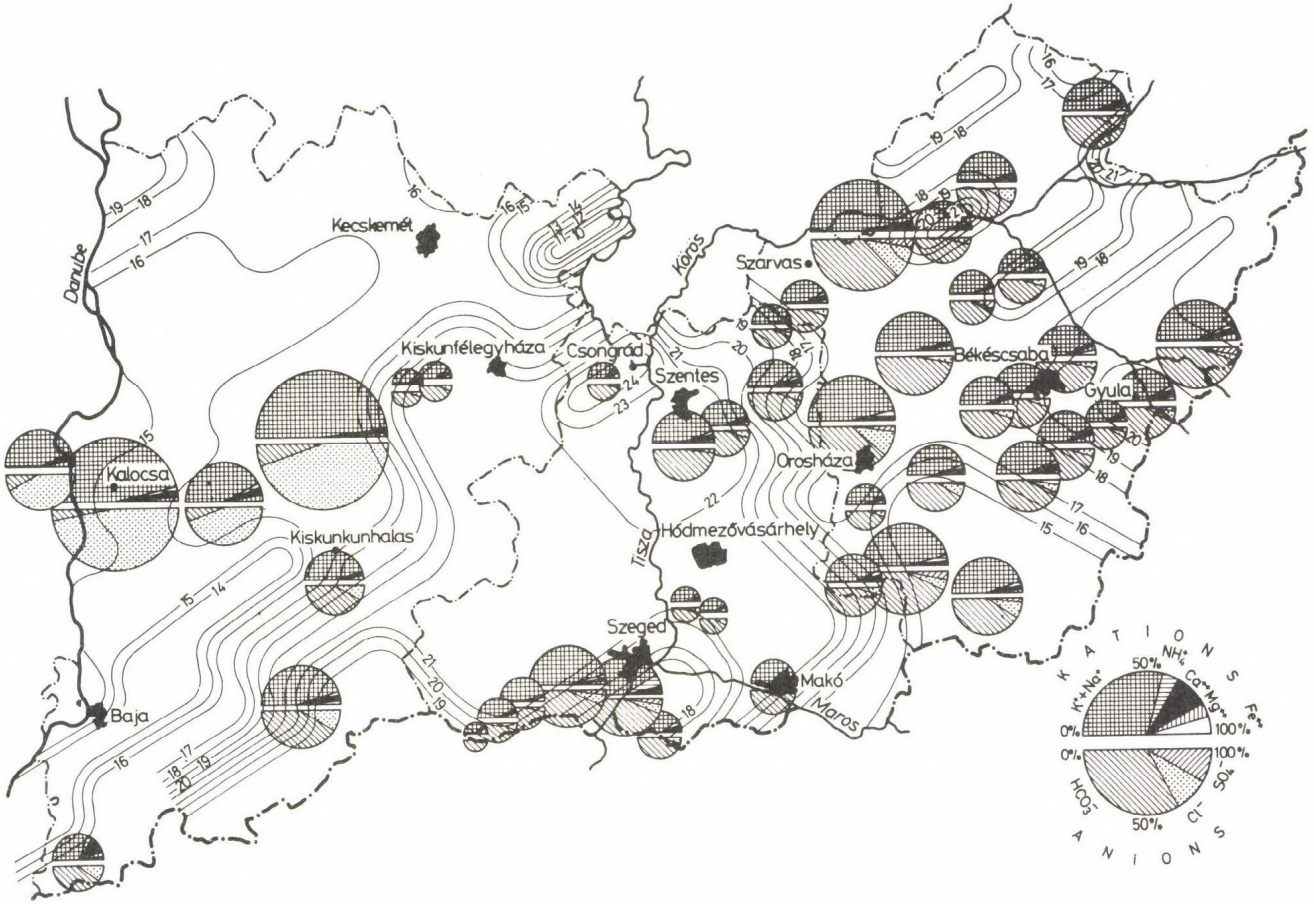


Fig. 3. Geothermal gradient and thermal chemical characteristics (based on the atlas of the South Hungarian Plain)

became extensive during the Middle Miocene and Pannonian stages. From the middle of the Pliocene, the Pannonian Sea progressively retreated with the elevation of the basin rim.

The subsidence of the South Hungarian Plain continued even after the in-filling of the Pannonian Sea, leaving a deposit several hundred metres in thickness in the unevenly subsiding basin. The Pannonian formations and later alluvial deposits not only made oil and gas production possible in this region, but also the exploitation of clay, gravel and sand.

As in the country in general, here too, the occurrence of brick-clay is most widespread in the youngest formations, and it is exploited in 17 settlements. Considerable peat production is also carried out in the region of Kecel, while two gravel fields are worked at Szalkszentmárton beside the Danube, and at Lökösháza beside the Maros.

To summarize, the mineral wealth of the South Hungarian Plain is provided by the natural gas and mineral oil reserves, which are rich even at a national standard. However, the geological characteristics offer further possibilities of as yet undiscovered mineral reserves, prospecting for which will depend on the development of deep-research equipment.

Another important natural resource is arable agricultural land. This feature differs from county to county as regards the nature of the soil, and hence the structure of agricultural production also varies. For instance, in the county of Békés, field crops and animal breeding predominate, whereas in the counties of Bács-Kiskun and Csongrád grapes, fruit growing and beef-fattening are characteristic.

The nature of the arable soil has an effect on the profitability of the large farms, but in terms of both volume and value of production, the agriculture of the region is of national importance. Cereals, vegetables and fruit, including the specialized products of the area (potatoes, paprika, onions and peaches), comprise the bulk of output. However, there are also considerable areas where soil properties are unfavourable (sodic, sand, acidic), and indeed nearly 50% of the total area of sodic soils in the country is found here.

On the basis of soil properties, the region can be divided into sub-areas:

(a) The flat area of high quality chernozem soils formed on loess, requiring moderately controlled cultivation, mainly liming.

(b) The undulating dune area of sand ridges between the Danube and the Tisza. This area possesses a sandy soil which although easy to cultivate is low in humus content, retains water poorly, and gives lower than average productivity.

(c) The Bácska loess ridge, which is generally flat but has occasional, highly undulating surfaces. The soils of this area are moderately bound chernozems of excellent productivity, with high humus content and good water retention properties.

(d) The Lower Tisza plain. Its meadow soils are moderately bound, with good water retention properties and excellent productivity.

(e) The plain of the Sárrét–Körös region. The soils here are meadow clays with a moderately deep groundwater table; the area is difficult to cultivate, has high lime-requirements and is only moderately productive. Here the old image of the Great Hungarian Plain is preserved.

The South Hungarian Plain is rich in surface water, the largest rivers of the country, the Danube, Tisza, Maros and Körös, either flowing through it or affecting it. From

the aspect of industrial location, these rivers possess considerable water reserves, a particularly high potential existing along the Danube.

By far the greater part of the region lies in the catchment area of the Tisza, with its extremely low gradient, and meandering channels and flood-plain protected in numerous places by wide embankments. High-water levels are produced from both its Hungarian and foreign catchment areas, the ratio of highest to lowest discharge at Szeged being 49 : 1.

An outstanding role is played in the northern part of the region by the Körös water system, which feeds a very extensive irrigation network. The Maros is the largest of the tributaries of the Tisza. Because of its higher gradient, its alluvium is a coarse, sharp-grained quartz sand, which can be used in construction work. There are no appreciable areas of open waters in the region, although frequent oxbow lakes remain from the time of regulation, while sodic lakes are found in deflation depressions.

Considerable demands are made on the surface water reserves, not only by industry, but also by agriculture. Irrigation already featured in the development programmes of the nineteenth century, because of the strongly continental-type climate and summer droughts. Indeed the Körös valley was the area in Hungary where irrigation cultivation was practised. The intensive development of irrigation began following the Second World War. In the region the proportion of the total agricultural area irrigated is highest (10%) in county Csongrád, followed by the counties of Békés and Bács-Kiskun. In the interests of the development of the irrigation system, barrages have been completed on the Tisza at Tiszalök and Kisköre, while one is under construction at Csongrád.

The possibility of exploiting groundwater reserves is also very good, but an important problem, awaiting solution, is the regularization and utilization of the complex inland waters. About 25% of all thermal wells in the country are to be found here, which means close one half the total thermal water yield. Excluding agricultural production, the utilization of thermal springs is at a very low level. The most economic exploitation of thermal and medicinal waters is to be observed in the county of Békés.

All the deposits of variable composition and different geological age have their own characteristic water-retaining properties. In general, the upper layers usually give cold water, but high-yielding thermal wells can be drilled into the deeper strata. In this respect the South Hungarian Plain is of national importance, providing 40% of total thermal water supply.

In the regional distribution of thermal wells an outstanding position is occupied by the county of Csongrád, where one-fifth of all thermal wells in the country are to be found, yielding one-third of total thermal water. The county of Békés has almost the same number of wells as Csongrád, but they discharge only one-third the yield of the latter. The geothermal gradient is particularly favourable around Orosháza, where there are many wells yielding water at temperatures of 70–80 °C or more. The mineral, medicinal and thermal waters of the region are used at spas, but the possibilities are far from being fully utilized. Many of the baths and lidos require modernization and expansion, which is of particular importance, for these constitute one of the main touristic attractions of the district.

Another of the natural resources of the South Hungarian Plain is the climate, which provides excellent possibilities for crop growing, but in addition can be classified as a climate, favourable for human health. Throughout the area warm continental effects

predominate. The more northerly parts experience insufficient precipitation annually with drought-like summers, while the southern and south-eastern parts have insufficient precipitation during the growing season, are moderately dry, and have hot summers. Since the area is fairly flat, the climate is relatively poor in meso- and microclimates. Local differences are primarily caused by the effects of soil conditions on temperature.

Over a large part of the district there is an excess of 2050 hours of sunshine per year. The annual mean temperature is 10·5–11 °C, and annual precipitation 500–600 mm. From the aspect of agricultural production, temperature and sunshine are favourable features, but are accompanied by the disadvantages of low precipitation and periods of drought. The annual water-balance is negative here with the Körös region having to content with the greatest water shortage (175 mm). The low precipitation is aggravated by the poor water-retaining properties of the soils. The national economy is helping to combat drought with irrigation, appropriate agrotechnology, plant-breeding, and the setting out of field-protecting forest strips.

This study has attempted to summarize the natural geographic features of the South Hungarian Plain in their main aspects.

THE GEOGRAPHICAL EVALUATION OF THE ENVIRONMENT OF AN INDUSTRIAL TOWN

By
F. ERDŐSI
Hungary

The town of Pécs together with neighbouring Komló and the surrounding coal- and ore mine region form an industrial agglomeration the natural conditions of which have been significantly influenced by man. The present paper discusses the role of settlement and industry in changing the environment and attempts to evaluate the processes and implications for the various geospheres. Water-, air- and soil pollution, which, in the strict sense are the main problems of environmental protection will not be discussed. Considering the historical fact that settlement formation preceded the development of mining and industry, and is the oldest anthropogenic activity affecting the landscape, this will be discussed first.

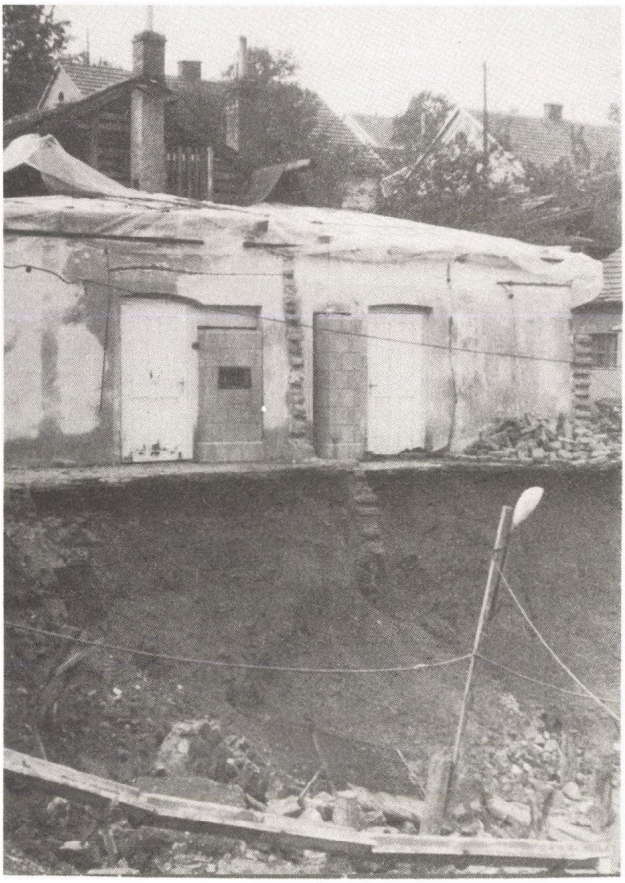
Settlement formation is the result of conscious human activity, and thoroughly modifies the natural conditions. *Two processes can be distinguished depending on the time and form of appearance*: firstly, there are the changes which took place *spontaneously* in the historical past, the results of which, for the most part, cannot be seen as they have been obliterated by later activity; secondly, we have the striking changes taking place at present as a result of planned activity. The thickness of the layer of urban debris is generally proportional to the former size of a settlement and its richness in historical events. According to data obtained from drillings and excavations, the broken building material which has accumulated within the historic core of 2000 year old Pécs, plus ash and rubbish, is 0·3–1·4 m thick and covers an area of 1·1 square kilometres. Nowadays, the former urban structure is exposed due to redevelopment and during the last ten years, the surface where buildings have been pulled down has been artificially raised by an average of 0·4–0·8 m of demolished levelled material.

The natural surface of the town has also been heightened by planned infilling in numerous places, especially on low lying areas with underground water. For this purpose building debris, rubbish and industrial waste as well as earth obtained from digging foundations and basement are mostly used. This planned heightening of the surface averages 0·8–3·4 m, and consists of an estimated 680 thousand m^3 of material. The preparation of the ground for building includes the filling in of artificial pits, including those used earlier for obtaining clay to produce bricks. These also served as the main rubbish tips disposing of 160–180 thousand m^3 of waste per year *(Picture 1)* until 1971. Since then rubbish has been tipped in less ideal places, and the ground water has been polluted by the infiltration of harmful poisonous materials leached from the rubbish. Thus, the filling in of pits formerly used for the extraction of building materials represents a second act affecting small areas of the lithosphere but here the natural rock quarried out has been replaced by other kinds of natural (or "quasi artificial") material.

When people are building on slopes, terracing of the surface cannot be avoided *(Picture 2)*. Processes of denudation and accumulation on artificial slopes take place in

Picture 1. Rubbish tip: the clay-pit of brick-works No. 2 at Pécs (now closed)

Picture 2. Slope staggered before building: Komló



Picture 3. Landslip and damage due to building disruption: Komló

a way and with an intensity that is different from the processes on natural. Any intervention or destruction of natural slopes is accompanied by some upset of the normal equilibrium. Some kinds of rocks – under certain structural and hydrogeological circumstances – can easily move when a slope is disturbed. The most striking instances of slope instability due to building were observed at Komló *(Picture 3),* which were described geologically by Á. Juhász and F. Schweitzer (1973). There man-made terraces were ruined in many places by slides so efforts have been made to prevent further destruction by building expensive concrete walls. In Pécs, where the streets run along the hill-sides consisting mainly of loess, vertical courtyards have been cut back into the hill-sides. These rough vertical surfaces with no artificial cover have steadily retreated and became higher due to block landslips and falls.

Surface changes brought about by building are indirectly *supplemented by the "underground" caverns* excavated in the lithosphere. Naturally, the great amount of

rock excavated for building cellars, underground ducts, public utility pipelines raises the level of the surface, but here we are thinking of the "antisettlement", which like a reflected image, forms a many-floored cellar-labyrinth under the city. To build this 22 km long cellar system – only that of Eger can be compared to it among the country towns – the stable Pannonian sands under the inner town provided an ideal medium. The roof of this, so to speak, underground town rows functions imperfectly and surface collapses and building-damage are common occurrences.

Hence, the different building levels have resulted in a surface, which is higher than the natural surface and although stable against exogenous factors, it is unstable due to the presence of underground vaults and cellars.

Hydrological change is also connected with anthropogenic surface modifications. The digging of cellars, the laying of pipelines and limited infiltration of precipitation over the built-up area together with drainage, and reclamation work have all helped to lower the water table. Moreover, small streams have been channelized underground and have thus impoverished the surface drainage.

This decrease was greatly assisted by the *establishment and operation of common wells and water works companies.* The central supply of water predates the drilling of wells. The building of aqueducts dates back to the Roman period, while the reservoir at Tettye was built at the end of the 19th century. Since then increased use of water means more than 2/3 of the natural underground supply is now utilized. It is really only in rainy seasons that excess karst-water replenishes the water table.

The greatest depletion has occurred over an area of 26 km^2 to the west of Pécs during the operation of wells drilled this century at Tortyogó and Pellérd. Surface runoff is also diminished in consequence, and indeed, some sources have completely dried up the most significant of which had an output of 1100–1600 m^3 water/day and was used to drive a mill before 1902. The evaluation of the present rate of depletion and its consequences raises controversary among specialists especially over the question of the extraction of water and the maintenance of the static resource (Szabó 1964; Németh 1972). A thoroughful examination of associated ecological change is also needed, since the changes which have taken place in the soil water balance must have their effects on the living world. Summing up the processes described above we can conclude that the effect of Pécs on water is complex. Much is diverted from nature into the city's water system and returned as sewerage, thus increasing the flow of recipient streams (e.g. Pécsi-víz). To this is added surface runoff from the paved surfaces of the town, which also depress evaporation due to the accelerated rate of runoff. As a result the average discharge in the main stream of the area – the Pécsi-víz – has risen by 60–80%, mainly due to the release of waste water amounting to 35 thousand m^3/day piped to Pécs through a 40 km long pipeline from the Danube.

Apart from air pollution an important anthropogenic factor affecting the mesoclimate of Pécs is heat released by energy utilization, which plays an important role in the heat balance of the local atmosphere. The energy released artificially amounts to 8·6% of the total annual receipt of energy and is enough to raise the annual average temperature by 1 °C to 11·4 °C. Through detailed investigations we have obtained a detailed picture of the local climate of Pécs including the distribution of air temperature within the town, temperature differences between the town and its surround-

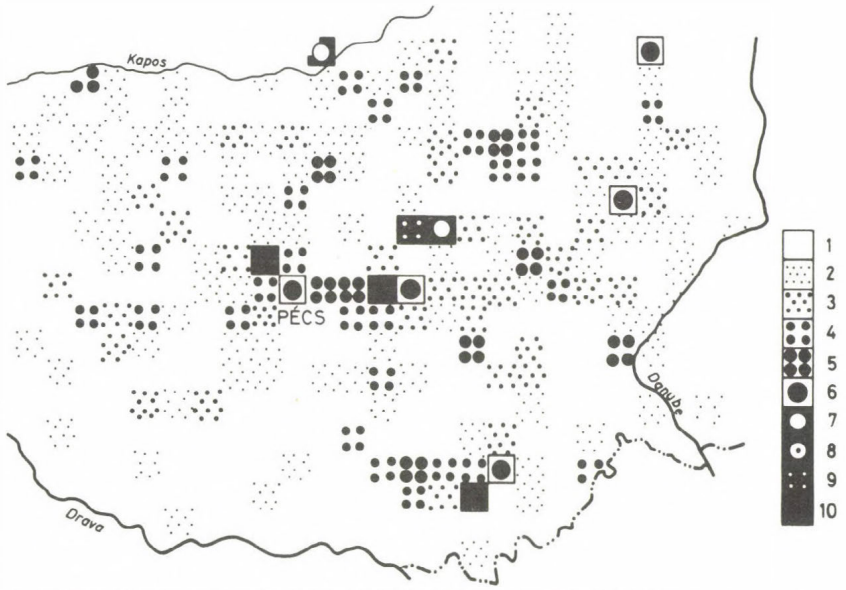


Fig. 1. Material removed by the quarrying of building materials m^3/km^2

1 = 0–1000; 2 = 1000–5000; 3 = 5000–10,000; 4 = 10,000–15,000; 5 = 15,000–20,000; 6 = 20,000–30,000; 7 = 30,000–50,000; 8 = 50,000–100,000; 9 = 100,000–150,000; 10 = 150,000 >

ings, the frequency and threshold values of temperature extremes, and changes in wind force and frequency. It is quite characteristic for the central part of the town being 5–6 °C warmer than the open country during autumn evenings when anticyclonic conditions prevail.

The most important branch of production contributing to the man-made landscape is mining.

The spoil heaps, open cast workings and subsidence associated with mining produce a very mobile surface, which in the Mecsek alone affects more than 28 km^2. Indeed we can find places where the surface has sunk 25 m since mining activities were started. The Mecsek as part of the Pécs–Komló agglomeration is one of the oldest coal-mining regions in Hungary, and in terms of intensity of deep working it is only surpassed by Tatabánya. Here can be found the deepest coal-mines and consequently the greatest surface disturbance. In addition the building materials industry contributes to the highly cultural landscape *(Fig. 1).*

Mining and quarrying generates other harmful effects which are complex in their interrelationships. These include surface deformation, damage to vegetation, water removal, the drying up of wells and springs, the formation of ponds, the appearance of warm, dirty water at waste heaps, general water and air pollution, and the destruction of roads and buildings *(Pictures 4–6; Fig. 2).* Preventive measures (country planning, restoration and recultivation) tend to miss the complexity of the interrelationships.

Picture 4. Pond formed by waste accumulation: Komló

The effect of coal mining on the environment has repeatedly changed during the last 150 years according to the method of extraction and its value. The tendency of coal-mining to shift from populated and cultivated areas to almost uninhabited forests and hills lasted up to the 1950s. However, nowadays it is again moving towards agricultural areas, which have become even more populated and intensively cultivated and the harmful implications have taken on new aspects. The economic interests of mining sometimes conflict with the principles and ideas of settlement development. For instance, architects and designers are reticent to build on surfaces which although once mined, are now stabil.

Environmental changes associated with the building of lines of communication in the Pécs area must not be neglected. The building of railways has resulted in embankments up to 12 m high and cuttings 20 m deep. In terms of specific surface formations the railway with its higher substructure, deeper cuttings and gentle gradients is most important, but in terms of the absolute amount of material moved roads must take priority. The author has developed two indices to express the distribution and intensity of surface change caused by the building of the lines of communication. The percentage of embankments and cuttings in the total length of railway lines and public roads is shown in *Figure 3*, while *Figure 4*, with the help of data obtained from detailed maps and geomorphological field work, shows the approximative mass of material moved per area unit during their construction. Although the values obtained in m^3/km^2 correlate with surface relief, it does not necessarily follow that low percentage values occur for the plains and high values for hill and mountain regions. We must take into account factors other than relief energy, such as embankments through tidal areas. The most striking morphologic

Picture 5. Trees falling down due to surface deformation: Komló

changes were brought about by building routes through areas of discordant relief, i.e. the alternate crossing of parallel ridges and valleys.

The rough relief forms presented by lines of communication are often subjected to different forms of erosion due to the lack of satisfactory protection, although their construction is designed and carried out with the greatest technical care. The protection of banks does not necessarily require solid surface coverings in every case; it is far cheaper and more pleasing to plant soil-binding vegetation with strong roots such as brambles, roses, alders, and acacias. Our experience shows that linear erosion cannot be avoided by grassing as irrigation is neglected, and turfing over provides limited protection only.

The micro-relief of lines of communication can indirectly influence the processes forming the natural surface and the microclimate. The most striking characteristic is

Picture 6. Collapse of an undermined road: Pécsbányatelep

the drift-accumulation behind structures crossing broad erosion and corrosion-derasion valleys; in places it accumulates at a rate of 3–12 cm/year and can reach a thickness of 1·3–2·4 m. Associated with it, swamp formation can be observed in many valleys behind such substructures as a consequence of the malfunction of culverts. This process of swamp formation is supported by the deposition and accumulation of materials brought down by streams that form basins of stagnant water in which grow the characteristic plants of loosestrife, water trefoil, and bulrushes. To appreciate the environmental effects of lines of communication more thoroughly the micromorphological phenomena caused by high structures crossing the more important valleys systematically should be observed and studied. We were led to this conclusion, when a temperature difference of 1·8–2·9 °C was observed between the northern and southern sides of the Pécs–Vasas railway line where it runs through valleys on a windless autumn night.

The main qualitative and quantitative characteristics of anthropogenic factors affecting Pécs and its agglomeration can be *summarized* as follows:

The effect of human activity on the natural environment is very old; it pre-dates the "environmental crisis" and is not limited to air pollution and water contamination. For instance, intensive soil erosion was started by viticulture in Roman times.

Man-made surface modifications in the area have surpassed the effects of natural processes since the second half of the last century.

During the process of production a great amount of natural mineral material is consumed in the making of artificial materials which are eventually discharged as waste. Waste appears as building rubble which raises the man-made surface of the

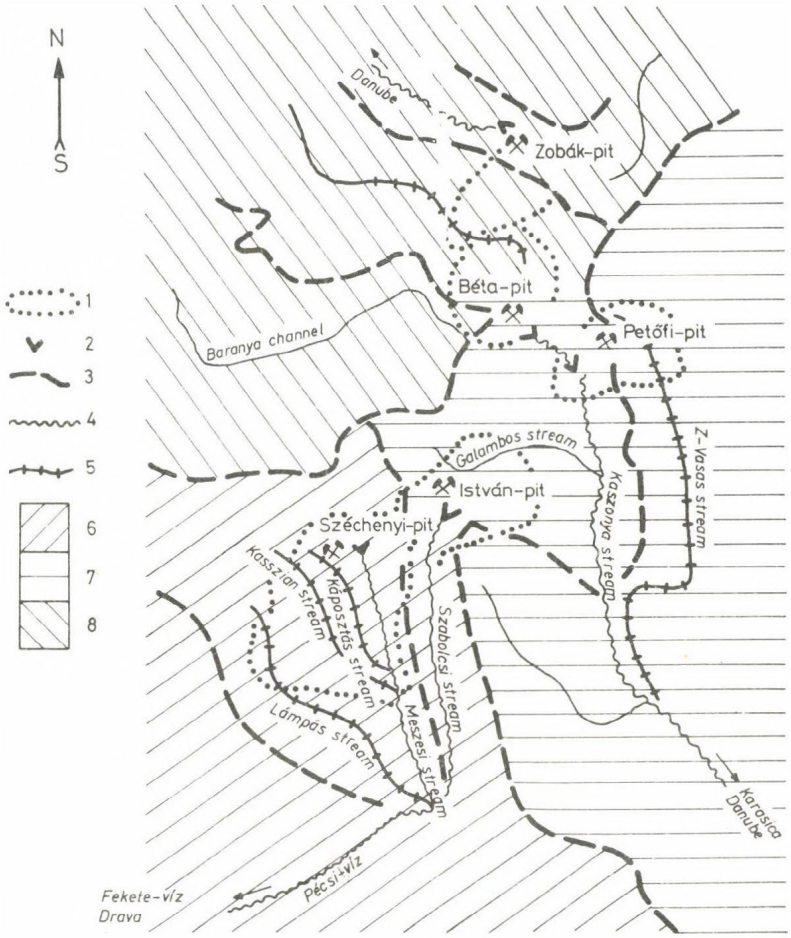


Fig. 2. Areal disjunction of underground water withdrawal and surface water addition for coal-mining areas by watersheds

1 = untergrround water withdrawal; 2 = input of mine-water into the streams; 3 = surface divide line; 4 = stream having an increased discharge because of mine-water; 5 = stream having a decreased discharge because of mining; 6 = drainage basin of Fekete-víz; 7 = drainage basin of Karasica; 8 = drainage basin of Kapos

lithosphere. The importance of this process is not limited to modification of composition, as the sub-aerial processes of decay take place within the crust where it is riddled with mines and cellars. The microtectonic or even stronger processes thus produced result in surface modification. Complex ecological changes also result since the artificially modified materials accumulating on the surface are different from

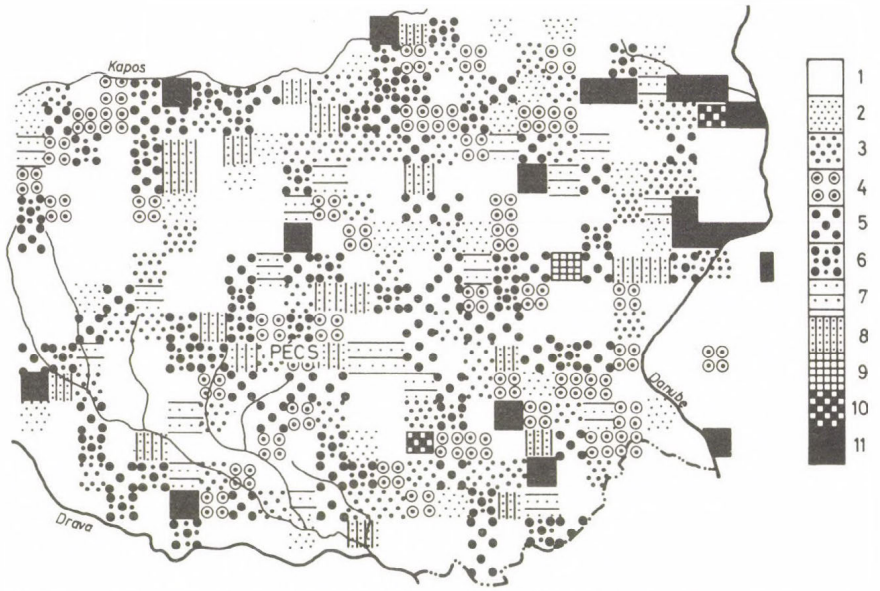


Fig. 3. Percentage of embankments and cuttings on lines of communication

1 = 0; 2 = 0·1–10; 3 = 10–20; 4 = 20–30; 5 = 30–40; 6 = 40–50; 7 = 50–60; 8 = 60–70; 9 = 70–80; 10 = 80–90; 11 = 90–100

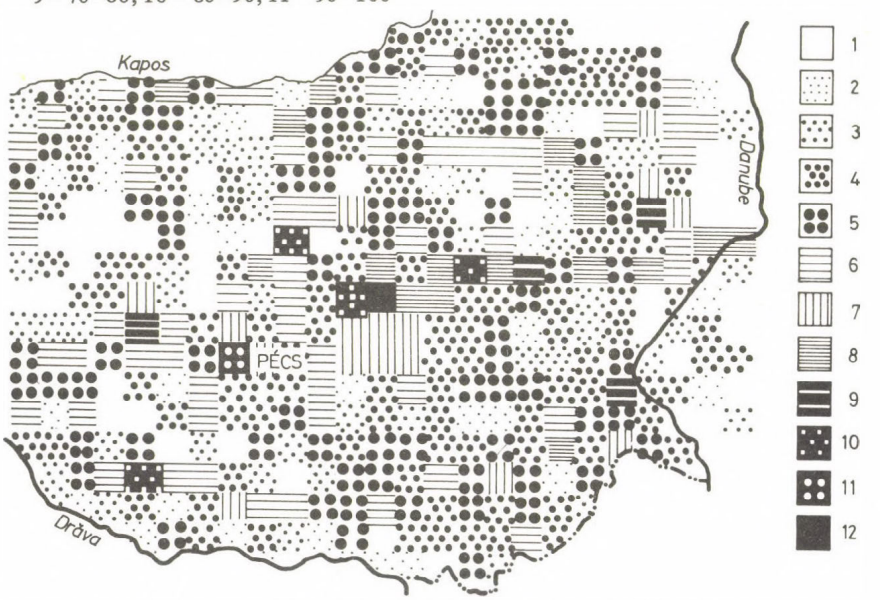


Fig. 4. Quantity of soil shifted in building lines of communication m^3/km^2

1 = 0; 2 = 1–500; 3 = 500–1000; 4 = 1000–2000; 5 = 2000–3000; 6 = 3000–4000; 7 = 4000–5000; 8 = 5000–6000; 9 = 6000–7000; 10 = 7000–8000; 11 = 8000–9000; 12 = 9000–10,000

natural materials in terms of their resistance to natural forces, and in their water- and heat balance. Accordingly, soil formation processes are affected which influence the flora and fauna.

Anthropogenic forms stabilized by the systematic and continuous protection of the surface are always strange phenomena in the natural environment. Unlike the slopes of natural anthropogenic forms which are degraded under normal surface processes, man-made banks are smooth and flat, and are reduced in height more slowly. They gradually become assimilated with their surroundings due to the natural spread or planting of vegetation. The formal characteristics of anthropogenic forms, which are consciously "built" and mostly planned, are generally determined by their function and the technology used for their construction. The environmental protection of surface forms has only been carried out during the last ten to fifteen years, and even then the demand for aesthetic forms is missed.

The total effect of processes induced and carried out by human activity is to reduce the balance of material-flow within the environment of the industrial town studied.

More natural rock-material is removed from the area through both conscious transportation and indirect transportation relating to natural and man-made processes than is brought in. This is due mainly to two factors. One is soil-erosion accelerated by the human activity of more than two thousand years. The other factor is the mining and building-materials industries. They remove a total of circa 5·8–6·2 million m^3 of coal, roçk, lime, bricks, concrete, sand every year, only one third of which is returned in the form of building materials, coal, metal and synthetic materials.

In the resort area of Orfű–Abaliget, which belongs to the agglomeration, the largest system of artificial ponds in Transdanubia has been formed. These give rise to a particular semi-anthropogenic ecotype in terms of transportation of bed alluvium and modification of the microclimate.

Considering the sizes of area involved, forestry and agriculture followed by water-supply, settlement expansion, the building of lines of communication and mining are the most important in terms of anthropogenic activity. However, ranking the different anthropogenic effects according to intensity, first place belongs to settlement expansion followed by mining, the building of communication lines, water-supply and agriculture and forestry.

In the territory of Pécs, singular anthropogenic effects have been more characteristic than complex ones as modifiers of nature, although the complex effect of phenomena is now beginning to take shape.

Anthropogenic factors effect the economic potential of different areas in various ways and to a different extent. Our analytical investigations have proved that none of the cultural interventions are absolutely bad, since even the most serious environmental damage is compensated for by the value and importance of the output such as mining, and the social benefits of, for instance, urbanization.

SETTLEMENT DENSITY AND THE NATURAL ENVIRONMENT IN SOUTHERN TRANSDANUBIA

By
GY. LOVÁSZ
Hungary

There has been a dynamic relationship between the pattern of settlement density and the character of the natural environment. Permanently changing either in space and time, the natural environment has been – among other factors – responsible for the timely changing of the pattern of settlement density in Hungary. At every phase of development, society, at its own level, has utilized the natural environment. During every period of social progress an identical natural environment has produced a different response from the settlement network. Relying on the results of social science research one can establish that in former historical epochs some special bases (e.g., the marshlands, the rivers and the hills with their great relief energy) attracted settlements in Hungary. Following from the results of historical demography and human geography research it can be said that within a given natural environment settlement density must have varied from area to area (Acsádi 1896; Boros 1957, 1958; Csánki 1913; Kovacsics 1963; Mendöl 1963 and Thirring 1963). In some cases change in the natural environment was controlled by social activity (e.g., river-regulation and drainage work), which later brought a response from the settlement network. But there are some types of natural environment, for instance the higher hill country and mountains of medium height, which have not changed because of human activity, but have nevertheless had a varied impact upon settlement density during the course of the development of production.

To demonstrate the dynamic relationship presented first that settlement density in the historical past was affected by the natural environment, let us take some examples.

There have been several fundamental changes in the settlement system throughout history, with the outlines of the present pattern of settlement density developing at the beginning of the 18^{th} century after the Turkish occupation. The dynamism of settlement in Southern Transdanubia as a function of time can be outlined through an interdisciplinary approach. By comparing the density of the settlement network with the character of the natural environment in each historical epoch, the main features of the relationship can be exemplified.

Southern Transdanubia, consisting of the counties of Zala, Somogy, Tolna and Baranya, forms one contiguous economic–planning region.

The relationships discussed hereinafter can be demonstrated by the map of settlement density *(Fig. 1)*. The map has been compiled by plotting nearest neighbour distances in kilometres, and assigning them to the categories given in the legend. The categories have been distinguished subjectively and the results plotted by the use of isolines.

Investigations in the eastern part of Southern Transdanubia, between Szekszárd and Mohács, have enabled all territories, where relatively few settlements occur, to

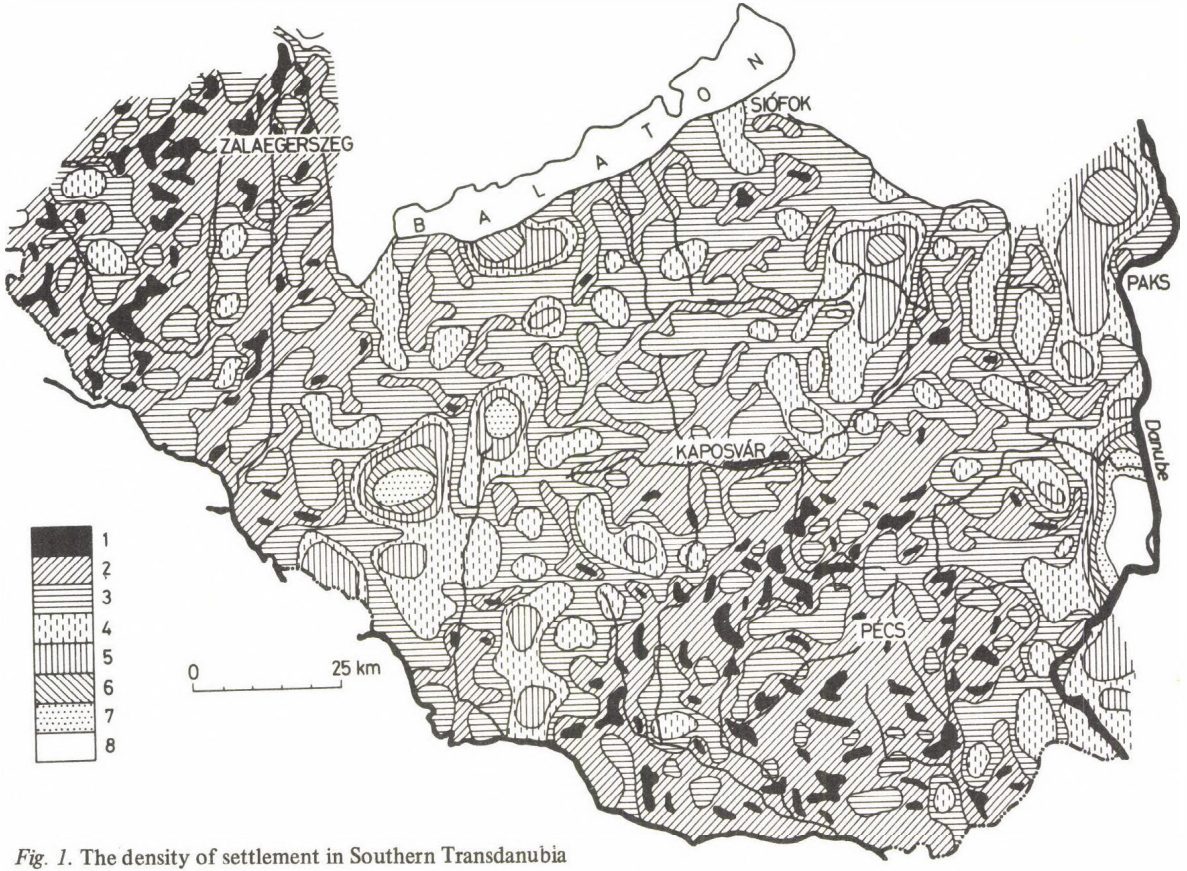


Fig. 1. The density of settlement in Southern Transdanubia

Nearest neighbour distances (in km): 1 = under 2·5; 2 = 2·6–5·0; 3 = 5·1–7·5; 4 = 7·6–10·0; 5 = 10·1–12·5; 6 = 12·6–15·0; 7 = 15·1–17·5; 8 = above 17·5

be demarcated their density being controlled by the former and present-day flood plains of the Danube and other major rivers. The mapping technique has revealed the territories, where the former flood-plain of the Drava has been the determinating factor responsible for the sparsity of present-day settlement *(Fig. 2)*. In the Middle Ages the settlement network of the western flood-plain of the Danube was not dense. At the socio-economic level of the time, the natural environment was not sufficiently favourable to generate a dense settlement pattern. The frequent and very high floods, inundating even the lower terrace levels of the Danube, were another negative factors. Indeed, very frequent flooding formed an almost continuous washed-surface in the vicinity of the channel. The morphological basis was not always favourable, and higher dry terrace-islands were rarely found in the Middle Ages. Those that did occur were the sites favoured for settlement. Along the margin of the flood-plain of the Danube, by contrast, a dense network of settlements evolved, indicating that water played a very important economic role at that time.

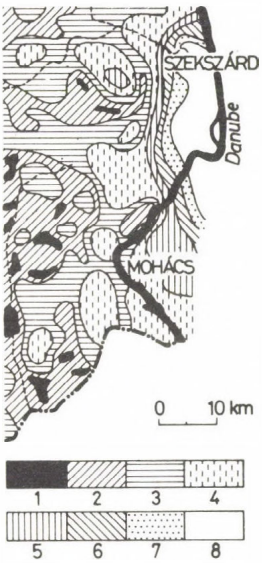


Fig. 2. The settlement network along the Danube between Szekszárd and Mohács

Nearest neighbour distances (in km): 1 = under 2·5; 2 = 2·6–5·0; 3 = 5·1–7·5; 4 = 7·6–10·0; 5 = 10·1–12·5; 6 = 12·6–15·0; 7 = 15·1–17·5; 8 = above 17·5

Forming the border of Hungary with Yugoslavia, the Drava river flows in a tectonic depression. As shown by earlier geomorphological research, the river-bed has, since the end of the Pleistocene gradually been displaced southwards. Hence the abundance of old channels separated by flood-free ridges to the north of the present-day river-bed. Because of the accumulation of wind-blown sand in the Early Holocene, these ridges have become more elevated, and, as evidenced by a comparison with the present-day settlement pattern, the valley of the Drava river is not only a densely populated area now, but was so in the historical past. It was the

interfluvial, wind-blown sand ridges that were choosen as village sites from the complex of the natural environment. This area was already very densely populated in the Middle Ages. The Drava river was regulated in the last century; and the low surfaces between the wind-blown sand hills were drained. At the prevailing level of social organization these low areas were mainly utilized as pastures.

Three geologically young (Late Pleistocene to Holocene) depressions can be distinguished in Southern Transdanubia, whose geomorphological evolution has been responsible for decreasing the density of settlement. One such basin trends in north-south direction in what is called the Zala Hill Country *(Fig. 3).* As a result of deflation, wind-blown sands accumulated in a narrow basin around Nagykanizsa, turning the narrow depression into marshland. As early as the beginning of the 18th century, this topography was no longer favourable for settlement and, although very densely populated in the Middle Ages, the number of villages decreased considerably. The settlements were located on the permanently dry surfaces of the hills. Nearby was the ploughland, while a little farther on was the marshland which had great economic importance at that time. Under the economic conditions of the

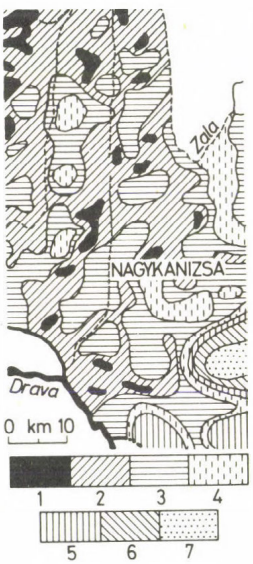


Fig. 3. Reduction in settlement in a Pleistocene basin of the Zala Hill Country

Nearest neighbour distances (in km): 1 = under 2·5; 2 = 2·6–5·0; 3 = 5·1–7·5; 4 = 7·6–10·0; 5 = 10·1–12·5; 6 = 12·6–15·0; 7 = 15·1–17·5

epoch this natural environment ensured excellent living conditions. Demographic records show that this basin, dotted with deflation forms, had a comparatively dense settlement network before the 18th century. After drainage, the marshes were firstly utilized as a pasture and then as a ploughland. During that period the settlements are believed to have been sited on the deflation forms found in the marshland.

The second basin lies in the southern foreland of the Mecsek Mountains, to the northwest of the city of Pécs *(Fig. 4).* Before the marshes were drained, it had been

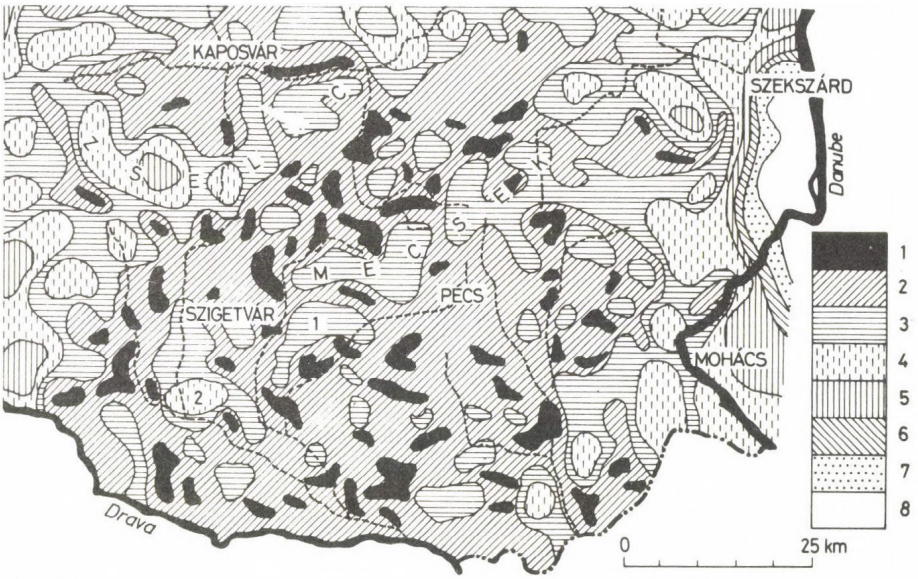


Fig. 4. Reduction in settlement in the Southern foreground of the Western part of Mecsek Mountain and in the Southern foreground of Zselic Hill Country

Nearest neighbour distances (in km): 1 = under 2·5; 2 = 2·6–5·0; 3 = 5·1–7·5; 4 = 7·6–10·0; 5 = 10·5–12·5; 6 = 12·6–15·0; 7 = 15·1–17·5; 8 = above 17·5

a waterlogged area. Minor rivulets emerging from the mountains had built up alluvial fans on which a permanently waterlogged environment developed. According to the demographic record, settlement density decreased here quite early on.

The third tectonic depression occurs to the west of the Danube, town of Mohács. Drainage into this basin is from the neighbourhood of the Geresd plain to the north. The development of marshland here has been controlled by the combined effect of subsidence and the back-growth of the adjacent Drava alluvial fan to the south. Thus, the area had no outlet until it was artificially drained. Under the socio-economic conditions faced by post-Turkish resettlers this area too was unfavourable for permanent habitation and the settlement pattern, in consequence, is comparatively less dense here, too. Nevertheless, during the Middle Ages it was not sparsely populated relative to its environment, because of the economic importance of water at the time.

Drainage to the west of the Mecsek Mountains and the Zselic Hill Country of 250 to 300 m altitude involves several minor watercourses trending southwards. These have built a large alluvial fan in the southern foreland of the Hill Country, to the south of Szigetvár (see *Fig. 4*). Although the waterlogged surfaces here have already been drained, the settlements are also more dispersed here, as compared to other areas of Hungary. According to the demographic data, the central part of the alluvial fan, where the marshes were most contiguous, was not populated in the historical past, although the margin of the marshland was dotted with settlements.

Consequently, the medieval reduction in settlement density was not so marked here as today.

The types of natural environment so far outlined have changed in the course of social progress. Marsh and flood-plain have been drained since the Turkish period but newly formed villages have not occupied these dry sites because water has lost its economic importance.

In its western and eastern parts the Mecsek Mountains attain altitudes of 600 to 700 m and the settlement pattern is sparse (see *Fig. 4*). It is only the piedmont margins of the narrow and deep valleys that in the past and now are relatively more favourable for permanent settlement. In the mountains proper soil-conditions are very unfavourable and in the Middle Ages as today played an important role in accounting for the sparsity of settlements.

In Southern Transdanubia there are several hilly regions of 250 to 300 m altitude which have not been dissected by fluvial erosion in recent geological times. However, in the central areas of this hill country hosts of valley-heads have been formed, providing less favourable physical conditions for settlement. Consequently, the settlement pattern is not particularly dense here either. In addition, hydrological conditions can also result in a less dense settlement network in parts of the region. The most typical example can be found between Kaposvár and Szigetvár, in the hill country west of the Mecsek Mountains (see *Fig. 4*), where the highest central parts were uninhabited due to the unfavourable natural environment even in the Middle Ages.

The general relationships existing between settlement density and the natural environment can be determined on the basis of the above examples.

The tectonic depressions of Late Pleistocene age characterized by specific morphogenetic evolution and occurring in hill country appear to imply reduced settlement density. Tectonic processes, however, are only of indirect influence upon the settlement pattern. What is directly responsible for the reduction in settlement density is the hydrographic situation provoked by subsidence. Alluvial fans deposited by minor watercourses have formed marshes of considerable extent which neither today nor in the Middle Ages were suitable for permanent settlement.

If the development of a tectonic depression is coupled with deflation, a denser settlement pattern results. The surface of the basin is covered by marshes in this case too, because of impeded drainage from the adjacent hilly areas but the wind-blown sand hills are constantly dry. Thus, under the socio-economic conditions of the Middle Ages, these hills must have had great economic potential owing to the nearby presence of water, and formed the sites for permanent settlements.

The morphogenetic evolution in a major tectonic graben, like the Drava valley, can provoke both a decrease and an increase in the spacing of settlements. In a major tectonic depression subject to processes of fluvial accumulation in the historical past, settlements are, as a rule, rather widely spaced. The contiguous marshland brought about by the above-mentioned geological processes has never formed a natural environment best suited to accommodating permanent settlement.

Under the influence of tectonic movements, the river may laterally change its position. If so, the marginal zone of the graben is converted into a landscape characterized by the alternation of old channels and intervening ridges. In the Middle Ages there used to be swamps of considerable size within the old channels, while the dry ridges must have been of great economic potential because of the

proximity of water. Thus the medieval settlement pattern was markedly denser than that of today. Since the drainage of the marshes the natural environment has had little impact on the density of the settlement network.

The natural environment produced by Pleistocene uplift resulting in a centripetal valley system within a block landscape also influenced the settlement pattern. As is the case today, such an environment did not provide the optimum for settlement in the Middle Ages, hence the comparatively wider spacing of settlements here had throughout history.

In Southern Transdanubia there are many diversified types of natural environment. The analyses carried out thus far have in many cases revealed the direct or indirect effects of the natural environment upon settlement dynamics. The effects are usually negative, leading to a reduction in settlement density. The number of inhabitants in numerous Transdanubian villages is decreasing and can result in a complete loss of settlements, unless the process is stopped. The natural environment is involved in this process in many cases, because the marked relative relief of the landscape causes soil erosion while soil quality is poor. The production of field crops is substandard and the returns from farming are scant. The land is usually too poor for pasture also, and is thus generally forested. Up-to-date methods of farming are not economically feasible in such a natural environment. Road construction was jeopardized in the historical past and is still difficult owing to the marked relative relief of the surface, an infrastructural factor very important for the development of a settlement. Settlements situated at the heads of narrow valleys have, even today, only one access to a distant main road and thus see no transit traffic. This heavy isolation affects negatively the development of such settlements. Already in the historical past, the afore-mentioned factors were responsible for the stagnation of population compared to the broader environment.

Settlements with a small number of inhabitants have seldom received the funds necessary for investment in infrastructure (shops, schools, health service and potable water). These circumstances have also contributed to the out-migration of their inhabitants. The series of reactions provoked by the harsh natural environment causes hosts of socio-economic problems that are difficult to solve.

REFERENCES

Acsádi, I. (1896): Magyarország népessége a pragmatica sanctio korában 1720–21 (Population of Hungary at the time of pragmatica sanctio, 1720–21). *Orsz. Magy. Kir. Stat. Közl.*, Budapest.

Boros, F. (1957): Adatok Magyarország településállományának XVII. századi fejlődéséhez (Data on the development of the Hungarian settlements in the 17th century). *Földr. Ért.*, pp. 459–474.

Boros, F. (1958): A hazai településállomány XVIII. század eleji képe (Hungarian settlements at the beginning of the 18th century). *Földr. Ért.*, pp. 481–495.

Csánki, D. (1913): *Magyarország történelmi földrajza a Hunyadiak korában* (Historical geography of Hungary during the Hunyadis). Budapest.

Kovacsics, J (1963): *Magyarország történeti demográfiája* (Historical demography of Hungary). Budapest.

Mendöl, T. (1963): *Általános településföldrajz* (General settlement geography). Akad. Kiadó, Budapest.

Thirring, L. (1963): Magyarország népessége 1868–1949 között (Population of Hungary between 1868–1949). (In: Kovacsics, J.: *Magyarország történeti demográfiája* (Historical demography of Hungary). pp. 221–412.

RURAL DEVELOPMENT

THE POLITICS OF LAND DEVELOPMENT IN THE UNITED KINGDOM

By

A. BLOWERS

United Kingdom

Land development in the U.K. is at the interface between market forces and public planning policy. Some commentators regard the market as the dominant element with the planning process reduced to a purely reactive role, responding to initiatives from the private sector. They argue that planning decisions merely provide the imprimatur for patterns of land use that would have occurred anyway through market mechanisms. For instance, Ambrose comments, 'The key decisions are not made in County Hall. They are made in the City by the financial institutions which fund the developers'.[1] Simmie concludes that 'in the most significant aspects of allocation, town planners achieve little in the way of altering what would have happened without their mediation'.[2] Such hyperbole neglects the significant proportion of development in the U.K. that emanates from the public sector which has been estimated at about 50%.[3] It also ignores the impact which the planning process has upon the market.[4] Planning and market forces are iterative, each influencing the other and producing outcomes that may not be foreseen.

The use, and value of land are political questions of national and local significance. Attempts to control land use in conformity with planning objectives have not always met with success. The contradictions of derelict land in highly accessible central locations or of sporadic, and poorly serviced development on the peripheries are testimony to the difficulty of securing the right land at the right price and for the right use which are at the heart of the planning process. Land development demonstrates the problem of co-ordinating various agencies, and of controlling and chanelling market forces to correspond with planning objectives. It also reveals conflicting ideologies. Such conflicts occur at a national level and influence the financial and planning framework for land planning.

National legislation on land, planning and local government provides the context and constraints within which local decisions are taken and is examined in the first part of this paper. Conflict over land development also arises at the local level and it is here that the pattern of land development is ultimately determined. Yet little research has

[1] Ambrose, P. (1976): *Who plans Brighton's housing crisis?* Shelter Local Report 1 March.

[2] Simmie, J. M. (1974): *Citizens in conflict,* London, Hutchinson Educational.

[3] School for Advanced Urban Studies (1976): *Positive planning and public profit.* Community Land Training Programme, Background Paper 2, March, P.2.1

[4] For instance, it is argued that development control restricts the supply of land and thus forces up prices; that attempts to restrict industrial and commercial development through planning controls may starve certain areas of investment without necessarily creating it elsewhere. Evidence on these points tends to be conflicting and inconclusive. For example, see Note 8 below.

been done on the political process of land development at the local level. The second part of this paper draws on examples of land planning within one area in the UK in an attempt to reveal the impact of planning policy, financial considerations and ideological and organizational conflict on urban fringe land development. In the UK 'Land use and urban development problems are in fact generally regarded as subjects as much for national as for local decision making'.[5] Any interpretation of the pattern of development must investigate the relationship between national policy and local decision-making.

1. NATIONAL LAND POLICY

Land policy has two distinct components. One is financial, the attempt to redistribute some of the private wealth in land to the public sector, usually through taxation policies. The other is a spatial or land use component, the attempt to allocate land through planning controls. Both components have recently been brought together in the Community Land Act which is discussed later.

a) THE DISTRIBUTION OF WEALTH IN LAND

Land ownership, or more specifically, the control of property rights in land, confers wealth upon those who hold the rights. In certain respects land is a unique form of wealth in that it is fixed in supply (though not in use), is immobile, indestructible and essential for all forms of activity and life. Land requires no production or supply costs and hence those with rights over land receive 'economic rent', a fortuitous and unearned income over and above that necessary to keep land in its existing use. This surplus or unearned increment 'has provided the main economic platform for attacks by land reformers upon private ownership of land'.[6] But the value of land in exchange rather than its value in use has been the major target for taxation policies in Britain since the War. The value of a piece of land depends in part on its physical characteristics but also on its geographical accessibility. We are familiar with the land value surface with very high values on premium sites, for which there is great competition among potential users in the centre of major cities, and declining values as distance from points of maximum accessibility increases. The difference in value between land in agricultural use and its exchange value as residential land can be very marked indeed. The process of urban development has a major influence on land values, creating what is known as *betterment,* the increases in value which accrue to owners from public expenditure and planning control.[7] It has been consistently argued that part, at least, of this betterment should be collected from the owner of the land for the community which has created it. The justification for such collection has grown as the difference between existing and development value has widened, as planning

[5] Thomas, R.: *Planning, housing and land values.* London, Land and Liberty Press Ltd. pp. 2–3.

[6] Barratt, J. (1976): *Land and inequality.* Unit 10 of "Patterns of inequality". The Open University, p. 29.

[7] Department of the Environment (1974); *Land.* H.M.S.O., Cmnd. 5730, p. 1.

intervention has distributed betterment unevenly, as a check on land speculation and as a means of securing resources for public sector development.

By granting or withholding permission to develop land and by specifying the type of development to which land may be put, planning authorities distribute benefits to owners who make successful applications and withold such benefits from those whose applications are refused. Planning may influence the price of land (and therefore its betterment) by restricting its supply though it has been argued that land prices are demand determined and that land supply responds to this demand.[8] There is considerable development land available both on the fringes of cities and in the inner city but it remains unused through lack of demand. Planning policies locate a 'hope' value on land that may be zoned for development at some future date. Not all such land will be developed, which raises the question of compensation for those refused permission to develop. In the UK compensation has been paid where land is compulsorily acquired but not on land which is refused permission.[9]

b) THE ALLOCATION OF LAND USES

A second aspect of post war land policy has been the introduction of a planning system to control the use of land. Planning is a specific mode of allocation of goods and services, it is the dominant mode in centrally planned economies. Considerable ambiguity surrounds the concept of planning as a mode of decision-making. In the strictest sense planning 'implies an explicit preselected desired outcome, which is not abandoned or modified before it is achieved'.[10] Intended and actual consequences are identical. In a plural, mixed economy such as the UK there is rarely agreement over objectives and the controls necessary to effect them are largely outside the decision-makers' competence. Thus planning tends to be indicative, subject to revision and change as circumstances alter. Wildavsky would not regard this as planning. 'Attempts to plan are no more planning than the desire to be wise may be called wisdom or the wish to be rich entitles a man to be called wealthy'.[11] Whether or not British planning satisfies the criteria of planning, the need to regulate the allocation of land has been endorsed. The White Paper on *Land* published by the Government in 1974 stated that one of the major objectives was to promote 'positive planning', 'to enable the community to control the development of land in accordance with its needs and priorities'.[12] For various reasons the notion of positive planning may be difficult to

[8] Dept. of the Environment (1975): *Housing land availability in the South East,* Consultants' Study, concludes: "The most remarkable single finding of this study is the extent to which the demand for housing is met by granting permissions on land *not previously identified as available in planning terms."* p. 5.

[9] For instance, where planning controls prevent an owner any beneficial use he may have a right to claim compensation, or he can serve a purchase notice on the planning authority.

[10] Reade, E. J. (1975): *An attempt to distinguish planning from other modes of decision-making.* Seminar paper, University of Manchester, Dept. of Town and Country Planning, Nov. 24th, p. 5.

[11] Wildavsky, A. (1973): If planning is everything, may be it's nothing, Journal of Policy Sciences, 4,2, pp. 127–153, p. 129.

[12] Dept. of Environment (1974): *Land. op. cit.*

achieve. There are problems of ownership and value which make the assembly of land costly and time consuming. There may be legal and physical constraints on development. The necessary infrastructure may be lacking. There may be conflicts between the organizations responsible for land development.

Various attempts have been made through planning, local government and land legislation to secure betterment for the community and to facilitate the idea of positive planning. Changing political attitudes at a national level have shaped the broad relationship between market and government forces in land development.

THE LEGISLATIVE FRAMEWORK

a) Land

During the war the Uthwatt Committee[13] proposed that all undeveloped land should be nationalized but the owner still be able to use his land losing only his right to develop it. Land for development would be purchased at existing use value, but developed land required for redevelopment or which had plans prepared for it would be acquired at its 1939 value (thus avoiding speculation). A 75% betterment levy would be charged on all increases in land value. This radical solution was only partially implemented in 1947 when all rights to develop land were nationalized. This is the fundamental principle of development control which is the backbone of the British planning system. But private ownership of land was not affected although an attempt was made to collect the betterment arising from changes of use by a 100% levy. This failed to work since it provided no incentive to the market and resulted either in inflated prices (through buyers paying both the development charge and a market price to the seller) or the need for compulsory purchase. Compulsory purchase was at existing use value and a fund of £300M was established to compensate those owners who had lost anticipated development value as a result of the Act. The Conservatives abolished the levy but this resulted in a dual pricing system (full market value for those who gained permission to develop but existing use value for those whose land was compulsorily purchased). This anomaly was removed in 1959 by a return to full market value for compensation. During the 1960s the Labour Government made a further attempt at securing betterment and state control of land assembly through the Land Commission but this was abandoned when the Government fell in 1970. During the 1970s the Conservatives resorted to urging local authorities to release land and used the taxation system to secure betterment. By this time, therefore, the principle of obtaining some betterment for the community and the system of development control were firmly established.

b) Planning

The system of development plans was established in 1947. These were in the form of land use maps with accompanying written statements drawn up by the local planning authorities[14] to be revised every five years. Development had to be in accordance with

[13] H.M.S.O. (1942): *Expert Committee on Compensation and Betterment.* The Uthwatt Committee, Cmnd. 6386.

[14] At that time these were the county councils and the county borough councils.

the plan. This system was criticized as being too detailed, too centralized, too slow and inflexible and for being concerned with the control of land use rather than indicating the general principles upon which development would be promoted and controlled. This led to the introduction of the more indicative structure planning system in the 1960's. Structure Plans, prepared by the county authorities must be compatible with national and regional policies and provide the framework for more detailed Local Plans. They focus on key issues of employment, housing and transportation and are based on various assumptions about the future. The County Councils must consult with the various agencies responsible for implementation and encourage wide ranging public participation. Structure Plans are intended to look ahead for about fifteen years but must be monitored and reviewed continuously and amended in the light of changing assumptions or conditions. A major function of Structure Plans is 'To state and justify . . . the authority's policies and general proposals for the development and other use of land in the area concerned'.[15] The first Structure Plans began to appear in the early 1970's.

c) Local Government

Although central government lays down the principles and framework of land planning the detailed development of land is a matter for local government. Local authorities do not possess autonomy in this field, however, for Structure Plans must be approved by the Minister for the Environment. The Minister also possesses various powers over local authorities and can be appealed to in cases of conflict over local planning policy.

At the local level power over planning policy has become dispersed in recent years. During the 1960's the Redcliffe-Maud Commission[16] proposed a reform of local government which would have vested control in large unitary authorities. The case for regional authorities was also promoted at the time and has been resuscitated recently partly in response to proposals for devolution of Scotland and Wales.[17] So far, in England regional plans have been prepared by advisory bodies and have no statutory significance. The local government reform of 1974 redistributed local government functions among two tiers of authority, the County and District councils. The system has been criticized for creating confusion, duplication, larger and less responsive bureaucries and for being expensive and inefficient. Planning in particular has suffered, being a split function between the County Councils responsible for strategic planning and transportation, and the District Councils who possess the bulk of development control and local planning and housing powers.

By 1974 the problem of betterment had been partially tackled and publicly accountable local authorities had secured some control over the allocation of land use. But it remained essentially a system of coexistence of the market side by side with government intervention, a typical expression of the British concept of the 'mixed economy'. At the local level there were widely differing approaches to land development. Some authorities took the initiative as developers by buying up land cheaply

[15] Department of Environment (1974): *Structure Plans,* Circular 98/74, July, Para. 3.

[16] H.M.S.O. (1969): *Royal Commission on Local Government in England,* (The Redcliffe Maud Report).

[17] H.M.S.O. (1976): *Devolution: the English Dimension.* A consultative document.

and developing it in conjunction with the private sector. The development of new towns rested on central government intervention and, despite their international notoriety, new towns form a relatively small part of the total development in Britain since the war.[18] In most cases, local authorities, apart from their own developments, played a passive role, accepting or rejecting initiatives from the private sector. They had limited powers to ensure the implementation of the objectives of their plans. As a result urban development was a piecemeal, untidy and uncoordinated process. At the same time a rapid inflation in land prices[19] and the growth of speculative investment in commercial developments resulting in empty office blocks in city centres provided the incoming Labour Government in 1974 with the incentive to have a further try at securing betterment for the community and a system of positive planning, through the Community Land Act (1975).

d) The Community Land Act

If another attempt to produce a comprehensive rather than an ad hoc approach to land planning was to succeed where two previous ones had failed it had to be both workable and politically robust. The Community Land Act attempts to meet both criteria by seeking to effect gradual rather than dramatic change and by attempting to strike a balance between the needs of the market and those of the planning authorities.

The Act is concerned with land needed for relevant development within ten years. Such land will be defined by the local authorities and will include all land which is neither exempted nor excepted.[20] The local authorities will submit land policy statements based on the planning objectives for the area. A close link between land planning and the objectives of Structure and Local Plans is therefore expected to make the scheme 'planning led'.

The scheme will be implemented in two stages, partly to enable authorities to build up the expertise and resources necessary for full implementation of the Act and partly to enable an orderly transition from development based on the market to development controlled by the authorities. During the first phase authorities may choose whether or not to acquire land for which planning permission is sought. Eventually, when the Act is fully implemented, all land must pass through the local authority. In the transitional phase land may be identified by the local authority and purchased by agreement or compulsory purchase. Or it may be identified by landowners or developers who will be given prior negotiating rights if the land is not required by the local authority. Local authorities will also be able to designate 'disposal notification areas' requiring those disposing of an interest in land to inform them so that they can say whether or not they propose to acquire that interest. This safeguards the position of authorities who intend but are not ready to buy development land.

[18] It is estimated that new towns account for only 4% of the national house building programme.

[19] Between 1966 and 1975 average house prices and average earnings tripled but whereas house prices rose more slowly than earnings in the early part of the period they doubled between 1970 and 1973. Land prices were even more erratic rising six to seven times 1963–73 and doubling in 1972.

[20] Exemptions or exceptions include agriculture, forestry, land with planning permission or owned by a builder or developer before White Paper day, owner occupiers, churches and charities.

The Act has attempted to tread the tightrope between public ownership of land and the need to retain a viable and active development industry. Local authorities will be responsible for ensuring a sufficient supply of land to be disposed of in order to maintain a healthy construction industry and a continuing building programme. Much will, therefore, depend on the attitudes of individual authorities. Considerable uncertainty is likely where developers may be prepared to put less effort into site investigation if the prospects of obtaining the development are weakened. 'It is an open question whether the Community Land Act will increase the risks for the housebuilder. The construction industry, relieved of the necessity to ensure land availability will become critically dependent on the local authorities for its supply'.[21] Without sensitive and objective policies on disposal the local authorities could sacrifice the resources and expertise that currently reside in the construction industry.

An attempt has also been made to maintain incentives for the sale of land during the transitional period. Local authorities will be able to purchase net of Development Land Tax[22] thus acquiring land cheaply and securing the betterment for the community when the land is developed. Owners will pay the tax at an initial rate of up to 80% of the difference between the market value and a use value which, broadly speaking, will be just above current use value or the price at which the land was last sold whichever is the higher. This is regarded as providing sufficient incentive to encourage landowners to bring land forward and to give the authorities sufficient time to prepare for the second phase when all development land will be acquired at existing use value.

IMPLICATIONS FOR LAND DEVELOPMENT

In some ways the Act has merely made obligatory to all authorities what a few of them have already been doing. They have long held powers to acquire land for their own purposes and some of them have assembled land banks at attractive prices in anticipation of later development thus realizing the betterment for the community. Some have entered into partnership schemes with private developers obtaining planning gains (e.g. car parks, housing, infrastructure) in comprehensive developments. They have been able to influence the dwelling sizes, density, mix and layout of private developments when granting planning permissions.

In other respects, too, the Act is hardly dramatic. The principle of a betterment charge has long been generally accepted. The exemptions and exceptions to the Act put beyond its scope agriculture and forestry, and, within areas of urban development, there are considerable exemptions. The long transitional period and the various compromises inherent in the Act together with a shortage of both financial and manpower resources to implement it suggest a slow and cautious approach.

The flavour of compromise and gradualness and the partial nature of the scheme render it far less radical than the advocates of state control over land planning might

[21] Stapleton, T. (1976): *The land development process.* School for Advanced Urban Studies, Community Land training programme, Background Paper 7, P. 7. 6.

[22] Development Land Tax replaces all other forms of taxation formerly used to secure some of the betterment arising from land transactions.

have wished. But this has not lessened its political vulnerability. The Conservative opposition spokesman described the measure as the 'greatest threat we have seen to the concept of the private ownership of property and consequently to the freedom of the individual'.[23] Such polemic has been matched by more sober academic condemnation. 'What remains in very serious doubt is whether this most recent enactment is the most appropriate vehicle for implementing a policy of land reform. While undeniably standing as a statement of radical political philosophy it still reflects a fundamentally superficial analysis of the problem'.[24] Opponents of the scheme argue that its desirable features could be achieved in other ways (e.g. through taxation) or by developing existing arrangements. It is the political provocation of the Act rather than its technical weaknesses that most threaten its survival.

Whether the Act survives or not it has once again exposed the conflicts between planning and the market which are inherent in a mixed economy. Although the Act is supposedly planning led there is the very real possibility that financial objectives will determine planning decisions. This is partly because the government, anxious for financial return in the hope of making the Act more durable, has urged authorities to ensure a quick turnover of land. Also the scheme does little to encourage purchase of expensive sites since authorities acquire broadly at existing use value. There remains an incentive to acquire low cost 'greenfield' sites on the urban periphery thus securing considerable betterment which might encourage sporadic development and do little to stimulate development of those central and inner urban area sites which have lain derelict for years. Although Structure Plans may stress the need for using up existing sites in order to redevelop decaying inner areas and to prevent further encroachment on valuable agricultural land, the financial realities may point in the opposite direction. Recent concern with the plight of the inner cities has, however, led the Government to promise preference to proposals to develop inner areas using the Act.[25]

Potentially the most fundamental change will be in the relationship between the planning and valuation processes. Although there is clearly a reciprocal relationship between planning and land values, it has tended to be obscured by the administrative separation of planning and financial decision-making within public authorities. Planning committees are expected to make their decisions on 'planning grounds'. Although applications are initiated by developers in the hope of financial gain and though the decision to accept or reject has direct financial consequences, these are not regarded as relevant to the planning decision. The artificial segregation of planning and financial issues will be more difficult under the land scheme. Planners will not be immune from spelling out the financial consequences of their recommendations. The desirability of making surpluses on land transactions, of achieving quick turnover to avoid interest charges on holding land will have to be carefully weighted against imposing certain restrictions on development or insisting on certain standards of development. Local authorities will have a greater responsibility for both identifying land and deciding on its use. The system of public control over private initiative will be replaced by one

[23] Rossi, H. (1975): Community Land – the Conservative viewpoint. *Estates Gazette*, 21st June, pp. 889–895.

[24] Ratcliffe, J. (1976): *Land policy*. London, Hutchinson Educational, p. 68.

[25] H.M.S.O. (1977): *Policy for the inner cities*. Cmnd. 6845. Annex. Para. 12.

where local authorities have responsibility for the promotion as well as the control of land development. There are considerable misgivings about the ability of local authorities to provide the initiative, take the risks and secure the benefits for the community in both financial and planning terms. Despite its imperfections some commentators consider the market a better means of satisfying the preferences of society. "Without some way of acquiring knowledge of preferences positive planning can easily turn into decision-making by a small group of decision-makers whose objectives may be unclear or contrary to the public's wishes, and whose activities are usually imperfectly monitored".[26] On the other hand, the market is less well equipped to evaluate the social costs and benefits of individual developments.

The operation of the Community Land Act gives considerable discretion to local authorities. There is thus scope for differing interpretations and for conflict between authorities encouraged by political differences and by the two tier system. Both tiers have responsibilities under the Act which are specified in Land Acquisition and Management Schemes, some of which "read like an international treaty, based on mutual suspicion and mistrust".[27] Whether authorities are active or passive in their attitudes to the acquisition of land and whether they are motivated by planning or financial considerations is fundamentally a political issue. An attempt to promulgate the notion of positive planning by a piece of national legislation presupposes that there is a clear understanding of its objectives and a ubiquitous willingness to achieve them. The development of land at the local level has less to do with grandiose conceptions of long-term positive planning than with the local political circumstances prevailing at the time.

2. LAND PLANNING AT THE LOCAL LEVEL

The national framework of legislation on land planning broadly defines the relationship between the market and the public authorities. Changes in the planning, governmental, and financial framework affecting land transactions may alter the balance between the various interests in land. It is extremely difficult to distinguish these various interests. They may be private or public, and they may be in conflict or in concert. For any one piece of land there may be a variety of potential uses each of which will benefit one section of the community quite possibly at the expense of some other section. These various interests must be arbitrated by democratically elected local authorities. Decisions on land tend to involve ideological, financial, and planning considerations. Decision-makers are susceptible to pressures from the various interests involved. Those interests which are most likely to be successful are those most able to articulate their case and to gain access to decision-makers. Thus land policy is likely to represent the balance achieved at any one time between various sectional interests rather than be in pursuit of any long range objectives enshrined in a plan. It is an intensely political matter though planners profess to operate as disinterested protec-

[26] Maynard, A.: *An economic analysis of the Land Act 1975.* Paper presented at seminar of Chartered Institute of Public Finance and Accountancy, p. 15.

[27] School for Advanced Urban Studies (1976): Management implications. Community Land training programme, Background Paper 8, March, p. 8, 20.

tors of the 'public interest'. "The belief that planning is non-political seems pathologically well-entreched even ironically among those planners who accept the validity of the suggestion that 'planning is political' ".[28] In other words, professional planners tend to equate 'political' with politicians and fail to recognize the significance of their own values in presenting choices.

Broad generalizations about the relationship between planning and the market based on examination of national legislation on land are unlikely to provide insight into the process of urban development. Such insight must be sought by the use of detailed empirical evidence gathered at the local level. "However, the use of case studies raises the obvious question of how 'representative' the cases chosen are" [29] It would be impossible to claim representativeness for the case studies which follow. They are concerned solely with urban fringe development and are taken from one area in the UK. But they do illustrate different aspects of the politics of land development and indicate the nature of the interests involved, the types of conflict to which they give rise and the relative importance of planning considerations in arriving at decisions. They also help us to interpret the effect of national legislation upon local land planning policy.

THE STUDY AREA

The study area, Bedfordshire, is one of the smaller counties of England (area 123,000 ha pop. $^1/_2$M.) situated in South East England to the north of London *(Fig. 1).* Although it has a large rural area two thirds of the population is concentrated in two urban areas –– Luton/Dunstable/Houghton Regis in the south (215,000) and Bedford in the north (90,000) – from which the case studies are taken *(Fig. 2).* The county has been growing rapidly over the past two decades both as a result of immigration and through a rapid natural increase resulting from its youthful age structure. This growth has resulted in considerable pressure for the release of land for housing needs, particularly on the fringes of the major towns. Administratively the area (since 1974) is covered by a first tier County Council and is divided at the second tier level into four District Councils. During the period covered (1973–77) the area underwent political changes. From 1974–77 the County Council had no overall party control though Labour were the largest party until the Conservatives gained control with a huge majority in 1977. Until 1976 two District Councils also had no overall control, one was Conservative and Luton was Labour. Since 1976 all have had substantial Conservative majorities.

Apart from the administrative and political changes that occurred during this period it was also the time during which the Community Land Act was introduced and the County Structure Plan developed. The major aims of the Structure Plan, which was submitted in 1977, were to meet the county's housing and employment needs in a

[28] Reade, E. J. (1977): Some educational consequences fo the incorporation of the planning profession into the state bureaucracy. Paper presented to the Conference of Sociologists in Polytechnics Section of the British Sociological Association, April, p. 13.

[29] Elkin, S. J. (1974): *Politics and land use planning, the London experience.* Cambridge, U.P., p. 10.

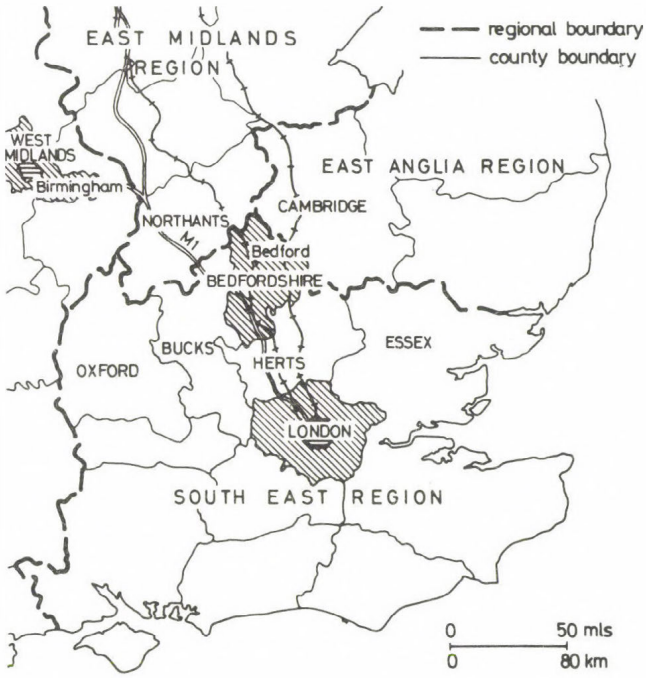


Fig. 1. Location of Bedfordshire

context of low population growth. The countryside and agriculture would be conserved by concentrating future development around the major towns.

a) Bedford

The first case concerns a land transaction that took place in 1973–74 just prior to local government reorganization and before the Community Land Act. Post war urban development in Bedford has been largely in the north and east and south west of the town and has led to an elongated shape stretching north east–south west on either side of the River Ouse. Much of the urban fringe development was undertaken by the Council[30] buying up land well in advance of need, granting planning permissions, preparing the sites, designing the layout and allocating the land to private builders and developers or using it for the Council's own developments. In this role of estate developer the Council was able to secure betterment on its transactions and to control the nature of the developments, a process not unlike that envisaged by the Community Land Act. Purchases were made as opportunities arose and therefore urban development tended to be influenced by land availability and financial considerations.

[30] Prior to reorganization in 1974 the urban area of Bedford was administered by a Municipal Corporation. After 1974 Bedford and the surrounding rural area became the North Bedfordshire Borough Council, a second tier district authority.

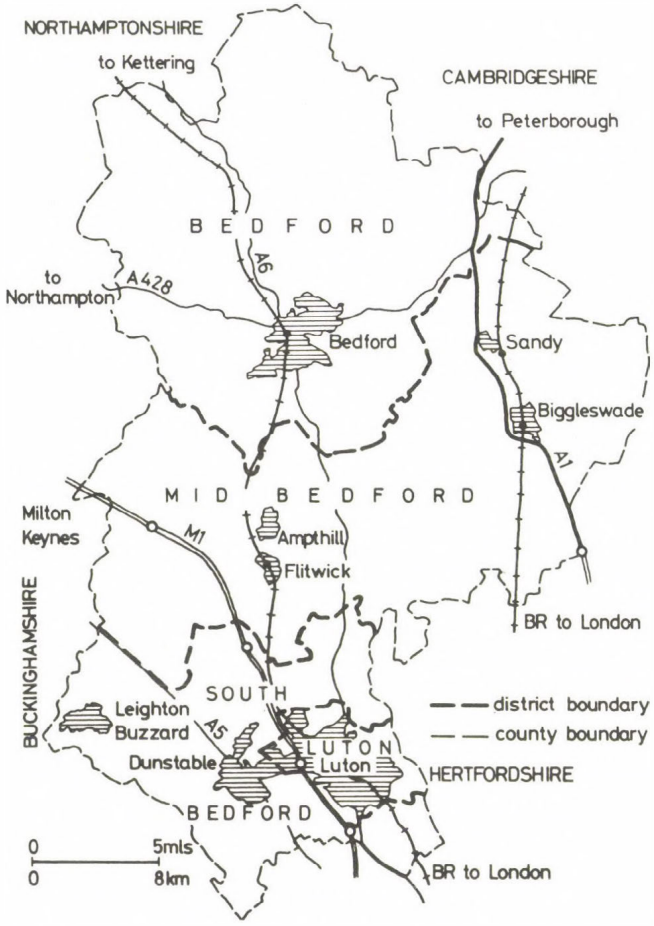


Fig. 2. Bedfordshire – main towns and administrative divisions

The issue concerns three plots of land to the north west of the town.[31] (see *Fig. 3*). The developer, a charity responsible for four schools in the town,[32] had relocated one of its schools on the north western fringe of the town in order to release a town centre site for a shopping development. The developer proposed to purchase 32 acres[33] of land adjoining its new school and owned by the Council for playing fields (site A on *Fig. 3b*) enabling it to release its existing playing fields which occupied two sites (9

[31] This issue is described in more detail in Blowers, A. T. (1974): Land ownership and the public interest: the case of Operation Leapfrog. *Town and Country Planning*, November, pp. 499–503.

[32] The developer was the Harpur Trust, a charity administering four schools, two independent and two Direct Grant (i.e. with a mixture of private and state assisted pupils).

[33] All areas are given in acres, one acre being approx. 0·4 hectare.

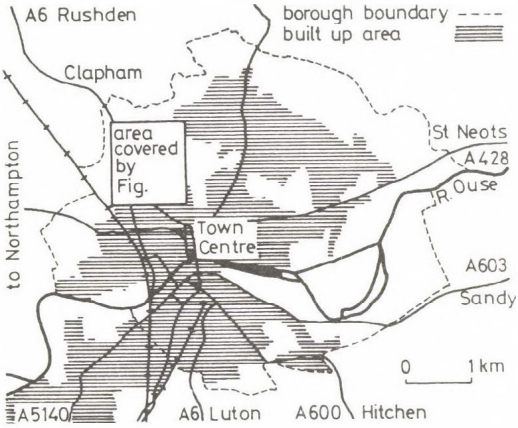


Fig. 3a. Bedford urban area

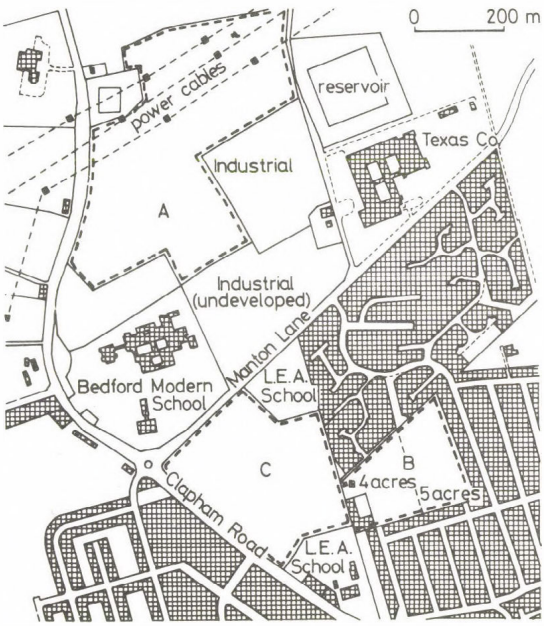


Fig. 3b. Bedford study area

and 19 acres, sites B and C on *Fig. 3b*) separated from the new school by a road. Part of the smaller of these two sites (site B) would be dedicated to the Council for open space, (4 acres) an option for housing development would be granted to the Council on the rest of that site, (5 acres) while the developer would sell its larger site for private housing (site C).

In planning terms the developer would clearly benefit by having playing fields as an integral part of its new school campus. The Council, too, would gain the immediate benefit of open space and a site for its housing but would forfeit the future potential use of its own large site. The financial aspects of the deal proved controversial. The Council's land would be sold at existing use (agricultural) value plus a premium, at £2000 per acre thus realizing £64,000. But the developer's land would be sold at residential value (at that time possibly as high as £50,000 per acre) realizing potentially £1.2M for the 24 acres it was proposed to sell. There was little doubt that the developer's own land should be valued at residential prices since it had originally been bought at such values, neighbouring sites had been sold at such values, and there was every indication that housing was an appropriate use for land in that location. What was at issue was the potential use and therefore the potential value of the Council's land.

In favour of the price offered it could be argued that it was a good offer for hilly and unproductive land which was unlikely to be used for residential purposes. The site (site A) would be landscaped and would form an attractive wedge between Bedford and a large village to the north. Opponents of the deal (the Labour opposition on the Council) were concerned to establish its appropriate value not to determine its use. They argued it could be valued at a higher price since adjacent land had been sold for industrial purposes, and land elsewhere on the urban fringe in similar locations had been sold at residential values. In any case the Council, as planning authority was able to determine its use and as owner to fix its price. In the general interest of the community the Council should either retain the land for future public benefit or sell it at the highest price possible.

The interesting feature of this case is that a developer was able to initiate a transaction on conspicuously favourable terms to itself. In this instance the developer was helped by the fact that there was considerable overlap between its representatives and members of the Council.[34] Early negotiations were kept secret. Even in the absence of a close relationship between seller and buyer and in a less secretive atmosphere the developer would have held a considerable advantage as the initiator of the transaction. The Council was put into the position of reacting to a proposal rather than considering all the possible alternatives both in the present and future.

Planning considerations played very little part in the issue. Details of the particular scheme were discussed only after the financial terms of the transaction had been agreed in principle. Objections from the public were restricted to the specific planning application which precluded any debate about the potential use of the Council's land. Financial and planning decisions were kept separate and public comment on the financial aspects – the central issue – was disregarded as irrelevant to the planning issues.

Conclusions

In its residential developments Bedford Council had already nurtured the kind of relationship with developers as envisaged by the Community Land Act. Development had proceeded according to opportunities rather than according to any master plan. In

[34] 11 of the 30 governors of the Trust were also members of the Borough Council, and 4 were members of the Council's Estates Committee which dealt with land transactions.

the case considered here the Borough had not made its future intentions for the land clear. Under the Community Land Act the Council would be expected to designate land for relevant development. If it did not do so there is nothing to preclude a deal similar to that initiated by the developer. The power to determine the use of the land and its price would remain, as it did before the Act, with the Council.

With the development of structure and local plans the public are afforded an opportunity to debate the alternative uses of land, which was not the case with the deal considered here. However, such plans are intended to be flexible and can be revised in the light of changing circumstances. Their implementation is likely to be incremental. At any one time where one interest recognizes an opportunity from land development it is likely to achieve its objectives so long as there is no clear and generally accepted alternative in sight. Where different attitudes and alternatives do exist and are marshalled by competing authorities each purporting to be acting for the public interest the outcome is less certain as the next case demonstrates.

b) Luton

1) The 'Green Wedge'

Luton is the largest town in Bedfordshire and a product of growth in the car industry. The Chiltern Hills and Luton Hoo (areas of high amenity) to the south and east of the town have been largely responsible for its eccentric shape since outward growth has been confined to the north and west of the town centre *(Fig. 4a).* Dunstable and Houghton Regis to the west have begun to coalesce with Luton. The remaining open space between these three settlements has been the subject of pressure for residential development and other urban uses. The case studied here reveals the problems which arose in attempting to define the use of this land.

The area consists of (97·5 ac.) just north of the built up area of Luton bounded on the west and south by residential land, on the east by the London–Birmingham motorway, M1, and to the north by the boundary of Luton with South Bedfordshire beyond which is an area of open land. The whole area (475 ac.) lying between the three settlements and stretching across the M1 is all that remains of a green wedge which the Greater London Plan (1944)[35] indicated should stretch over 2500 ac. and maintain the separate identity of Luton and Dunstable. Since the war it has been progressively eroded as the suburbs of Luton and Dunstable were developed and the village of Houghton Regis was transformed by the introduction of London 'overspill' population. The issue was whether the part of wedge remaining within Luton and owned by the Borough should be developed for council housing thus further reducing the green wedge.

Earlier decisions had indicated the conflict between housing pressure and the need to preserve an open area (see *Figs 4b* and *c*). After releasing 850 ac. after a Public Inquiry in 1956 the Minister commented, 'Although the existing green wedge between Luton and Dunstable cannot be fully preserved, some green space should be maintained between the communities, particularly in the area flanking the proposed motorway'.[36] Part of the eastern edge was released for warehousing, though part was

[35] Abercrombie, P. (1945): Greater London Plan. H.M.S.O.

[36] Bedfordshire County Council (1974): *Luton/Dunstable Green Wedge.* Joint appraisal, 8 November, p. 3.

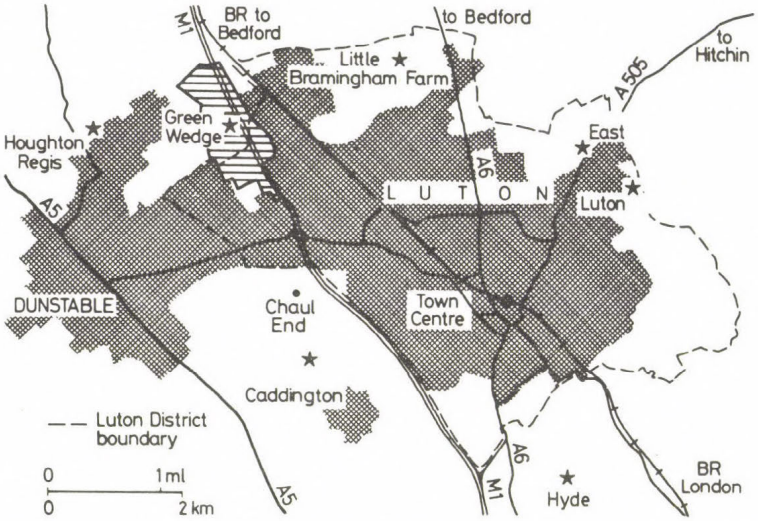


Fig. 4a. Luton, Dunstable and Houghton Regis – urban area and location of development sites

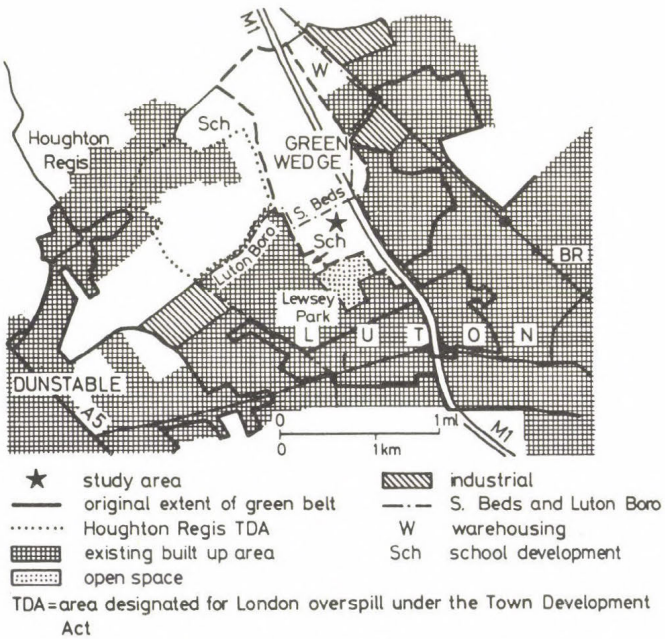


Fig. 4b. Luton, . . . – Green wedge location map

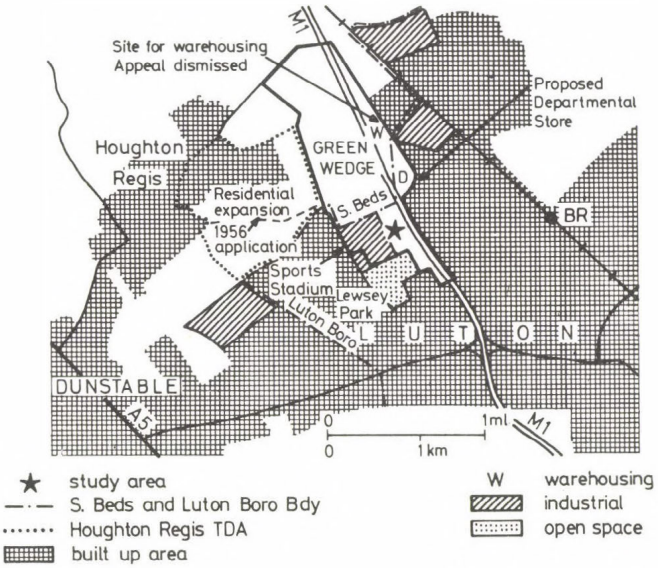


Fig. 4c. Luton, . . . – Green wedge, past planning developments

later refused for similar purposes. To the north the London overspill scheme was designed to retain a substantial area of green space but there were pressures from a private developer for housing land. It appeared that resistance to further development was hardening when proposals to develop a hypermarket and housing in various parts of the wedge were refused. But in 1974 Luton Borough Council proposed to develop the land remaining within their area, aptly named Pastures Way, for housing, schools and as public open space *(Figs 4d* and *4e).* It was the proposed residential development absorbing 24 ac. that led to conflict between the County Council and the Borough Council.

The County Council argued that 'retention of the character of the area is of paramount importance'.[37] They were prepared to concede the use of the land for schools of recreation which were not felt to be incompatible with the concept of a green wedge. But they feared that the release of land for housing would make it difficult to resist the pressure for development on the remaining part of the wedge. In sum their position was, "The residential proposal would be completely contrary to the established policy to retain the 'green wedge', and if permitted, would create a serious precedent whereby it would be difficult to resist other similar proposals in this area".[38] The Borough Council argued that the land was essential to meet their housing

[37] Dept. of Environment, (1976): Proposed residential development on land off Pastures Way, Luton. Inspector's Report; Para. 86.

[38] Bedfordshire County Council, Environmental Services Committee, Agenda Item 23, 26 April 1974.

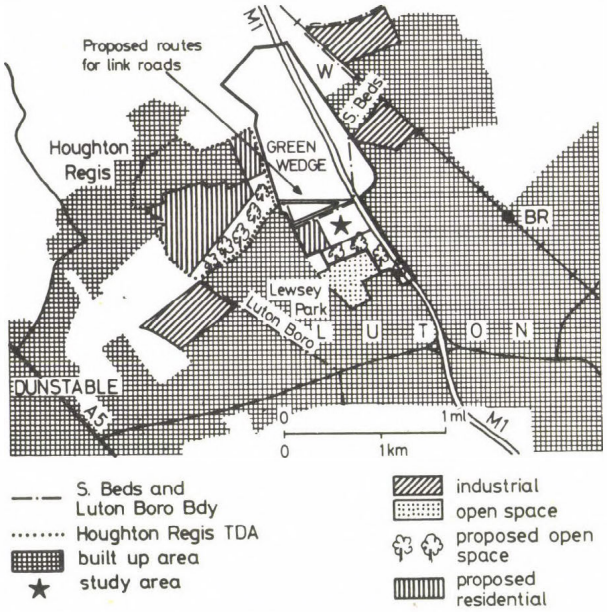


Fig. 4d. Luton, , . . . – Green wedge, planning proposals

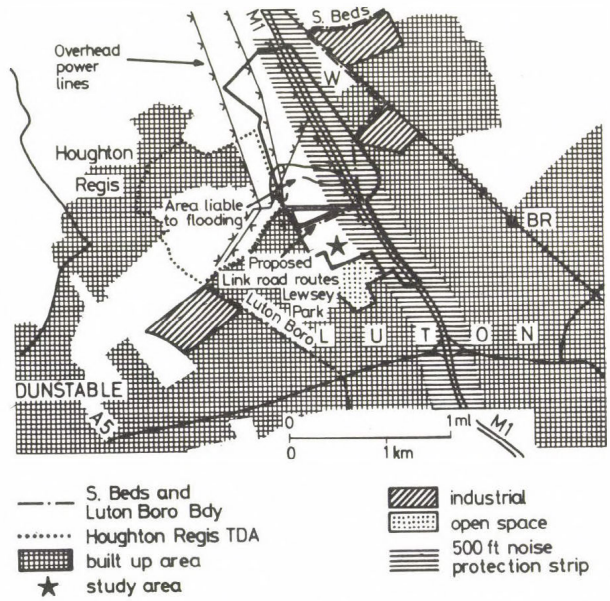


Fig. 4e. Luton, . . . – Green wedge, planning constraints

needs. Luton was a housing stress area with a waiting list of 4000 families[39] and there was no immediately available land, apart from the site to help meet their housing needs. They did not consider that residential development "would represent more than marginal visual intrusion detracting from the character and quality of the area".[40] They concluded that 'the original Green Belt concept had long been abandoned with tacit consent from Ministers. Now any suggestion of keeping the built-up areas of Luton and Dunstable separate is irrelevant. What is left is the green wedge which, within the Borough, has little visual importance, its only possible function being the preservation of some open space between residential communities and the M1'.[41] The land was essential to help Luton achieve its building programme. The County Council's approach was "the planning approach which ignores the delays and snags which a housing authority must first overcome". [42] The County Council countered this by arguing that Luton owned sufficient land elsewhere, that their building programme was optimistic, and that there were potential sites outside the Borough which could be developed. "The only merit in developing the Pastures Way site is its cheapness to the Borough which has shown a parochial approach to land acquisition and a lack of foresight. There is no insuperable shortage of alternative land."[43]

The conflict led to divisions on political, professional and geographical lines. The county planners, a narrow majority of county politicians (Luton members sympathized with the Borough Council) and the members of South Bedfordshire Council (who feared the proposal would create a precedent and threaten the rest of the wedge which lay within their area) opposed the proposal. Luton's officers and members and the officers of South Bedfordshire supported it. It proved impossible to secure agreement locally and the Minister decided to hold a Public Inquiry to resolve the dispute. Not surprisingly the Inspector who adjudicated at the Inquiry regarded the matter as "a finely balanced case in which two important issues are in direct conflict".[44] He concluded, "I think the time has come to call a halt to all further inappropriate developments within the green wedge unless there are overwhelming reasons for allowing them."[45] He did not consider the housing needs as overwhelming and therefore recommended that the permission be refused. However, the Minister to whom the Inspector's conclusions had to be referred for final decision disagreed. He felt the housing needs were the prime consideration and the immediate availability of the site was an important consideration. He also suggested the economic arguments in favour of the site had been largely ignored. He said, "at a time when savings must be made in all fields of public expenditure the comparative cheapness of the application site must be counted an important consideration".[46] He made the obligatory reference to the green wedge concept and his sentiments were not very different from those voiced when the wedge had been breached on previous occasions. "This decision is not

[39] The 'waiting list' comprises families in housing need requiring accommodation to be provided by the local housing authority.

[40] Bedfordshire County Council (1974), Joint appraisal, *op. cit.* p. 20.

[41] Inspector's Report, *op. cit.* p. 4.

[42] *Op. cit.* p. 8.

[43] 'The grim battle to provide homes', Luton Evening Post.

[44] Inspector's Report, *op. cit.* p. 1.

[45] *Ibid.* p. 2.

[46] *Ibid.* p. 3.

to be taken, however as indicating abandonment of the green wedge which is considered in general to be sound and valuable, nor is it meant to be significant in relation to any other development proposals within the green wedge."[47]

Conclusions

In this case the debate was over the use of a piece of land not over its value since it was already in public ownership and there was no question of its sale. The long-term strategic concept of a green belt had, by a process of incrementalism, been subverted and transformed into the more modest aim of protecting some open land as a green wedge. Planning policy in this area – and arguably in many similar areas – had responded to immediate pressures and reflected the political and economic situation existing at different points in time. The County Council could maintain a strategic view regarding the development within the context of potential (and less environmentally damaging) development elsewhere whether in Luton or outside. Luton, embarking on an ambitious housing programme, were unimpressed by such arguments and concerned to occupy the site as the most readily available. The forces were evenly matched at local level leaving the issue to be settled by means of a public inquiry.

The inquiry process is supposedly neutral weighing up the different arguments to provide an informed judgement. In this case the Inspector was overruled by the Minister who was able to provide a different interpretation to the evidence presented. The introduction of new arguments by the Minister to support his disagreement with the Inspector's findings was unprecedented. But pressure had been applied on the Minister both by the local M.P. and by the Chairman of the Luton Housing Committee. It may well be that such informal approaches were decisive. Certainly the County Planning Officer described it as a 'political decision'.

Such a reaction misses the central point that such decisions are intensely political. Planners offer advice based on their own ideological predilections. "There simply cannot be any objectively correct answer to the question of how resources should be allocated. It is a question for politicians, not experts."[48] If it were possible to argue objectively then we might assume that all planners would arrive at similar conclusions. This was manifestly not the case here. Evidence was selected, sifted and interpreted in arriving at recommendations. It is also important to recognise the significance of the circumstances prevailing at the time the decision was taken. A little later the county planners might have been strengthened by a much greater resistance from the Ministry of Agriculture unwilling to lose valuable agricultural land. A little later, too, the downturn in the economy, widerspread public expenditure cuts and a new (Conservative) administration in Luton less concerned to build council houses, might have weakened or removed altogether the case for housing at Pastures Way. The conflict between short range incremental planning against long-term strategic planning is always likely to be resolved in favour of the former. It is unlikely that the Community Land Act or the Structure Plan would have changed the situation. The land was, in any case, publicly owned, and the Structure Plan would only deal in broad land use terms leaving local land allocation to be resolved through Local Plans.

[47] *Ibid.* p. 3.

[48] Reade, E. J. (1976): *op. cit.* p. 8.

It is interesting to compare Luton Borough's arguments about their housing needs with actual performance once the permission was granted. The Borough had stated that 129 houses would be built in 1976/7 and the remainder in 1977/8. By the middle of 1977 only 75 were under construction and altogether four phases were proposed, the second to be completed by 1980. This is not to suggest that the case advanced at the time was not a very genuine one but it does show how rapidly events (political and economic) can alter the circumstances of a case.

2) Little Bramingham Farm

The largest remaining underdeveloped plot of land within Luton was Little Bramingham Farm (375 ac.) to the north of the town (see *Fig. 4a*). In this case the dispute was not over the use to which the land should be put, there being general agreement that it was suitable for housing, but whether it should be used for public or private housing. The issue arose in 1976 just at the time when the Community Land Act came into operation, when the Structure Plan for Bedfordshire was published and when political control in Luton changed from Labour to Conservative.

The site, in private ownership, was capable of accommodating a population of about 7000, an industrial area and the facilities necessary to create a residential neighbourhood. An outline planning permission[49] was granted to the Labour controlled authority and it was accepted, at that stage, that the land would be purchased under the Community Land Act as a mixed public and private development but with a substantial amount of council housing to meet the borough's housing needs. This would enable the development to correspond to the Structure Plan's aim to meet local housing needs by concentrating future development around the major urban areas.

After the change in political control the new administration in Luton published an Outline Development Plan which appeared to threaten the strategy of the Structure Plan. It envisaged that 85% of the development would be for private housing although it favoured giving local people priority in the purchase of dwellings. The county planners argued that there were practical difficulties in achieving this since there was evidence that half of the purchasers of private houses came from outside the county. The level of public housing proposed was too low to meet the housing needs of those unable to purchase houses. If the development attracted people from outside the area then land would have to be released elsewhere to meet Luton's housing needs. This could result in a higher rate of development than was proposed in the Structure Plan. Despite efforts to discuss the issue, the Borough as the housing authority were able to develop the area in any way they wished arguing that a phased release of the land would enable them to meet local demand as it arose. Attempts were made to persuade the Minister to intervene in the matter. The local M.P. argued that the proposal was irresponsible and would do. nothing to solve the town's housing problems, 'it is difficult to think of anything more irresponsible for a housing authority to do than to wash its hands like Pontius Pilate as Luton is doing of the problems of thousands of families. I hope this hand washing does not become infectious'.[50] But the Minister

[49] An outline permission endorses the principle of a development and is followed, at a later stage, by a detailed planning application.

[50] Letter from M.P. for Luton West to Parliamentary Under Secretary of State, Department of Environment, Dec. 27th 1976.

replied that loans were granted under the Community Land Act without conditions as to the mix of dwellings and that the Act was intended to ensure a sufficient supply of land for private development. The matter was one to be decided by the local authority and he was not prepared to intervene in the matter.

Conclusions

Little Bramingham Farm is of interest since it was debated at a time of considerable change in the national and local circumstances governing land transactions. It exposed a crucial weakness in the structure planning process, namely, that housing and growth policies left much to the interpretation and determination of local housing authorities. Both Labour and Conservative administrations in Luton, with vastly differing ideologies on housing, could claim they intended to meet the housing policies of the Structure Plan. Once the County Council had accepted the principle of housing development in the area there was little more they could do to influence the type of development pursued. Likewise, whatever the postures struck by the local M.P., the Minister forbore to intervene in such a sensitive local issue as housing or to risk a clash with a local authority of a different political complexion. Indeed, the Community Land Act, with its emphasis on achieving quick returns on private housing development lent support to the policy pursued by the Borough Council. In any case, if the Council had wished to develop predominantly council housing it had the necessary compulsory purchase powers available to it. But such a large development could have implications for the future strategic development of Luton and the problem of finding land for future expansion.

3) The Expansion of Luton

One of the more difficult problems which the Structure Plan was expected to resolve was where to locate the forecast housing needs of Luton once the existing sites within the Borough had been used up. It was anticipated, assuming Bramingham Farm met local housing needs, that room for a further 3600 dwellings would be needed beyond land already regarded as committed by 1991. The Structure Plan's aim to make the best use of existing resources and to conserve agriculture and the countryside was to be met by developing around the Luton–Dunstable urban area were identified (see *Fig. 4a*). One, to the east of Luton was generally acceptable while one to the south had to be ruled out on grounds of the noise generated by Luton Airport. The county planners preferred a site to the north west on grounds of transportation, and because it did not interfere with high grade agricultural land. They also hoped it would introduce facilities and a more balanced population to an area which had suffered social problems attributed to the London 'overspill' scheme at Houghton Regis. Luton, however, favoured an area to the south east on the border with the neighbouring county of Hertfordshire. This would help to provide housing on the side of Luton closest to its major industries. But for the purposes of public participation on the Structure Plan the north western site was preferred and the public had little opportunity to debate the merits of Luton's preferred site. But, when the Structure Plan was presented to the County Council, Luton's Labour members with decisive support from some Luton Conservatives, managed to strike out the north western site and substitute their preference in its place.

This move released a barrage of criticism on the grounds that public debate on the merits of alternative sites had not been possible. There was a well-orchestrated protest from Hertfordshire prompted by fears that Luton's overspill would adversely affect the environment on the border of a salubrious commuter dormitory. There were also objections on other grounds notably from the Ministry of Agriculture which opposed the loss of good agricultural land. The scale of these objections and the threat they posed to the acceptance of the Structure Plan by the Minister caused the County Council to revise its position. A compromise was reached whereby the County Council would examine various sites close to the urban area should any further expansion of Luton be necessary. Thus all the options remained open.

Conclusions

In this instance the planners had been overruled by the local politicians who in turn had capitulated in the face of concerted public protest. It demonstrates that where the particular interest of an existing population is directly threatened it can, if properly focused, succeed in preventing development. The ability of well organized and articulate pressure groups to prevent undesirable development has been a common feature of British planning in recent years. The issue also underlines the point that any attempt at long-term strategic planning expressed in terms of land development is vulnerable to attack and change. Instead of presenting a clear indication of the location of future growth the Structure Plan had been forced, by the local political circumstances, to defer a decision and to leave the options open. It always proves easier to avoid conflict by not making a decision. Thus the process of urban land development responds to incremental changes rather than to any notion so grand as strategic or positive planning.

3. THE NATURE OF LAND DEVELOPMENT

In the U.K. the process of land development is a function of the market and the attempt to influence or control it by the public planning authorities. These authorities operate at the local level within the framework of legislation set by national government. At the national level land development has been a controversial political issue. Attempts to increase the control of the planning authorities over the market and to secure the profits in land development for the community by successive Labour administrations have been modified or reversed by subsequent Conservative governments. The future of the present legislation on community land must be in some doubt if there is an early return of the Conservatives. As is often the case in British politics the ideological differences between the parties suggest greater divergences than have occurred in practice. There has been a general acceptance of the principle of development control and of the desirability to secure at least some of the betterment in land for the community. But there remains a considerable difference of emphasis between those who regard planning and taxation policies as a regulatory device and those who advocate a more interventionist stance by government. Proponents of a free market or of complete state control through nationalization of all land remain a relatively small minority and have failed to convert governments to their views.

Although national government's attitudes to land and planning have influenced the process of land, development control remains largely a matter for local markets and local authorities. Under the Community Land Act local government has increased powers to secure the ownership of development land. But the necessity to maintain the development industry and the difficulties of defining the best use of land to satisfy community needs and preferences leaves considerable scope for private initiative. The Bedford case study demonstrates how such initiatives could influence both the use and the value of public land. The exceptions and exemption in the Community Land Act, the lack of financial incentives it offers to the local authorities,[51] its slow gradual application, the existence of long-term commitments to develop land outside the scope of the Act, and the indifference of many local authorities to its potential suggests that, even if it survives, it will be a long time before it makes any marked impact on local land policy.

The concept of structure and local planning assumes that the process of land development will respond to long-term strategies based on considerable consultation and participation to satisfy the needs and preferences of the community. Plans are subject to continuous revision. Furthermore, there are many processes which impinge on land planning which can only be partially controlled or influenced by government. Among these are the level of resources and population growth. As a result it is difficult to gain agreement over the use of land and to secure its development according to any longer term strategy. The various case studies have emphasised the tendency for land development to be an incremental rather than a long-term strategic process.

Whatever the relationship between the market and the planning process land development will give rise to conflict and controversy. Land use decisions have distributional implications. Greater control over the market does not necessarily ensure that preferences will be met. "Those who have studied and experienced the operation of centrally planned economies bear witness to rigidities and an inflexibility resisting adjustments of policy to meet changes in consumer demand."[52] Nor in a capitalist economy is there any was of ensuring through national legislation that land development can be controlled according to the needs and aspirations of the community at large. In reality the local community is composed of various interests private and public each with differing attitudes and access to decision-makers. Land development policy is, as a result, the aggregate of many different decisions taken at different times in changing local circumstances.

[51] The surpluses made through the Community Land Act are to be distributed in the proportions 40% to central government, 30% to the authority making the surplus and 30% to a redistribution pool to spread the benefits among all authorities. This low return and the small surpluses likely to arise in the early years results in a modest financial incentive to the local authorities.

[52] Denman, D. and Prodano, S. (1972): *Land Use.* London, Allen and Unwin, p. 132.

REGIONAL TYPES OF RURAL LIVING CONDITIONS IN HUNGARY

By

GY. ENYEDI

Hungary

A. AIMS AND METHODS

1. Purpose of investigation

Regional development policy in Hungary is concerned with levelling out existing differences in the living conditions of the population. It is expected that the total elimination of inequalities among settlements of the same category (e.g. regional centres, small towns) will be achieved. Uneven historical development is responsible for existing disparities which cannot be accounted for by the present-day economic situation. The same level of basic amenities must be guaranteed for the population as a whole throughout the country. Differences still persist with regards to urban services and the aim of regional policy is to provide better transportation facilities so as to improve accessibility to these service centres. In a small country where most settlements are less than 25 kms far from an urban centre the ensurance of accessibility is a relatively easy task.

Basic amenities such as adequate housing, provision of electricity and drinking water, medical care and links with the transport and telecommunication networks must be provided in each settlement and for each individual. There is no reason whatsoever why some citizens should be deprived of these facilities, which creates socio-political tension and could lead to out-migration on such a large scale that it would leave rural resources untapped. The cost of resettling the population in urban areas would be a great financial burden on society.

The first step towards the effective implementation of the levelling out of inequalities is to assess where and to what extent the living conditions of the population vary. It must then be decided which components of the existing structure should be altered, and in which regions should the changes be implemented.

This paper deals with only one aspect of the elimination of regional disparities in living conditions, namely the problem of rural living conditions. Rural settlements in Hungary contain 50% of the total population and within this category there exist serious shortcomings as regards basic amenities. The policy of levelling out inequalities should therefore be given priority. Elimination of disparities is also essential within the urban sphere e.g. providing similar transport facilities and access from nearby villages to these towns.

The purpose of the investigation is therefore an examination of the living conditions of the population of rural settlements[1] in Hungary with special emphasis on the availability of local basic services, the measurement of regional disparities between specific elements of living conditions and the ranking of them in order of importance,

[1] Public administration differentiates between towns, villages and hamlets. Our examination included the latter two groups of settlements.

together with the characterization of regional types of living conditions. It is further hoped to make suggestions about the order in which sectoral and regional policy decisions should be implemented.

2. METHODS OF INVESTIGATION

(a) The investigation included all the 3135 rural settlements in Hungary, which were characterized on the basis of 28 indices using statistical data from 1970. The indices embraced population size, spatial mobility, demographic and occupational structure, schooling and available basic services.

The relative location of rural settlements with respect to urban centres was not taken into account. The proximity of a town is by no means unimportant to the inhabitants of a rural settlement. Nevertheless basic amenities should still be provided in the rural settlement itself even though the nearness of a town may extend a positive influence on its occupational structure and may prove advantages in terms of the better supply of more general amenities.

(b) Factor analysis was the method selected for the examination of living conditions, which enabled us to show the interrelationships between individual elements and to reveal their relative role and importance in determining the living conditions of the population.

(c) For the regional typological classification we resorted to cluster analysis since the concept of living conditions is a very complex one, and the use of simpler statistical and cartographic methods was inappropriate. Each category or type obtained by this method of classification reflects a specific combination of the above-mentioned 28 variables.

B. EXAMINATION OF RURAL LIVING CONDITIONS

1. TRANSFORMATION OF RURAL LIVING CONDITIONS

The existing differences between urban and rural living conditions is the main source of regional disparities. Although rural living conditions are still underdeveloped, we must draw attention to their dynamic growth and change during the past 15 to 20 years. The term underdeveloped is a relative concept related to the national average and does not preclude the possibility of development.

The driving force behind the improvement in rural living conditions has been the change in the social structure of the village, i.e. the disappearance of former class antagonisms between village and town. The majority of rural inhabitants are employed in the non-agricultural sector, and the presence of the working class is felt just as much in the rural settlements, where half of all industrial workers live, as in the towns. The collectivization of agriculture together with the rapid development of modern farming have both helped to eradicate the former social stratification among the agricultural population, and towards the end of the 1960's average differences between rural and urban incomes disappeared.

Infrastructural standards greatly improved in the rural settlements especially in housing where construction was at the same rate as in the towns. Moreover, electricity was installed, the availability of gas and running water became widespread, and each settlement with a population of more than 200 has been linked to the national network with an all-weather road. However, while there has been considerable progress in the elimination of the rural underdevelopment inherited from the capitalist past, two new sources of tension have emerged.

(a) The contradiction between modern ways and methods of production on the one hand and life-styles and living conditions on the other has increased. Working conditions in rural areas have been modernized and brought up-to-date more rapidly than living conditions, due to the revolutionary transformation and modernization of agriculture and the fact that about 40% of the rural population work in industrial establishments.

(b) Each settlement has had greatly varying yet limited opportunities for improving living conditions, depending on settlement size, occupational structure, the economic conditions for agricultural production and the regional development policy of the county as an administrative authority. There has been a great number of ideas put forward about the role of rural settlements in a developed socialist state and though the proliferation of ideas is quite natural and acceptable, several unfounded views have unfortunately been reinforced by legal measures and thus greatly hindered the modernization of some settlement types such as the dispersed farmsteads and small hamlets, helping to accentuate regional disparities still farther.

Although rural underdevelopment today implies much higher standards than existed 10–15 years ago, this does not mean that the problem is less urgent. On the contrary, the task that lies ahead is the more rewarding one of providing equal opportunities for the attainment of basic amenities by each inhabitant of the country.

The standard and way of living in a rural settlement is predominantly determined by the size and composition of the population and the change in the number of inhabitants. Population size is important for the provision of certain basic amenities, e.g. the installation of local water supplies and the maintenance of primary schools. A second factor is income, but this unfortunately could not be included as the determination or estimation of family income is statistically impossible and can only be inferred from the occupational structure, new housing construction and level of consumption in the settlement. Other important factors are employment, educational level and the occupations of the inhabitants, together with the state, age and size of housing, and whether or not electricity, water and gas are available.

The further group of preconditions is the provision of the population with basic services, which can be evaluated partly by examining the institutional provision of services and partly by the consumption of basic commodities.

The twenty-eight variables selected to characterize rural settlements in Hungary were as follows *(Table I)*:

Table I. Variables selected for the determination of living conditions

1. Number of inhabitants
2. Population change (1949–69), %
3. Net migration between 1960 and 1969 expressed as a per cent of the 1960 population
4. Non-active and dependent population per 100 active population
5. Per cent of those above 15 years of age with at least 8 years of schooling
6. Per cent of those above 18 years with at least a secondary school diploma
7. Active agricultural population as a ratio of active population
8. Per cent of those over 60 years of age
9. Per cent of homes built since 1945
10. Per cent of homes with gas supply
11. Per cent of homes with a bathroom or wash-basin
12. Per cent of homes with electricity
13. Number of one room flats as a per cent of all homes
14. Per cent of homes with drinking water
15. Consumption of electricity (kWh/year) per household
16. Consumption of electricity per inhabitant (kWh/year)
17. Number of TV set subscribers per 100 households
18. Number of books borrowed from a public library per inhabitant
19. Per capita consumption of industrial consumer-goods (in forints)
20. Per cent of population living in dispersed settlements
21. Number of industrial workers
22. Sales area of shops (m^2)
23. Number of teachers employed in primary schools
24. Private artisans in the service industry
25. Industrial and building construction workers as a per cent of active population
26. Employees in the tertiary sector as a per cent of active population
27. Kindergarten capacity per 100 children of kindergarten age
28. Public nursery capacity per 100 children of that age

In the case of five variables (1, 21, 22, 23, 24) absolute numbers were used instead of relative indices, which indicate the size of the basic institutions. Some of the specific indices are difficult to evaluate, e.g. the ratio of primary school teachers to pupils may seem favourable both when there is a sufficient number of teachers in a school and also when there is only one teacher in a settlement with a rapidly decreasing population teaching a handful of children in an ungraded elementary school

2. THE FACTOR ANALYSIS

The original variables were transformed into 11 factors which explained 77·73% of the total variance *(Table II)*.

The first four factors accounted for more than half of the total variance and these are the only areas which merit detailed analysis.

Table II. Eigenvalues

Factor	%	Cumulative	Factor	%	Cumulative
F_1	28·85	28·85	F_7	3·66	65·12
F_2	11·60	40·45	F_8	3·47	68·59
F_3	6·83	47·28	F_9	3·23	71·82
F_4	6·10	53·58	F_{10}	3·05	74·87
F_5	4·32	57·70	F_{11}	2·86	77·73
F_6	3·76	61·46			

Varimax rotation was introduced to facilitate interpretation, and it was found that the original variables loaded on the first eleven factors are as follows:

F_1 on 11, 14 – F_2 on 22, 23, 24 – F_3 on 7,25 – F_4 on 12, 13, 20 – F_5 on 6,26 – F_6 on 15, 16, 17, 18 – F_8 on 10, 27 – F_9 on 28 – F_{10} on 2, 8, 9, – F_{11} on 4.

The interpretation of each factor was as follows:

F_1 = quality of housing
F_2 = the size of service institutions
F_3 = occupational structure of the population
F_4 = housing conditions in dispersed settlements
F_5 = significance of white-collar workers
F_6 = consumption of domestic electricity and the installation of domestic appliances
F_7 = circulation of books in libraries
F_8 = urban services
F_9 = nursery school availability
F_{10} = demographic characteristics of the population
F_{11} = level of employment.

The determining factors in the regional differentiation of rural living conditions (exluding income) are the quality of housing, the size of service institutions and occupational structure in that order. When talking about the quality of housing both the quantitative aspect namely household size and the standard of equipment and furnishings as well as size should be considered. This is why the homes in dispersed settlements were treated separately since they are still not supplied with electricity. The prohibition of any kind of building construction in these areas for the past two decades has only preserved the size of family dwellings built before the Liberation of Hungary. In nucleated settlements the problems include such things as whether a house has running water and a bathroom. The fifth main problem concerns the question of professional services which can also be regarded as an indirect indicator of better living conditions. Such occupations are tied to relatively large village with some urban functions or to villages with special functions such as thermal-spas.

C. REGIONAL TYPES OF RURAL LIVING CONDITIONS

1. TYPOLOGICAL CLASSIFICATION OF LIVING CONDITIONS

The evaluation of the above-mentioned 11 factors reflects the average situation in the country as a whole. The significance of the variables incorporated in these factors shows the great diversity among rural settlements in Hungary. Obviously the examination of each village cannot be the subject of this study, and we have therefore identified several types or rural living conditions assigning each settlement to one of these types. Settlements belonging to the same type have helped us to identify *regional units* in which living conditions are similar.

The typology was based on the 11 factor scores. In contiguous cases where the combination of scores was similar, settlements were grouped into a cluster, using the method of cluster analysis. The determination of boundaries between clusters is a somewhat subjective matter, since too many small clusters produces a mosaic-like pattern, while large regional clusters might absorb into the same group areas with significant differences in living conditions.

After several runs of the program, a solution grouping the rural settlements into 33 clusters was accepted. The number of settlements belonging to each cluster varied greatly, there being a great number of small clusters representing exceptional cases which cannot be taken into account at the national scale. The first cluster included a very large number of settlements, but these were easily subdivided by cartographic methods.

The size of individual clusters was as follows:

Table III. Distribution of settlements by cluster

Serial No. of cluster	Number of settlements	Serial No. of cluster	Number of settlements
1.	1631	17.	1
2.	83	18.	6
3.	869	19.	11
4.	243	20.	2
5.	1	21.	2
6.	25	22.	11
7.	28	23.	5
8.	108	24.	1
9.	34	25.	10
10.	1	26.	1
11.	3	27.	1
12.	1	28.	20
13.	2	29.	1
14.	1	30.	4
15.	17	31.	1
16.	9	32.	1
		33.	1

2. RURAL TYPES OF LIVING CONDITIONS

(a) General Remarks

Only ten of the 33 clusters were examined, each with a relatively large number of settlements, which are best suited for the examination of regional correlations and interdependence. The ten clusters include 97·5% of all rural settlements and were the following: 1., 2., 3., 4., 6., 7., 8., 9., 15. and 28.

The differences in living conditions among groups of settlements can easily be depicted although the clusters cannot always be labelled developed or underdeveloped. Almost five million people live in the clusters examined in detail and a true image of the life of the rural population can thus be obtained from these samples.

When comparing each cluster we find that, excluding the unique cases and extreme values, there are significant disparities within rural areas as a whole. It is well-known that the population size of rural settlements shows remarkable disparities ranging from the small hamlets of Southern Trandsdanubia to the large scattered settlements of the Great Hungarian Plain, and that population size affects the standard of services in these areas. The disparities, however, are multivariate in causes and the problem is many-sided. Population decrease and out-migration are far from being general phenomena.

The significant differences in housing conditions can only be demonstrated by examining the furnishing and equipment of these houses. In 70% of all the settlements two-thirds of the homes were built before the Liberation of Hungary, and the construction of new houses is thus restricted to specific areas. It is interesting to note that in the case of the larger villages of the Great Hungarian Plain, which possess some urban functions, homes are much older than those in the small hamlets for example.

Homes with one room are quite widespread, but the situation is not worse than in the towns and it is only in two groups comprising 499 settlements that the number of one room homes is more than 50% of the total. Since 1963 all settlements in Hungary had been linked to the electricity grid yet the programme for providing electricity for all cannot be considered completed, as the supply to scattered farmsteads is still inadequate. The use of bottled gas is widespread and is just as common in small hamlets and dispersed settlements as elsewhere. This relatively new phenomenon is a sure indication of the modernization of living conditions.

The furnishing of houses with the basic amenities of running water and a bathroom ranges widely the difference being nine times greater between those homes with and without a bathroom and twenty times greater in the case of running water supplies.

(b) Characterization of individual types

While we have examined the living conditions of each type in great detail, in this paper we have only picked out clusters one and two for a short description. Cluster one is an underdeveloped area, while cluster two is well developed in terms of living conditions. *Figure 1* was compiled by merging into one several clusters with similar characteristics, and delimiting the regional distribution of the differences in living conditions on the basis of this information.

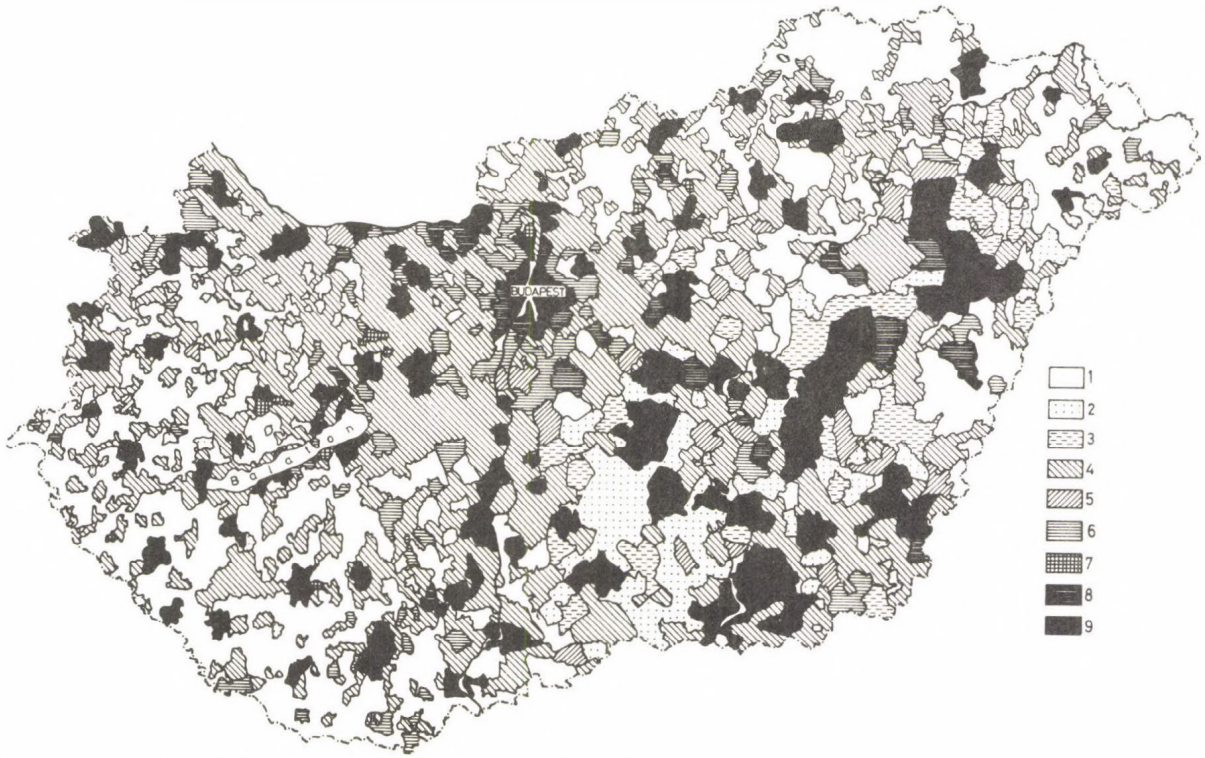


Fig. 1. Regional types of rural living conditions in Hungary, 1970

Underdeveloped types: 1 = hamlet type; 2 = farmstead type. Medium-level types; 3 = partially underdeveloped type; 4 = average living conditions; 5 = average living conditions with partial urban features. Developed types: 6 = above average living conditions in larger villages of urban character; 7 = above average living conditions in industrial agglomerations and holiday resorts; 8 = unclassified individual cases with high standards; 9 = towns

Cluster 1. More than half of the villages in Hungary containing 1·3 million people belong to this group. The average size of these small nucleated settlements is now 819 people, but between 1949 and 1970 the number of inhabitants decreased by 14·4%, the loss of population due to migration being 17·5%. Natural increase is low, while the proportion of people above 60 years of age is 19·6%, the highest in any of the clusters examined. Employment levels are unfavourable because of the under-employment of women and the ageing of the population. The standard of schooling is also inadequate. Agriculture is the most important activity, yet is not overly dominant, 59·1% work in agriculture, 26% in industry and 15% in the tertiary sector. About 65% of dwellings were built before 1945 and the provision of such facilities as gas, running water and bathrooms is the worst in the whole country. The situation is also quite unfavourable with regards to commercial services, schools and nurseries.

The possibilities for dynamic economic development are limited. Reserves of employable manpower are in short supply and these are mostly unskilled workers. Population decline will continue because of ageing. Although the general rate of migration will slow down, small settlements in this cluster are likely to be completely depopulated.

The first regional subtype that belongs to this cluster type is found in Southern Transdanubia in the counties of Baranya, Vas, Zala, Somogy and Veszprém. Besides the small settlements on the mountainous and hilly regions of Transdanubia, several villages in the southern section of the Danube valley, together with the Bácska and the Mezőföld regions as well as the southern margins of the Little Hungarian Plain also belong to this group. The agricultural potential of these last three areas is favourable. The small settlements, especially those near to towns such as Pécs, Komló, Baja, Kaposvár, Nagykanizsa and Zalaegerszeg, show signs of development though no urban agglomerations have yet developed.

The second subtype is found in the Northern Hungarian Uplands. This does not form a homogenous regional unit and subareas are found in Nógrád county, between the Mátra and Bükk mountains, and in the greater part of Borsod-Abaúj-Zemplén county.

It is interesting to observe that next to Miskolc, the second largest industrial agglomeration in Hungary, is the Sajó valley, where extensive areas are still underdeveloped. Here underdevelopment is much more homogenous in character than in Transdanubia and local regional tensions between the developed and underdeveloped areas is more acute than in other parts of the country.

The third regional subtype is found in the Nyírség (in north-east Hungary) and on the Szatmár-Bereg Plain (the Upper Tisza region) although it does not encompass the whole of these two areas.

The fourth and fifth regional subtypes include two separate well definable landscape units on the Great Hungarian Plain. The first includes the Sárrét along the Berettyó river from Sarkad in the south to Debrecen in the north, while the second is the valley of the Tisza river between Leninváros and Törökszentmiklós. Settlements in these areas are much larger than the average for Cluster 1, and underdevelopment is mostly due to isolation and poor accessibility of nearby towns and industrial centres because of inadequate transport facilities. It follows that a change in the occupational structure of these settlements is not yet possible and most people are still employed in agriculture. The low standard of agricultural production is due partly to the presence of unfavourable alkaline soils and partly to the lack of intensive farming. Local

government administration has not paid enough attention to these areas and available funds have been exclusively devoted to the development of county-seats and rural market towns. We thus have a situation in which the inhabitants of settlements as large as 2–3000 population considered relatively small by standards of the Great Hungarian Plain must forego the comfort of basic amenities just as the people living in small hamlets of mountainous regions where depopulation is occurring.

Cluster 2. Eighty-three settlements with an average size of 3671 persons and a total population of 305,000 belong to this group. Natural increase is high, net migration is positive, the population of this group increasing by 37·4% between 1949 and 1970. The proportion employed is relatively high since the average age of the population is quite young, and only 15% are above the age of 60. Industry is the largest employer, but the percentage working in the tertiary sector is also significant. Only one fifth of the population is engaged in agriculture. The standard of schooling is also favourable and three times as many people hold a secondary school diploma as in Cluster 1.

Just under 50% of the houses have been built since 1954; 38·3% of homes are one room flats a ratio much better than in group 1. The provision of basic amenities is considerably better: there are five times as many homes with a bathroom and twelve times as many homes with running water. Consumption of electricity per household is twice as high, which in itself indicates that households are much better equipped with modern installations.

Retail services are also much better than average. The consumption of goods per inhabitants is 15% more than in Cluster 9, though the average number of inhabitants in this cluster is two and a half time greater. There is a sufficiency of nursery schools as well.

These settlements are undergoing dynamic development and living conditions are good. The dynamism which characterizes them is due to either modern functions or because they are becoming part of an urban agglomeration and reflect the growth of the central city or town.

The Budapest agglomeration typifies this second group of settlements especially the inner zone on the Buda side. The holiday villages of the Danube Bend form a direct continuation of this zone. To a lesser extent this type is also linked to the agglomerations of Szeged, Mosonmagyaróvár, Miskolc, Kazincbarcika and Tatabánya. On the Great Hungarian Plain hardly any of this type of settlements is to be found, although the Transdanubian holiday villages along Lakes Balaton and Velence belong to this group. Some of the mining-industrial and regional centres of Transdanubia and Northern Hungary are also included in this cluster.

D. SUMMARY

The most important conclusions of our investigation can be summarized under seven points.

1. Rural living conditions have greatly improved and have undergone rapid development during the past decade. Electricity supply is common, the use of gas is widespread and housing conditions have greatly improved. Social mobility in the villages has been even faster than the improvement of living conditions with the result that two new sources of tension have emerged.

(a) Living conditions in the villages are more backward than working conditions (40% of active workers are employed in industry, while agriculture has been modernized).

(b) Differences in living conditions among rural areas and settlements have increased because certain settlement types have been developing much faster than others.

2. The following factors, in order of importance, play a determining role in the regional differentiation of rural living conditions:

(a) The equipping of rural homes with better facilities especially with running water and bathrooms, and to a lesser extent, the age of the houses and their size,

(b) The growth, size and number of institutions that provide basic educational and commercial services,

(c) The proportion of the population that is employed as well as the structure of emloyment,

(d) Housing conditions and the electrification of homes in dispersed settlements. The most important measures to be taken to facilitate the levelling out of differences are: improving the water supply; electrification of dispersed settlements; detailed regional revision and amendment of the law prohibiting modernization and new construction in hamlets and dispersed settlements.

3. The 3135 rural settlements of the country were grouped into 33 types. Of these types 10 were considered worthy of attention while the rest were unique or typical of small areas, or were incorporated in large villages with urban functions.

4. The 10 main types contain 97·5% of all rural settlements with nearly 5 million inhabitants and are therefore representative of the rural population. Conclusions emerging from the comparison of these main types are:

(a) There are very great regional differences in rural living conditions as well as in the supply of basic services,

(b) Migration from rural areas is not a general phenomenon, and we cannot talk of the depopulation of rural areas. In 6 of the 20 types examined the number of population increased between 1949–70 and in three the migration balance was positive. The movement of rural population is not simply from village to town and important rearrangements of the population are going on in rural areas as well. The rural population is about the same today in number as it was 25 years ago,

(c) The ageing of the rural population is not that significant and the rural population as a whole is younger than that of the capital. Alarming depopulation because of the ageing process is a local phenomenon,

(d) The restratification of rural employment is marked by the fact that in 6 types employment in industry is the leading activity, and only one type can be classified as typically agrarian. There are great regional differences in the ratio between active workers and dependents, which depends on demographic composition as well as economic activity. There are great differences in standards of schooling especially between those with a secondary school diploma. Only 40% of rural inhabitants more than 15 years of age have completed eight years of primary school, and agricultural employment today implies a low standard of education,

(e) Houses on the whole are older than in the towns. Although the building of new houses in small hamlets does not lag significantly behind the more developed settlements, there are great differences in the level of household amenities, especially those

depending on communal infrastructure such as running water supplies. With amenities that can be purchased and installed without outside help (e.g. PB gas cylinders), there is a trend towards equalization,

(f) Electrification cannot be considered completed, and in 6–10% of the homes in nucleated settlements there is still no electricity supply,

(g) Kindergartens are more widespread than nurseries, although in some backward regions 100 children apply for 15–30 places. The presence of institutions careing for children are more closely tied to the occupational structure of the population than to the size of the settlement.

5. Of the ten types examined two can be considered definitely underdeveloped. These contain half of all the rural settlements, but only 27–28% (1·5 million people) of the total rural population.

The first type characterizes living conditions in underdeveloped small hamlets, but also includes the medium-sized nucleated settlements of the Great Hungarian Plain. The largest contiguous areas of this type are found in Northern Borsod and along the Berettyó River. In the underdeveloped parts of SW Transdanubia, there are many developed elementary centres quite close to each other as well as backward hamlets. In Northern Borsod on the other hand not one of the elementary centres is better supplied than the main body of underdeveloped settlements in the area. The concept that there exist homogenous regions characterized by small hamlets is a myth. Special attention must be paid to the areas along the Berettyó river and Northern Borsod where regional underdevelopment is most widespread. The second underdeveloped type mainly includes those dispersed settlements that were built in the 1950's, and forms the most underdeveloped type. The state of underdevelopment in dispersed settlements that belong administratively to large villages or market towns was not included in our investigation. This is the problem of individual settlements and should be solved by them.

6. The Budapest agglomeration is very heterogenous, the 45 settlements belonging to 9 types, among which there are some which are underdeveloped. It would therefore be worthwhile to work out a policy for levelling out differences within the agglomeration itself.

7. A deeper analysis of the settlements that belong to type one is needed if a detailed regional development policy is to be worked out. The success of any policy to level out regional differences depends on this.

REFERENCES

Barta, Gy. (Ms) (1972): Az infrastrukturális ellátás területi eltérései (Regional Differences in Infrastructural Supply). *Földr. Ért.* 21, pp. 459–470.

Clout, H. D. (1972): *Rural Geography.* Pergamon Press, London.

Green, R. J. (1971): *Country Planning.* Manchester Univ. Press, Manchester.

Gálik, L. (Ms) (1974): Az infrastrukturális színvonal területi változásának fő irányai (Main Tendencies in Regional Changes of Level of Infrastructure). *Területi Statisztika* 22, pp. 662–674.

Gáspár, I. and Jessze, K. (1972): Az életszínvonal és az életkörülmények területi különbségeinek mérése (Measurement of Regional Differences in Standard of Living). *Területi Statisztika,* 22, pp. 256–273.

Jung, J. (1971): *L'aménagement de l'espace rural.* Calman–Lévy, Paris.

Kulcsár, V. (1974): Falvaink gazdasági fejlődése (Economic Development of our Villages). *Területi Statisztika,* 24, pp. 353–360.

Kulcsár, V. (Ed.) (1975): *Területfejlesztés a szocialista országokban* (Regional Development in Socialist Countries). KJK, Budapest.

La modernisation des campagnes (Ed.: Bonnamour, J.–Flatres, P., 1973): Comité National Français de Géographie, Paris.

Rományi, P. (1974): A területfejlesztési politika időszerű kérdései (Recent Problems of Regional Development Policy). *Gazdaság,* 8, pp. 28–42.

REGIONAL DIVERGENCE IN THE EDUCATIONAL LEVEL OF RURAL SETTLEMENTS

By
B. SÁRFALVI
Hungary

Among the factors determining the growth of the economy, special attention is paid to manpower, the most important productive force. Investigations in the field of demography so far have mainly been concentrated on manpower supply, its regional location, its spatial mobility and the utilization of potential reserves.

Apart from ascertaining quantitative characteristics, analysis of labour quality is now gaining ground. One way of tackling this is to investigate the educational level of the population. The question is especially timely in view of the fact that both industrial and agricultural development have reached the stage where technological advance is the most common tendency. An inevitable precondition for this has been the raising of the educational standards of manpower.

Among other indices, those showing the educational level of the population have frequently been used to express differences among regions or settlements, although the efficient use of these indices has only now become a reality.

From the figures reflecting general and vocational studies, a system of indices can be elaborated, from which more general conclusions can be drawn. From the indices which have been used individually up to now, a complex index has been calculated to indicate the educational level of the population in separate regions or settlements. In calculating the index, the four stages of education leading to specific qualifications were taken into consideration. These are the compulsory eight years of primary schooling, which provide the basic qualification; the four years of secondary school ending in matriculation, university and college graduation, and qualifications obtained from technical training schools. In the calculation of the index only completed studies were considered, namely those which resulted in the gaining of the appropriate qualification.

Those not completing primary school were regarded as absolutely unskilled and placed in a separate category. This very strict categorization is underlined by the fact that the number belonging to this category is still relatively high. It should be added that this situation has been inherited from the former capitalist social system, and that the efforts of socialist Hungary have considerably advanced educational standards, although the impact is only felt by the younger generation *(Fig. 1)*.

Basically the stages of education have been evaluated by the number of years devoted to study and results obtained in terms of points scored. These values were divided by the number of population over the age of 15, thus giving the index of educational level used in the regional analysis presented here.

With the use of relative point scores it is possible to approach closely the educational structure of each region or settlement. Naturally, certain significant economic activities affect the structure. For instance, agricultural areas are dominated

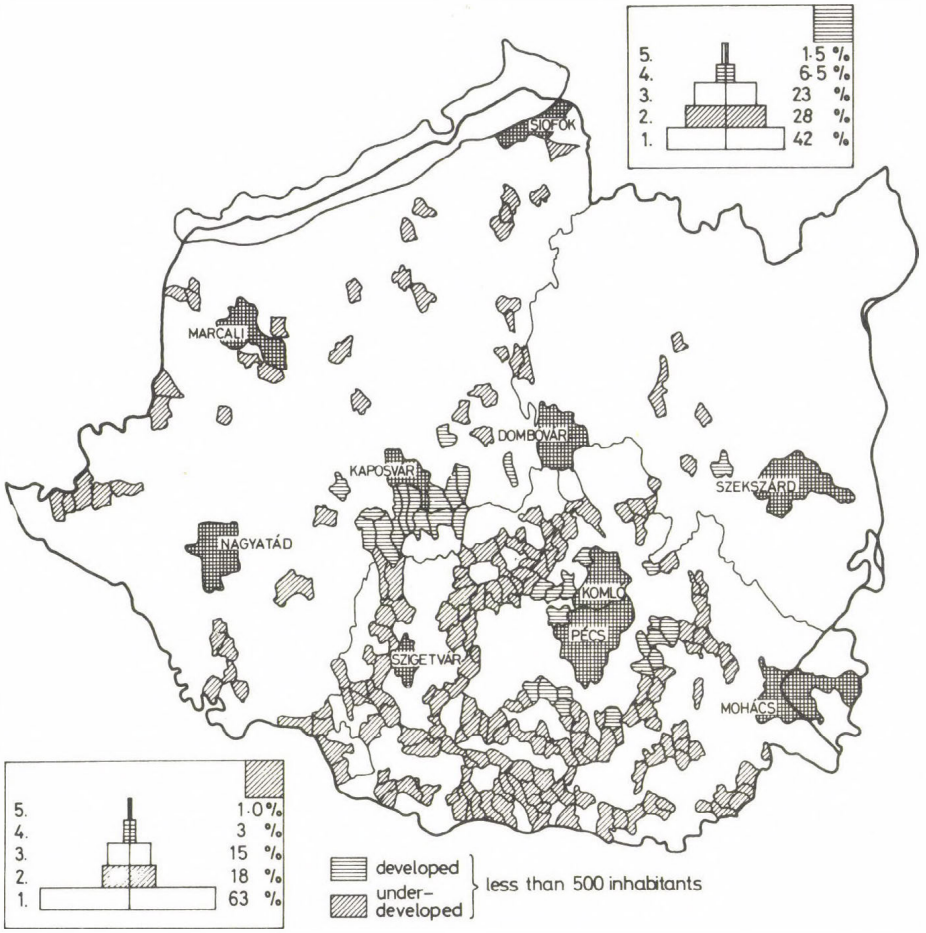


Fig. 1. The educational level of the population of settlements with less than 500 inhabitants, in 1970

by primary school attainment only while the presence of industrial activity raises the proportion of secondary and vocational attainment, while in towns with developed central functions, the role of higher education is expanding considerably.

To illustrate the derivation of the indices of educational level, *Figure 2* contains the working figures and results obtained for the country as a whole and for the three counties of Southern Transdanubia. Regarding the county values, those for Baranya are similar to the national average, while those for Somogy and Tolna counties are somewhat below the average. When the towns are excluded from the analysis, the rank order is reversed.

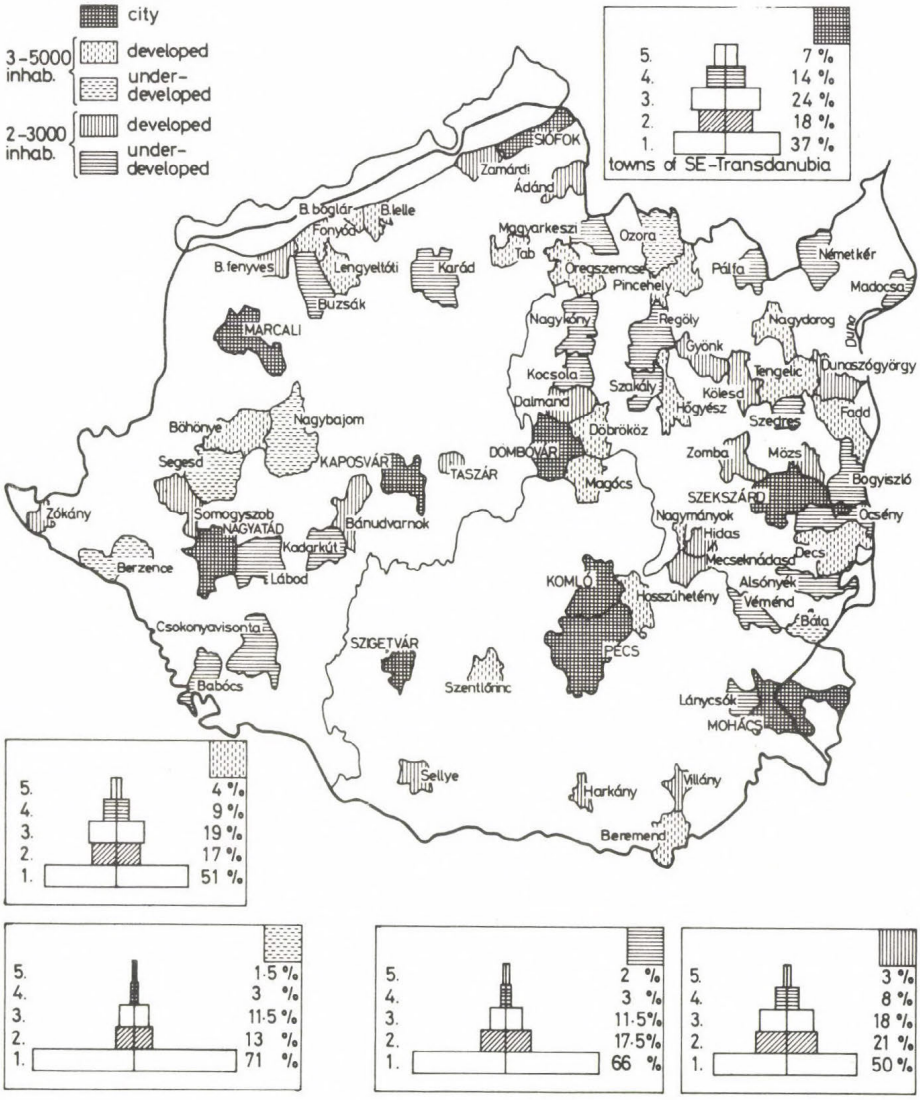


Fig. 2. The educational level of the population of settlements with 1000 to 3000 and 3000 to 5000 inhabitants, respectively, in 1970

DEVELOPMENT OF THE EDUCATIONAL LEVEL OF THE POPULATION BETWEEN 1960–1970

The general educational level of the population has risen rapidly in both urban and rural areas, and only in a few small settlements can a certain decline in the index be noticed. These settlements are characterized by declining populations of old age structure. Raising the educational level of the population is not simply a cultural assignment but an essential precondition for the modernization and healthy development of the national economy.

Three factors that have contributed to the rise in educational level are:

A. As a result of the introduction of eight years of compulsory education the basic qualifications of the younger age groups have markedly increased.

B. Previously agriculture dominated Southern Transdanubia, but following the rapid development of both industry and services, the situation has drastically changed. The latter two sectors require a large pool of manpower with secondary and technical training school qualifications, and has affected not only a restructuring of occupations, but has also resulted in a rapid increase in educational attainment.

C. The rapid and comprehensive development of industry naturally had its effects on the primary sector of the economy, and also on agriculture. Simultaneously with industrialization, the entire economy had undergone reorganization, while the change to large-scale production has been followed by technological advance. This process has also required manpower with higher qualifications. Consequently during the decade 1960 to 1970, the general standard of qualifications in urban settlements grew by 150% and in rural settlements to an even higher extent.

This development varies from one rural settlement to another. On the maps showing educational level in 1960, lower values dominate, first of all in Somogy and Baranya counties. The villages, only slightly affected by economic change, cluster in the lowest category, and characterize most areas in both counties. In Tolna county, a similarity can be detected only in the areas bordering Somogy and Fejér counties.

At the time of the 1970 census settlements of higher educational level from continuous zones, while settlements with lower attainments form small islands only on the map. These territorial patterns relate positively to population size, but this may be modified in specific localities.

The 1970 index of educational level follows population size less ambiguously than in 1960, although regional differences have been evened out. While in 1960, the difference between the lowest and the highest values of the index was 214%, this had dropped to 169% by 1970. The regional divergence in educational level and its evening out are phenomena closely related to each other and represent two sides of the same process. One perspective on the gradual decrease in the difference between rural and urban settlements is the narrowing of the gap at the elementary level. The overall disparity in educational level is fast disappearing in settlements with more than 4000 inhabitants and is clearly evident in settlements with more than 8000 inhabitants. In these settlements, the proportion of qualified labour is so high that the structure of educational attainment is more characteristic of towns than of villages.

Settlements with less than 4000 population are relatively poor in qualified manpower and educational attainment is consequently low. The constant commuting from such places does not help either. The ever increasing need for manpower in

industry draws manpower away from agriculture and results in a major internal commuting.

The regional distribution of population has undergone not only quantitative but also qualitative change as a result of commuting. Migrants are mainly between the ages of 15 and 30, which is the age group with the highest educational level. So the continuous migration from villages results in a constant diminution of the most productive members of the population, both from a biological and intellectual point of view. This causes a significant distortion in the structure of the population and has far reaching implications for further development. The consequences are most drastic in those settlements with fewer than one thousand inhabitants.

Regions experiencing out-migration not only lose manpower, but also the money invested in the education of those who migrate. Conversely regions of in-migration gain this investment.

Within higher education, the differences are smaller regardless of the category of village, between regions supplying and regions demanding labour. There are two reasons for this.

Firstly, despite commuting from rural areas, natural increase remains high and the new better educated generation raises the value of the index.

Secondly, during the last decade, rapid and extensive development of agricultural technology has resulted in the migration of highly qualified manpower to agricultural regions. The proportion of qualified workers in agriculture is over 5% in many regions of Southern Transdanubia and in the more developed areas even surpasses 10%.

STAGES OF DEVELOPMENT AS REFLECTED BY THE EDUCATIONAL INDICES

Educational attainment varies inversely with population size. Although this is a general regularity, it only applies to settlement groups. Within a given group, the dispersion around the mean will be large by relating to the location and functional activities of particular settlements. Despite this four settlement groups have been distinguished.

(a) The first group comprises settlements with declining populations of less than 1000 inhabitants. Within this group, the proportion with higher educational qualifications is only 2%, with secondary education still below 3%, while those who have not completed elementary school amounts to over 55%. A more detailed analysis of settlements with less than 500 inhabitants indicates that those close to towns, especially Pécs, Kaposvár and Komló, are better than the average for the category.

(b) Those settlements with 1000 to 3000 inhabitants fall into the stagnant or slowly declining category. The proportion of population with higher qualifications is 3%, those with secondary level qualifications less than 7%, while those who have not completed elementary school amount to 50–51%. The proportion with technical training-school qualifications is 15 to 20%. Within this group, settlements with between 2000 to 3000 inhabitants together with those near to larger towns or mining settlements or those with local central functions, show a positive anomaly from the average of the category.

(c) Settlements with 3000 to 12,000 inhabitants form the developing category. The proportion of population with a higher education is 3 to 4%, with secondary education

8 to 9%, while those who have not completed elementary school number well below 50%. Gradual industrialization can be detected from the fact that 20–25% of workers are skilled. Going into more detail concerning settlements with 3000 to 5000 inhabitants, those located close to towns, the resorts along the shores of Lake Balaton, and local centres, show a strong positive anomaly, while those in unfavourable locations lag behind the average for the category.

(d) The structure of educational attainment in settlements having between 12,000 and 22,000 inhabitants is very similar to that of the towns. Those with higher education comprise over 5% of the population, 11% completed secondary school, while skilled workers make up 25% of the inhabitants. The proportion of those who have not completed elementary school is around 40%.

THE CONCEPT OF THE GROWTH VILLAGE AND ITS APPLICATION TO ENGLISH PLANNING PRACTICE, WITH SPECIAL REFERENCE TO THE EAST MIDLANDS

By

P. T. WHEELER

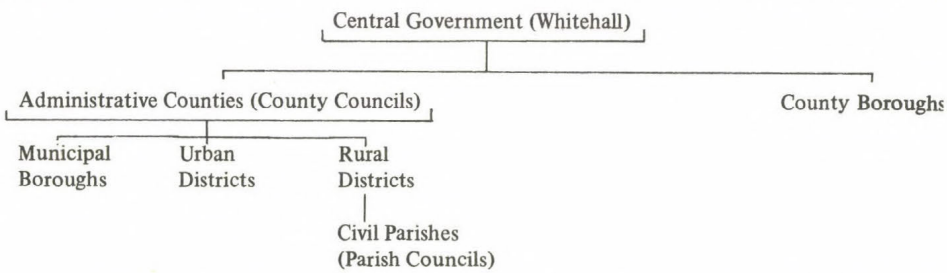
United Kingdom

INTRODUCTION[1]

There is, of course, an intricate hierarchy of urban and rural settlement in England; economic and social life could hardly exist without it. The purpose of this paper, however, is not to examine this "natural" hierarchy. It is to see whether the concepts and practice of rural planning have been affected consciously or unconsciously by any form of central place theory, and whether such planning has had any effect upon the continuing evolution of English rural settlement. The examples quoted will be mainly drawn from the East Midlands. Before going on to the main discussion, however, it is necessary to make three preliminary points.

First, the classic picture of English rural settlement is of a nucleated village in the middle of its territory, the parish. In crude terms, this situation had some reality over much of the country in the past, and historically the parish had considerable significance as the geographical basis of local organisation. The whole trend of nineteenth and twentieth century legislation and the evolution of the modern administrative system, however, has been to take the powers of local government away from the village and parish, and to concentrate them either at the level of groups of parishes called Districts, or at the yet higher level of the County. As a result, the Parish Council has been left with few powers and little finance, and the individual village community can have little influence on whatever plans may be made for it, except through the formal democratic processes of the larger administrative units.

There was a major reform of Local Government in England and Wales in 1974. Under the system of administration deriving from Acts of 1888 and 1894 the following structure applied:



[1] I should like to express my gratitude to the following for their advice and assistance in preparing this paper: Professor R. H. Osborne, Head of Department of Geography, University of Nottingham; Mr. D. J. Parsons, Institute of Manpower Studies, University of Sussex, and formerly a post-graduate student in the Department of Geography, University of Nottingham; Mr. G. Spenceley, Planning Officer, Mr. A. Aspbury and Mr. P. Winstanley, Newark District Council.

Under an Act of 1972, effective in 1974, this system was changed to:

Central Government (Whitehall)

County Councils (first tier authorities)

District Councils (second tier authorities)
(Parish Councils survive as mainly consultative bodies)

N. B. In official language, the administrative units below the level of Whitehall are usually referred to as "Local Authorities". The term is enlarged when distinctions are necessary: e.g. before 1974, when local planning powers were concentrated at the level of the Country Councils and County Borough Councils, these would be referred to as "Local Planning Authorities". This usage is mainly followed in this paper. In colloquial use, however, all the Local Authorities tend to be referred to by the public as "the Council".

Second, something must be understood of the meaning of "planning" in England (see *Fig. 1*). National economic planning is limited to the central government, and is

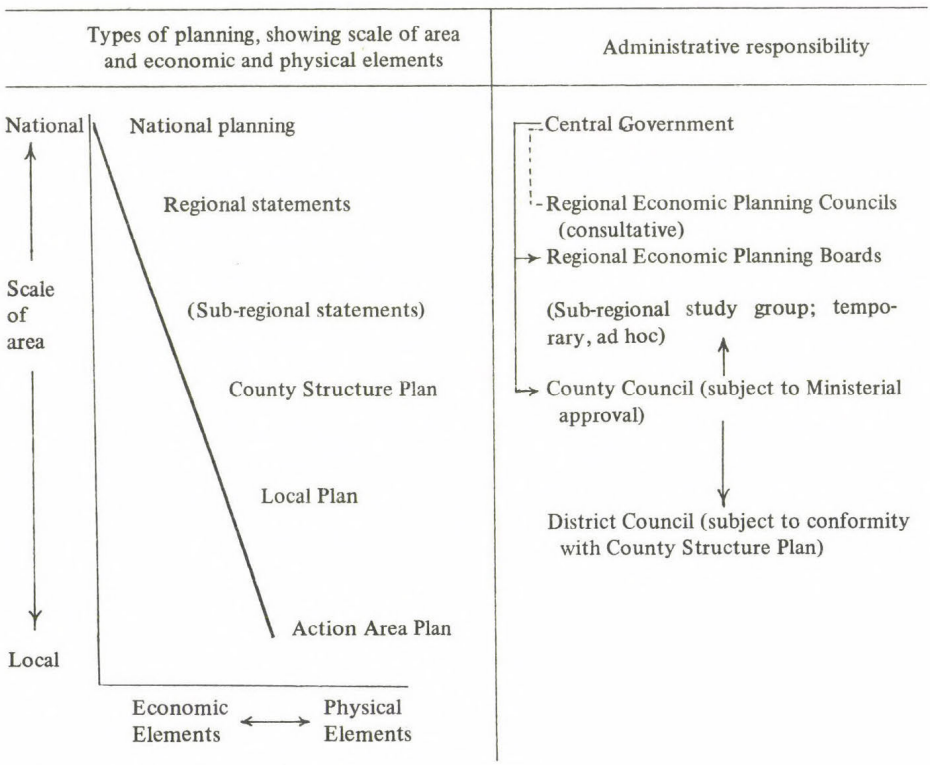


Fig. 1. The distribution of planning fuctions in England and Wales, 1977

largely non-spatial. Country Councils, however, have to produce plans for their areas which are largely spatial in their nature, and District Councils have to produce detailed plans which are almost totally spatial. This spatial planning, which is concerned with land use zonation and the nature, use and distribution of such material structures as roads and buildings, is usually referred to as "physical" planning. It will be noted that in Britain there is only very weak development of planning at a regional level between Whitehall and the Counties, and that there are virtually no planning functions below District level.

Third, so far as physical planning is concerned, the key issue is land use. Here it is necessary to appreciate that, although most land is in private ownership in Britain, there is a very high degree of public control over the uses to which it may be put. In particular, official permission has usually to be obtained for a major change of land use, as from agriculture to mineral extraction or to industry or housing. In broad general terms, the uses to which buildings are put and changes or extensions to the structures are subject to similar controls. Any such change in the use of land or buildings is usually referred to as "development".

	Chief characteristics
National economic policies	External: non-spatial Internal: largely non-spatial (except for Development Area Policies etc.)
Co-ordination	between central and local authorities: largely non-spatial; not very effectual between constituent local authorities: partly spatial; not very effectual between central Departments in respect of regional aspects of their policies operating through the Regional Planning Boards; of considerable though indirect effect
(Physical ("town and country") planning survey, usually with guidelines for action: spatial)	
Physical ("town and country") planning survey and outline policy: spatial	
Physical plan for all or part of a District: spatial	
Comprehensive redevelopment plan for a small area: entirely spatial	

Really effective laws requiring strict physical planning have been in existence in Britain for exactly thirty years, but the roots of their evolution lie much further back. In order to understand the present situation and the outlook both of the public and of the planning profession, it is therefore necessary to look briefly at the historical growth of planning legislation and practice in Britain.

For our purposes, there were two really significant inter-war measures. The first, the Housing and Town Planning Act of 1919, was chiefly important because *(inter alia)* it greatly increased the powers and duties of local government authorities to provide public housing, the so-called "Council houses". As a result, Britain now has the largest quantity of publicly-owned housing outside the Soviet Union. The local authorities had perforce to exercise effective physical planning control in developing their housing estates, and to some extent the Town and Country Planning Act of 1932 may be said to have extended similar methods to private development. It led to surveys of the current situation and assessments of local needs for housing and economic development; it encouraged the formation of opinion favourable to a planning approach both in the public mind and within the civil service and local government machine; and it fostered the growth of professional planning expertise, though most planning (significantly, usually termed "town planning") was done by the Local Authority architects or engineers, while the surveys were generally carried out by specialist consultants of variety of backgrounds.

But although various significant measures were being taken to deal with the problems of urban development, including renewal of the urban structure and the provision of council housing, control of urban spread and of ribbon development, and the encouragement of amenity development, very little attention was paid to the positive needs of rural areas, which were usually regarded rather as stable zones to be preserved from outside (urban) interference. Many surveys dealt with a variety of aspects of rural planning, but only one included plans for a coherent hierarchy of rural settlement, and that was for Cambridgeshire.[2]

The basic concept of a hierarchy was in this case based on the work of Henry Morris, Chief Education Officer for Cambridgeshire from 1922 to 1954. He saw that it was impossible to provide the growing range of education facilities in every village, and he therefore proposed to concentrate the higher educational provision in certain central villages, each of which was to have a ring of satellite villages within a hinterland of more scattered settlement. But for these central villages the idea of the "village school" was to be enlarged to that of the "village college" in which a wide variety of social provision and activity would be possible as well as straightforward school teaching, which would be used by various adult groups as well as by children, through the evening as well as during the day. Morris called each of these central villages with its satellites and hinterland a "regional community".

[2] W. R. Davidge: *Cambridgeshire Regional Planning Report.* Cambridge, 1934. Prepared for the Cambridgeshire Joint Town Planning Committee, consisting of representatives of Cambridgeshire County Council, Cambridge Borough Council, the University of Cambridge, Cambridgeshire Rural Community Council, Cambridge Preservation Society, and of the five Rural Districts of Cambridgeshire.

The consultant, W. R. Davidge, took up these ideas in the *Cambridgeshire Regional Planning Report* of 1934, and suggested a series of such "regional communities" to cover most of Cambridgeshire, with the prospect of concentrating other services as well as education. In effect, he was advocating a primitive hierarchy of settlement so far as social and educational provision was concerned, with the City of Cambridge as the highest local centre, followed by the central villages with their colleges, and then the satellite villages with a bare provision of lower schools and a limited range of other facilities *(Fig. 2)*. In the event, only four village colleges were built before the war.

The great Town and Country Planning Act of 1947 took matters a long stride forwards by laying down a statutory requirement that *all* local Planning Authorities (i.e. Counties and County Boroughs) had to produce a "development plan" consisting of a land use zonation map together with an explanatory text, to cover the whole of their territory. Hence all Planning Authorities with rural territories (that is to say, mainly the County Councils) were forced to look at their rural areas and to start evolving some sort of policy to deal with the problems. Not surprisingly, some authorities consciously or unconsciously followed Davidge's ideas and concentrated facilities in designated villages, which came to be termed "selected villages" (that is, selected for service provision, and therefore for growth). These services included not only those which had to be provided under statute, such as education and housing, but also non-statutory services and facilities which might nonetheless be assisted or supported by Local Authorities, such as village halls.

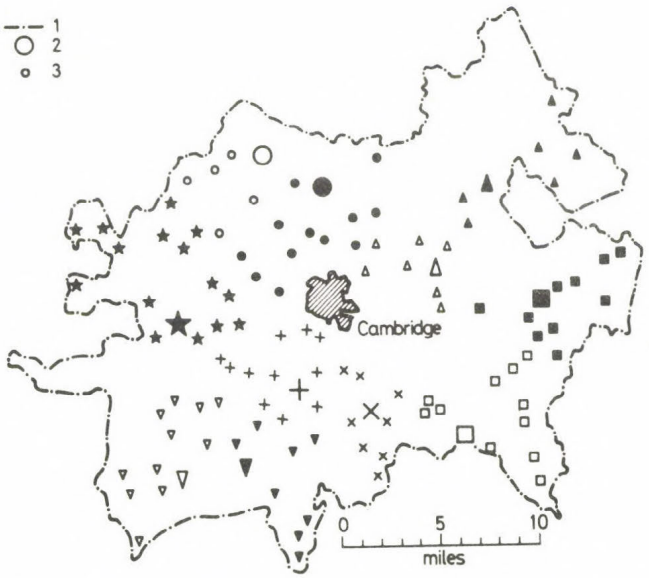


Fig. 2. Proposed development and satellite villages in Cambridgeshire, 1934. (*Source:* W. R. Davidge: Cambridgeshire Regional Planning Report, Cambridge, 1934.)

1 = county boundary; 2 = centres of development: large symbol, e.g. X; 3 = associated educational groups: small symbol, e.g. x;

A "statutory" duty is one which is made compulsory by Act of Parliament. Hence, services which a Local Authority must supply, such as education, are termed "statutory services". They have obviously varied from time to time. Local Authorities may also be given powers to provide services at their discretion, and these are termed "non-statutory". Village halls, playing fields, public transport are all facilities which may possible be assisted with Local Authority funds.

Similarly, a County Development Plan (before 1968) or County Structure Plan (after 1968) has to be submitted to the Secretary of State for the Environment for approval according to the various Acts of Parliament. When approved, such a Plan is said to have "statutory" force, and must be followed by the Local Planning Authority until it is superseded by another such Plan. Local Planning Authorities may, however, produce "non-statutory" Plans. These have less force, since they have not been approved by Whitehall, and may therefore be relatively easy to resist, but they are much more flexible than statutory Plans since they can be changed whenever the Local Planning Authority chooses.

The rationale of choice of selected villages, however, at least in the Development Plans of the earlier fifties, was based not on a coherent central place theory, but first and foremost on the need to control urban pressures upon rural areas. In other words, thinking was still dominated by the idea of a stable agricultural countryside where on the one hand traditional society and values and on the other actual physical structures were to be preserved. This basic attitude may be seen as deriving from the romantic aesthetic approach to the countryside of the late nineteenth and early twentieth century. In many ways it reflects the attitudes of the townsman, who sees the countryside as a beautiful object to be preserved and enjoyed, rather than that of the countryman, who sees it as a place of work to provide him with an income to equal that of the townsman. The ripest development of this divergence of approach may now be seen in the disputes between farming and amenity interests over the extent of land reclamation for agricultural purposes and the types of agricultural development to be permitted in the so-called "National Parks". Certainly, the revolutionary changes in modern agriculture reducing the labour requirement to a fraction of its former size (while greatly increasing output), and vastly altering not only farm structure but also field layout and the agricultural landscape in general, were not foreseen in 1947.[3] Only secondarily was thought given to amelioration of rural deprivation, to rural demands for development of rural areas, or occasionally to the necessity of re-structuring rural settlement patterns.

Thus, a coherent rural planning philosophy rarely existed in fact, and the selection of development villages was rather governed by: first, financial considerations, in that it was usually cheaper to concentrate statutory facilities in one settlement; second, the previous history of development of individual settlements (and above all by the presence or othervise of existing spare sewerage capacity); and third, by the accident of pressure from urban areas. A good example of such a plan is that for Lindsey of 1951, in which an elaborate distribution of satellite, central and development settlements is set forth, based almost entirely upon the existing distribution of settlements and of facilities within settlements, rather than upon any idea of a dynamic change in settlements *(Fig. 3)*.

[3] In 1951 1,036,854 persons (5·1% of the working population) were engaged in agriculture in England and Wales on 372,774 holdings. In 1971 the figures were 615,980 persons (2·7%) on 224,457 holdings.

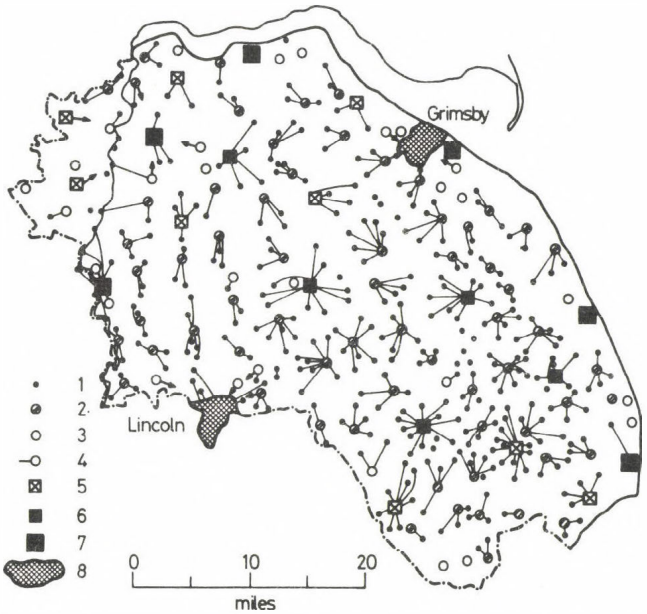


Fig. 3. Proposed hierarchy of settlements for Lindsey, 1951. (*Source:* Report of the survey submitted with the County Development Plan, March 1952, County of Lincoln (Parts of Lindsey), Lincoln, 1952, reprinted 1962.)

1 = small village; 2 = rural service centre (1st degree) serving small area with daily facilities; 3 = self-contained village; 4 = self-contained village acting as dormitory settlement; 5 = local service centre (2nd degree) serving larger area with some weekly facilities; 6 = small market town (2nd degree) serving larger area with all weekly facilities; 7 = other towns; 8 = large towns (County Boroughs)

Such plans tended to be overtaken by events, in that agricultural employment declined rapidly, and that first the urban and then the rural population became much more mobile. The result was that the following broad generalization may be made: all villages without growth of adventitious population (i.e. population employed neither in agriculture or forestry nor in activities necessary to provide services for those so employed) tended to lose population at a rapid rate during the nineteen-fifties and 'sixties, and all services and especially non-statutory services tended to decline at an even faster rate as the remaining rural population showed strong preferences for the larger service centres with their greater range of facilities, as opposed to the smaller, local centres.[4] In contrast, the rural settlements within the growing commuter hinterlands tended to grow with the increase of adventitious population, even though the agricultural element generally declined in absolute terms and the demand for services often remained urban-oriented.

[4] Decline of population in purely agricultural–rural settlements was widespread from the mid-nineteenth century (see John Saville: *Rural depopulation in England and Wales, 1851–1951*, London, 1957), but was generally more critical after 1951.

The general result of such changes was that when plans for rural areas were revised after the statutory period (indeed, usually long after the formal statutory period)[5] they showed adjustment to the new facts of rural life, with fewer, larger and more consciously selected central villages, more widely spaced and having more extensive hinterlands, and a resulting simplification of the proposed hierarchy of settlement. Revisions to the Lindsey Plan, dating from the later 'sixties and formally adopted in 1973, show this trend clearly, and have the advantage of containing a clear statement of the underlying principles of selection *(Fig. 4* and *Appendix 1).*[6] The fact that Lindsey is, in English terms, a "remote" area, with little urban pressure and large stretches of countryside with scattered farmsteads, agricultural villages and small market towns, meant that it was possible for the County Council to suggest not only the characteristic facilities for settlements of successive status in the hierarchy, but also a notional spacing for such settlements. Some sort of regularity of settlement, undistorted by proximity to major urban areas or by the accidents of the physical endowment of the land or of history, could thus be perceived which might be compared with theoretical models of settlement patterns.

One may, therefore, suggest that in the reviews of the initial county development plans that were undertaken usually in the middle to late 'sixties, a more coherent philosophy with regard to the hierarchy of rural settlement was emerging. This was partly a response to the pressures of the time and partly to the acquisition of greater skill and expertise in the practice of planning, but it was surely no coincidence that it was just at this time that planners who had initially been trained as geographers and who had been influenced by post-war interest in British geography in what we now call central place theory, were is sufficient numbers and in sufficient seniority within the planning profession to exercise an influence and to introduce modes of thought generally new to the established architects and engineers who had hitherto dominated local planning.

The following writers, mainly publishing within a relatively short period after the War, had considerable influence on the thinking by British geographers about regional development and settlement hierarchies (early publications only are quoted here):

H. E. Bracey: Towns as rural service centres. *Trans. Inst. Brit. Geographers.* 19, pp. 95–105.

H. E. Bracey: *Social provision in rural Wiltshire.* London, 1952. (See also Bracey: English central villages: identification, distribution and functions, pp. 169–181 in Knut Norborg (ed.): *Proceedings of the IGU Symposium in Urban Geography. Lund Studies in Geography.* Lund, 1960, Series B. No. 24.)

[5] The 1947 Town and Country Planning Act laid down that County Development Plans were to be revised at five-yearly intervals. In fact, it took so long to gather material, produce a plan and get ministerial approval, that very few Planning Authorities managed more than one formal revision before 1974, and some never got beyond their initial version. It ought in justice to be added that most Authorities managed some form of periodic up-dating of their policies, even without operating the formal machinery.

[6] *Communities in rural Lindsey, present and future,* by M. R. Sellors, Country Planning Officer, issued as a Consultation Draft by Lindsey County Council in 1973, represents an effective revision of the 1951 Development Plan, although it never received ministerial approval. It was based on earlier discussions, and *Figure 4* and *Appendix 1* derive from material tentatively dated to 1968.

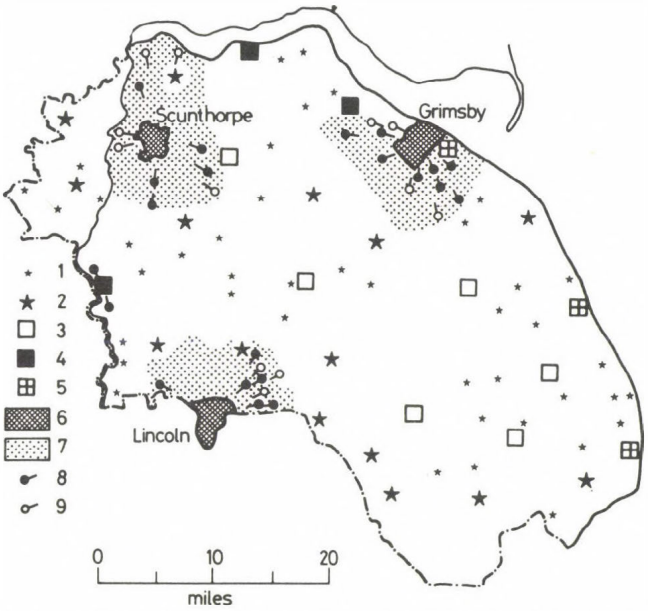


Fig. 4. Proposed hierarchy of settlement for Lindsey, 1968. (*Source:* Documents tentatively dated to 1968, and confirmed in Communities in rural Lindsey, present and future, by M. R. Sellors, Lindsey County Council, Lincoln, 1973.)

1 = rural centre; 2 = local centre –
District centre: 3 = market town; 4 = industrial town; 5 = holiday town; 6 = provincial centre; 7 = commuting fringe. –
Dormitory settlements within commuting fringe: 8 = expansion village; 9 = infilling village

J. E. Brush: The hierarchy of central places in southwestern Wisconsin. *Geographical Review.* 1953, 43, pp. 380–402.

R. E. Dickinson: *The regions of Germany.* London, 1945.

R. E. Dickinson: *City, region and regionalism.* London, 1947. Dickinson's earlier work on East Anglia was also of significance: The distribution and function of the smaller urban settlements of East Anglia. *Geography.* 1932, 17, pp. 19–31.

F. H. W. Green: Urban hinterlands in England and Wales: an analysis of bus services. *Geographical Journal.* 1950. 96, pp. 64–81.

F. H. W. Green: Motor-bus centres in south-west England considered in relation to population and shopping facilities. *Trans. Inst. Brit. Geogrs.* 1948, 14, pp. 59–68.

A. E. Smailes: The urban hierarchy of England and Wales. *Geography.* 1944. 29, pp. 41–48.

A. E. Smailes: *The geography of towns.* London, 1945. It was only much later that the theoretical work of Christaller and Lösch, which was to underpin the earlier, more pragmatic, work, became available in full translation.

Walter Christaller: *Central places in southern Germany.* Translated by C. W. Baskin, Englewood Cliffs, New Jersey, U.S.A. 1966.

August Lösch: *The economics of location.* Translated by W. H. Woglom and W. D. Stolper, New Haven, Connecticut, U.S.A. 1954.

In addition, it was in any case realised that a more positive approach was possible in the handling of villages when selected for development. Formerly, it had been adjudged sufficient to concentrate statutory services and even Local Authority housing in selected villages, but little direction had been exercised over private applications for planning permission (mainly for housing) in other villages. These had been granted or withheld purely on grounds of the availability of services (especially sewerage) and similar pragmatic considerations. Now the view was increasingly taken that all developments, private as well as public, should as far as possible be concentrated in the selected villages.[7] This may be termed the "key village" approach. Once again, Cambridgeshire offers a useful example, and one, moreover, which seems to indicate something approaching a spatial hierarchy and distribution such as was postulated by Brush and Bracey *(Fig. 5).*[8]

But whereas most theories of settlement hierarchies and distributions are based on an initial assumption of a homogeneous plain with a uniform spread of population, resources and demands for services, Britain has a very markedly varied surface, with old-established settlement patterns, strongly affected by the unequal distribution of past as well as of present resources and by the accidents of history. Over much of the country, therefore, it is frequently only possible to find regularities of pattern in the so-called "remote" or "rural" areas; over the rest of the land it is urban pressure which is dominant and urban requirements which distort the spatial geometry of the hierarchy of smaller settlements.

There is another point that should be remembered. Many of the rural areas of lowland England have a fairly dense scattering of settlements in which agricultural employment forms a minor part of the structure of employment. It has been suggested that "lateral" movements between such settlements, especially for services, but also for employment, require appropriate adjustments to any hierarchical model. Some time ago, one of Pahl's main themes was the "change from hierarchical to segregated structures" in areas within commuting distance of a metropolis (R. E. Pahl: *Urbs in Rure: the metropolitan fringe in Hertfordshire.* London School of Economics and Political Science, *Geographical Papers.* London, 1965, No. 2. p. 14).

A good example of this may be seen in southern Nottinghamshire *(Fig. 6).* This is an area which is subject to pressures most directly from Greater Nottingham, but also in varying degrees from Loughborough, Leicester, Melton Mowbray, Newark and even Derby. Nottinghamshire County Council, which had issued a series of (non-statutory) policy statements for its rural areas between 1966 and 1969, published a plan for this area in 1968 (the neighbouring areas of Leicestershire and Kesteven were subject to

[7] Compare the statement: "Development (i.e. the development of land which here includes buildings, structures and erections) is the very essence of the Town and Country Planning Act of 1971"; and that the definition of development under the Act includes: "(a) the carrying out of building operations, engineering operations, mining operations or other operations in, on, over or under land, or (b) the making of any material change in the use of any buildings or other land." Sir Desmond Heap (ed.): *Encyclopedia of the Law of town and country planning.* London 1959, with subsequent amendments and supplements, Part 1, para. 054.

[8] John E. Brush and Howard E. Bracey: Rural service centres in southwestern Wisconsin and southern England. *Geographical Review.* 1955, 45, pp. 559–569.

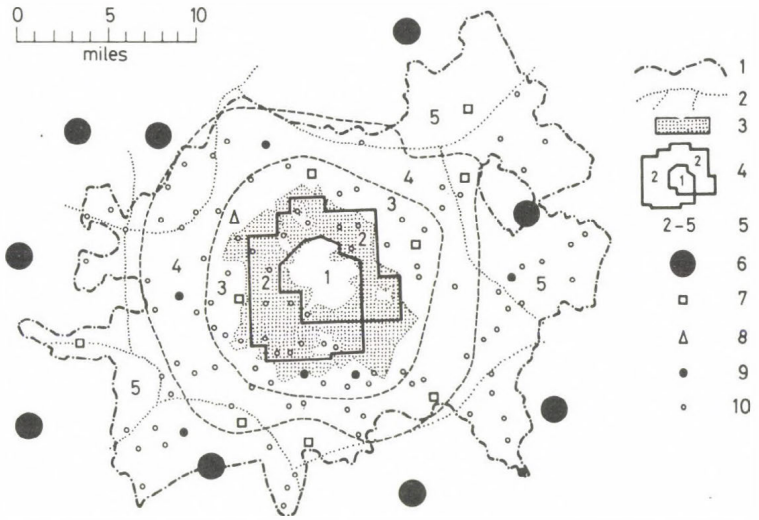


Fig. 5. A settlement hierarchy for Cambridgeshire, as proposed in 1968, with some supplementary data (*Sources:* for 1934 data, Davidge: Cambridgeshire Regional Planning Report 1934, for 1965 data, the First Review of the County Development Plan, 1968; for 1977 data, the County Structure Plan, 1977.)

1 = county of Cambridgeshire; 2 = shopping hinterlands of market towns (1976); 3 = proposed green belts; 4 = area covered by Cambridge Town Maps 1 (i.e. Cambridge city; D centre) and 2; 5 = zonation of rural settlements by migration 1951–1963 (see note)*; 6 = market towns (C centres); 7 = villages where development will be encouraged (B_1 centres); 8 = new village (Bar Hill; B_1 centre); 9 = other development villages suggested in 1934 (B_2 centres); 10 = other villages in educational groups of 1934 (A centres)

*Village analysis and planning proposals in Cambridgeshire, 1965:

2: Area covered by Town Map 2. Villages in this zone grew strongly 1951–1963; 24.1% of all households in 1963 had immigrated during this period. Very little more land was to be made available for development, and the rate of growth was to be greatly reduced. Village boundaries had been drawn as tightly as possible round built-up areas, thus establishing and preserving a Green Belt.

3: Second Ring villages: These villages lay just outside the Green Belt and 5–7 miles from the City, with an immigration rate 1951–1963 of 20·2%. Population growth had been accepted but industrial development was restricted to firms moving out from Cambridge in support of the overall policy to restrain growth in and near Cambridge.

4: Third Ring villages. The outer edge of this ring coincided roughly with the limit of the weekly shopping influence of Cambridge in 1965, and included villages about 7–10 miles from the centre. (1977 shopping hinterlands have been inserted for comparison.) Some expansion of the larger villages had been encouraged, including limited industrial development. The overall immigration rate 1951–1963 was 21·7%.

5: Outer villages. These villages lay within the weekly hinterlands of the market towns outside Cambridgeshire in 1965. Immigration reached a total of 15% of households 1951–1963.

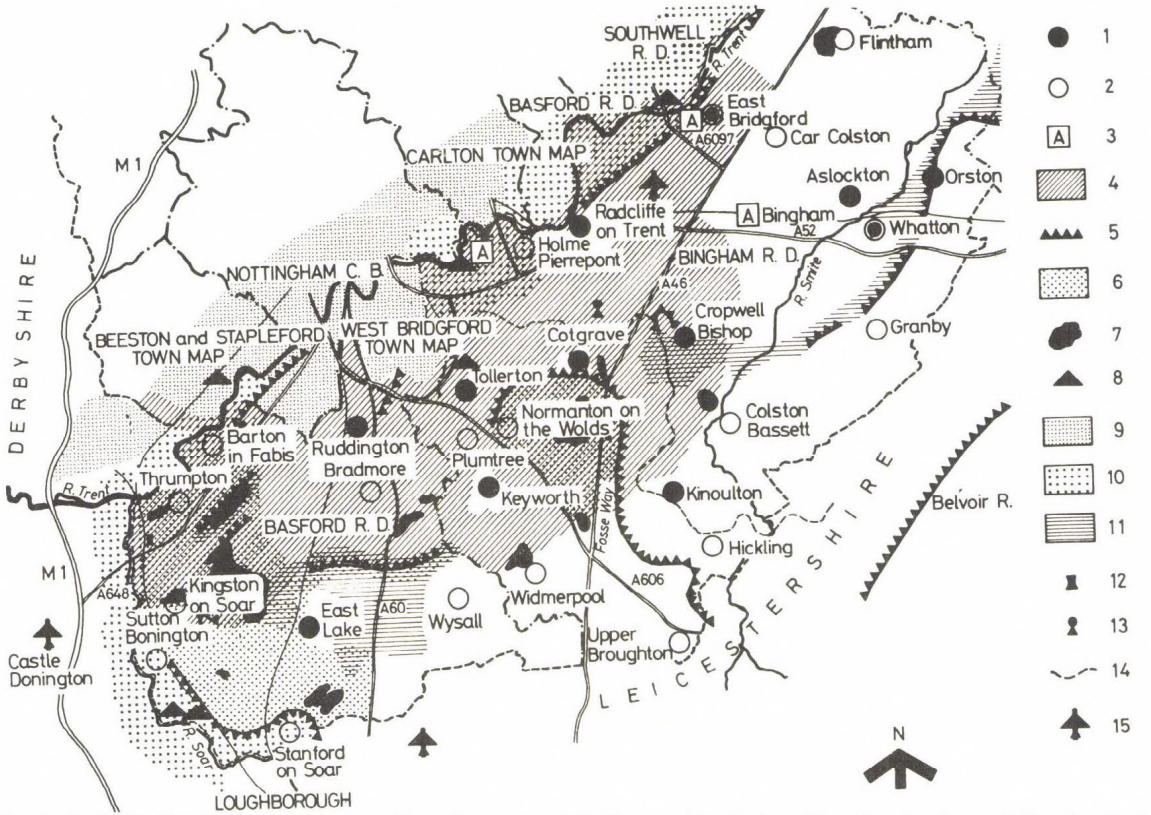


Fig. 6. South Nottinghamshire diagrammatic policy map, 1968 (*Source:* Nottinghamshire County Council: Plan for rural Nottinghamshire, Part 4: South Nottinghamshire, 1968)

1 = settlements for which plans are prepared; 2 = amenity villages; 3 = areas for which special plans are to be prepared; 4 = draft green belt; 5 = crest lines of major importance; 6 = countryside of special landscape value; 7 = principal woods and parklands; 8 = major recreational centre; 9 = built-up area; 10 = sand all gravel bearing areas; 11 = gypsum bearing areas; 12 = power station; 13 = colliery; 14 = Grantham canal long distance footpath; 15 = airfield

other Planning Authorities), and the Diagrammatic Policy Map from that report well illustrates the difficulties arising in a "pressure" area.[9]

Some of the area is already included within the built-up zone of Greater Nottingham, and almost half lies within the proposed Green Belt, which zone was effectively extended by the preservation of certain woodlands, areas of special landscape value, and crestlines of major importance. In addition, there were areas important for gypsum and for sand and gravel. As a result, it would be unreasonable to expect to find a spatial hierarchy of settlements corresponding to formal academic central place theory; indeed, the County Planners expressly disavowed any attempt to follow such theories (which does at least prove that they were well aware of them!).[10] Instead, there is a much more pragmatic classification of settlements into six groups, taking account of: location with regard to urbanized areas and the Green Belt; industrial pressures including those deriving from extractive industries; recreational pressures (the Vale of Trent has become a major area for water sports, and includes the new National Water Sports Centre at Holme Pierrepont); the provision of public services; village architectural character; problems of landscape and tree planting; and the presence of derelict land. *Appendix 2* describes this six-fold categorization more fully.

One may, therefore, suggest that by the end of the 1960s Local Planning Authorities which had responsibility for rural areas had mostly evolved some system of hierarchy for their smaller settlements, and that they were using increasingly strong methods of persuasion to concentrate private as well as public investment in what had formerly been termed "selected villages" and what might now be called "key villages", and incidentally discriminating against those settlements allocated lower status within the hierarchy. They were thus coarsening the spatial network of rural settlement and eliminating the lower order components of the hierarchy. Only in "remote" areas with a relatively regular spread of population and freedom from distorting urban pressures, however, had this hierarchy the kind of spatial distribution postulated by academic central place theory. Over a very great deal of Britain urban pressures, either direct, as in the demand for housing land, or indirect, as in the demand for recreation space, were sufficient to distort any regularities of pattern approaching those of the academic theoreticians. In any case, more attention was always paid by both professional County planning officers and the political County Planning Committees to immediate demands than to intellectually coherent theories.

THE PRESENT SITUATION

In order to encourage flexibility in the planning process, the Town and Country Planning Act of 1968 abandoned fixed period land-use zonation maps, and instead required County Councils to produce "Structure Plans" (see *Fig. 1*). These set out the

[9] *Plan for rural Nottinghamshire, Part four: South Nottinghamshire – Bingham Rural District and part of Basford Rural Disctrict.* H. J. Lowe, County Director of Planning, Nottinghamshire County Council, West Bridgford, Nottinghamshire, 1968.

[10] *Nottinghamshire Structure Plan: Draft report of survey.* Brian T. Collins, Director of Planning and Transportation, Nottinghamshire County Council, West Bridgford, Nottingham, 1976, p. 195.

broad strategic guidelines and are subject to ministerial approval. Local Plans and Action Area Plans (the latter usually covering quite small parts of the urban areas which are to be subject to comprehensive redevelopment) had to be in accordance with this strategy, but were largely left to Local Authority origination and implementation.

The effects of the 1968 Act were postponed by prolonged discussion of the Local Government Act of 1972, which came into force in 1974. This altered the structure of local administration and re-allocated planning responsibilities between Counties, and the enlarged District authorities resulting from amalgamation. These changes were not really absorbed until 1976. Hence, it is not surprising that the majority of County Councils are still preparing their Structure Plans, and few have yet received ministerial approval. However, that for Nottinghamshire was published late in 1976. It is still subject to debate, but it is hoped that it will either be adopted or amended by the County Council for submission to the Secretary of State for the Environment late in 1977.

The *Provisional Structure Plan for Nottinghamshire* takes a rather different standpoint to the adopted in the documents on rural Nottinghamshire of the later 'sixties, following, rather, the lines of thought established in the *Nottinghamshire and Derbyshire Sub-Regional Planning Study* of 1969.[11] To begin with, it has been recognized that national growth in population has dropped dramatically, and that pressures for new housing areas have been much reduced. Furthermore, increasing costs of travel resulting from rising fuel prices make long distance commuting less attractive. Finally, increasingly heavy governmental pressure is being exerted (however unsuccessfully) to preserve at least the better agricultural land. As a result, when discussing southern Nottinghamshire (most of which is classified as the "Hinterland" of Greater Nottingham), a much more restrictive note is sounded, based upon restraint of commuting and still further concentration upon the "key" settlements. However, it does not specify which settlements should be restricted or developed, leaving that for tha District Councils to decide. In the more truly rural zone of eastern Nottinghamshire, it singles out rural depopulation, both of dispersed and nucleated settlement, as the most serious problem, and points out that in terms of the new policy there is here a surplus of existing permissions for development, although there is still sufficient pressure from the public for further growth.[12]

Until the various County Structure Plans have been given Ministerial approval, Local Plans compiled by the constituent Districts cannot achieve statutory force. On the precedent of the production of County Development Plans under the 1947 Act, this will take a long time. However, in the meantime the planning machine has to be made to work, if only under the pressure of normal demands from the public, and Districts, in consultation with their Counties, are having to evolve policies. In any case, many District Councils actually feel that flexible non-statutory plans are of more practical use than rigid statutory ones. Perhaps some indication of a possible trend in future administrative thinking may be gathered from what is happening in one District of Nottinghamshire, that of Newark.

[11] *Nottinghamshire and Derbyshire Sub-Regional Study.* Notts./Derbys. Sub-Regional Planning Unit, Alfreton, Nottinghamshire, 1969. p. 44.

[12] *Nottinghamshire Structure Plan. Op. cit.*, p. 198.

Newark District covers a large portion of central and eastern Nottinghamshire *(Fig. 7)*. The three main centres are Southwell, Ollerton/Boughton, and Newark. Southwell, with a population of 5,000 in 1971, is a small cathedral town and service centre, with a strong element of commuting to Nottingham. Ollerton/Boughton form a mainly coal-mining community with some service functions, totalling 10,581 inhabitants. Newark, with a larger population of 24,645, has a somewhat more independent economy as a market, shopping and manufacturing centre. Under the policies enunciated in the Rural Nottinghamshire publications of 1966/69, which anticipated expansion of rural settlements in general, largely under commuter pressure, a large number of villages in what is now the District of Newark were suggested for growth, and many planning permissions granted. On the whole, existing trends of development were followed, with some permissions being granted in the smaller villages, but the larger allocations being made to the larger villages. There was certainly no attempt to influence the evolution of a new or altered hierarchy.

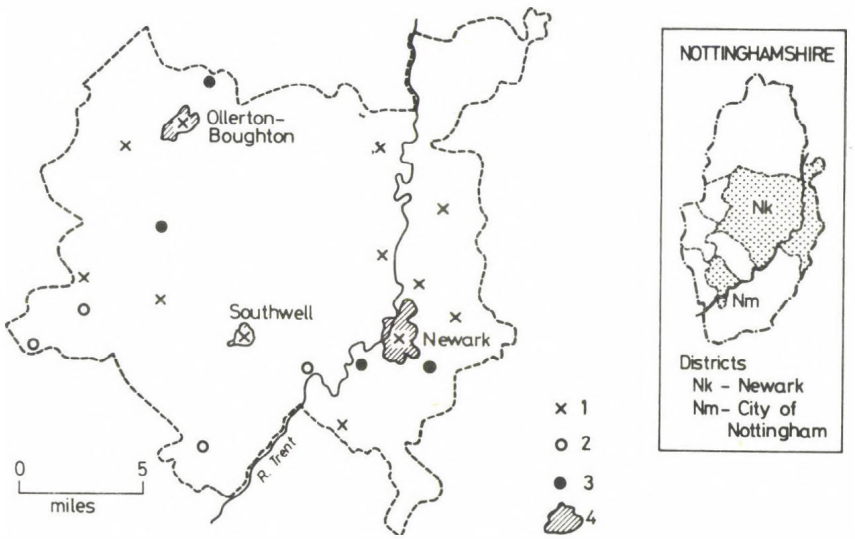


Fig. 7. Newark District: policies for village growth before and after 1974; (*Sources:* Nottinghamshire County Council: Rural Nottinghamshire: 3 – East Area 1967, and 5 – Central Notts. 1969; Newark District Council: Newark District Plan: the planning policy 1976, and Western Area Plan: overall policies 1976.) Plans by Nottinghamshire County Council before 1974:

1 = growth settlements; 2 = villages where some development was to be allowed and for which plans had been made; 3 = other villages with outstanding planning permissions for 50 or more dwellings.

Plans by Newark District Council after 1974:

4 = growth centres

The new Newark District Council has entirely reversed this policy.[13] Wherever possible all new development is to be concentrated in Southwell and Ollerton, and (more particularly) Newark. The last experienced little growth of population between 1851 and 1891, and modest prosperity thereafter, with the result that it has sufficient buildings of high architectural quality surviving for a large part of the town to have been declared an Outstanding Conservation Area.[14] The Council hopes that by carrying out the requirements for conservation, by renovation of existing buildings (often cheaper than constructing new ones), by carefully controlled replacement of buildings where necessary, and by discreet expansion of the settlement area, the town may be both economically successful and aesthetically attractive to those who might otherwise have wished to live in the surrounding villages and to commute either to Newark itself or to other accessible places of employment.

But controlled preservation and development of Newark is only one part of the new policy; another has been the deletion from village plans of all land allocated for new development for which specific planning permissions had not yet been granted. This has been possible because such allocations did not form an intrinsic part of the old County Development Plan, with statutory force, but had been part of a planning policy prepared and applied by the County Planning Department and not by the Department of the Environment. This, incidentally, illustrates the possible advantages of not waiting to obtain statutory force for the Local Plans of the new Districts. Any further development of villages is to be subject to the requirement that it shall be proved to be of "overriding local need". This concept has been deliberately left vague, but is assumed to mean that demand should come from local people for their own requirements in continuing to live in and operate the local community or be essential to the conduct of agriculture. In particular, pressures from speculative "developers", who foresee demands mainly for housing and therefore search for land upon which, given planning permission, they can build accommodation for sale at profit, mostly to commuters or retired people, are to be resisted.

This reversal of policy in Newark District may prove to be an extreme case, and certainly, although there has been some consultation with other Districts Councils in Nottinghamshire, there has so far been none with neighbouring Districts across the borders of Lincolnshire or Leicestershire, so that it is impossible to be sure that it will be typical of even this part of the East Midlands. However, one may suggest that it illustrates possible trends of the near future for areas which are not under direct and heavy urban pressure.

Summary

One can, therefore, distinguish various stages in the development of the concept of a growth village and of its partial incorporation in British planning practice.

In the first stage, a crude hierarchical approach was evolved for Cambridgeshire before the war, largely based on educational provision.

[13] *Newark District Plan: The settlement policy and guidelines for development in the villages,* and *Western Area Plan: Overall policies and their implications for individual settlements,* G. Spenceley, Planning Officer, Newark District Council, Kelham, Nr. Newark, 1976, and conversations with Mr. Spenceley and his colleagues.

[14] Newark was declared by the Department of the Environment to be a Conservation Area in 1968 and an Outstanding Conservation Area in 1973.

In the second, when County Councils had to prepare County Development Plans under the 1947 legislation, the necessity to allocate limited resources for development to specific settlements, and hence to deny them to others, plus a general assumption that the countryside should as far as possible be protected from urban pressures, led to a rather incoherent scattering of selected villages chosen for the location of statutory services.

In the later 'fifties and in the 'sixties a combination of greater planning experience, greatly increased pressures resulting from growing mobility of commuters, of the rural population, and of those seeking recreation, and a larger number of planners acquainted with central place theory, led to more clearly formulated theories of desirable hierarchies of settlement, although the past history of development allied with current pressures often led to pragmatic decisions which greatly obscured spatial distributions. In particular, in the belief that national population would continue to grow and that personal mobility would also increase, the granting of planning permissions in villages was often rather indiscriminate.

Now that (a) the rate of national population growth has fallen so markedly and travel has become so much more expensive, and (b) that the provision of services in scattered localities has become so much more difficult and costly, it would appear that permission for development in villages is likely to become very much harder to obtain, and permitted development will be much more heavily concentrated in market towns and other urban centres, in spite of the considerable problems of travel and communication that will arise for the population of the rural hinterlands.

It may be that the most recent changes will lead to a conscious readjustment of the hierarchical structure of rural settlement, but if, as seems likely, the really effective physical planning body to emerge from the 1972 legislation is to be the District Council, it is improbable that this readjustment will be the result of a coherent central place philosophy, since most rural Districts are too small to contain more than one or two service centres above the village level.

In any case, past history has indicated that English planning practice is more likely to be dominated by the attempt to satisfy immediate pressures than to remodel settlement patterns in accordance with a wider theory.

A HYPOTHETICAL CASE OF VILLAGE DEVELOPMENT

In order to illustrate the possibilities for and limitations upon the practice of planning for growth villages, let us take a hypothetical case study. Impetus for growth might have come from the Local Planning Authority, or it might have come from some other source, private or public.

If the Local Planning Authority were the prime moving force, then the selection of a village for growth ought presumably to have been in accordance with an existing over-all plan, which in turn would probably be based by now on a "selected" or "key" village approach. In such a case the Authority would already have a great deal of information on:

(1) The geographical site of the existing settlement, its suitability for expansion, and its location in relation both to surrounding settlements which would become satellites, and to more important central places to which it would itself be tributary.

(2)The present layout of the settlement and nature and state of the buildings.

(3) Whether physical services provided by the Local Planning Authority or other public bodies, such as water, sewerage, gas and electricity, are available or would have to be extended.

(4) What the local educational facilities (if any) are, whether they would need extension, or whether arrangements would need to be made for the transport of children to other centres (notably for more senior school training).

(5) A variety of other social services, like doctors' surgeries, clinics, libraries, etc., which are either provided by the Local Authority or by national organizations such as the National Health Service which ought to work in close liaison with the Local Authorities.

(6) Transport services which might be provided by nationalized bus or train services, by private bus services, or by nationalized or private services which may receive some degree of Local Authority finance;

(7) More truly private services and facilities, including shops, entertainment and recreation, commercial and voluntary, societies, church, chapel, etc.

(8) Finally, and exceedingly important, the Local Planning Authority should know about the actual and potential employment possibilities, in or accessible to, the proposed growth settlement.

Having thus made a rational choice of settlement for growth, the Local Planning Authority must consider what it must do, and what it may voluntarily choose to do, under enabling legislation (only in quite exceptional cases will it be worthwhile to try to get special legislation passed) in connection with the proposed growth. It will then be conscious of the fact that there is surprisingly little of a positive and initiatory nature that it can do. It has a deciding or a very influential voice in the development of items (2), (3) and (4) above, but a much less effective influence over items (5) to (8).

The main positive steps that it can take will be in the provision of publicly-owned housing. It will probably have to obtain land for this. Usually this can be done through the normal market channels, but if the proprietors are unwilling to sell it may have to be done by Compulsory Purchase Order, which sometimes involves appeals to the courts. Having built the houses and laid on the statutory services listed in (3) and (4), there is in general little more positive action that the Local Authorities can take.

The one exception to this is where the Local Planning Authority wants to encourage the growth of employment in the chosen village. This is rare, because Planning Authorities usually try to concentrate employment other than in extractive industries, agriculture and forestry, in the towns, and because the national government may well have overriding regional policies. In particular, if the settlement in question does not lie in either a "Development Area" or an "Intermediate Area", it may be impossible for the firm to get the Industrial Development Certificate from the Department of Industry necessary to the establishment of any considerable new industry in the desired location. In some cases, marked disputes have emerged between planning Authorities at various levels of the hierarchy, one notable case being over the successive industrial uses of the former military airfield at Langar in South Nottinghamshire.[15] In any case, the most that a Local Authority could do would be to

[15] P. T. Wheeler: Industrial developments at Langar, Nottinghamshire. *East Midland Geographer.* 1967, (4), pp. 262–266.

provide a site with services and possibly with "advance" factories or office buildings; it would have no power of compulsion over the movements of employers.

Usually, however, the ways in which a Local Planning Authority will encourage growth in a selected village will be much more negative, i.e. essentially by refusing development permissions in alternative settlements and by concentrating all the services and activities under its own control in the selected village. By this means, any growth tendencies in the region may be concentrated at chosen sites. If there are no growth tendencies, there is little that the Local Planning Authority can do to induce growth at a selected or, indeed, at any other site.

If, however, there are growth tendencies within the region, then the odds are that, although not wholly under the control of the Local Planning Authority, such tendencies will be strongly liable to its influence in regard to precise location. Let us look, therefore, at what may happen when pressure for growth does exist independently of local government activities.

Impetus for development from private sources may vary markedly in its manifestation, industrial, commercial or residential. Let us suppose that it is for housing. It may arise from the wish of a landowner for some sort of development on his land, usually in the form of extensions to an existing house or for one or two new dwellings, often on a very limited site, frequently as infilling[16] of an otherwise developed area. In such a case, the choice of village is determined by the fact of ownership and there can be no practicable alternative. In addition, since the proposal is likely to be mainly or entirely for accommodation for the applicant or possibly (in a rural area and before 1977) for a farm worker, it may well be of the sort that comes under the Newark District Council's classification of "overriding local need". Unless his application positively conflicts with the village plan, it is very unlikely to be refused.

But if the impetus comes from an entrepreneur it is likely to be larger in scale, since he is most likely a speculative builder, looking for a site on which he can build a number of houses for sale at a profit. Such a development would make a marked difference to most villages, and could rarely be regarded as simply of overriding local need. In his search for suitable locations and sites he will already have looked at a range of settlements and considered their geographical locations in relation to the origins and requirements of his anticipated customers; in other words, he will have made preliminary and genuine spatial decisions.

However, his freedom of choice will be strongly constrained by the Local Planning Authority, which should have published policies indicating which villages are regarded as suitable for development and which are not. Such policies may well not coincide with the entrepreneur's unfettered choice. Furthermore, it is likely that the Local Planning Authority may well have produced "village plans" for at least some of the settlements, indicating which sites within the designated village area (usually known as the "white envelope") are suitable for development, and what the broad nature of

[16] "Infilling" is the term used for construction on remaining empty sites, such as gardens or isolated fields, in an otherwise fully developed settlement. Such a process naturally leads to increasing density of building within the settlement, but since strict boundaries are usually set to the outward spread of the settlement, it also results in a greatly sharpened contrast between the built-up area and the open countryside. Thriplow Village Plan *(Fig. 8)* illustrates this process in action.

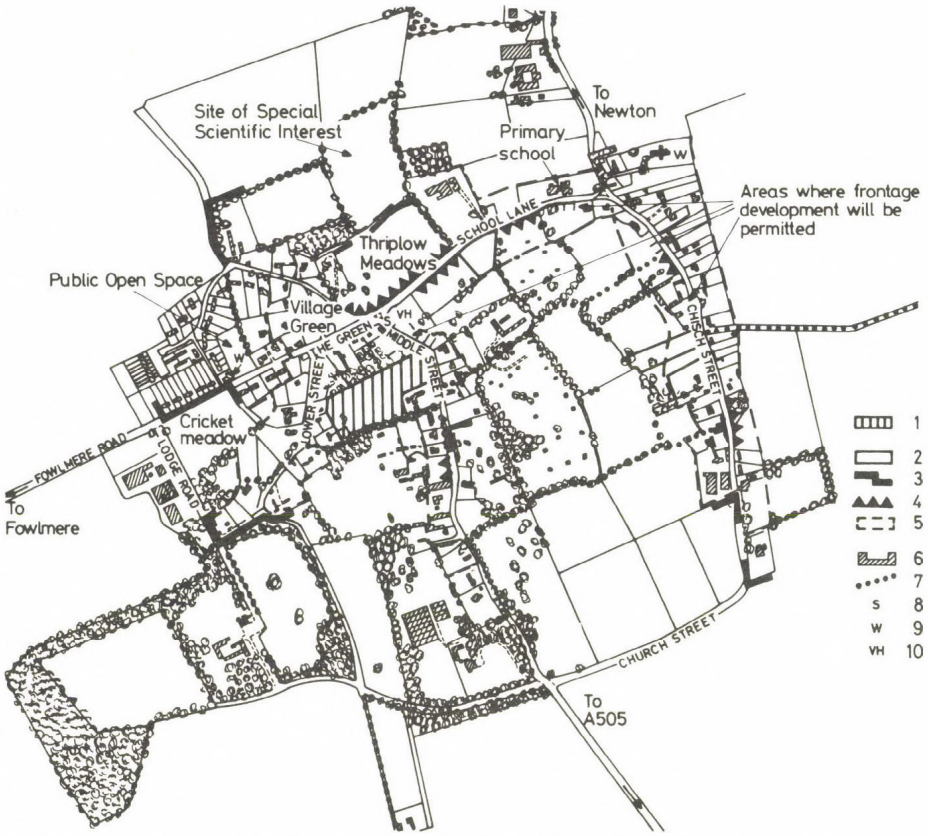


Fig. 8. Thriplow Village Plan, 1974. (*Source:* Cambridgeshire County Planning Department.) See *Appendix 3* for a written statement.

1 = proposed residential; 2 = unimplemented Residential Planning Permissions (inc. those under construction); 3 = development Stop lines; 4 = frontages to remain undeveloped; 5 = proposed Conservation Area; 6 = buildings of visual merit (inc. Listed Buildings); 7 = public foodpath/ Bridleway; 8 = shop; 9 = Place of Worship; 10 = Village Hall

development should be. An example of such a plan is given in *Figure 8.* The entrepreneur would therefore be well advised to study this Local Planning Authority material before making any further move.

Once he has done his preliminary research two courses of action are open to him, both of which arise from the noteworthy fact that when a Local Planning Authority selects villages for growth (or restriction), and when it designates sites within the village white envelope for development, it does so totally without regard to existing ownership. The entrepreneur may, therefore, continue by having informal discussions with the staff of the Local Planning Authority about the nature of permissible

developments and about any constraining factors not elsewhere mentioned, such as the style of housing likely to be regarded as acceptable, and any necessity to stagger development to allow for anticipated installation of sewerage or other services. He may than get "Outline Planning Permission", which is agreement that the Local Planning Authority will in principle accept the kind of development proposed, provided that detailed plans will later be submitted. However, before he can get this he must inform the Landowners of his proposals.

Up till now, the entrepreneur will not have expended money beyond his own time and trouble, but preparing detailed plans will involve costs, and therefore before doing so, he will in any case need to approach the landowners to see if they would be prepared to sell (or lease) the land to him (or enter into partnership) for the proposed development. If they refuse there is little he can do about it, and the project will fall through. In many cases, a site large enough for the kind of development he will find profitable may belong to more than one landowner, and since it is unlikely that the Local Planning Authority will allow partial development of the site, refusal by one landowner may involve cancellation of a more extensive project.

However, the entrepreneur may well have sought out the landowners before approaching the Local Planning Authority, feeling that he will be in a stronger bargaining position if he has full local backing. This alternative is a matter of personal choice and judgement.

Outline Planning Permission (since the 1968 Act) is valid for three years, within which time applications for Detailed Planning Permission must be submitted if the Outline Planning Permission is not to lapse. Similarly, development must have been begun within two years of the granting of Detailed Planning Permission if that is not to lapse. These limitations avoid the situation current before 1968, in which a Local Planning Authority might well have given a series of permissions which were not taken up for a long time and then were suddenly exploited when the over-all planning policy might have changed.

It may well, therefore, be a long time between the initial proposal for housing development in a village, and the actual implementation, and many modifications may have been made to the first proposals, even when permissions were, in fact, granted. Varying degrees of control may have been exercised not only over such obvious matters as size of structure, plan and elevation, density of development, etc., but also over materials used (e.g. colour and size of brick, roofing material) and even over the architectural style. Some authorities are far more concerned over aesthetic requirements than are others. This is one of the hazards a developer must expect, but he can be sure that such matters will rouse especially strong interest in any settlement within a National Park. He will also have to satisfy not only the Planning Office of the Local Authority, but also the Buildings Inspectorate as to the structural soundness of his buildings, and occasionally the two departments may differ in their judgements.

In broad terms, controls similar to those described for housing are exercised over commercial or industrial developments. Indeed, the only kind of normal development not usually subject to this kind of stringent planning control is for farm buildings of less than 5000 sq.ft. in area (465 m^2) and 40 ft. (12m) in height, and there has been

much discussion recently about the visual effects of modern farm buildings.[17] In any case, even agricultural buildings will be subject to general public health regulations, and where drainage is affected or connections to the public sewerage system are involved stringent conditions and high charges may be imposed.

It will be suspected after this account that "development" must be almost impossible in English villages under the weight of such ponderous machinery. That it is not so, is due to the fact that entrepreneurs usually have a shrewd idea of what is practicable, that private landowners usually make relatively limited demands, and that Local Planning Authorities have had much experience in dealing with such matters. Furthermore, Local Authorities are always aware that in the last analysis their power is derived from a balance of political forces. In broad terms, it is the elected Planning Committee of the Local Authority which agrees to the policies submitted by the professional planning staff, and a change in the political composition of the elected local government may make a substantial difference to the local plans. Furthermore, appeals may be made from Local Planning Authority decisions, either by developers or those resisting development, and the results of such appeals to the Secretary of State for the Environment or even to the House of Lords may as well be in favour of the appellant as of Local Planning Authority. *Figure 9* sets out in diagramatic form the normal sequence of events in dealing with planning applications, though obviously the process is simplified when the applications are for minor developments or where there is no opposition.

But one result of this discussion must at least be clear. The functions of Local Planning Authorities in Britain are primarily regulatory and permissive; only indirectly are they initiatory and developmental. Furthermore, their planning is mainly in respect of physical development, and only at a remove can it be social or economic. Hence, although the array of planning powers looks so impressive and the machinery so ponderous, the implementation of development suggested in Structure, or Local Plans is generally mainly dependent on the existence of a demand for development which is not generated by the Local Authority itself, and which most frequently comes from private enterprise. If such a demand is in existence, the Local Planning Authority can influence it very strongly (though it cannot always wholly control it); it if does not exist there is relatively little the Local Planning Authority can do to induce it. Hence, while restriction of growth in non-selected villages is usually highly successful, encouragement of growth in selected or key villages is a much more doubtful proposition. Perhaps British planners have been both sensible and correct in dealing with immediate demands as they arise, rather than in attempting to formulate models of a settlement hierarchy for which they could not be sure of implementation in the real world.

[17] Objections usually focus on scale (in that modern farm buildings are usually much larger than their predecessors and may overwhelm the existing cultural landscape), on material (in that modern buildings use concrete, wood, asbestos and plastic in ways quite foreign to the local traditions) and on style (in that modern farm buildings are generally clear-span structures presenting large expanses of uniform texture and colour that conflict with earlier developments). Tower silos have been particularly criticized.

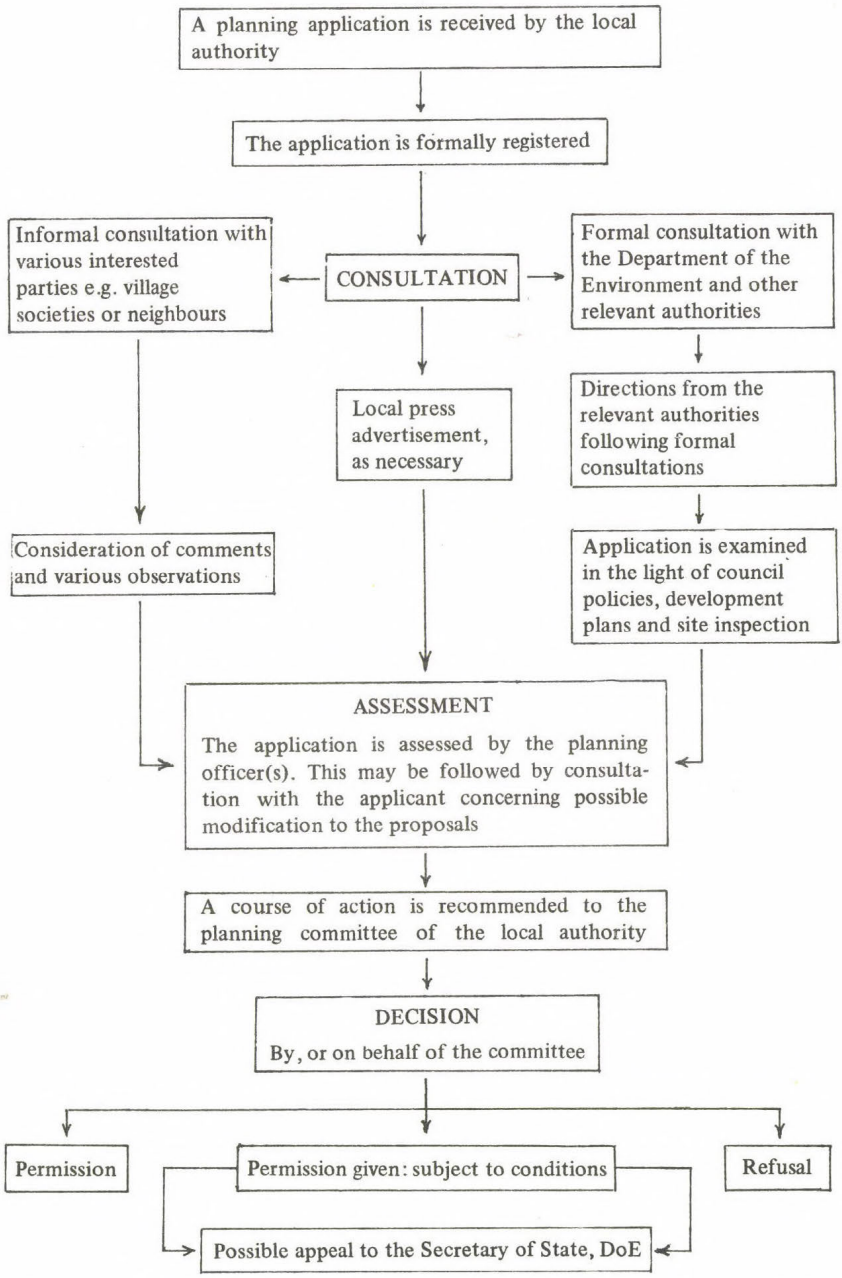


Fig. 9. A Flow Diagram representing a simplified account of the process of development control (after D. J. Parsons)

APPENDIX 1

Classification of settlement hierarchy in Lindsey, 1968

Status of Settlement	Type of Service Centre	Typical Population Range	Services rendered
1st Degree	Rural Centre	250–1250	Medium or large village self-sufficient in everyday necessities and acting as a service centre at this level to surrounding hamlets and smaller villages
2nd Degree	Local Centre	1000–3000	Urban village with a greater range of retail and professional services, secondary school, often catering for weekly needs in shopping, welfare and entertainment within a radius of 3–5 miles
3rd Degree	District Centre	3000–30,000	Market, industrial and holiday towns with a wider range of services and facilities serving a radius of 7–10 miles
4th Degree	Provincial Centre	30,000–100,000	Larger urban centres with important administrative function and a still wider range of services including more specialized facilities, serving a radius of 15–25 miles
Urban shadow zone			Villages in environs of larger towns, which spread their urban shadow over village development, and encourage dormitory settlement
	Expansion Village	Village	Villages with suitable services (N.B. Transport and sewerage) and land; development plans prepared
	Infilling villages		Generally smaller, less accessible, lacking services for large expansion, but limited number of sites within village for new accommodation; development plans prepared
	Agricultural settlements		With no surplus service capacity no further development except where essential to agriculture or forestry

Source: From a paper by Lindsey County Council attributed to 1968.

APPENDIX 2

CLASSIFICATION OF VILLAGES IN SOUTHERN NOTTINGHAMSHIRE IN 1968

Group 1: Villages entirely within the Green Belt, where new development or re-development will be allowed only in very exceptional circumstances.
Group 2: Settlements in the Green Belt taking some growth to the limit of their "white area envelopes" (village plans prepared).
Group 3: "Growth" communities beyond the Green Belt.
Group 4: Villages taking some growth by reason of outstanding approvals plus careful selective development and for which village plans are prepared.
Group 5: Settlements beyond the Green Belt likely to maintain their present population, to show only slight growth or growth to the limits of existing approvals.
Group 6: Special "Amenity" villages or parts of villages where very strict control of all new development, siting and design is essential.

Source: Plan for Rural Nottinghamshire, Part Four: South Nottinghamshire – Bingham Rural District and Part of Basford Rural District. H. J. Lowe, County Director of Planning, Nottinghamshire County Council, West Bridgford, Nottingham, 1968. pp. 44–46.

APPENDIX 3

TEXT TO THRIPLOW VILLAGE PLAN

INTRODUCTION

Village Setting

Thriplow a village of about 500 people, is situated nearly 10 miles south of Cambridge. It is set in rather attractive countryside and has an open form with large areas of land in the centre of the village.

Planning Policies and objectives

The basic planning policy for the rural parts of the County is one of guiding major developments into a few selected rural growth centres. The County Development Plan Review (1971) lists a number of such centres in the Cambridge area, e.g., Melbourn and Duxford. The majority of smaller villages, among which Thriplow is included, are identified as settlements where no significant increase in population is envisaged during the plan period. The purpose of this village plan is to produce proposals and policies which aim to identify and where possible overcome the village's planning problems and to regulate its further growth:

(a) Within the terms of overall County Policy.

(b) Within the capability of local services and environmental character to support any increase in population.

(c) In accordance with the reasonable wishes of the Parish Council.

APPRAISAL AND PROPOSALS

Population

1962 private household population	390
1972 private household population	500
1981 Development Plan estimate	600

Thriplow has grown slowly over the last ten years and it is not anticipated that its rate of growth over the remainder of the plan period will be significantly different. Planning permission has already been granted for an additional 4 houses. This commitment is likely to add a further 10–15 people to the 1972 population figure.

Education

The present roll of the primary school is about 60. When the extensions are completed early next year, the school buildings will be able to cope with up to 80 pupils. Secondary school pupils attend Melbourn Village College, which is also a centre for Adult Education.

Public Services and Utilities

The village is served by electricity and a new sewage system is being installed at present. It is anticipated that the new system will be completed sometime in the middle of 1975. The system has been designed to cope with 600 people.

Community Services and Facilities

Thriplow has one general store cum Post Office, one public house and two places of worship. It also has a village hall which is to be improved in the near future. A tenant farmer permits the Cricket Club to use the field on a year to year basis. If a more permanent arrangement cannot be made it would be preferable to find another site in the village for a proper recreation ground.

Employment

There are no major sources of employment in the village. This situation is unlikely to change because Thriplow is not a village within which, according to broad policy restraints, industry will be encouraged to locate. However, appropriate small businesses wishing to start up in Thriplow will be considered on their individual merits.

Conservation and Character

Thriplow is in many ways an unusual village because of its road pattern and three old established settlement groupings separated by open spaces.

The village is situated on the line of a former zone of communication known as Icknield Way, which from pre-historic to late mediaeval times consisted of a large number of trackways running roughly parallel in an east-west direction. It is likely that the first settlement nucleus was attracted to this part of the Icknield Way by the presence of spring water and was in the vicinity of the Village Green. It seems quite probable that Lower Street, Middle Street and Church Street originated as north-south routes connecting the parallel tracks of the Icknield Way. It should be one of the aims of conservation policy to preserve as far as possible the integrity of the historic village form.

The immediate surroundings to the village, and the open areas between the village streets are well wooded. This contributes much to the rural atmosphere and charm, and ensures a healthy integration between settlement and open countryside. Whilst the village is well endowed with trees, it is important that these are maintained and replaced where necessary. Only one group in Lower Street is protected by a Tree Preservation Order.

The village has several listed buildings and others which, owing to their position and appearance contribute to the character of the village.

The form of the settlement, its buildings and open spaces are interrelated elements which require special protection as a whole; it is therefore suggested that a large part of the village should be covered by a "Conservation Area", the proposed boundaries of which are shown on the Draft Plan. The formal designation of a Conservation Area will follow at a later stage when the appropriate advertisement and consultation procedures have been completed. Any new development must be designed with particular regard to this character, and special care will be needed to ensure that building materials are in keeping with the predominant light and buff tones traditionally used in the village.

There is a site to the west of the Church which requires special attention. It contains a range of cottages and some derelict buildings, together with electricity "wirescape", provide a setting unworthy of Thriplow's historic church. Whether or not the cottages are capable of improvement, any re-development scheme must be designed to exploit the potential for enhancement which exists at this focal point in the village.

Housing and Residential Development

South Cambridgeshire Rural District Council have between 40 and 50 houses in the village. They have plans to build 4 more dwellings at Sheralds Croft Estate. Allowance is made for a few more Council houses in the 1981 population estimate even though no further sites have been positively identified. This amendment should be shown on the map as an enclosed area at Sheralds Croft Estate.

The Draft Plan defines recommended "Stop Lines" beyond which further extensions of the built-up area should not be permitted. The object of the stop lines is to prevent ribbon development along the roads leading into the village. Within the stop lines, areas which could be suitable for frontage infill, have been identified. In addition, there is a site of about 3 acres close to the centre of the village off Middle Street which could accommodate a low density private cul-de-sac development. It is felt that this is the only site in the village where in depth type of development should be permitted, partly because there are no other sites quite so suitable, and partly because the development of this site would have minimal impact on the character of the village. It is felt by some members of the Parish Council that this site should be developed preferably in conjunction with local authority future building plans for Council houses including old people's dwellings, or by the District Council building houses for sale, both methods providing a small housing development in the lower building costs category. The proposed frontage site on School Lane must be developed as a unit in order to maintain the frontage trees and hedges. It is recommended that the houses be set back and a single access road put in, parallel to School Lane.

The development of all areas mentioned in the text and identified in the plan could result in a population increase of around 60 people. In order to control this increase

and prevent it all happening within the next three years it is proposed to aim at an average growth rate of around 3 houses per annum. This number is only given as a guide and must not be taken as a precise figure.

Summary of Proposals

1. A conservation Area.
2. A strictly controlled increase in population bringing the estimated figure by 1981 to between 580 and 600.

FUTURE PLANNING POLICY/IMPLEMENTATION

The village still has many of the charms and qualities of a rural village and every effort should be made to retain and enhance them. The open nature of the village renders it specially vulnerable to pressures for large scale consolidation which, if unchecked would inevitably destroy its existing character, as well as precipitating a crisis in the provision of public services and investment.

It is therefore recommended that the policy for the village up to 1981 should be to continue the existing policy of limited growth, and that no further estate type of development, other than the one small cul-de-sac proposed, be permitted. Until such time as the County Settlement Policy is reviewed, growth will be guided into those settlements better equipped to cater for significant and more rapid increases in population, e.g., Melbourn and Duxford. Within the stop lines, only those areas most suitable for residential development should be given planning permission. Although the most important frontages that should remain undeveloped are marked as such, it is felt, particularly by the Parish Council, that other gaps e.g., those on Lower Street should be retained as they contribute so much to the character of the area.

Within the stop lines, only those areas indicated as most suitable for residential development should be given planning permission. Where open frontages have no symbol on the map, it is to be assumed that no development will be permitted, e.g., on Lower Street there are several gaps within the stop lines, but these are felt, particularly by the Parish Council, to contribute so much to the character of the street that they should all be retained.

The proposals set out above been made following consultations with the appropriate departments of the County and Rural District Councils, and after officers of the County Planning Department had met members of Thriplow Parish Council on the 13th September 1973 to obtain their views on matters relevant to the Village Plan.

This document should be regarded as an interim policy statement in so far as it could be subject to review by the Planning Authority before the end of the plan period in 1981. The function of the plan until then should be to form a background against which development is controlled and promoted. Any new development that may arise from the plan will, in the normal way, be subject to the development control standards in operation at the time of application for planning permission.

The Village Plan was first published in Draft form in October 1973. After consultations with the Parish Council and other interested parties, it was approved on behalf of the County Council on 23rd January 1974.

RURAL ACCESSIBILITY: THE PROBLEM AND SOME POSSIBLE POLICIES

By

M. J. MOSELEY

United Kingdom

INTRODUCTION

This paper summarizes some of the work carried out in the 'Rural Transport and Accessibility' research project, which was financed by the Department of the Environment and which terminated early in 1977. (Moseley et al. 1977.) Much of the research took the essentially rural county of Norfolk as a case-study, but the work was designed to elucidate general principles about the nature of the problems, the appropriate methodology for studying them and the suitability of alternative policies. It is with these general principles that this paper is concerned, rather than the details of our case-study area.

The central theme of the research project was *accessibility,* which we interpreted to relate to the ease with which people can reach, or be reached by, the activities which concern them. In the spatial dimension, we can crudely conceptualize accessibility thus:

$$\text{person} \xrightarrow{\text{link}} \text{activity}$$

This diagram suggests that accessibility reflects attributes of the *person* (age, sex, economic role etc.) the *link* (disaggregated by mode and attribute, e.g. frequency, cost etc.) and the *activity* (workplace, school etc.). The point of departure was that in rural areas each of these three elements – people, link, activity – have been changing and are likely to continue to change. The result is that the pattern of accessibility, as it varies from place to place or between social groups, has also been changing. We would not argue that change alone, whether viewed as the decline of rural bus services or of the *only* justification for public intervention, but it does tend to sharpen certain problems that are deep-seated, to add extra urgency to the call for action, and, capriciously, both to narrow and widen the options open to the planner. So, in the field of rural accessibility planning, the context is changing, the problem is changing, and, as change occurs, certain options are closed and others opened.

Many of the elements of change in rural areas will probably be familiar to our Hungarian colleagues: they may be briefly listed:

1. *people*
   - a static or declining population in the remoter rural areas, with substantial in-migration of retired people
   - net in-migration and natural growth in 'commuter' rural areas
   - a rapid rise in expectations such that levels of service which were acceptable in the past are no longer acceptable.

2. *transport*
   - the closure of many rural railways
   - the reduced frequency and much higher fares of rural bus services
   - a substantial growth in car ownership so that the majority of households (but only a minority of individual persons) have a car. At present about 70% of households in rural Britain own a car.

3. *activities*
   - the reduced number, increased size and wider spacing of rural shops, schools, post offices, medical services etc.

To these changes in the 'components of accessibility' may be added changes of an administrative nature. In particular, recent legislation has given British county councils the ability to subsidize unprofitable rural bus services and the responsibility of "promoting the provision of a co-ordinated and efficient system of public transport to meet the needs of the county". At the same time the county councils have a land-use planning function: that is to say they are presently preparing 'structure plans' which will guide the location of services, employment, population etc. for the next 10–20 years. One further very important point: although the county councils have this basic transport and land-use planning role, they are only one of a large number of relevant bodies. For example the provision of public transport and of health services are in the hands of autonomous bodies, only weakly co-ordinated with the county councils. This co-ordination/management issue is central to the problem's resolution.

The research team did not simply look backwards in its concern to examine change. With the help of a wide-ranging process of consultation with relevant academics and decision-makers we speculated on how things would develop over the next 20 years. Although we cannot claim there was complete unanimity amongst our 25 consultants and advisers, a clear view of the future emerged: "more of the same".

This opting for a 'surprise-free' scenario is significant. It suggests that many of the demographic, social and economic trends of the post-war period will continue and perhaps intensify. Rural areas will become more 'urban' in their economy and society; at the local level population growth will occur increasingly in the larger settlements, with remoter villages becoming more elderly in their age-structure; village services in both the public and private sectors will continue to operate at the margin or to decline; conventional public transport services will decline further before they are stabilised. But some things are likely to change: the long rise in household car ownership levels will level off long before a 'saturation level' is reached; concern about the social problems of rural accessibility will intensify, ironically as the state's power to purchase a solution may stabilise or decline because of Britain's economic problems. What seems unlikely, however, at least in most rural areas this century, is the occurrence of fundamental technological and behavioural changes of a 'back-to-nature/small is beautiful' kind to an extent which would force a total reassessment of the whole structure and nature of rural Britain. This scenario may, of course, be disproved by events. But, taken at face value, it provided us with a context within which we could examine the rural accessibility problem and possible solutions to it.

THE RURAL ACCESSIBILITY PROBLEM

Let us go on to consider the "nature of the rural accessibility problem", by making just four points:

1. It is easy to be misled into conceiving the problem in terms of contextual elements, rather than its real essence. Thus the decline of public transport, the demise of village services, the economic problems of subsidy, the spatial scatter of people and of services, the unco-ordinated nature of decision-making etc. *contribute* to the problem but do not *constitute* it. Thus even if they are put to rights, the basic problem of personal inaccessibility may very well remain.

2. Similarly we must beware, as geographers and spatial planners, of wearing 'spatial blinkers'. Although the *spatial* dimension provides the stage upon which the rural accessibility problem is experienced, it is the *social* dimension which is more fundamentally important. Thus many attempts at understanding the uneven distribution of accessibility have inadvisedly centred on the inter-village dimension, with attention being directed towards understanding the degree to which different rural places enjoy access by public transport, as a basis for improving the access of the less well-off places. But such an approach tends to neglect the essential social dimension of accessibility problems: it neglects the fact that personal circumstances within a village's population vary so significantly that crude measures of the village's accessibility have little meaning. The 'acid test' can be applied: if inter-village accessibility disparities were removed, would there be no serious inequalities in accessibility? The answer must be 'no' : considerable problems could remain for certain groups such as the elderly and the young, irrespective of the wellbeing of other fellow villagers such as working men.

3. Thus the essence of the rural accessibility problem lies in the inability or difficulty of carless rural residents to gain access to the activities that are relevant to them. Who are these people? They are the elderly, the young (meaning children, teenagers and some people in their early twenties), mothers at home, the infirm and the poor: all tend to be disadvantaged if they lack (and they usually do lack) ready use of a car. These people are often wrongly referred to as a residual and declining minority of the population. In fact those who lack ready access to motorized transport are usually in the majority even in rural areas where household car ownership levels tend to be high.

4. In considering the access problems of these carless people, a degree of "multiple deprivation" is often involved. Let us consider the following nine 'factors':

No car in the household
No bus service in the parish of residence
No shop in the parish of residence
Someone in household physically handicapped
Household income below £1000 p.a.
No 'phone' in the house
No available public or private 'phone within 5 minutes' walk
No bicycle
No fridge

We used our survey evidence to establish how far the incidence of these "inaccessibility factors" coincides in *elderly households* (i.e. those entirely composed of people over 60 years of age).

It emerged that of elderly households with no car

4% suffer 1 more factor
29% suffer 2 more factors
25% suffer 3 more factors
20% suffer 4 more factors
15% suffer 5 more factors
4% suffer 6 more factors
3% suffer 7 more factors

A CONCEPTUAL FRAMEWORK

How are these problems best explored in the context of particular areas? And how are the merits of alternative policies best evaluated? We decided that the answer to both of these questions lay with the Swedish 'time-space school of geography'. (Hagerstrand 1970, 1973, 1974). This approach is best explained with the help of a diagram which portrays geographic space on the horizontal plane and time on the vertical axis *(Fig. 1)*.

In the example given in this diagram attention is focussed on the 24-hour day of a hypothetical mother living in village A, a few miles from a small town. For certain periods of the day she is confined to her home – namely until 0915 by sleep and family commitments, from 1200–1330 which is the family lunchtime, from 1600–1800 when she welcomes the children from school and prepares the tea, and after 2200 when she again prepares for bed. Outside those hours when she is normally confined to her home, the distance over which the woman can travel is dictated by the availability of transport. We assume, in the example, that the household car is used by the husband except in the evening, that the woman can cycle and that there is a once-daily bus service into town.

Thus in the morning she is able to travel by bus to the small town where she is able to spend about an hour shopping before the bus departs and returns her to her village. Note, in the hypothetical example, the very convenient timings of the bus service, given her home commitments, and note also that the speed of the bus dictates the slope of the line between village A and the town. It would not be possible for her to travel equally far in a westward direction, but she could, if she wished, go a short distance in that direction by cycle. In the afternoon she is confined within the distance that she can cycle, but in the evening she can travel much further afield using the household car.

This simple example illustrates a number of important principles. The person is subject to two important sets of constraints – those relating to herself, in particular to her own time-commitments, and those relating to her environment. In the latter category we must include not only the technology and availability of the means of transport ('availability' subsuming routeing, timing and cost) but also two characteristics of the activities to which she seeks access – namely their location and their temporal availability. Clearly if the small town shops which we assume her to visit in

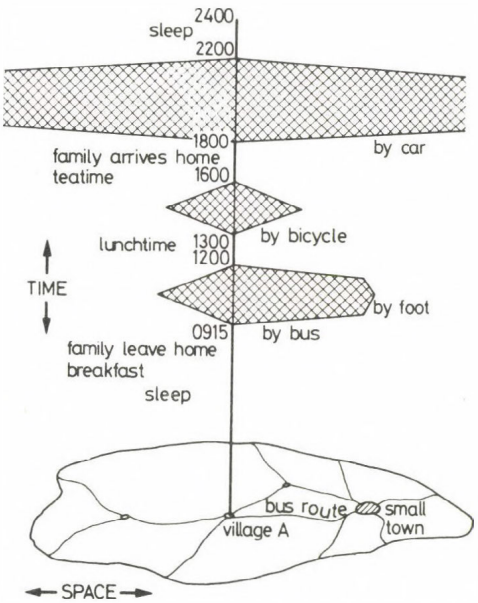


Fig. 1. The "time-space realm" of a rural housewife

the morning were instead located an equal distance to the *west* of village A, or were open not in the morning but in the afternoon then as far as the woman is concerned they might just as well not exist. As Hagerstrand puts it, we are all the prisoners of 'space-time prisms' (the woman's 'space-time prism' is indicated by the shaded area of *Fig. 1*). The challenge of rural accessibility planning is to enlarge those prisms, or else to make more activities available within them. This conceptualization of the problem reveals *six subsets of possible policies* which might alleviate the rural accessibility problem: all of the options fall into one or more of these six categories. They may be simply expressed in terms of the situation confronting our hypothetical housewife:

1. *mobility*
(a) facilitate her ability to travel from village A to the small town and to other useful destinations;
(b) establish mobile services going out from the small town, and other places, to village A and similar places.
2. *location*
(a) locate more activities within the woman's action space (e.g. a branch library at village A);
(b) relocate the woman into a new residence in the small town.
3. *time*
(a) reduce the constraints impinging on the woman's time budget (i.e. reduce or rearrange the time axis);
(b) increase or modify the opening hours of the activities (e.g. encourage shopkeepers to open in the evenings occasionally, when she has a car available).

THE EVALUATION OF ALTERNATIVE POLICIES

The evaluation of alternative rural accessibility policies, which comprise elements from the above 'tool-kit', was simply an attempt to look at the situation of all the residents of our case-study areas and to ask 'given policy x or y, what is it now possible for them to do? ' We began to answer this question by disaggregating the adult population into five groups, and by defining 25 relevant activities or services. A cross in *Figure 2* indicates a relevant 'group-activity combination'. For each such combination we sought to define whether access was possible for residents living in each of about 60 very small zones of residence.

The analysis was carried out for the existing situation in 1976 (i.e. given present-day bus and rail routes; bus and rail timings; distribution of shops, workplaces etc.; shop opening hours etc.) and then for a number of alternative strategies which we devised.

Figures 3, 4. and *5* depict one of our study areas. It extends 5–10 km. around a small town, North Walsham, which is itself about 30 km from a large city, Norwich. *Figures 3* and *4* indicate the distribution of population and of activities for the present-day (i.e. for the strategy which we termed "Sl") and for some of our hypothetical strategies as well (S2, S3, S4). *Figure 5* indicates the transport network for S1 only. (In S2, S3 etc. we modified the routes and timings of the buses, holding the pattern of population and activities constant). S5 (not shown here) was a long-term strategy in which the patterns of population and of activites were also 'allowed' to change (e.g. by reducing the number of village shops).

There is not space here to describe each of the various strategies in detail. Instead it may be useful to proceed directly to some of the results of the evaluation procedure.

Let us take just four of the 25 activities, namely those concerned with health. *Figure 6* relates to doctors' surgeries, hospital (for visiting or out-patient treatment), dentist and chemist.

For each one six strategies are compared (S1, 2, 3, 4, 5a, 5b). The horizontal axis indicates the proportion of residents (0 . . . 100%) having access to these services, in each strategy. The key is (from right to left):

White: access only by car

Horizontal lines: by car and by public transport

Crosses lines: by public transport or by foot

Dark shading: access impossible.

Taken as a whole, for example, the diagram shows how much more accessible are doctors' surgeries than chemists, and chemists compared with hospitals. Looking at the individual strategies, S3 emerges well (this being a strategy in which the bus service is radically and expensively improved) as does S5a (a long-term strategy which assumes higher levels of car ownership).

Similarly we may take a different dimension and compare the five social groups in terms of their access to all the activities which are relevant to them. *Figure 7* does this, using a similar scale.

Again it is the dark shaded portions on the left ('access impossible') which is most significant. Note the progression from active males to adult women to the retired in

Activities	Work trip to Centre Level 1	Work trip to Centre Level 2	Work trip to Centre Level 3	Shops Level 1	Shops Level 2	Shops Level 3	Local food shop	Doctor's surgery	Norwich hospital	Dentist	Chemist	Post Office	Bank	Employment Exchange	Social security office	Local Authority – area office	Level 1	Level 2	Level 3	Library	Public House	Evening Classes
Groups	Work*			Shops				Health				Finance/admin.					Leisure					
Active males	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X
Active females (full-time)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Active females (part-time)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Inactive females				X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
The retired				X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X

*Worktrips to level 1, 2, 3 centres were considered separately for two work periods:0800–1700 and 0900–1730. The same three social groups were considered relevant in each case. Thus, for work, there were in all $3 \times 2 \times 3 = 18$ group/activity combinations of interest.

Fig. 2.

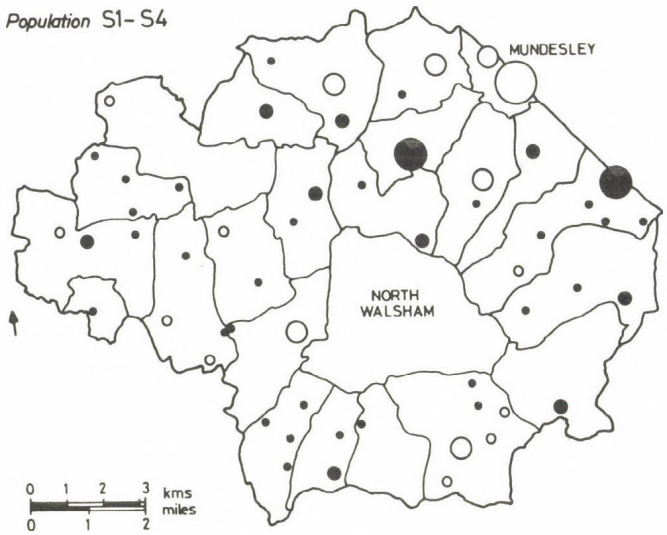


Fig. 3. North Walsham area: population distribution, S1 – S4

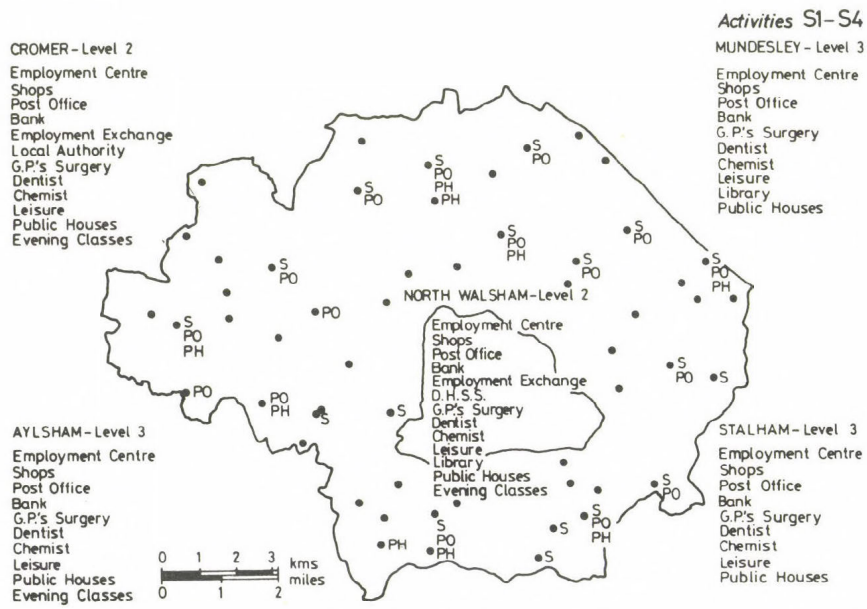


Fig. 4. North Walsham area: activities distribution S1–S4 (See Fig. 3. for key)

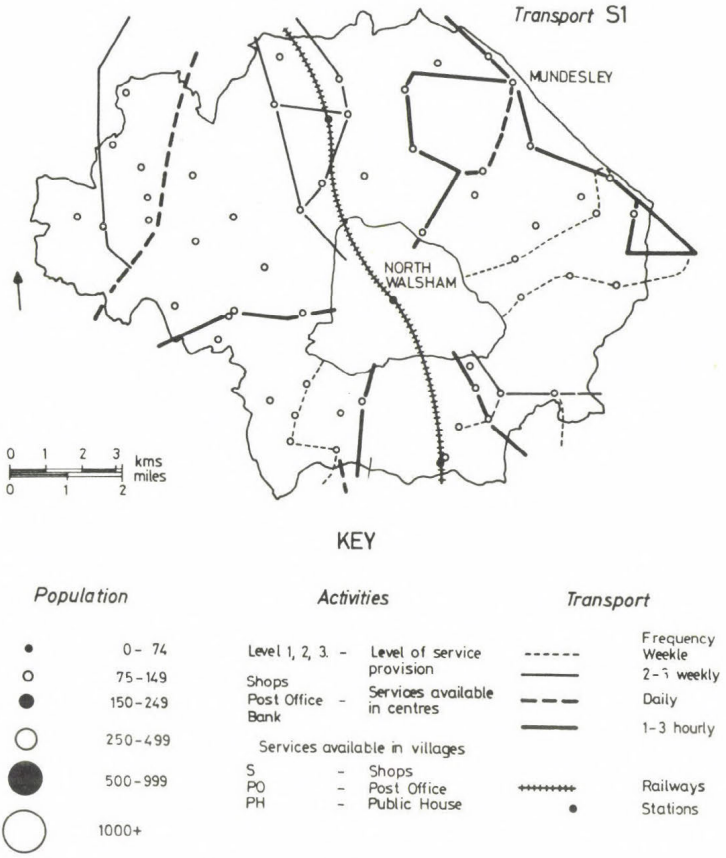


Fig. 5. North Walsham area: transport network, S1

terms of a worsening access situation. Much, but not all, of this is explained by varying levels of car availability.

One final point: the various accessibility analyses were tedious but not difficult to undertake. They rested upon careful scrutiny of real and hypothetical bus timetables, shop opening-hours, etc. given various pre-determined standards (relating for example to the frequency of the trip, acceptable journey time etc.). All of this work was done manually by two research assistants in a few weeks. To have computerized the 'search procedure' – for that is what it was – would have been an extremely difficult programming task, have been costly in computer time, and, perhaps most important, would have meant sacrificing the invaluable learning exercise which enabled us to build subsequent strategies upon lessons of those preceding.

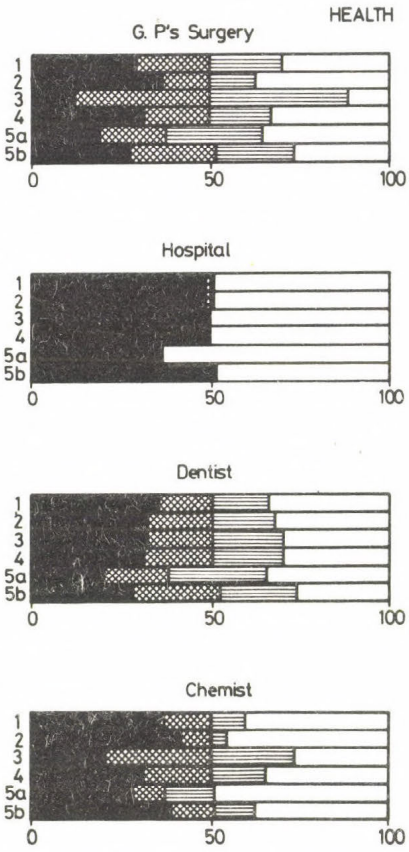


Fig. 6. North Walsham area: the six strategies compared in terms of the access they afford to health activities

CONCLUSION

Finally, it may be useful to set out a few of the conclusions that we reached for 'rural accessibility planning', whether or not they flowed from the particular exercise described above. Some relate to the nature of decision-making and implementation, some to the actual elements and strategies of policy.

1. There needs to be much closer co-ordination of agencies responsible for the location of people and of activities on the one hand, and for transport on the other. The task of 'transport co-ordination' should develop to become 'accessibility management'.

2. The planning of rural accessibility systems should be directed towards making substantial, rapid, and measured improvements to the welfare of the disadvantaged – notably, but not exclusively, the elderly.

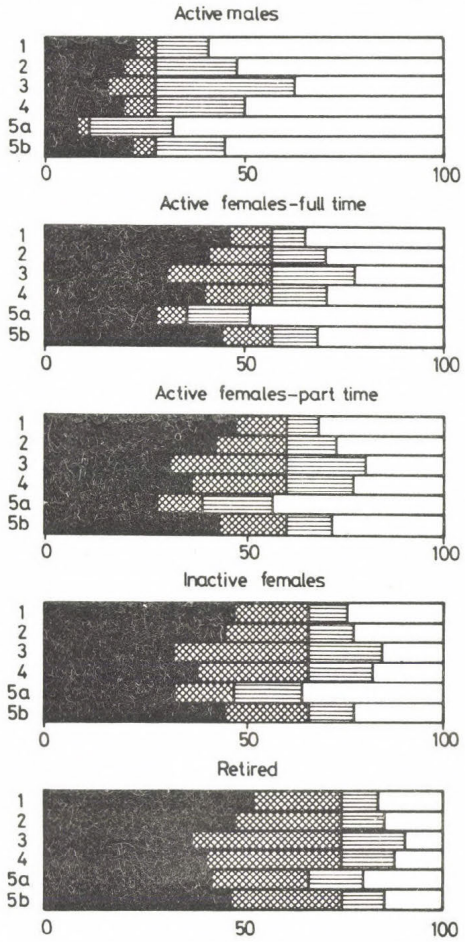


Fig. 7. North Walsham area: the six strategies compared in terms of the access they afford to different social groups

3. As a contribution to this, we proposed a rolling programme of 'accessibility reviews', looking at all the elements of accessibility, and as indicated in *Figure 8.* These would aim to pull together such resources as conventional buses, post vehicles, school buses etc. within relatively small geographical areas.

4. There should be a basic, subsidized, inter-small-town bus network of a quite high standard. The remoter areas should rely in part on policies other than conventional buses.

5. In the remoter areas, the state should employ 'rural community catalysts' whose job it would be to generate public involvement and inter-agency co-operation at a local level.

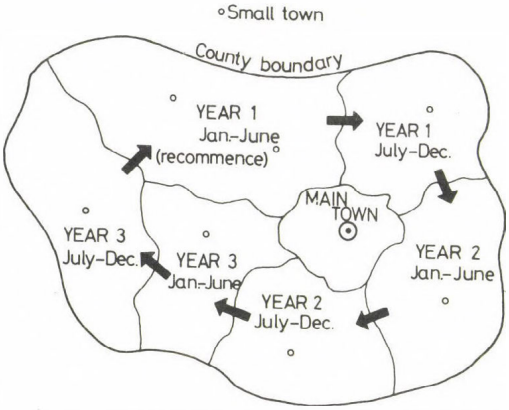


Fig. 8. A possible programme for area-wide accessibility planning

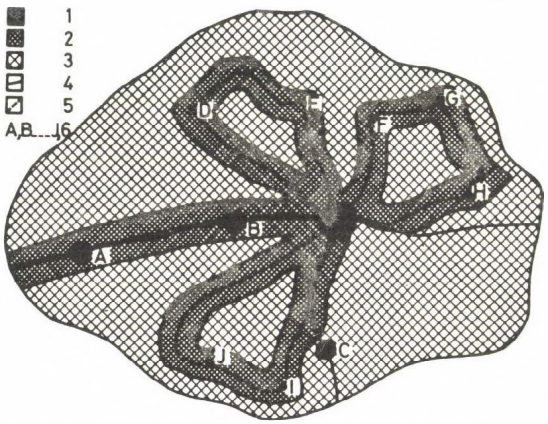


Fig. 9. A three-tier small area accessibility strategy

1 = high access zone; 2 = medium access zone; 3 = low access zone; 4 = limited stop inter urban routes; 5 = local network of rural routes; 6 = designate key villages

6. Often it will be necessary, and on balance, beneficial, to categorize honestly and explicitly "high, medium and low access" areas (see *Figure 9*). If this is done then there should be a package of policies designed to help the "low access areas" in ways other than the provision of conventional bus services or the local provision of all but the most basic fixed-location services. Such a package could include:

- the employment of rural community catalysts, as above
- the relaxation of route licensing so that anyone can experiment with new transport services
- a housing policy giving residents a real chance of moving to better-served places

- encouraging the Post Office Corporation to sacrifice the quality of their postal services so as to allow them to run attractive post-bus services
- having peripatetic services visit the areas, possibly clustering in certain places at certain times (e.g. a certain village green on Tuesday afternoons)
- allowing adult use of school transport where spare capacity exists and by pre-arrangement.

In short, the accessibility of rural residents can only be substantially improved, in a time of economic stringency, by making a reassessment of all of the resources of rural areas, and by planning their use so as to meet carefully specified social objectives.

REFERENCES

Hägerstrand, T. (1970): What about people in regional science? *Regional Science Association Papers,* 24, pp. 7–21.

Hägerstrand, T. (1973): The domain of human geography. *New Directions in Geography.* (ed. R. J. Chorley), Methuen, London.

Hägerstrand, T. (1974): Transport in the 1980–1990 Decade – The Impact of Transport on the Quality of Life. Paper given at the *5th International Symposium on the Theory and Practice of Transport Economics, Athens, October 1973.* Department of Geography, University of Lund, Sweden.

Moseley, M. J. *et al.* (1977): *Rural Transport and Accessibility.* Final Report to the Department of the Environment, published by Centre of East Anglian Studies, University of East Anglia, Norwich NR4 7TJ, in two volumes.

Volumes still available of the series

Studies in Geography in Hungary

PROBLEMS OF RELIEF PLANATION

Edited by *M. Pécsi*

151 pages · 49 figures · Cloth

THE CHANGING FACE OF THE GREAT HUNGARIAN PLAIN

Edited by *B.Sárfalvi*

183 pages · 37 figures · 34 tables · 24 maps in supplement · Cloth

MAN AND ENVIRONMENT

Edited by *M. Pécsi, F. Probáld*

245 pages · Numerous figures and tables Cloth

REGIONAL DEVELOPMENT AND PLANNING. British and Hungarian Case Studies

Edited by *P. A. Compton, M. Pécsi*

233 pages · Numerous figures and tables 3 supplements · Cloth

RURAL TRANSFORMATION IN HUNGARY

Edited by *Gy. Enyedi*

116 pages · Numerous figures and tables Cloth

ISBN 963 05 1025 1

URBAN DEVELOPMENT IN THE USA AND HUNGARY

Edited by *Gy. Enyedi*

311 pages · Numerous figures and tables Cloth

ISBN 963 05 1514 8

Distributors

KULTURA

H-1389 Budapest, P. O. B. 149

ISBN 963 05 1898 8