Mental Maps

Second Edition

Peter Gould and Rodney White

MENTAL MAPS

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SECOND EDITION

Peter Gould
and
Rodney White

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Still dedicated with affection and respect to
Halasz Bastya
for inspiration and understanding

Preface to the second edition

It is now nearly 15 years since *Mental maps* was written. In that time significant changes have occurred in the field of geography and in the world. In geography the enthusiasm for the quantitative revolution has quietened and become more subtle and reflective. The rate of innovation, particularly the application of statistics to spatial processes, is more measured and careful. We would be the first to admit that this is certainly a good thing, as many applications were developed in haste without proper respect for the implied assumptions. What remains of the 'revolution' is a much more careful commitment to *definition* and relationships, as well as a continuing concern for measurement and prediction, as hallmarks of the scientific method.

Changes in the world economy have created some pressure to produce a new edition. When we wrote the first drafts in 1969 and 1970 the world economy was expanding, and there was still some reason to believe that many of the developing countries were still developing. The worldwide recessions that have come and gone since the early 1970s now expose the context of our writing as being overly optimistic. However, the images that people hold of the components of their national space have changed more slowly than the economic reality. This lag effect has made all the more alarming the rate of rural-urban migration in those countries in which the economy is not even growing, let alone developing. This factor has made an understanding of the 'invisible landscapes' that people carry in their heads even more crucial. Indeed, some people concerned with predicting major migrational trends have noted that these images may well provide the best predictors of all. If the economic signals that are being transmitted from overcrowded cities—repositories of a growing number of unemployed in the Third World—are being filtered out by people's preconceptions, then the problem is serious indeed.

We are grateful for the many comments we received from colleagues and others who read the first edition. Criticism focused on the viability of the ranking of spatial preferences and the representativeness of the samples of respondents. Clarification of these and other points is included in this edition. The passage of time has made a detailed introduction to principal components analysis less necessary. Accordingly, the second chapter of the first edition has been shortened and placed in an appendix.

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> We link together our various perceptual spaces whose contents vary from person to person and from time to time, as parts of one public spacio-temporal order….
>
> D.Hawkins, *The language of nature*

WHERE WOULD YOU REALLY LIKE TO LIVE?

Suppose you were suddenly given the chance to choose where you would like to live—an entirely free choice that you could make quite independently of the usual constraints of income or job availability. Where would you choose to go? Probably, if you really *had* to make such a choice, you would be assailed by images of faraway places, of different climates and different landscapes, and by your personal feelings towards cultures other than your own. You would also become very sensitive to the affection of old friends, and the familiarity of your present surroundings. You would be aware of the pull between 'here' and 'there' as places in which to live. The one offers the known and valued, the other offers the unknown, the exciting and an escape from the shortcomings of your present environment.

Differences between the attributes of 'here' and 'there' have always been of great interest to human geographers, because it is precisely the differences between places that generate movements of goods, people and information. Such movements produce the traffic jams in cities, crowds on summertime beaches, vast flows of letters and electronic messages, and the great networks of pipelines that criss-cross nation after nation. To analyse such complex patterns produced by man on the surface of the Earth, geographers are increasingly looking at questions of *relative* location—questions which consider places not in any

absolute, old-fashioned, latitude and longitude sense, but in terms of their costs and times to all other places with which they might exchange goods, money, people and messages. We would like to make these varied patterns more efficient and increasingly satisfying to people that use them, or are affected directly or indirectly by them in many ways. The fact that we cannot satisfy all our demands in one place is the root cause of these gigantic and varied patterns of exchange. In the geographer's language these patterns are known as *spatial interaction*.

Our choice of a residence is one attempt to reduce the amount of travelling we must do, and to minimise the movements of goods,information and people that must occur to satisfy our wants. The choice is quite a complex one as it is very unlikely that we can choose a place where we can satisfy all our demands completely. For example, if we are choosing a home in an urban area we might wish to be very close to work, but few of us would choose to live over the shop or right next to the factory. In fact, suburbanisation is a deliberate attempt to put some distance between the home and the congestion of the urban core and industrial areas. Again, many families like to live fairly close to their children's schools, but few would volunteer to live within earshot of the playground. 'Near, but not too near' is an interesting example of a spatial decision which is indicative of the nature of a whole range of problems to which geographers and other spatial analysts have turned.

If we were given a completely free choice of where to live, not just around a given city, but anywhere in the country, or perhaps in the world, the problem might become too much for an individual to handle. Certainly it would severely test the normal amicable agreements of most families. In actual fact, most residential choices are highly constrained by the realities of the world around us. Financial constraints, limited job opportunities, family obligations, children's schooling, language barriers, immigration laws and sheer personal inertia generally reduce the problem to a manageable level.

However, the world is becoming increasingly mobile. In the United States the average family moves every three years. In poor countries the rate of rural-to-urban migration has reached an alarming level, while the educated members of such societies look upon foreign travel as an essential experience. In a country like Britain, many young people are looking far from their local areas for their first job or for a university; and many of the unemployed migrate to escape regional economic decline. The growth in the size of companies with branch plants has forced many people to consider new appointments in different areas. Large groups of immigrants arrive in the country (some highly skilled,

some with no skills) and they have few preconceived ideas of the qualities of different cities and regions. The wealthy among the retired, or those in chronic ill-health, may move to the countryside, to the south coast, or live abroad once they are really free to choose.

Rural-to-urban migration, regional drifts to escape unemployment, international movements—whether of the Brain Drain type or of unskilled labour—are subjects of common interest to the whole range of social scientists. Geographers are especially concerned with the effect of *distance* on movement—that is the effect of the *location* of an individual *relative* to his proposed destination. In addition, modern geographical studies of *environmental perception* look at the ways in which people form images of other places, and how these images influence many decisions—including the one to move. For example, a positive image may reduce the effect of distance-just as you will travel further to visit a good friend than you will to visit a more casual acquaintance. In these situations the ideas of social proximity and physical distance interact to produce a particular response, be it a journey, a letter, or a phone call.

As geographers, we are particularly interested in the way that the perceived differences between various parts of the Earth's surface affect movements of many different kinds. We shall look at a series of studies in which research workers have tried to assess the ways in which people build up images of other places. From the geographical point of view we are most interested in the way in which distance between the person and the place affects the manner of construction and the final product of this image-building process. We will also make some suggestions as to how such images might affect migration and other forms of spatial behaviour, though subsequent work will have to clarify and test the complex nature of these relationships. Our basic strategy is to put people in a fairly free hypothetical situation where they are asked to rank their order of preference for a series of places in terms of residential desirability. From maps of their 'space preferences' we attempt to explain the ways in which 'mental maps' are related to the characteristics of the real world.

Suppose you consider some of these questions in personal terms. Where would you like to live? And how do you deal with this question? What kind of sorting, evaluating and discarding process goes on in your mind as you begin to weigh up and compare all the places you know and have heard about? Many people, especially children, start thinking about holiday areas, for in their minds these are often associated with pleasant times in places deliberately chosen to be relaxed and different.

Sometimes these vacation areas are chosen as permanent places of residence, and in nearly every country in times of economic expansion we have seen a swelling migration to the sun and sea. People on the point of retirement often face the real question, as opposed to one that is hypothetical for many of us, and move to sunny Devon and Cornwall in England. In the United States the locational loadstones are Florida, California, Arizona and New Mexico, and many other countries have their retirement areas. In Europe, Spain and Portugal are drawing large numbers of retired foreigners, seeking warmth for creaking bones and a clear atmosphere for old lungs.

On the other hand, it may be that vacation spots are not for us all the year around. Moving to new places means losing old friends, and facing the uncertainty of making new ones. For families with children this may be particularly uncomfortable and worrying. We know a great deal about the places we live in now, and few of us deliberately increase our level of uncertainty unless the rewards look quite high. Some, of course, are footloose and fancy-free, and choosing a new place to live in poses few worries. Others are more hesitant, and find that they are really very happy in familiar and comfortable surroundings.

THE NATURE OF DIFFERENT PLACES

As we begin to evaluate places in terms of their residential desirability, we may consider a number of very different aspects about them. In the first place, the amount and type of information we have about different localities will vary considerably. Some places we know from first-hand experience, and our information is direct and immediate. Other places are little more than names, and if pressed we would find it difficult to say much about them at all. Even our sources of information are extremely varied. While we acquire some through personal travel, we also form mental images of places with the information we get from reading, radio, television, talking to other people and even from travel posters in railway stations and airports.

The local scenery is certainly one thing many of us weigh in the balance. A flat, drab landscape rimmed by a horizon of chimneys belching smoke is less likely to appeal to most of us than an area of rolling hills or even majestic mountains. Certainly the split between rural and urban scenery is something nearly everyone considers in an evaluation of this sort. Some people are definitely town-dwellers, and enjoy the sense of bustle and exchange that is always present in large towns and cities. Many who have lived and grown up in cities feel quite

lost when transplanted to the countryside, and they long to get back to the noise and services that large urban areas provide. But there are others who dislike cities intensely, and who would do almost anything to keep out of them. For them no amount of urban variety can possibly compensate for the noise, stench and general frenetic pace that seems to characterise these intense nodes of human activity. When you were a child, perhaps you read Beatrix Potter's *The Tale of Johnny Town Mouse,* that delightful juxtaposition of the suave and knowledgeable city mouse and his simple country cousin, Willie. After an exchange of visits, both decide that their own landscape is infinitely preferable to the other's, and there are many people who feel exactly the same way.

But scenery is obviously not the only aspect of a place that we consider as we weigh up our own feelings about living there. Climate enters our evaluation too, and we have already noted the value that many people place upon an equable temperature and sunshine. In fact, for some people certain types of climate are absolutely essential for their comfort, health and even survival. Advanced countries like Denmark provide chronic bronchial patients with a respite in the sun of the Canary Islands during the long damp winter months; in the USA,states such as Arizona and New Mexico are seasonal havens for rich people who suffer from asthma and respiratory troubles in colder northern areas. Of course, to some extent we can and do modify climate by heating our houses and buildings in winter, and by cooling them in summer. Enormous quantities of coal, gas and oil are expended every year on climate modification through household heating and cooling, and the energy requirements of a city like New York in summer can put such a strain on electrical generating capacity that 'brown-outs' and breakdowns occur with ever greater frequency. Until the 1950s, Washington DC was considered a climatic hell-hole in the summer for members of the British Diplomatic Corps, but today air conditioning is a substitute for personal hardship allowances.

Landscape and climate are not the only considerations as we think about places in terms of where we would like to live. Some countries contain areas of great cultural and linguistic variety, and, consciously or unconsciously, people tend to stay where the language is familiar and cultural reactions are predictable. Many French-Canadians, for example, do not like living outside Quebec, and often families will try to move back when their children reach school age. Many Scots prefer to educate their children in the Scottish school and university system, which they feel has a much more distinguished reputation than that south of the border. In some countries, such as Britain and the USA,

local authorities may control education, and the quality of schooling varies markedly from one place to another. The quality of the local schools is nearly always one of the major concerns of families with young children as they think about moving to a new place. More sensible countries, like Sweden and Switzerland, do their utmost to ensure equality of educational opportunity, and while there are some differences between urban and rural areas these are generally much less important than in Britain and the USA. Political attitudes may also vary and colour people's evaluations of places. Few New Englanders want to live in Alabama and Mississippi because they still believe that immoral and archaic attitudes to race are expressed in political decisions at both the State, and, particularly, the local level. Similarly, some cities in the USA have a reputation for political and social corruption that shapes the mental images that people have of them.

Scenery and climate, cultural and educational diversity, and the variation in political and social attitudes do not exhaust the list of things we might consider as we weigh up the pros and cons of places. If many people wrote down everything they consider in an evaluation, we would undoubtedly have a long list of many minor aspects that could be considered. But there would probably be one thing that would not appear explicitly on many lists, although some people unconsciously consider it as they judge the desirability of places. This is the factor of relative location, or *accessibility* that we mentioned earlier. It is one of those common concepts that are apparently obvious and easy to understand, until we actually try to pin them down and measure them.

RELATIVE ACCESSIBILITY AND POPULATION POTENTIAL

Relative accessibility, the 'getatableness' of a place in relation to others, is a property of a particular location that may well enter our evaluation of its residential attractiveness. Geographers have tried to measure accessibility in a variety of ways, and have had to face the question: accessible to what? Our concern here is not accessibility to natural resources or things like that, but accessibility to other people and the services they can and do provide. One easy way of measuring this slippery notion is simply to lay down a circle with a certain radius, say 30 kilometres, upon a population dot map, and then record at the centre of the circle the number of people captured within that distance. If we centre our circle on hundreds of locations over the map, we can use these values of people captured as 'spot heights' to draw a contour map

whose surface shows that variation in accessibility, measured in terms of the number of people who can be reached within 30 kilometres at each point. This is a little crude, however, and geographers have devised a somewhat better measure. The measure takes into account *all* the people in the country, rather than just those within an arbitrary distance, but discounts the contributions of those who are far away from the point on the map whose relative accessibility is being evaluated. This overall measure is called the *population potential* of a place.

As a very simple example, suppose that each person on the island of Ghageria Leone is represented by a dot on the map (Fig. 1.1a), and we want to calculate our measure of accessibility, or population potential, at place A in the middle of the island. People close to A should contribute heavily to our access measure, while those far away should be weighted less. One way of discounting access to a population with distance is simply to count up the number of people in a series of rings drawn around the location, and then divide these totals by the number of kilometres away. For example, in the first ring there are four people, so we divide this value by one. In the next ring there are seven people, so we divide this amount by two. If we do this for each ring, and add all the values together, we find that the population potential at A is 17.65. On the other hand at B, near the coast of Ghageria Leone (Fig. 1.1b), the population potential is only 11.92. According to our simple measure, Place A has more overall accessibility than B. Notice how these values depend both upon the way the people are distributed, and the distance they are away from the point whose population potential is being measured. Although geographers have devised more realistic and complicated measures of access, by weighting different populations and discounting their contribution with complex measures of distance, time and cost, the basic principle underlying the most difficult measures is the same as the one we have used here.

Of course, when people consider a particular place in terms of its overall access, they do not start cranking through a lot of tedious arithmetic to calculate precise measures. Most people have a fairly strong intuitive feel for the core of a country and its more peripheral areas. Many like to be close to ‘the centre of things’, and this means in an area with high population potential. In Britain (Fig. 1.2), for example, values have been calculated by computer for 90 locations all over the country, and these have been used as control points, or spot heights, to produce a smooth surface of population potential. Notice that the intervals between the contour lines are geometric, rather than even

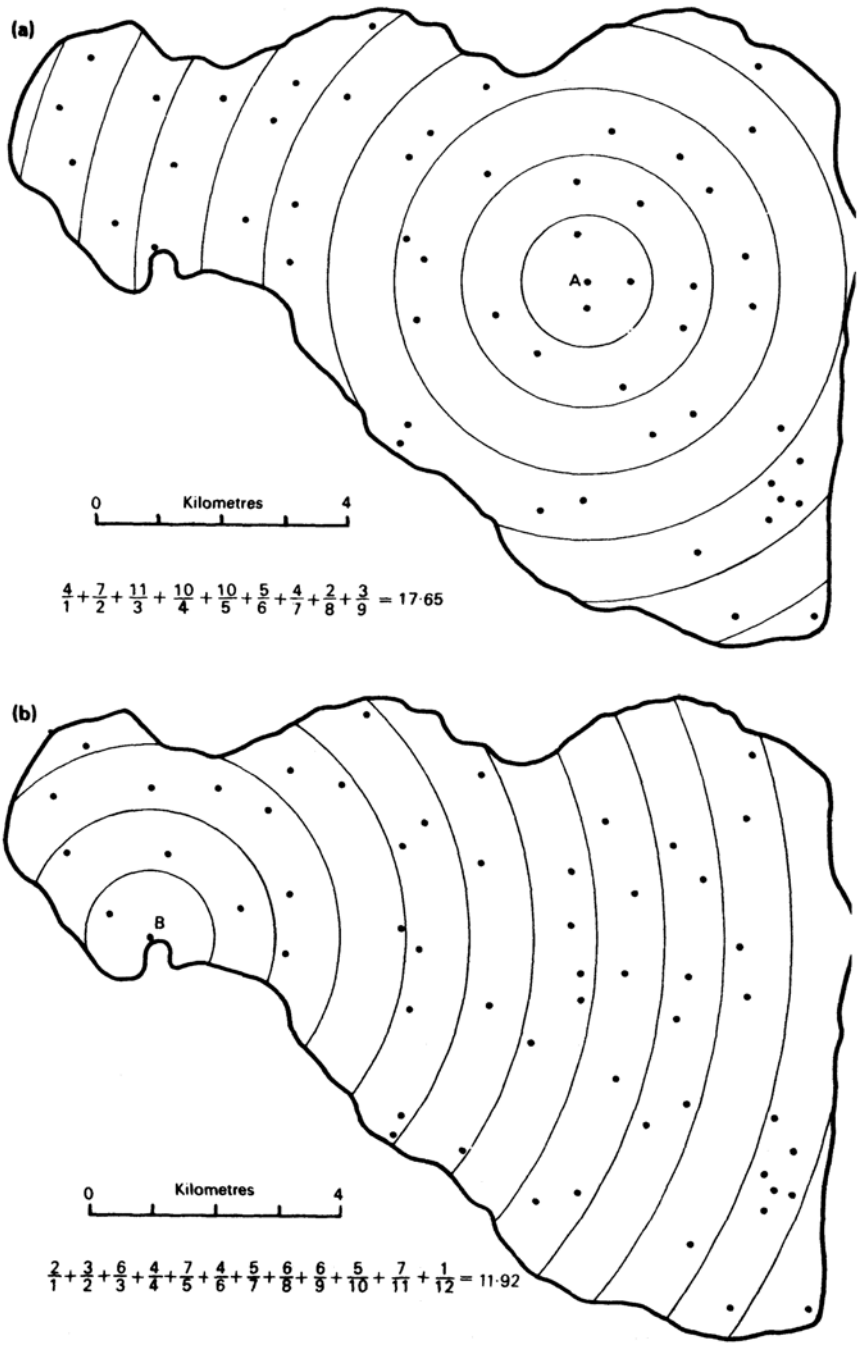

Figure 1.1 (a) Measuring the population potential at an interior point (A) in Ghageria Leone, (b) The population potential at a coastal point B.