

A CYBERNETIC PERSPECTIVE on POLICY-MAKING and PLANNING in

LOCAL GOVERNMENT

by

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ABSTRACT

This thesis explores some of the central problems confronting policy-makers and planners in local government. These problems are seen to stem from a view of planning which is characterised as top-down. Previous attempts to apply cybernetic ideas to these problems - characterised as the 'systems approach' - have failed partly on account of their failure to question this view.

Cybernetics, it is argued, offers a fundamentally different perspective on planning, which emphasises the importance of processes, whereby the plans and policies of different organisations are mutually adjusted to each other - from the bottom up. The dynamics of this process are examined and cybernetics, most notably the work of Ashby, is shown to offer a number of insights into how it can be facilitated.

Such a radical re-assessment of the nature of planning requires, at the same time, a much wider conception of the role of policy. Policies, it is suggested, are all too often thought of as purely prescriptive. A policy framework must instead be regarded as incorporating also a complex hierarchy of values, aims, goals and objectives, whose inter-relationships can be compared to that between the various components of a body of scientific knowledge.

Such a perspective on planning and policy-making points towards a novel conception of government. Instead of imposing order from above, its primary function would become that of facilitating and encouraging the mutual adjustment process and collaboration between local organisations.

(ii)

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INTRODUCTION

A Cybernetic Perspective

This thesis represents an attempt to look at policy-making and planning in local government from a cybernetic perspective. Just what does this mean? The question might be answered by saying that cybernetic ideas have been applied to the problems encountered by those engaged in these two activities. Given a list of the cybernetic ideas this would undoubtedly provide some insight into what the thesis is about and, in fact, several key cybernetic concepts - though by no means all - are discussed at some length in Chapter 2.

The answer though begs several questions. In particular, the meaning of the terms 'apply' and 'problems' is not at all clear in this context. It might be more accurate to say that cybernetics has been used to identify and describe current issues of concern in regard to policy-making and planning in local government which are 'cybernetically interesting'. This actually reflects more adequately the nature of the thesis but further elucidation is still required.

It is therefore perhaps more helpful to go back to 'first principles' and try to encapsulate the subject matter of cybernetics. Cybernetics, it might be argued, is essentially concerned with how systems behave and, more especially, with how their behaviour can be influenced. One might add that it is

concerned equally with the behaviour of natural and man-made systems and with gaining insights into how control is achieved in the former with a view to utilising these insights in designing ways of controlling the latter. Certainly this latter aspect features large in the history and achievements of cybernetics, although it does not form a significant part of this thesis.

Although such a definition also begs several questions - such as what is meant by 'system' - it does reflect quite well the first part of the thesis. Thus Chapter 4 discusses the system that planners in local government are concerned with, its behaviour and the ways in which the planners seek to influence this behaviour.

The Case Studies

At this point it would perhaps be helpful to say a few words about the use of what might be called 'case studies' in the thesis. The exploration of the local government planning system in Chapter 4 is initially couched in very general terms but, in order to progress beyond a certain point, it becomes necessary to root the discussion in a real-life situation. Thus, planning in one English county, East Sussex, becomes the focus of the investigation. This focus is adopted for a number of reasons.

To begin with, as far as is known, it has not been done before. Previous attempts to apply cybernetic ideas to planning (discussed in some detail in Chapter 1) have been couched in very general and

abstract terms, with a view to advocating a completely new, cybernetic, or 'systems' approach to planning. This may well have been partly responsible for their failure to have any lasting impact. (A less ambitious attempt to apply an 'operational research' approach to local government, which was based on a very thorough and detailed study of one local authority (FRIEND & JESSOP,1969), was very much more fruitful and successful.)

It might, on the other hand, be argued that by grounding the discussion in the experiences of one area and one local authority, the thesis risks becoming too parochial and that its findings will lack any general applicability. This is not the case however and all of the problems discussed have been observed in other areas, so that East Sussex is being used to illustrate and explore problems and issues of widespread concern. In order to strengthen this assertion a number of references are in fact made to the experiences of other authorities.

Top-down and Bottom-up Planning

Thus for example, the detailed examination (in Chapter 5) of the difficulties of controlling the growth in population in East Sussex, has very close parallels in every area of the country and, for that matter, in countries overseas. These and other problems of imposing order from the top down, lead to a view of planning as being more usefully conceived of as an inter-organisational process. In such a process, which is examined at some length in

Chapter 6, the policies of many organisations - such as local authorities, public utilities and government agencies - are mutually adjusted to each other from the bottom up, so to speak.

This process can usefully be compared with the way in which a famous cybernetic mechanism - Ashby's homeostat - behaves. In this way, considerable insight is provided into the dynamics of the mutual adjustment process and into ways of facilitating it.

Values, Aims, Goals and Objectives

Prevailing approaches to planning are hampered not only by too great an emphasis on imposing order from the top down, but also by a widespread confusion regarding the nature of policy and the meaning of such terms as 'values' and 'aims'. In Chapter 7, the thesis begins to explore some of these issues in the context of local authority planning. Then, in order to progress further, it drops down several tiers in the hierarchy of local government and examines the role of policy in the context of a single social service facility, the Westminster Work Centre.

Thus, in Chapter 8, the various forms that policy can take are examined in turn and, in particular, the role of its aims, its goals and objectives. The way in which these are inter-related, it is argued, is an absolutely key cybernetic question and one that the thesis attempts to resolve. It is suggested that in many respects, a policy framework is similar to a body of

scientific knowledge, with its various components of observations, theories, hypotheses and so on. Such a comparison is especially useful when considering (as in Chapter 9) how the policy framework of the Work Centre may evolve in such a way that it becomes better matched to the environment of the Centre and, furthermore, can adapt to changes in that environment.

The Nature of Government

In drawing together these various themes, the thesis (in Chapter 11) arrives at a novel conception of the role of government. If the futility of much top-down planning comes to be recognised, government, it is suggested, can usefully be regarded as having a primary role in facilitating and encouraging the process of mutual adjustment and of collaboration between local agencies. Such a conception has tremendous significance for the impact that computers and other forms of new information technology may have on policy-making and planning. At present, many see them as strengthening the power of the centre and making possible the kind of tight control that communist countries have attempted, so far with only limited success, to impose on their economies and people.

The new technology could however contribute equally, if not more, to facilitating the mutual adjustment process. Used in this way, computers might instead be seen as making possible a more decentralised and more participative form of government.

The Need for Further Research

Clearly much more work needs to be done before such a vision can be realised. In particular, such work needs to draw upon a wider range of cybernetic ideas than has been possible in this thesis. As will be seen in Chapter 2, this thesis leans heavily on the work of Ashby and the particular strand of cybernetic thinking he has inspired. Other contributions - such as those of Forrester and Vickers - have been drawn on - and are discussed in Chapter 3, but cybernetics is an immensely fertile area. The field of artificial intelligence provides but one example of an area in which a tremendous amount of extremely relevant work has been done but which remains almost untapped in relation to local government.

Whatever happens, it will be essential to avoid the dangers of basing a more cybernetic approach to planning and policy-making on too narrow and limited a range of cybernetic ideas. These dangers are all too evident in the history of the 'systems approach' to planning and it is with this experience and a discussion of that can be learnt from it, that this thesis begins.

CHAPTER 1

THE SYSTEMS APPROACH TO PLANNING

In the late sixties and early seventies, the attention of local authority planners was drawn towards something which came to be known as the 'systems approach'. A number of articles were written about it and two books appeared (MCCLOUGHLIN, 1969 and CHADWICK, 1971), which were greeted as heralding a new era in local government planning. Subsequently central government advised local authorities to follow an approach that was, in many respects, similar to the approach advocated by these two writers, when preparing their land-use, or 'structure', plans (DEPARTMENT OF THE ENVIRONMENT, 1974).

Following the widespread application of the systems approach, many planners have become disillusioned with it and other approaches, which place more emphasis on the political and sociological aspects of planning, have become more fashionable. It is, nonetheless, evident that the adoption of a 'systems approach' did represent a major advance and that a good deal can be learnt from what happened. Furthermore, this thesis will be seeking to build upon this earlier work, rather than to offer yet another, completely different, approach. One of the reasons the 'systems approach' failed to achieve as much as its most enthusiastic proponents had promised, was that it was something of a hybrid, with cybernetic and systems ideas being grafted onto other ideas

that were, in cybernetic terms, naive and unsophisticated.

It will be helpful to begin by examining an idea that is not only central to cybernetics but which was recognised as crucial in relation to planning by one of the foremost advocates of a 'systems approach' to planning (MCCLOUGHLIN, 1969).

Systemic Change

Systemic change is a term used to describe a process in which the actions of an individual, or an organisation, can have far reaching effects on the actions of other individuals, or organisations and can, in some instances, come full circle and affect the actions of the individual, or organisation, that initiated the process of change.

Consider, for example, the problems of Mr Smith, the proprietor of a small clothing manufacturing firm, Withit Weatherwear Ltd (this example is taken from MCCLOUGHLIN, 1969). Mr Smith is finding it increasingly difficult to recruit and retain his workers and realises eventually this is due to local authority housing clearance and redevelopment at lower densities. This has resulted in there being fewer women - who form the bulk of his workforce - available to work in the factory. Higher rents have also meant that they are seeking better pay than he can offer. So, he moves to new premises in two adjoining terrace houses. Mrs Brown, who lives next door, has been thinking of moving out of the area and

the arrival of a factory next door causes her, and her son and daughter-in-law, to look round seriously for new accommodation. Eventually, they find a bungalow in the suburbs. The young Mrs Brown is a keen tennis player and, like many others moving into the area, she applies to join the tennis club. The influx of new members causes problems for the small club with its limited facilities.... And so on.

Advocates of the 'systems approach' point out that this kind of chain reaction is extremely common in human societies and becomes even more so as people and organisations become more and more dependent on one another. They further argue that the main task of planning is to guide and control such systemic change.

The Role of Plans

So far, so good, but difficulties begin to emerge when the detailed nature of planning and the ways of guiding and controlling change come to be considered. It is suggested, for instance, that 'effective control must be based on understanding and is often gained through learning by experiment' (MCCLOUGHLIN,1969). Now this is clearly not so. Many people drive and control motor cars, of whose inner functioning they have only a very vague notion. Similarly, in the case of central heating systems, it is evident that many people manage to control these, in spite of being woefully ignorant of the processes of convection. Furthermore, the control of processes, which are not

understood and which are 'black boxes' as far as the would-be controller is concerned, is a central theme in cybernetics. One can, though, concede that control is made easier, and possibly more effective, by greater understanding and it is more the way in which this understanding is to be gained that is at issue.

If one wishes to understand, say the processes of urban growth or decay, and one is unable to experiment directly with these processes, then it is necessary to learn about them and experiment on them by means of models that simulate these processes. Or so it is argued by the advocates of the 'systems approach', who claim that 'it is not always possible to experiment with the actual situation ... we have to simulate the situation as best as we can and carry out our experiments and learn to know the system's responses by way of analogies or models of the real thing' (MCLOUGHLIN,1969). Thus, excited by the possibilities offered by larger and larger and increasingly powerful computers, planners - in the late sixties and early seventies - began building complex models of urban systems, requiring vast amounts of data. The data was needed both to quantify the basic parameters of the model and to 'calibrate' them against reality. Huge amounts of money were expended - both here and in America - with all too little evidence of substantial benefits to anyone other than the model-builders (LEE,1973).

This development ignored two factors. It ignored the possibility that scientists - most notably astronomers - do in fact learn a great deal about systems simply by observing them. Science does not rely entirely on experiments (the fallacy that science and

experiments are virtually synonymous is one that has pervaded much of the social sciences). Ordinary human beings, including the advocates of the 'systems approach', learn a tremendous amount from experience - often of a very unstructured and ambiguous kind. Secondly, planners, unlike astronomers and some social scientists, can intervene in the system they wish to control, so that much can be learnt from analysing carefully the outcomes of such interventions, however limited.

Perhaps the most unfortunate conclusion that emerges from this misconception of the way in which urban processes can be understood concerns the actual nature of the plans that draw upon this understanding. Plans, it is suggested, are to provide the basis for exercising control over the urban system and therefore must express, in precise terms, the way in which change in the urban system should take place and the rate of that change. In other words, planners should chart out a course for the urban system to follow.

Plan Preparation

Leaving on one side, for the moment, the question of whether this view of planning is either appropriate or practical, there remains the key issue of determining what course of development is to be selected, or in other words, how the city is to evolve. The answer provided by the 'systems approach' is essentially a very simple one. It is to evaluate, over the period of time covered

by the plan, each of the states that the city passes through and select that course which results in the 'best' set of states. The problem of conflicts arising from one course offering a better state in the near future and a worse one in the more distant future, is ignored but more important is the approach taken to evaluate the state of the city at any one time.

This is to assess to what extent a large number of objectives, that have been formulated prior to examining the various possible courses of development, are achieved in each case. These objectives are derived from more general goals. For example, the goal might be providing the most convenient pattern of major shopping centres for people in the area. An objective, against which a plan might be evaluated, would then be 'minimising the total amount of personal travel involved in reaching major shopping centres'.

But how are these goals arrived at? Where do they come from? Many of them are things which most people would regard as 'good' but others, such as the re-distribution of income amongst a population, might be more controversial. More significant still is the need to assign priorities to goals. How is the improvement of the shopping centre pattern to be rated against, say, better transport facilities for commuters. The answer, it is often suggested, is to refer these kinds of questions to the politicians but this is too facile a solution.

Plan Implementation

Such a view of plans leads naturally to a clear conception of what is required to implement such plans. All that is required is that the city shall follow the course which the plan has charted. The control processes involved are said to be those occurring in such simple devices as thermostats, that is 'error-controlled regulation'. The planner is pictured as a helmsman steering the city. His attention focuses on the plan - the charted course and the future states through which the city should pass - and on the observations which indicate its actual state. In order to steer, he has two main controls. One is his influence over public investment, development and policy and the other can be visualised as a switch marked 'on/off' or 'yes/no' by which he releases or blocks private proposals for change.

It is recognised that serious deviations from the charted course and the discovery that major interventions are necessary might well indicate the need for a review of the plan, because its aims and assumptions may be due for overhaul. But under just what circumstances a review might be necessary, and why this should imply the need to overhaul the aims and assumptions of the plan, is not at all clear.

Having identified planning as essentially a steering function, several advocates of the 'systems approach' attempt to show how cybernetics can be applied to improve its effectiveness. They point out that all highly complex systems achieve equilibrium or internal stability in two ways. The first of these is 'the

organisation of the internal relations between parts interacting through their connections'. (Just what is meant by this is not explained in any detail.) A second way depends upon their capacity to anticipate and absorb any disturbances in their environment. Surprisingly however the role of homeostatic mechanisms in an urban system and how planning or policy-making might contribute to the achievement of homeostasis, is not discussed.

Like many other would-be appliers of cybernetics, the advocates of the 'systems approach' quote approvingly Ashby's 'Law of Requisite Variety', to the effect that the 'variety' in any control device must be at least equal to that of the disturbances. It is suggested that, at present, planners achieve this by 'ad hoc' control involving a continuous torrent of development decisions, appeal decisions, building inspectors' reports, Registrar General's mid-year estimates, Board of Trade returns, and so on. Both McLoughlin and Chadwick cite, with approval, Beer's colourful and evocative description of such attempts as trying to 'enumerate the proliferating variety of the world situations' (BEER,1966) and his view that they are doomed to failure. They also go on to argue with Beer that the answer lies in 'a model of the real world in which variety is reduced but in such a way that it can be regenerated later on' (BEER,1966). Discrepancies between the model's prediction and what actually happens are then 'fed back to the model's structural and parametric design elements (so that) its predictive powers are being amplified by a learning process' (MCCLOUGHLIN,1969). The way in which variety is being 'regenerated' and the model's predictive powers are amplified, and

the 'black box' comparator, which plays such a central role in Beer's formulation, are only mentioned in a brief footnote.

Criticisms of the Systems Approach

Although the 'systems approach' was greeted initially with enthusiasm by large sections of the planning profession, its weaknesses did not go entirely without notice. In particular, its treatment of goals and the part they played in planning, was criticised by a number of writers. They rejected the notion that goals should be regarded as an input to the planning process and stressed, instead, that 'planning is concerned with the setting of goals as well as the pursuance of goals ... the function of systems planning (is) to uncover and co-ordinate the desires of the system's components - the power structure of systems is probably the most important single factor for any planner to consider' (SILVESTER, 1973).

A related criticism was that the approach failed to grapple with - or even to recognise - the existence of conflict. Instead, it implicitly assumed a societal consensus on what the goals of planning should be. A number of critics see the 'systems approach' as having followed in the tradition of a good deal of earlier sociological writing which emphasised consensus and stability over conflict and change. Thus Drake writes that 'the "systems approach" defines society as a system ... following Parsonian sociology ... (and) does not take adequate account of

social conflict and change ... (It) imposes an artificial definition on social reality of consensus or limited conflict, and of a system where each part can function to the mutual benefit of each other' (DRAKE,1976). While there may be some truth in this, one's faith in the writer's understanding of the thinking behind the 'systems approach' is somewhat undermined when she goes on to give, as an example, the Chilean experiment. 'The lesson of Chile is that Stafford Beer's system of government did not take enough account of politics and conflict, so that it was eventually overthrown' (DRAKE,1976). The implication here might be that the CIA possess a superior planning methodology! Nonetheless, Drake does manage to put her finger on one of the major weaknesses of the 'systems approach', at least as described by McLoughlin and others. Planners, she points out 'are in the position of "piggy in the middle" between the values and goals of different social groups. The difficulty then is to allocate priority to different goals and to understand the value system of different groups involved in the decision-making process. Systems theory does not set out to do this' (DRAKE,1976).

When considering criticisms of the approach it is however essential to distinguish between those which apply to those aspects where cybernetic thinking - albeit of a limited kind - has undoubtedly been influential and those aspects which derive from earlier 'pre-cybernetic' approaches. Of these, one in particular could be said to be of especial importance. This is what has been termed the 'Rational Choice' approach. In fact, it could be argued that the 'systems approach' is really no more than the 'Rational Choice' approach, dressed up in modern clothes.

At the heart of this approach is the belief that in order to qualify as rational, actions and choices must be taken with an explicit aim in view. They must be directed towards that aim, or goal. An action is, in other words, rational to the extent that this aim is pursued consciously and consistently and means - or objectives - are selected according to this end. This, it has been suggested, implies that only if we possess, in effect, a 'blueprint' for the state of society that is sought, can a plan for rational action be drawn up. This belief has been analysed and extensively criticised by Popper (POPPER,1945). He characterises it as 'Utopianism'. Not only is such a view misguided, according to Popper, it is also a direct threat to a more 'open' society. Popper regards Plato, with his belief in absolute and unchanging ideals, as being responsible for the persistence of this view of the world. He sees it, furthermore, as having led to the philosophy of Hegel, which in turn was an important source of many of Marx's ideas, which he labels as 'historicism' and as being an especially dangerous threat to the open society he wishes to protect. He goes on to argue that 'Utopianism' can work only if it is implemented by a strong, centralised rule. Furthermore, it leads, he says, to calls for the radical reconstruction of society as a whole and for sweeping changes whose practical consequences are hard to foresee or determine, given the limited experience on which such calculations must perforce be based.

Critics of such an approach also draw attention to the problems to be encountered if an attempt is made to grapple with and to

resolve the inevitable conflicts between the different value judgements that bear upon a choice. For example, if the choice concerned the design of a new road, the question of what kind of use it should cater for arises. Should it be built primarily for goods vehicles, for inter-city travellers or for commuters? This in turn raises questions of whether commuting should be encouraged, what to do about the congestion, traffic deaths, social mobility and so on. Choices about which neighbourhood the road must run through raise equally difficult issues.

The 'systems approach' is also regarded as having mistakenly espoused the cause of seeking comprehensive or synoptic solutions to problems. Thus it is accused of trying to consider every possible choice and to evaluate all the possible consequences stemming from these, instead of focusing on a more limited and manageable number of possibilities. These criticisms, which have been presented most forcefully by Lindblom and Braybrooke (LINDBLOM & BRAYBROOKE,1963), are based upon a recognition of the limited cognitive capacities of human beings. In particular, they point to the work of Bruner and his colleagues, which show 'that our minds do more than merely throw out what is unaffected by new activity..... Rather, our minds determine what is relevant and irrelevant, by imposing a structure upon the problem situation' (BRUNER et al,1956). In other words, the rational-deductive ideal may be compared to the 'simultaneous scanners' of Bruner's experiments whereas practical policy analysts behave more like the subjects who focused on specific instances and hypotheses and were thus much better able to cope with more complex problems.

Lindblom and Braybrooke also compare the synoptic approach with someone riding a bicycle, using a formula for the turn to give the front wheel to correct a given angle of unbalance at a given speed; and to planning one's purchase having first determined one's indifference curve between all possible product mixes. The ordinary consumer, they suggest, simply compares policies at the margin and chooses directly the preferred policy.

Criticisms of a 'Cybernetic' Model of Control

Some of the criticisms have however been less concerned with the rational and comprehensive ideals of the 'systems approach' than with what the critics regard as a 'cybernetic' model of control, on which it is seen to be based. By this, they mean the process of goal-setting, measuring actual achievement, comparing achievement with goals and the feeding back of this information to policies and actions, so that the 'errors' are corrected. Although the use of the term 'cybernetic' to describe such an approach is unfortunate and misleading, the criticisms of it in the context of planning are essentially sound.

Thus it is pointed out that, for such an approach to be relevant, three conditions would have to be met. To begin with, it would be necessary to formulate a quantitative standard - or standards which correspond to the accomplishment of the goal - or goals - of the plan. Secondly, this model of control requires that actual performance can also be measured and, thirdly, it must be possible

to translate information on the discrepancies found into suitable interventions that will remove such discrepancies. Several writers have pointed out that not only are these conditions seldom met, but that they are not even satisfied in the case of the less complex situations with which management in business has to deal.

This view has been argued most forcibly by Hofstede (HOFSTEDE,1975) in relation to management control. He also suggests that even where some of the conditions are met the approach fails because of its implementation using a division of labour inherited from Taylor's scientific management philosophy. In this 'measuring and comparing are often done by the staff personnel of a controller's department and standards are set by higher line management, while the actual process to be controlled is worked out by operating personnel'. Hofstede advocates instead what he calls a homeostatic control model, in which 'semi-autonomous groups take over most of the management control roles previously fulfilled by superiors and specialists ... the links to the organisation's needs (are) mainly established through the standards which others in the organisation set for the group's tasks'. While his choice of terminology is somewhat idiosyncratic, it is worth noting here that the distinction Hofstede is making is an important one.

The Way Forward

In this outline of the 'systems approach' and discussion of its shortcomings, two issues in particular have been much in evidence. One of these is the nature of goals, objectives and the various other terms, such as aims, that are sometimes used in their stead. The other concerns the process by which these are achieved. Such issues lie at the very heart of cybernetics and the inadequate treatment of them by the 'systems approach' must not be taken as an indication that cybernetics is of only limited relevance to planning. The conclusion to be drawn is rather that so far the use made of cybernetics has been somewhat limited. There is an urgent need for those concerned with these matters to dip more deeply into the repertoire of cybernetic insights and ideas.

Clearly the starting point must be an attempt to identify and delineate just what these cybernetic ideas are and in the next chapter a number of them are discussed in some detail.

CHAPTER 2

A CYBERNETIC PERSPECTIVE

There are probably many reasons why the application of cybernetics to planning has so far been disappointing. But there can be little doubt that one of them is the fact that cybernetics is a relatively new discipline. It is, furthermore, a discipline whose exponents hold different and, to some extent, conflicting views as to its nature. At least three distinct strands of cybernetic thinking can be identified.

Strands of Cybernetic Thinking

The foundations of a 'cybernetics' discipline were laid down in a paper by Rosenbleuth, Wiener and Bigelow (1943). Wiener later (WIENER, 1948) offered a definition of 'cybernetics' that has been remarkably durable; he suggested that it is 'the science of control and communication in the animal and in the machine'. Wiener's contribution was that of pointing out that the kind of man-made mechanisms, developed during the Second World War to enable guns to home in on their target, were essentially similar to the processes in animals and human beings which enabled them to seek and achieve their goals. Underlying both of these, he suggested, was something called 'negative feedback' or error-

controlled feedback'.

This basic idea lends itself to being developed in a number of ways. The first of these is to see whether all of animal behaviour - or more generally, all of biology - can be understood in terms of the fundamental concepts of physics, which have already been used to explain and design the man-made control mechanisms. Such an aim was of course not new. The belief that all of biology could eventually be reduced to physics - or at least to chemistry, which itself is thought to be reducible to physics - was one that many scientists had held. Wiener however was proposing a way of removing the non-physical and teleological concepts that had continued to play a significant part in biological thought up to that time.

This approach to cybernetics was one that was pursued most systematically by Ashby who attempted to provide a basis for understanding not only the lower-level processes of control in animals but also the higher-level processes, in which the brain plays a key role. It is worth noting though that Ashby recognised that he had not incorporated the phenomenon of consciousness into his framework. He says quite explicitly that 'consciousness and its related subjective elements are not used for the simple reason that at no point have I found their introduction necessary' (ASHBY,1954). He points out that his book is, in fact, only concerned with 'a property - learning - that has long been recognised to have no necessary dependence on consciousness'. However, unlike the more arrogant advocates of reductionism, Ashby acknowledges that 'showing that consciousness

is sometimes not necessary gives us no right to deduce that consciousness does not exist. The truth is otherwise, for the existence of consciousness is prior to all other facts' (ASHBY,1954).

This first book of Ashby's was addressed primarily to biologists but in his second book he endeavoured to communicate a much broader and more ambitious view of cybernetics, one that was very much in keeping with Wiener's original definition of it as 'the science of communication and control'. In this book, he develops, in a very rigorous and systematic way, a set of concepts with which one can not only understand learning in animals but which can be used to tackle hitherto insuperable problems of designing control mechanisms for extremely complex systems, including those with which the social sciences deal. Thus he argues that 'the second peculiar virtue of cybernetics is that it offers a method for the scientific treatment of the system in which complexity is outstanding and too important to be ignored' (ASHBY,1956).

In his second book Ashby also offers an alternative definition of cybernetics as 'the study of systems that are open to energy but closed to information and control'. Here Ashby is modelling cybernetics on physics, which achieved so much by studying systems that were closed to the transfer of energy. At the same time, he is distinguishing the field of cybernetic enquiry very sharply from that of physics when he says, quite explicitly 'in this discussion, questions of energy play almost no part - the energy is simply taken for granted' (ASHBY,1956).

Such a view stands in sharp contrast to that of Bertalanffy, who is often acknowledged as the founder of 'General Systems Theory'. Bertalanffy seeks to understand the behaviour of biological systems not by focusing on the flow of information within them but rather by extending the understanding of physical and chemical systems that are open to the transfer of energy and matter. 'We need' he argues 'an extensive generalisation of the principles of physics and physical chemistry, complementing the usual theory of reactions and equilibria in closed systems and, dealing with open systems, their steady state and the principles governing them' (BERTALANFFY,1950).

These two very different approaches to the explanation of biological phenomena in terms of concepts that are used in physics and chemistry remain separate and distinct. Just what is their relationship, one to the other, remains unclear. Bertalanffy himself suggested that 'the theory of feedback ... is related to the theory of open systems'. Feedbacks in man-made machines as well as in organisms, are based upon structural arrangements. Such mechanisms are present in the adult organism and are responsible for homeostasis. However, the primary regulability, as manifested, for example, in embryonic regulations and also in the nervous system after injuries etc, is based upon 'direct dynamic interactions' (BERTALANFFY,1950).

A third, quite distinct approach, that can also be characterised as cybernetic, explicitly rejects the view that all aspects of the behaviour of living beings can be explained using only the concepts of physics and chemistry. This point of view is, as

noted earlier, by no means a new one. It is reflected in the various vitalist and animist philosophies that, like dualism, regards mind as something quite distinct from and not reducible to, matter. A number of eminent scientists (such as POPPER & ECCLES,1977), continue to argue this case, with considerable force. For them, the central question is not the existence of another domain, quite distinct from that of matter, but rather the way in which the two domains are related to one another. Some of them would even go so far as to propose the existence of a third domain, corresponding to what, in popular usage, is the domain of the spirit or the soul.

The Concepts of 'System' and 'Environment'

It would be wrong however to lay too much stress on the diversity of cybernetic thinking. Certain themes are common to all three strands and the importance of the concept of 'system' is undoubtedly one of them. But just what is meant by this term? According to Beer, 'there seem to be three stages in recognising a system as such. We acknowledge particular relationships which are obtrusive; this turns a mere collection into something that may be called an assemblage. Secondly, we detect a pattern in the set of relationships concerned; this turns an assemblage into a systematically arranged assemblage. Thirdly, we perceive a purpose served by this arrangement : and there is a system' (BEER,1966). This definition makes it clear that systems, like beauty, are in the eye of the beholder. That is to say, systems

do not exist independently of an observer. They are the result of choices, made by that observer, to regard certain things and relationships as important and significant and others as not relevant to his particular concerns.

There is more to it than this however. When the observer chooses to include certain things and relationships in the system, he also decides that certain other things should be regarded as part of the environment of that system. This decision, to draw a boundary around the system with which he is primarily concerned, but not to disregard the relationships between the system and some of the things he has chosen not to include in that system, is a crucial aspect of cybernetic thinking. It can be argued that it represents a radical break from the approach of the natural sciences. Natural scientists have always been aware of the need to be selective in their choice of which aspects, of the phenomena they are studying, should be singled out for systematic investigation. The focus of this investigation though has always been on the internal relationships within the system. Interactions with the environment have always been reduced to a minimum; in other words, they have tried to close their system to any outside influences as this, they believed, would make it much more difficult to gain a proper understanding of the system.

Cybernetics, on the other hand, is based upon the proposition that some of the most important and interesting questions concern the relationship of systems to their environments. Cybernetics is especially interested in the way in which systems respond to changes in their environments.

Complex Systems

Before going on to consider such matters, a few words need to be said regarding the concept of complex systems. According to Ashby, 'the second peculiar virtue of cybernetics is that it offers a method for the scientific treatment of the system in which complexity is outstanding and too important to be ignored' (ASHBY,1956).

Again, cybernetics can be contrasted with the traditional methodology of the natural sciences. Thus physicists, for example, when studying the behaviour of a gas, not only attempt to reduce or eliminate all environmental influences such as, say, variations in outside temperature, they also proceed by investigating the relationship between just a few variables, perhaps only two, such as the pressure and volume of the gas. Ideally, they will do this by causing just one of these to vary and studying how the other variable, or variables, then change.

Such a procedure has been incredibly successful but it has become increasingly evident that there are limits to how far one can get using such a methodology. Biological systems, economic systems and many other complex systems simply do not lend themselves to it. In many physical and chemical systems the shrewd choice of the correct variables to characterise the system has, time and time again, made it possible for the behaviour of the system to be described in terms of transformations that are 'closed and single-valued' (ASHBY,1956). That is to say, all the different states of the system can be characterised in terms of the levels of the

variables chosen and the next state can always be predicted given the present state.

In the case of the complex systems with which biologists and economists deal, such 'closed and single-valued transformations' simply cannot be found if only a handful of variables is used to characterise the system.

Feedback Loops

One of the main reasons, according to Ashby, why such complex systems are not amenable to the traditional methodology of the natural sciences, is that 'they are so dynamic and interconnected, that the alteration of one factor immediately acts as cause to evoke alterations in others, perhaps in a great many others' (ASHBY,1956). In many complex systems, a further possibility exists. A whole series of such cause and effect relationships may become linked together to form a chain. Of particular interest is the situation where such chains loop round on themselves, so as to form a circle or loop. It is the existence of such loops, often known as 'feedback loops' which makes the behaviour of complex systems so difficult to understand or predict - and so interesting!

Two kinds of loop can be distinguished. In the case of the first kind, a negative feedback loop, the overall effect of the chain of cause and effect is to counteract any disturbance to any of the

links in the chain. Thus, if one of the variables in the loop is increased, perhaps as a result of some change in the system's environment, the disturbance is fed back, through the loop, in such a way as to cause a reduction in the level of the variable.

A simple example of such a loop is to be found in the body's respiratory system. An increase in the levels of carbon dioxide in the blood will lead to an increase in the rate of breathing. This, in turn, will in normal circumstances reduce the level of carbon dioxide in the lungs. This then causes a reduction in the level of carbon dioxide in the blood (Figure 2.1).

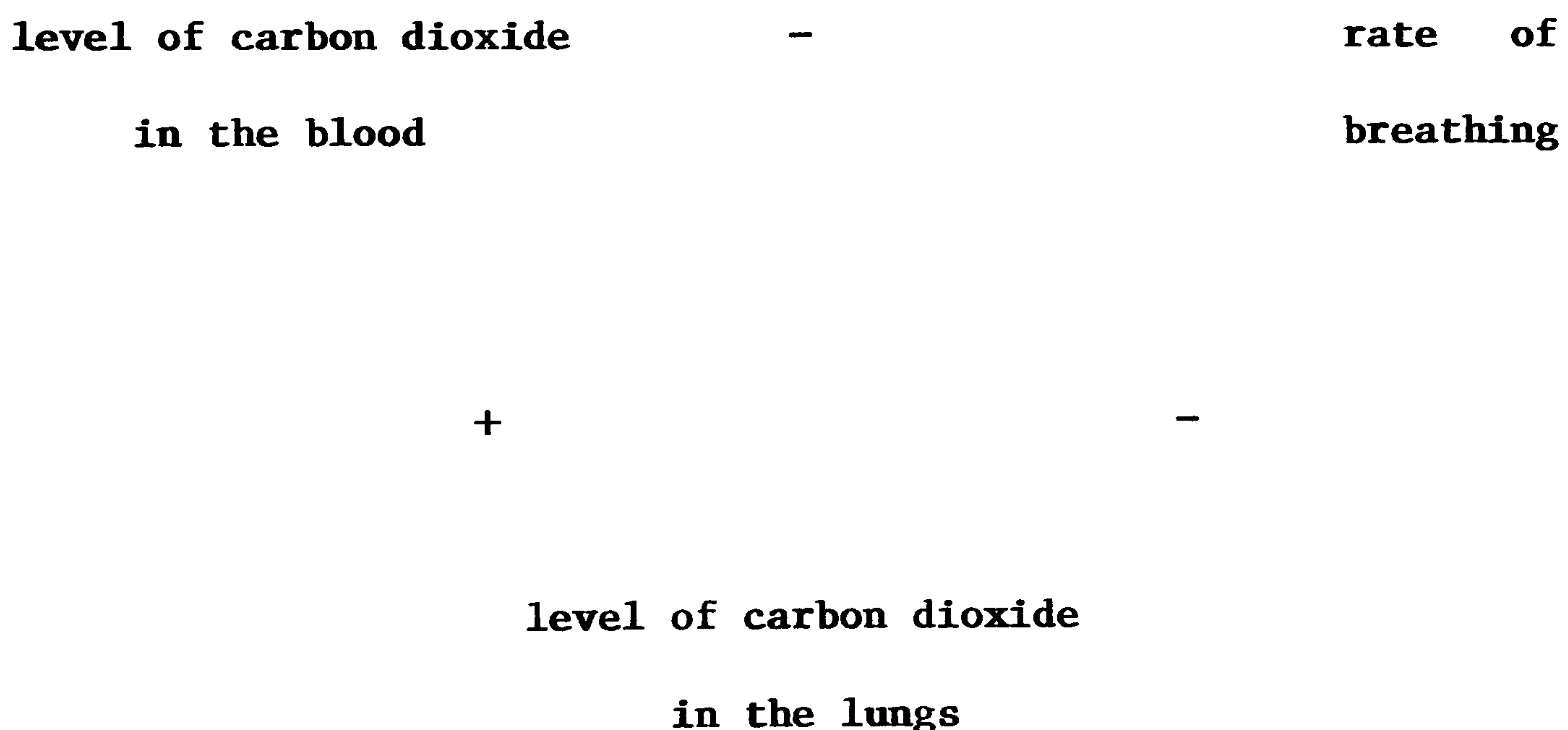


Figure 2.1 Negative Feedback Loop in Respiratory System

The other kind of feedback loop is a positive feedback loop. In such a loop small disturbances, instead of being counteracted, are amplified by the chain of cause and effect. Such a loop is often referred to as a 'vicious circle', when the direction of change is

one that is seen as undesirable. An example of such a loop is the decline in public transport. Here a small reduction in the number of passengers - resulting, say, from increased car ownership - causes the income of the public transport operator to decline. The public transport operator may then react to this by increasing fares, in the hope that this will restore his revenue to its former level. The effect may be, though, to reduce further the numbers of passengers (Figure 2.2).

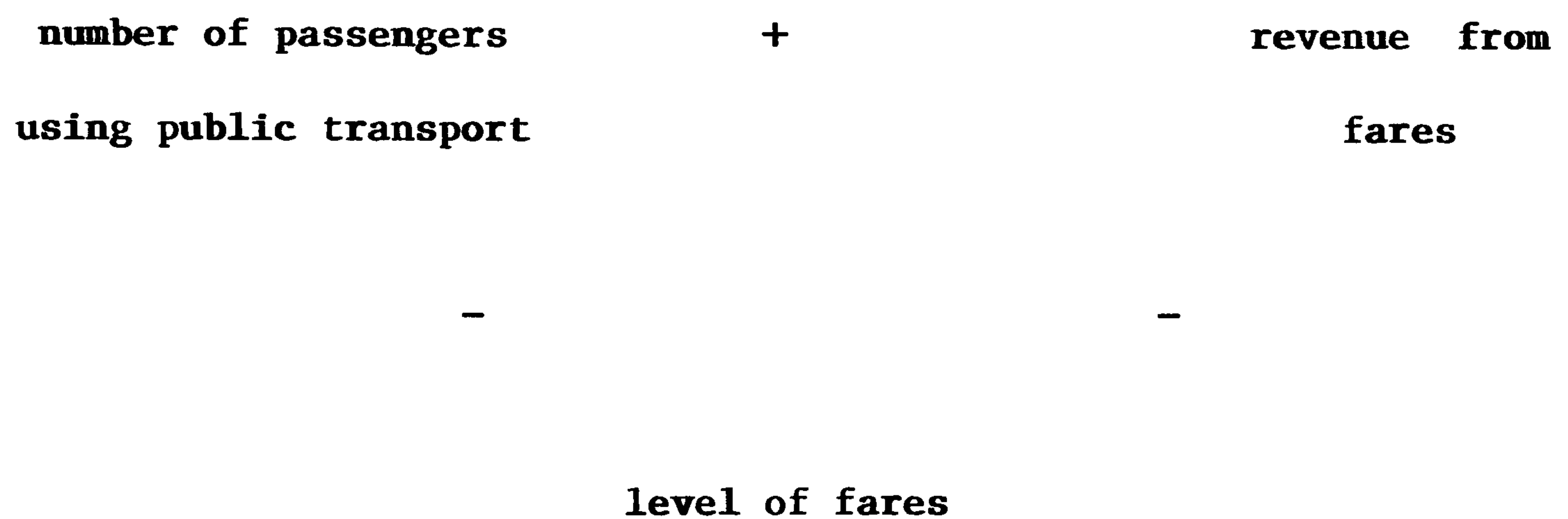


Figure 2.2 Positive Feedback Loop in Public Transport System

The interesting point to note here is that in both of these examples, the feedback loop can be either positive or negative. Thus, figure 2.1 assumes that the air being breathed in by the lungs contains only a small proportion of carbon dioxide. If the atmosphere contains a high proportion of carbon dioxide, more rapid breathing will increase the level of carbon dioxide in the lungs, instead of reducing it. The loop then becomes a positive feedback one. Similarly, in the case of the public transport system, the relationship between the level of fares and the

revenue of the operator could be such that increasing the level of fares did increase his revenue, the loop would then be a negative feedback loop.

The other point to note, is that in both these cases, whether or not the loop is negative or positive may depend upon the situation in the environment.

Equilibrium in Systems

It is fairly evident that such feedback loops will play a critical role in determining how a system responds to changes in its environment. In particular, it will determine its stability in the face of environmental change and whether or not it returns to a position of equilibrium. But just what is meant by this?

The term 'equilibrium' is one that is familiar and frequently used by lay people and scientists alike. It is, in reality, an extremely difficult concept and one that can give rise to a good deal of confusion. One reason for this is that the term has acquired a variety of different meanings. Thus, in describing its influence on American social thought, one writer (RUSSETT, 1968) points out that for centuries it was a central ordering principle in Western thought, but owed little to the more precise formulation that developed in the natural sciences. In these earlier uses of the term, it referred more to a state of balance between opposing forces. Thus for the diplomats, who were concerned with achieving a peaceful equilibrial state in

Europe following the demise of Napoleon, equilibrium meant a balance between the forces of aggression and the forces of resistance. She observes that such a concept of equilibrium appears to be still dominant today, in the cold war between East and West.

In scientific thought equilibrium has, from the time of Archimedes, carried connotations beyond those of simple balance. Those who, like Archimedes, studied the behaviour of mechanical systems, have always recognised the different kinds of equilibrium, stable, unstable and neutral. Thus, in the case of a system in a stable state of equilibrium, small disturbances do not result in permanent departures from the state. The system returns, after a time, to its original state. Systems in a state of unstable equilibrium, on the other hand, do not return to this state when subjected to a small disturbance. Instead, the small departure from the original state results in mechanical forces which, in turn, cause the system to move still further from its original state. In the case of neutral equilibrium, the initial small departure neither results in forces, causing the system to return to its original state, nor to forces which cause even larger deviations. For many social scientists, this concept of equilibrium, the mechanical one, is still probably the most familiar and the one most likely to influence their thinking about social systems.

There is however another very different and less readily comprehensible concept, that originates in the science of thermodynamics. Thermodynamics is a relatively new science,

being a product of the nineteenth century. It emerged from theoretical analyses by a Frenchman, Carnot, of the total amount of work that might be done by a heat engine. Thermodynamic equilibrium is said to exist when there is no more energy available to do work; that is when the entropy of the system is a maximum.

There is yet a third concept of equilibrium, quite distinct from these first two. It comes from biology and is the one with the most obvious scope for application to the social sciences. This is because it deals quite explicitly with the idea of an equilibrium between a system and its environment. It is, in fact, the oldest of the three concepts and dates back to Hippocrates, a physician who taught that living organisms were endowed with an inherent tendency to return to normal after they had been disturbed or suffered from disease. This idea was developed further by a French physiologist, Bernard, who argued that this ability to adapt to environmental changes was due to the constancy of their internal environment. This constancy was later shown, by another physiologist, Cannon, to be brought about by a large number of physiological or homeostatic processes, which come into play when outside disturbances threaten to cause a key variable, such as blood temperature, to go beyond some specified limit.

One of the problems in the social sciences, and one which was inherited to some degree by the systems approach, is that it was not always clear which of these concepts of equilibrium was appropriate or was being used.

Homeostasis

The concept of homeostasis is absolutely central to the contribution of cybernetics to planning and policy-making. It reveals how natural organisms, which are very complex systems themselves, are able to cope with environmental disturbances. A prime example of homeostasis in operation is provided by the way in which blood temperature is maintained within narrow limits. The importance of this can be seen from the variety of mechanisms that may be brought into play: 'if the body temperature is raised, the thyroid gland becomes less active and the basal metabolism is lowered, and vice versa; the quantity of blood flowing through peripheral blood vessels and, therefore, the heat conducted or radiated through the skin, is altered by the dilation and contraction of these vessels; the amount of adrenalin secreted into the blood, and thereby the internal combustion of the body, is influenced by temperature changes; the moisture evaporated from the skin also affects the internal temperature and the amount of moisture secreted depends on the respiration rate and the activity of the sweat glands, which in turn are sensitive to sweat changes; and the automatic muscular contractions that are manifested as shivering provides a further source of internal heat' (NAGEL,1956).

Now, although this phenomenon of homeostasis is often referred to, seldom are the reasons for its importance discussed. It should be evident though, from the earlier discussion of feedback loops, that this monitoring of a variable within narrow limits, would have important implications for the operation of feedback loops in

the body and hence for the way it responds to environmental changes. For presumably if blood temperature, say, is involved in such feedback loops in the body, the effect of the homeostatic mechanisms outlined above will be to inactivate these loops. That is to say, disturbances will not be propagated throughout the entire physiological system. One can speculate that when homeostasis fails to maintain the constancy of variables, such as blood temperature, then positive feedback processes take over, with death as a possible outcome.

Stability and Ultrastability

The kind of equilibrium brought about by homeostatic processes is clearly a very interesting kind of equilibrium. It is however much less easy to see what might be meant by describing such an equilibrium as stable. In other words, how can stability be defined for systems in which homeostasis operates?

The answer to this question has been provided by Ashby (ASHBY, 1954). He points out that the behaviour of a system can be described in terms of the movement of a point in a multi-dimensional phase-space. By observing all the different behaviours of a system and plotting these as lines in the phase-space, one obtains the field of the system. One can then define regions of this field as stable, if all the lines of behaviour from all points in the field stay within the region.

Ashby goes on to envisage a form of control which operates by changing the behaviour of the system or, in other words, its field. He then shows how such a control might be used to keep what he calls the 'essential variables' of a system within certain limits. Each time one of the system's 'essential variables' goes outside its limit, the behaviour, or field, changes. The especially novel feature of the form of control Ashby is proposing lies in his suggestion that these changes would be quite random. The system's behaviour would simply go on changing, in this random way, each time environmental disturbances caused an essential variable to go outside its limits.

Eventually, he argues, a field will be found whose region of stability is such that none of the lines of behaviour within it take the essential variables outside the prescribed limits. A system with such a field is then said to be 'ultrastable'. Ashby further asserts that this is what is meant by saying a system is 'adapted to its environment'. That is to say, a system that is adapted to its environment is ultrastable. This point might be expressed in yet another way. Implicit in what Ashby is saying is the idea that what keeps the essential variables of a system within their limits is what might be termed the 'natural dynamics' of the system. Or, in other words, the would-be controller does not need to intervene every time an environmental disturbance comes along; the 'natural' behaviour of the system is such as to keep the essential variables within their limits.

Directive Correlation and Coenetic Variables

The work of several cyberneticians, such as Ashby, has done much to establish the claim of cybernetics to be a scientific discipline, with aspirations to a degree of rigour comparable to that prevailing in the natural sciences. In one respect at least, however, cybernetics would appear to be emulating the social sciences. This is in the limited extent to which workers in the field examine and criticise the efforts of fellow-workers. Thus one finds two pioneers of cybernetics, Ashby and Sommerhoff, pursuing their rigorous ways with very little evidence of either utilising much of the other's work or relating it to their own. This is especially unfortunate as Sommerhoff has concerned himself with many of the same problems as Ashby and, although seeking the same rigour and precision, appears to be arriving at different conclusions.

It is true that Ashby himself does make a passing reference to Sommerhoff's work and acknowledges its value but Sommerhoff is much less generous. His most noteworthy contribution is the concept of directive correlation, which he suggests 'is entirely comparable with that of the feedback loop but is more general and better suited to express what is most characteristic in biological situations and to clarify the overt characteristics of the system in a general theoretical context. As we shall see more clearly when we come to consider error-controlled servo-mechanisms, the notion of the feedback loop is a somewhat over-rated notion in biological contexts' (SOMMERHOFF, 1969).

Sommerhoff defined directive correlation in mathematical terms, but a rather more accessible statement of the basic idea has been provided by Beer, who says that 'Sommerhoff's contention was that adaptation implies not only the actual existence of a particular mapping (between the state of the system and the state of the environment) which can be inspected, but also the potential existence of a whole variety of other specific mappings, which would have existed if the environmental disturbance and the system had been different from what they are... The correlation inherent in the mapping is, in fact, observable as a correlation of behavioural states' (BEER,1966).

Ashby suggests that there is a close correspondence between his formulation of adaptation and that of Sommerhoff, but Sommerhoff appears to be proposing a stronger link between the behaviour of a system and the state of its environment than does Ashby. Whereas the latter is proposing that the state of the environment - and in particular, the levels of certain essential variables - may cause the behaviour of the system to change, Sommerhoff seems to be suggesting that adaptation implies that the behaviour of a system is actually determined by the state of the environment.

Perhaps the most interesting aspect of Sommerhoff's work is his suggestion that the correlation between the state of the environment and the state of the system results from their both being a function of a single variable, the coenetic variable. This would seem to imply that if one were trying to design a system that was capable of adapting its behaviour to environmental circumstances, one should try to identify, in the environment,

just such a coenetic variable and then arrange for the system's behaviour to be geared to the level of that variable. Following Ashby's approach one would, on the other hand, be seeking to identify a number of essential variables.

Adaptation and the Structure of the Environment

Having actually built a machine, the 'homeostat', that incorporated his ideas on adaptation, Ashby realised that the process, by means of which it randomly sought out the behaviour that was best adapted to its environment, was a very lengthy process. In a real-life situation, the environment might well have changed before the process was completed! Ashby therefore devoted a good deal of thought to working out the conditions that would be necessary if the time taken were to be such as to make the process a practical one. Clearly, he reasoned, such conditions must prevail in the real world if his supposition, that it was the process adopted by biological organisms, were correct.

He shows (ASHBY,1954) first of all, that adaptations in a large complex system can only take place cumulatively. This, in turn, requires that the system should not be 'fully joined'; that is to say, the essential variables involved in adaptation to one disturbance are quite distinct from those involved in adaptation to another one. In other words, the complex system must be made up of a number of distinct sub-systems, between which there are only weak communication links. Each sub-system then, in effect,

adapts independently of the others.

Equally crucial, if adaptation to an environment is to be achieved in a reasonable amount of time, is the nature of the environment itself. Ashby suggests that the environment should be 'polystable'; that is to say, its variables should behave as part-functions and most of its variables only have an immediate effect upon a very few others. One can then regard the environment as also made up of a number of sub-systems. Each sub-system in the system itself can then adapt to each environmental sub-system.

CHAPTER 3

APPLYING A CYBERNETIC PERSPECTIVE

Although the application of cybernetic ideas, such as those outlined in the previous chapter, has not been all that successful in relation to local authority planning, a number of writers have demonstrated their relevance in other fields of planning and policy-making. This thesis has been greatly influenced by several of these writers and in this chapter their work will be briefly discussed.

Beer and Industrial Management and Planning

Several references have already been made to Beer's writings but nothing has been said, so far, regarding his application of cybernetic ideas to management and planning in industry. Drawing upon a wide range of such ideas, Beer has developed a fairly comprehensive philosophy of management which he has expounded in series of books and articles over a period of thirty years. As a manager and, more recently, a management consultant, he has applied and developed this philosophy in a tremendous variety of situations. Summarising his work in a few pages is therefore impossible and it will be necessary to focus instead on just one aspect of it, which is especially prominent and which has not yet

received any mention in earlier chapters.

Although a very eclectic thinker, Beer's main work (BEER,1966) is largely an attempt to build upon the very solid base provided by Ashby's work and nowhere is this more so than in the case of the latter's concept of 'variety'. Like Ashby, Beer sees it as an absolutely key concept with regard to gaining a better understanding of how complex systems are, or should be, controlled. Following Ashby, he defines 'variety' as 'the total number of different states of the system' and argues that 'the business of controlling (complex systems) demands ways of containing a variety so large that it may defeat the controller'. He goes on to note that, while this complexity can be reduced by introducing constraints into the system, there is a minimum threshold of complexity below which systems will not be able to survive or, in other words, they will no longer be viable. He suggests, furthermore, that 'viable systems maintain equilibrial behaviour only by multiple contact with variables outside themselves'.

Beer points out that conventional management approaches and even more sophisticated ones such as operational research, proceed by utilising 'concepts, models and controls that are deliberately of low complexity'. His solution to this problem is to propose that 'requisite variety ... is best obtained by installing as controller a variety generator, capable of absorbing proliferating variety like a sponge'.

At the same time, Beer suggests that the study of naturally occurring systems and especially those with which ecology is

concerned, reveal that in order to 'exercise control and to meet the appropriate set of goals ... the answer is not to design the control but to constrain the system. Let us so uncouple a sub-system that the natural movement of increasing entropy within it will tend toward one of the goals.... and ... in which the process of entropy is so defined that it will find a way (which we may neither detect nor understand) to cope with disturbances from outside.... The management of high variety systems is always concerned with a definition of entropy which serves particular goals'.

Such a view also has important implications for monitoring the effect of control actions. Thus Beer asserts that 'the great discovery of management cybernetics is perhaps that the outcomes of policies are determined more by the macrostructure of the total system, its sub-systemic interactions and the entropic infrastructure of the sub-systems themselves, than by the particular causal relationships which are activated by particular decisions ... more is learned about what ought to be done by inference from the system's cybernetics than from the analysis of enormous masses of data ... (which) are so much flotsam, floating on the entropic tides created by the systemic structures below the surface'.

Forrester and System Dynamics

Perhaps the most concrete and clear exemplifications of these

insights into the behaviour of complex systems has been provided by Forrester. His work also provides a further illustration of the very limited communication and exchange of ideas that has taken place between some of the most important contributors to the development of cybernetic thought. Forrester himself would, in fact, not even regard himself as a cybernetician and certainly his utilisation of cybernetic ideas was not all that great. Essentially, he built a substantial and significant body of work on the basis of some of the more fundamental concepts such as feedback and equilibrium. One can only speculate as to how much more he might have achieved had he been more familiar with a wider range of cybernetic ideas and, in particular, those of Ashby. Nevertheless, like that of Ashby and Sommerhoff, his work is characterised by a rigour and originality that is often lacking in other, more broadly-based, cybernetic writings.

In his first book (FORRESTER,1961) he investigated, using computer simulation models, the dynamic behaviour of industrial systems. He showed that the dynamic behaviour of a complex system should not be seen as being determined solely by environmental change. He demonstrated that it was strongly influenced by the inter-relationships between the variables of the system itself. For example, in the system comprising a production department and a warehouse, while the environment may be constant with a steady demand for all products, large fluctuations of both production output and stock may occur due to the delays in the effects of one system on another. He showed further that this behaviour was determined not so much by the operational policies (of setting production levels, ordering stock and so on) which have

traditionally absorbed management's attention but rather by the structure of the information flows in the system and by the delays in transmitting information and transmitting decisions.

The success of his approach in explaining the familiar cycles of activity that bedevil business operations, and its potential for explaining similar cycles in economic systems, meant that when Forrester's interest became focused upon the problems of urban growth and decay, a very similar approach was adopted (FORRESTER,1969). The most important modification of it was that instead of considering one set of flows, such as goods in the production/warehouse system, Forrester now investigated the behaviour of three inter-linked sub-systems, or sectors: one involving the flow (migration) of people in and out of the city and between the three different social levels; a second involving the generation and decay of housing stock; and a third involving the migration of business into and out of the city.

The critical feature of Forrester's models of urban dynamics is the way in which the levels of variables in each of these sub-systems - such as, for example, the number of skilled workers in the city - is determined by other levels in the sub-system. The precise nature of the relationship depends upon parameters, which are themselves a function of the levels of variables in other sub-systems. The form of these relationships is thus very similar to that suggested by Ashby in his work and, not surprisingly, Forrester arrives at a very similar set of conclusions regarding the dynamic behaviour of such a system. This is that it will have a very large number of different equilibria, some of which

will be (politically) more desirable than others. Forrester goes on to show how typical governmental policies and interventions inevitably result in what has been characterised as a stagnant condition: a decaying urban core, mainly occupied by the poor, a flight of the better-off to the suburbs and a situation that is generally unfavourable to the establishment of new businesses.

One does not have to agree with this specific conclusion in order to accept the more general point that a broad range of misconceived policies may ultimately result in undesirable situations, from which the government of a city may find it extremely difficult to extricate itself. Forrester is able to demonstrate, using his computer simulation models, that many policies, which are advocated as panaceas for urban problems, are probably doomed to failure. He points out that the system appears to respond almost as if it sought to counteract them but that 'complex systems have a high sensitivity to changes in a few parameters and to some changes in structure ... (these are usually not self-evident). They must be discovered through careful examination of system dynamics' (FORRESTER,1969). This leads Forrester to conclude, with Beer, that such investigations do not require the collection of vast amounts of data.

Another important conclusion emerging from Forrester's work, is that the achievement and maintenance of a more satisfactory equilibrium in the city, depends upon certain internal system relationships - notably, for example, that between the housing and labour sectors. Thus, the normal processes of decay and the absence of a corrective programme of urban renewal, may result in

the housing stock becoming increasingly run down and attractive only to poorer sections of the populations. This may then trigger off a series of adjustments in the employment sector and, later, in the business sector, which return the city to its stagnant condition.

There is however one major flaw in Forrester's work. He treats the environment of the city as a static, amorphous 'point of reference'. He therefore completely ignores the question of how the kind of dynamic system that he describes reacts to and can adapt to a changing and structured environment.

Vickers and Public Sector Management

The importance of maintaining certain relationships within a system was also argued by another major contributor to the application of cybernetic ideas, Vickers. Like Beer, Vickers developed his distinctive philosophy of management and policy-making as a practising manager. Central to this philosophy was the belief that to see management in terms of the setting of goals and objectives, was a mistake. He argued (VICKERS,1965) that it was much more meaningful to see it in terms of the maintenance of relationships.

He illustrates this by considering the activities of a local authority, responsible for a variety of services, education, roads, sewage disposal and so on. Each of these consists in

maintaining, through time, a number of relationships. It must, for example, provide sufficient school places, year by year, for all its children of school age; and it must also provide for them education of a quality and character acceptable to the citizens. Vickers calls these 'functional relations' and distinguishes them from 'metabolic relations'. Thus 'the aggregate demands for money made by all departments must be kept in line with total revenue and total resources. The aggregate staff needed by all departments must be maintained in number and in quality, skills and experience'. Furthermore, he argues, 'just as an animal perishes unless ... it can match its internal needs and resources with its external demands and opportunities, an organisation, such as a local authority, must match its human resources ... with what it aspires to do or is required to do; or cut its aspirations or the demands upon it to the level of its resources'.

He suggests that although some of the relationships are imposed on the authority and, therefore, inescapable, others are self-set and it is with the process by which these relations are modified that Vickers is primarily concerned. At first sight, it might seem as if he has simply substituted the 'setting of government relations' for the setting of goals and that there is little more than a change of emphasis involved. He insists however that 'the difference is not merely verbal; I regard it as fundamental. I believe that great confusion results from the common assumption that all course-holding can be reduced to the pursuit of an endless succession of goals. Some of the blame must be taken by the psychologists who have made "goal-seeking" the paradigm of rational behaviour. Rats, it is true, maintain their metabolic

balance ... by a series of excursions after food, each of which is a goal-seeking activity; and some humans similarly maintain their solvency by periodic excursions after money. This however is by no means a sophisticated form of financial control, precisely because it shows a failure to appreciate relations in time; and an enhanced capacity to appreciate relations in time is clearly one of the distinguishing marks of our species. The most outstanding feature of regulations as practised by governing bodies in industry or government is the trouble taken to observe the major variables as flows in the dimension of time'.

Vickers is also at pains to distinguish the maintenance of relationships - which he also calls 'norm-holding' - from the avoidance of thresholds. He acknowledges that it is a feature of most dynamic systems that if the relations to be regulated deviate from the norm beyond a critical threshold, they suffer radical, self-exciting and often irreversible change. He believes though that the regulation of an institution is too often governed by the need to avoid such threatening thresholds, rather than by the more sophisticated aim of norm-holding.

Vickers points out that 'we should not suppose that regulation in such situations depend upon human regulation. If left alone, it will regulate itself. Traffic (for example) outstripping road capacity, will generate self-magnifying traffic blocks in which no vehicle can move. The sole purpose of human intervention is to regulate the relationship at some level more acceptable to those concerned than the inherent logic of the situation would otherwise provide'.

Vickers has also discussed (VICKERS,1968) at some length the relationship between what he calls 'political choice' and 'market choice'. He notes that, until recently, it has been widely believed that individual judgements of value were most effectively articulated and realised through the mechanisms of the 'free market' in which 'man's part was not to guide the process which was neither possible nor necessary but to create the conditions for its free functioning'.

He states that 'everyone today can see the fallacious assumptions behind this conception of the process ... yet they persist in ways which still confuse our understanding of ... the relative scope and proper relation of what I have called political choice and market choice - notably ... that there exists a definable area ... in which economic forces, mediated through the market, optimise the satisfaction of individual choice and into which political choice need not and should not intrude'.

During the last hundred years, claims Vickers, there has been a steady diminution of such individual choice and 'the corresponding enlargement of political choice as of values and priorities'. This is due, he argues, because 'as inter-relations multiply, the effects of every interaction ramify. Reciprocal transactions affecting only the parties to them become increasingly rare'. Consequently, what is needed is a 'regulative system for our basically political choices more sensitive and more powerful than we now have and in the meantime to understand the nature and limitations of our present regulators'.

Schon and Federal Government

It is possible however to apply cybernetic thinking to these issues and arrive at very different conclusions or, at any rate, to arrive at insights in which the emphasis is very different. Schon was probably the first Reith Lecturer to draw heavily on cybernetic ideas. His Reith Lectures were actually entitled 'Beyond the Stable State' (SCHON,1971) and in them he pointed out that 'belief in the stable state is strong and deep in us. We institutionalise it in every social domain.... Language about change is, for the most part, talk about very small change, trivial in relation to a massive unquestioned stability.... Belief in the stable state is central because it is a bulwark against the threat of uncertainty'. Consequently, according to Schon, 'social systems are self-reinforcing systems which strive to remain in something like equilibrium'. Schon described a number of different strategies that, taken together, represent what he calls a 'dynamic conservatism'. These strategies, he says, 'have a logic of their own - a logic as complex as the logic of homeostasis in biological organisms'.

Schon also argues strongly that such shifts are possible but that they involve 'change in the total structural and cultural configuration of the system'. It requires 'a certain level of energy to overcome the forces involved in the system's dynamic conservatism and to break the stable state. Once the threshold has been reached, the system goes into exponential change until it reaches a new zone at which a new dynamic conservatism begins to

operate'.

Such a view, says Schon, 'explodes the rational myth of intervention pervasive in official rhetoric, which envisages social change as a process made up of analysis of objectives, examination of alternatives and selection of the most promising routes to change. Quite apart from its questionable claims to knowledge, the rational myth assumes implicitly that transformation occurs in a vacuum rather than in the planning of self-reinforcing systems'. What is needed, he says, 'is rather for social systems to become capable of transforming themselves without intolerable disruption. A learning system must be one in which dynamic conservatism operates at such a level and in such a way as to permit changes of state without intolerable threat to the essential functions the system fulfills for itself. Our systems need to maintain their identity, and their ability to support the self-identity of those who belong to them, but they must at the same time be capable of frequently transforming themselves'.

He points out that 'as an instrument of public learning, the federal government of the United States rests largely on a theory of the stable state. It accepts as mysteriously given the issues around which policy and programme must be shaped. It treats government as centre, the rest of society as periphery. Central has the responsibility for the formation of new policy and for its imposition on localities at the periphery ...government-initiated learning tends to be confined to efforts to induce localities to behave in conformity with central policy.... Evaluation then tends to be limited to the role of establishing and monitoring the

extent of peripheral conformity with central policy'.

He also notes that 'the inquiry involved in public learning is conceived in terms of the method of the physical sciences ... problems are defined and quantified, hypotheses are developed, social experiments are undertaken, variables are identified, controls established and quantitative measures of outcome formulated'.

This whole process needs to be turned on its head, according to Schon. He argues that 'the opportunity for learning is primarily ,.. at the periphery ... Central's role is to detect significant shifts at the periphery, to pay explicit attention to the emergence of ideas in good currency, and to derive themes of policy by induction. Central comes to fruition as the facilitator of society's learning, rather than as society's trainer'. He recognises though that such an approach may be incompatible with existing patterns of legislation and administration and with the widely accepted goal of eliminating inequities between geographical areas.

Emery and Trist and Organisational Values and Structure

It is interesting to note that none of the writers, whose work has so far been mentioned, have drawn upon what was a major theme in Ashby's work - the structure of the environment of a system and what this might imply for the structure of the organisation itself. Emery and Trist were two writers who did pick up this key contribution of Ashby and related it to their own

investigations of work organisation in industry.

Before considering their contribution, it will be helpful to mention briefly the work of an earlier scientist - a psychologist - Brunswick, whose work preceded the birth of cybernetics as a recognised discipline but was very much cybernetic in character. In a perceptive account (HAMMOND,1966) of Brunswick's work, it is pointed out that Brunswick 'emphasised the uncertain relations among environmental variables (which) require an organism to employ probabilistic means in order to adapt and thus survive'. Brunswick was concerned, in particular, with the ambiguous or 'equivocal' relationship between sensory 'cues' and 'distal objects'. Tolman, another psychologist, had pointed out a correspondingly equivocal relationship between 'means' and 'ends'. This led the two psychologists to suggest that a proper study of adaptation by natural organisms must take into account these equivocal relationships. Anticipating, in a remarkable way, some of Ashby's work, Brunswick argued that 'ambiguity of cues and means relative to the virtually relevant object and results must find its counterpart in an ambiguity and flexibility ... in the organism'.

Building upon Brunswick's and Tolman's ideas, Emery and Trist suggest (EMERY & TRIST,1965) that what they call the 'causal texture of the environment' can be classified into at least four distinct kinds. The first is what they call the 'placid randomised environment' in which goals are relatively unchanging and randomly distributed. The second kind of environment they call the 'placid clustered environment', in which goals are not randomly distributed. A third kind is the 'distributed reactive

environment' in which other organisms - or organisations - exist.

Finally, they describe the 'turbulent environment', in which 'the turbulence results from the complexity and multiple character of the causal interconnections'. In such environments, they argue, 'individual organisations, however large, cannot adapt successfully simply through their direct interactions'.

In order to cope with the uncertain nature of such environments, Emery and Trist suggest that the organisations subscribe to a common, shared set of values. 'Unable to trace out the consequences of their actions as these are amplified and resonated through their extended social fields, men in all societies have sought rules ... to provide them with a guide and ready calculus. Values are not strategies or tactics ... they have the conceptual character of "power fields" and act as injunctions'.

They then go on to argue that 'turbulent environments require some relationship between dissimilar organisations ... relationships that will maximise co-operation.... We are inclined to speak of this type of relationship as an organisational matrix. Such a matrix acts in the first place by delimiting on value criteria the character of what may be included in the field specified - and therefore who.... Professional associations provide one model of which there has been long experience'.

Alexander and the Design Process

Another writer, who has attempted to relate Ashby's work on environmental structure to real life problems, is Alexander. Alexander was concerned with the process of architectural design. He noted (ALEXANDER,1964), that the problems which architects - and planners - try to solve are characterised by a complex pattern of interactions and constraints, which no individual can hope to see as a whole. While technological change is making the old 'solutions' to these problems irrelevant, architects, he suggests, are continuing to rely upon intuition and to reject analytical approaches.

Alexander goes on to argue that two very different design processes can be distinguished. The first he described as 'unself-conscious'; it is essentially a 'trial and error' process. The second, the 'self-conscious' process, with its reliance on higher forms of cognition and on language is the one dominant in present-day architectural design. Whereas the former takes advantage of the structure in the environment, the latter does not. The former also reacts immediately to 'misfits' between the designed structure and its environment.

The self-conscious process, he argues, has broken down because the conceptual structures, on which its solutions to the problems posed by the environment are based, no longer relate to the actual structure of the environment. For example, he says, the concepts of 'acoustics' and 'circulation' have been shown to be inappropriate in relation to the design of family houses but

architects go on using them. Similarly, the concept of 'neighbourhood' has been found inadequate but planners still attach great importance to it. Alexander believes that these difficulties with language arise because 'caught in a language of our invention, we over-estimate the language's impartiality. Each concept, at the time of its invention no more than a concise way of grasping many issues, quickly becomes a precept. We take the step from description to criterion too easily, so that what is at first a useful tool, becomes a bigoted pre-occupation'.

His resolution of this difficulty is to analyse the structure of the design problem in such a way that it can then be solved using a 'trial and error' or 'unself-conscious' process. Such an approach, he suggests, will result in designs that can adapt readily to changes in the environment.

Popper and Social Engineering

The inclusion of Popper's name in what purports to be an account of some major contributions to the cybernetic perspective, with which this thesis is concerned, may appear somewhat strange. Popper, after all, is a philosopher and is, furthermore, a philosopher who has not expressed much interest in the work of cyberneticians like Ashby. Nonetheless, like Forrester, he has brought an original and rigorous approach to bear on issues that are at the heart of cybernetics and his contribution complements those of the other writers considered in this chapter.

His work is especially relevant to the major issue, mentioned a number of times already, regarding the role of aims and objectives in planning. Popper argues (POPPER,1945) that 'a systematic fight against suffering and injustice and war is more likely to be supported by the approval and agreement of a great number of people than the fight for the establishment of some ideal'. Instead, he advocates what he calls 'piecemeal social engineering', which involves 'searching for and fighting against the greatest and most urgent evils of society, rather than searching for and fighting for the greatest ultimate good'.

Central to Popper's argument is the need to learn more about society and this is made much more likely if intervention is limited to 'the alteration of one institution at a time ... only in this way can we learn from our mistakes, without risking repercussions of a gravity that must endanger the will to future reforms'.

Popper also distinguishes between two kinds of governmental intervention: the first involves designing a 'legal framework' of protective institutions; the second involves direct action by the government. The former, he suggests, is always to be preferred by the piecemeal social engineer; for 'only the first, the institutional method, makes it possible to make adjustments in the light of discussion and experience; it also makes it possible to apply the method of trial and error to our political actions'. Direct action, on the other hand, involves 'discretionary decisions of the rulers or civil servants (which) are outside these rational methods ... (which) cannot ever be publicly

discussed, both because necessary information is lacking and because the principles on which the decision is taken are obscure.... (It) must introduce an ever-growing element of unpredictability into social life'.

Popper also has some interesting things to say regarding the nature of values. These, he suggests, are not arbitrary, are subject to change and are not 'givens' for the policy-maker but rather are something with which he should be very much concerned. This point of view runs directly counter to an influential philosophical view, which Popper has termed 'naive monism'. Naive monism, according to Popper, fails to make any distinction between natural and normative laws. Popper regards the 'dualism of facts and standards', as he calls it, as a crucial aspect of a philosophical position that makes possible an 'open society'. While insisting that facts and standards must never be confused and that one cannot be derived from the others, he is at the same time, equally insistent - as is Vickers - that standards are not arbitrary.

He sees important parallels in the way that both facts and standards can evolve and develop as a result of experience and critical examination. Both 'propositions, which state facts, and proposals, which propose policies ... are open to rational discussion ... we may take the idea of absolute truth - of correspondence to the facts - as a kind of model for the realm of standard, in order to make it clear to ourselves that, just as we may seek for absolutely true propositions in the realm of facts ,.. so we may seek for absolutely right and valid proposals in the

realm of standards'. Popper, at the same time recognises that while one may seek these things, it would be naive to believe that they are attainable, for clearly there cannot be criteria of absolute rightness - any more than there can be criteria of absolute truth.

This should not though, he says, mean that no progress can be made. 'As in the realm of facts, we can make discoveries ... as in the field of factual discovery, we have to lift ourselves by our own boot straps ... we can learn by our mistakes and by criticism'. This, he argues, lies at the very heart of liberalism, which is based upon the dualism of facts and standards in the sense that it believes in searching for even better standards, especially in the field of politics and legislation'. The opposing philosophy of the identity of facts and standards is, on the other hand, not only misguided, according to Popper, but 'dangerous; for even where it does not identify standards with existing facts - even where it does not identify present might and right - it leads necessarily to the identification of future might and right'.

In more recent work (POPPER,1979), he has outlined a process by which both 'facts' and standards evolve. He calls it his 'evolutionary theory of knowledge', which represents 'an attempt to apply to the whole of evolution what we learned when we analysed the evolution from animal language to human language. And it consists of a certain view of evolution as a growing, hierarchical system of plastic controls'.

In his 'Origin of Species', Darwin suggested that evolution took place through a process of 'natural selection', whereby unsuccessful biological forms actually failed to survive. They died, or were killed by more successful forms. Popper suggests a form of 'error-elimination', which is similar but also subtly different in that it 'may proceed either by the complete elimination of unsuccessful forms ... or by the (tentative) evolution of controls which modify or suppress unsuccessful organs'. He goes on to say that his theory is concerned with 'the development of error eliminating controls ... which can eliminate errors without killing the organism ... (so that) our hypotheses ... die in our stead.... Each organism can be regarded as a hierarchical system of plastic controls - as in a system of clouds controlled by clouds'. Popper contrasts this image of 'plastic control' with mechanistic notions of control in which both what is being controlled and the controlling device is thought of as more like a clock. He argues further that 'the control of ourselves and of our actions by our theories and purposes is plastic control. We are not forced to submit ourselves to the control of our theories. For we can discuss them critically and we can reject them freely if we think that they fall short of our regulative standard. So the control is far from one-sided. Not only do our theories control us, but we can control our theories (and even our standards); there is a kind of feedback here. And if we submit to our theories, then we do so freely, after deliberation; that is after the critical discussion of alternatives; and often freely choosing between the competing theories, in the light of that critical discussion'.

CHAPTER 4

THE NATURE OF PLANNING

One of the most difficult stages in tackling problems is deciding where one should start. Even in the case of a fairly well-structured problem, such as that of when to replace a car, whether to purchase a new one or a second-hand one, and which type of model to buy, it can be fairly difficult and frustrating question. Faced with the even more complex and much less structured issues surrounding planning and policy-making in local government, it becomes well-nigh impossible to make a choice which is, in even a limited sense, rational.

Nevertheless a start must be made and this attempt to clarify and elucidate some of the issues, touched upon in Chapter 1, and a number of other important, inter-related issues, will begin with a closer examination of just what is meant by the term 'planning'. In order to do this, the nature of one particular kind of planning activity, land-use planning, will be considered at some length. But, first of all, what do ordinary people mean when they talk of planning?

Some Common Perceptions and Definitions of Planning

When used in everyday speech, planning is usually thought of as something desirable, something one should do. Thus many people

plan their holidays or their business trips; they make plans for their retirement; if they are really sophisticated, they even make contingency plans, plans which take account of the possibility of varying circumstances.

The term however has come to have other, less positive connotations. When used as a label for the activities of a certain group of people in local authorities its desirability has become much more questionable. For many laymen, 'planners' are the people that forced young families into high-rise blocks of flats. They are also the people who are believed to be responsible for trying to build motorways everywhere. And when they are not actually doing such things themselves, they are allowing other people to knock down houses and put up office blocks.

Planning has also acquired a bad name as a result of its association with the central control of the economy in communist countries. Thus it is equated with state interference in the free market, so that 'planners' and 'bureaucrats' are seen to be, if not one and the same group, at least working closely together to take from the individual his freedom.

Of course planning itself is really neither good nor bad. Nor does it conform to the sort of stereotypes above. There is though a good deal of confusion, even in professional circles, as to what it really is and what it should be trying to achieve. There is also a good deal of uncertainty with regard to what its relationship with other activities, and in particular that of

politics, should be.

It will be helpful to consider briefly some of the more meaningful associations and connotations that attach to the term 'planning'. They do not constitute a water-tight, comprehensive definition of planning, but they will help to provide a context for the more detailed exploration of what is involved in land-use planning.

It is traditional, when embarking on such an exercise, to look first at the Oxford Dictionary and, although this can sometimes be somewhat frustrating and unproductive, in this case it is not entirely so. According to the dictionary, 'to plan' is 'to make a plan of, to make a design for, to arrange beforehand'. The most significant and useful of these is probably the last one, 'to arrange beforehand'. It is this aspect of planning about which there is some degree of consensus. Most writers on planning would agree that planning is essentially an activity that is concerned with preparing, in some way, for the future. One definition that has been offered and found considerable favour is that planning is 'anticipatory decision-making'. That is to say, planning is concerned with determining - beforehand - how one should act in the future. This, then, may be identified as perhaps the most central - or core - characteristic of planning.

Are there any other aspects that are worth considering at this stage? Well, according to that other 'bible' for the seeker of truth in language - Roget's Thesaurus - planning can be equated to: 'approach a problem, attach; make a plan, design, draft, blueprint; project, plan out, map out, lay out; organise,

systemise, rationalise, schematise, methodise; schedule, programme, phase; continue, devise, engineer; concoct, mature'. There are several words here which will crop up later in this thesis. A number of critics have drawn attention to a tendency to see planning in terms of piecing together designs similar to those made by architects for buildings, or blueprints similar to those made by engineers for machines. Other terms - 'systemise', 'rationalise', 'methodise' - also draw attention to the important issue of how planning should be done. Is it a technical, primarily rational process, or is there an important, perhaps over-riding political dimension? Perhaps the most intriguing definition that has been offered is that of Beer. Planning, he suggests, is 'the "glue" of organisational cohesion' (BEER,1979).

Land-use Planning

Land-use planning is essentially concerned with the development of land. In the first instance, it is concerned with whether or not development should take place at all. Prior to 1947, this was primarily a choice that was left to the discretion of whoever owned the land in question. But, as a result of the 1947 Planning Act, the right to develop a piece of land was taken away from the owner and became the prerogative of the state. The owner of the land continues to exercise the right to the existing use of the land and to its existing value but not to any change of use, that is to say development. The degree of control, granted by the 1947 Act, to be exercised by the state over development was

however limited. It could only refuse permission for the land to be developed. The initiative for developing the land remained with the owner. Development planning has thus been characterised as a system of 'negative control'. Planners, it is often said, can make plans but they cannot implement them.

Planners though, being human and seeking a more interesting and significant role in society, do not just sit in their offices and wait for private individuals or companies to come forward with applications for planning permission. They try to steer development in certain directions or, rather, to certain locations. So if a firm wishes to build a new factory in the middle of a housing estate, they are likely to get a fairly negative answer from the planners. Nor will the planners be too pleased if an individual or a building firm applies for permission to construct a house in the middle of a large industrial estate. This 'zoning', or segregation, of the uses of the land, into residential housing areas, industrial areas, shopping areas, commercial areas and so on, has been criticised (for example by JACOBS, 1961) but it has come to be accepted by a majority of both the public and by their representatives in government.

Another aspect of land-use planning, with which most people are familiar, is its concern with visual appearances. Planners are held responsible for ensuring that any new development or changes to an existing building do not adversely affect the appearance of a neighbourhood. Less obviously planners are also concerned with the impact of development on other aspects of amenity, such as noise and safety.

There are probably many land-use planners who wish that the brief outline of planning offered so far was all there was to say. The tasks they would have to perform, while not trivial, would at least be manageable. Increasingly, though, people have looked to them to perform more challenging feats and tackle less clear cut and manageable problems. They have, for example, asked them to take account of the impact of new development in relation to the volume of traffic that it might generate or the demand for new schools and hospitals.

When road building was proceeding apace and expenditure on public services was increasing rapidly - as was the case in the sixties - the consequences of 'getting it wrong' were perhaps not too great. But now, with cash limits becoming tighter and tighter and public expenditure under attack on all fronts, the need to ensure that the increased demands arising from development will not exceed available resources is absolutely paramount. This is especially so in the case of basic services like water supply and sewerage. A failure to anticipate - and meet - a growth in traffic or demand for education will mean traffic congestion or crowded schools. This is bad enough but failure to anticipate an increased demand for water or sewerage can result in a completely unacceptable situation. Thus planners today find themselves almost literally rushing around to ensure that any development they permit will not present the public utilities - the water authority, the electricity and gas boards - with demands they cannot meet.

As if this was not enough, planners may also be asked to see that development does not result in the inefficient use of resources.

For example, housing should be located so that the journey to work - and hence the demand on the road network or public transport - is minimised. Or industry should be located so as to take advantage of already existing services, or infrastructure, as it is sometimes called. Furthermore, if planners fail to meet these new challenges, they may find themselves blamed for holding up important developments, such as industrial development in areas of high unemployment. Thus planners may be found playing an active, even central, role in efforts to stimulate industrial regeneration or ameliorate inner-city deprivation.

The New Development Plan System

One approach to tackling these problems is to specify, in great detail, the pattern that future development should take. A good example of such an approach is to be found in the planning of new towns such as Milton Keynes. Extremely detailed schemes for residential housing and industrial estates can be formulated and the implications for traffic, community services and so on can be worked out. The plan can then take the form of a map showing precisely where houses, factories, offices and so on will be located and the road network and other public utilities that will be required to service them. This approach has sometimes been called the 'Master Plan' approach or 'blueprint planning'. An approach of this kind was embodied in the statutory plans that local authorities were required to submit for central government approval under the 1947 Planning Act.

One of the chief difficulties that was experienced by local authorities was the inflexibility of the plans. Approval by central government could take several years and by the time it was obtained circumstances had changed so that the plan needed modification. Furthermore, the plans were often not detailed enough to provide a proper basis for dealing with individual applications. 'They showed use zones, road and car parks, open spaces etc, in broad terms but the prescribed statutory form and content did not extend to such important - often crucial - details such as the height, mass, orientation etc, of important building elements, means of ingress and egress for vehicles, traffic management measures, planting and landscaping proposals, and so on' (MCLOUGHLIN,1973).

At the same time, the plans were criticised for being too detailed and, in the early sixties, central government set up a Planning Advisory Group to examine the operation of the 1947 Act system and to make recommendations for a new and more appropriate system. The report (PLANNING ADVISORY GROUP,1965), proposed that a new kind of plan, a structure plan, should be prepared. This structure plan would consider only broad, strategic issues and was to take the form, primarily, of a written statement of the policies which should govern more detailed and specific development proposals and decisions. The report also proposed that the structure plan should take account of a much wider range of social and economic issues, as well as regional planning policies and the resources available to the private and public sectors.

The Planning Advisory Group report did not envisage that the structure plan would form the basis for deciding planning applications or that it should contain specific proposals for new roads and so on. They suggested that these should be formulated within the framework of local plans. Two kinds of local plans would be needed, they thought. The first was a district plan which would provide comprehensive statements of policy for relatively large areas in which change was expected to take place slowly and in a piecemeal fashion. The second kind of local plan was the action area plan, which would deal in more detail with much smaller areas likely to experience much more rapid and substantial change. When the new system, which followed closely the report's recommendations, was introduced in the 1968 Planning Act, a third kind of plan - a subject plan - was also included. Subject plans were to deal in detail with important subjects such as mineral extraction, which required a county-wide strategy.

Although generally regarded as an advance on the earlier system, with its excessive reliance on maps and detailed specification of future land uses, the new system has not proved entirely satisfactory either. This is often attributed to the way in which, under local government reorganisation in 1974, the responsibility for the preparation of structure and local plans was divided between the new county and district authorities. This split had not been envisaged by the Planning Advisory Group and for various reasons, some of which will be considered in a later chapter, it has resulted in a number of difficulties of both a practical and a more theoretical kind.

Perhaps the most severe difficulties however have been experienced in relation to the actual nature of the structure plan itself. The Planning Advisory Group had talked blandly of 'strategic issues' and 'strategic guidance' but had not made it very clear what they meant by this. To begin with, it was probably a case of no-one wishing to admit to ignorance regarding the meaning of these terms.

The term 'strategy' is of course most commonly encountered in tandem with the term 'tactics' and, for most people, the two terms are understood either in relation to military-type situations or games of various kinds. 'Strategic' usually implies a longer-term perspective, so that a military campaign may be conducted on the basis of a strategy, while individual battles are fought according to more detailed tactics. Similarly, in chess, there are a number of tactical ploys, such as 'pinning' and 'skewering', which relate to individual moves, while a player may play a whole sequence of moves - or even his entire game - according to a particular strategy. While it is fairly easy to think of rough analogies to these in the allocation of land, planners have not always found it easy to distinguish between strategic and tactical policy statements. There are, in fact, very few planners indeed who are entirely happy with the present system and would point to their own structure plan as a perfect example of what a set of strategic policy statements should look like.

It would be wrong to think that central government, having imposed the new development planning system on local authorities, then just left them to it. As is the case in most fields of policy,

the local authorities were deluged with advice notes and circulars on all aspects of structure plan preparation. Local authorities could also refer to a Development Plan Manual, published by the Department of the Environment, spelling out in great detail the content of structure plans and the way in which planners should go about preparing them.

In particular, the Department of the Environment recommended that planners should formulate development planning policies only after they had proceeded through a complex and demanding sequence of operations. Thus the first stage in the structure planning process was seen to be one of defining aims (figure 4.1) for the structure plan.

Define	Analyse	Identify Policy	Generate Alternative	Select Strategy that
Aims	Information	Choices	Strategies	Best Achieves Aims

**Figure 4.1 The Structure Planning Process Recommended
by the Department of the Environment**

These aims, it was assumed, would be given to the planners by the politicians, the elected councillors in the authority. No technical or professional contribution to formulating the aims was envisaged. Planners might be able to propose appropriate means for achieving the aims or ends of the plan but the aims, it was believed, could only emerge from a political process.

The approach also raises the question of what information is to be collected and analysed. The sequence might seem to imply that somehow or other the selection of aims might influence the choice

of what information to collect but the manual does not actually make it very clear what the relationship is. And, as the extract above suggests, there is a very real danger of planners being buried - almost literally if computers are used - beneath a large volume of data.

It is also unclear just where the policy options and the alternative strategies are to come from. In most structure plans, evidence can be found for these various stages in the process being gone through but one suspects that the process often provides a rationale for a plan that has been arrived at by a very different and less rational process.

Planning in East Sussex

One authority which has been more aware than most of the shortcomings of the advice coming from central government and which has given a great deal of thought to working out a more realistic and relevant approach to planning, is the East Sussex County Council. Much can be learnt from a study of their efforts in this regard and their experiences can be used to illustrate a number of issues that are central to this thesis. In order to do this it will be necessary to outline a little of the context in which the planners there find themselves.

As in many other authorities, the planners in East Sussex are very conscious of the problems that can be caused by an unbalanced or

unstable age structure in the county's population. A high population of children calls for heavy investment in educational provision, while large numbers of young families may lead to an excessive demand for new housing. In East Sussex the problem is however rather one of a disproportionate number of old people. During the period 1961/71 'approximately 51% of the total population growth ... was accounted for by the increase in the number of persons of retirement age' (EAST SUSSEX COUNTY COUNCIL,1975). Consequently, over a quarter of the 1971 population were over 65, while in one town, Eastbourne, they constituted as much as a third, or double the average proportion for the country as a whole. This clearly has significant implications for the demand on social services as well as for future population change. An unbalanced population is also an unstable one in terms of both structure and total numbers; 'without this large net inward movement ... the population would decline, because the existing population is currently a naturally decreasing one' (EAST SUSSEX COUNTY COUNCIL,1975). It also means that the labour supply, and hence the potential of the local economy, is affected and this, in turn, has important implications for the rateable resources on which the local authorities must depend.

At the same time, the demand for labour - in Brighton, in particular, the largest conurbation in the county - is likely to grow substantially. A forecast, based on outstanding planning permissions for office and industrial development, indicates that by 1991 there may be an additional 5,800 jobs; a second estimate, based upon employment trends in the various manufacturing and

service sectors, suggests a slightly lower rate of growth - around 12,000. A reduction in unemployment in Brighton - currently only 10,000 (or 6%) - will go some way towards meeting this demand but it is thought that a substantial increase in the total population, or in the amount of commuting into Brighton from outlying towns and villages, is inevitable. Furthermore a continuing fall in activity rates (the proportion of the population who are available for work) is likely to exacerbate the problem. A closely inter-related problem is that of the level of wages in the county. In spite of the outward appearance of affluence and the low levels of unemployment, average wages are below the figure for the country as a whole.

Outside of the Brighton conurbation, the problems are seen to be the reverse, with employment failing to grow as rapidly as the workforce. At the same time there is considerable potential for additional housing development, which would lead to further increases in the population. In Hastings, close to the eastern edge of the county, there is a very real danger of not utilising the heavy investment in infrastructure - roads, water, sewerage, etc - that was made in order to help disperse the population from London. Concern at inner-city decay has led to a complete reversal of this policy with efforts now being directed to retaining the existing population by making their urban environment more attractive and developing the local economy. The East Sussex planners are therefore seeking to divert some new industrial and commercial development from Brighton to Hastings.

Balanced Growth and the Use of Targets in Plans

At the heart of the dilemmas facing the planners of East Sussex - and of many other authorities - is the problem of unbalanced growth and how they should deal with it. Many authorities have seen the solution in terms of setting targets for population growth, employment growth, and so on. In East Sussex this approach has been rejected, but there has been considerable uncertainty as to what constitutes a more appropriate one. There has been, furthermore, considerable criticism of the East Sussex Structure Plan for its lack of targets.

The rationale underlying the role of targets is seldom set out clearly in any of the structure plans, where they are to be found. There is nonetheless almost invariably an implicit assumption around that they represent a state of 'balance'. In other words if, for example, the growth in jobs by 1990, say, is less than the target figure in the plan, while the population increase is 'on target', then there will be problems arising from 'unbalanced' growth. Just what the nature of these problems might be is usually left somewhat vague. It could mean that unemployment is going to rise. But it could also result in more people commuting out of the area to neighbouring areas provided, that is, that these areas are short of labour. On the other hand, it might be argued, if the number of jobs really does grow less rapidly than the workforce, people will probably move out of the area to other areas with lower rates of unemployment. Or, if the population increase was based on the assumption of a substantial amount of migration into the area, then the immigration will simply be less.

Not only are the many possible consequences of unbalanced growth seldom spelt out, plans rarely look too closely into the desirability of one possible scenario as opposed to another. Thus, in the case of Brighton, if the planners did allow employment to grow while at the same time restricting the labour supply by not releasing much land for residential development, it is by no means self-evident that the outcome would be a bad one, at least from the point of view of working people in Brighton. The immediate effect of such a policy would be for a shortage of labour to develop and this, in turn, would probably lead to an increase in wages. Local firms, on the other hand, would be much less happy with such an outcome. Eventually of course such a shortage of labour might discourage firms from coming into the area and the 'system' would regulate itself. If however outside firms, who could afford the higher wages, continued to find the area attractive in spite of the labour shortage, the ultimate effect might be to put local firms, who could not afford the higher wages, out of business.

One possible conclusion from all this is that the assumption that a major function of land-use plans is to achieve balanced growth, is by no means self-evident. But even if it were accepted as a legitimate aim, there remains an even more severe difficulty concerning its practicality. The problems of actually achieving even a small degree of control over changes in population, employment and housing are quite horrendous. This issue will be taken up in Chapter 5, but first of all some other criticisms of the planning process in East Sussex will be considered.

Coping with Uncertainty

An apparently more serious criticism of the East Sussex Plan is the speed with which it was prepared and what appears to be the need, as a result of the inordinate haste, to modify the plan before the 'ink is dry'. Most planning authorities have spent several years gathering information on such things as past migration into or out of the area, the state of the housing stock, traffic on all the major roads and so on. All this data has then been systematically analysed, sometimes using sophisticated computer models, and the time from the initiation of the process to approval of the plan by central government has, in some cases, been as much as ten years. Thus 'by 1978 in the south east region, covering a third of the country's population, only two structure plans had been approved, four had even been through all the stages prior to approval, six had been published in draft form and one had not even reached that stage' (BLOWERS,1980).

Such an approach can be seen as reflecting an excessive attention to the importance of, and the need to resolve, one particular kind of uncertainty, uncertainty about the 'operating environment' (FRIEND & JESSOP,1969); often it is loosely referred to as 'hard' information, indicating that it is usually based on quantifiable data. East Sussex's approach can be seen, on the other hand, as showing an awareness of the importance of another kind of uncertainty, uncertainty about the actions of other agencies, including those of neighbouring authorities.

Thus, in the case of Brighton's problems, much will depend upon the extent to which West Sussex allows the population of towns to the north - within commuting distance of Brighton - to grow in relation to the increase in jobs in the area. When East Sussex published their plan, West Sussex were still busily gathering data and their intentions in this regard were very unclear. There was also a good deal of uncertainty concerning the capital programme of the water authority, on which depended the date on which several major housing schemes could start.

Thus while it may, in principle at least, be possible to resolve most of the significant uncertainties about the 'operating environment' - albeit at a tremendous cost in manpower - resolving uncertainties of this other kind is much more problematic. Discussions, of both a formal and informal kind, might well serve to reduce them to some extent but it can be confidently predicted that they will always be there. And a major reason for this is what can be termed the 'chicken and egg' problem of planning. For just as a number of important decisions by East Sussex hinge upon the actions of other agencies, so too will the decisions of these other agencies depend upon the actions of East Sussex itself.

In such a situation someone clearly has to make the first move and, in the face of all this uncertainty, take up some initial stance which will, so to speak, set the ball rolling. This is exactly what the East Sussex plan does and the value of such a move is only now coming to be recognised. Such an approach will of course necessarily imply that the initial stance taken is a

flexible one, allowing room for manoeuvre or, to use a less emotive term, for the revision of the initial policy positions taken up. It also leads to one important and extremely valuable way of characterising the planning process. This is as a process of 'strategic choice' (FRIEND & JESSOP,1969), in which policy statements are gradually refined and articulated as significant areas of uncertainty are reduced. A more pertinent criticism of the East Sussex Plan is that the importance of this process and the uncertainties that bring it about are nowhere mentioned. In fact, the particular areas of uncertainty, which need to be resolved and whose resolution may well result in significant shifts in policy, are not spelt out at all. Nor too is there any reference to the need for East Sussex to reveal its intentions in order to facilitate the planning process of other agencies. It may be that planners in East Sussex are still uncertain whether they are involved in a zero-sum game (in which it is better to conceal one's strategy from an opponent) or a non-zero-sum game (in which some sharing of perspectives and strategies may be advantageous)!

Equilibrium and Change

The extent to which planning is seen as operating primarily in a 'co-operative' mode, in contrast to a 'conflict' mode, is paralleled in the history of planning by its ambivalent and confused attitude towards such things as 'order', 'equilibrium' and 'change'. And it is in reducing this ambivalence and confusion that cybernetics perhaps has most to offer.

McLoughlin, whose advocacy of the 'systems approach' has already been discussed in Chapter 1, suggests that 'in the last sixty or seventy years of its existence, official planning in Britain has been ideologically and psychologically based on the general view that intervention was necessary ... to restore order to situations which threatened to become chaotic' (MCLOUGHLIN,1973). In other words, without plans traffic will grind to a halt, cities will choke themselves to death and so on. In economics one comes across a similar set of beliefs. Economic planning in western countries has been based largely on the work of Keynes; his key contribution was to show that without government intervention a mixed economy would always tend to find an equilibrium at levels of unemployment regarded as unacceptable. During the last few years, largely as a result of the work of another economist, Friedman, a quite different approach has gained ground, in which emphasis is placed on non-intervention by government, but it is probably the case that the need for plans to bring order to potential chaos continues to exert a powerful hold over most people, whether they be professional planners or lay people. Cybernetics would seem to suggest that the 'truth' lies, as usual, somewhere in between the extreme positions taken up by the politicians, who now espouse one or other of these economic theories.

Part of this 'middle-way', suggested by cybernetics, was implicit in the earlier discussion of 'balanced growth'. There it was noted how a shortfall in population growth with respect to an increase in jobs might result in higher wages, which in turn might discourage the creation of more new jobs; or it might attract

more people into the area. In either case, the problem of 'unbalanced growth' might simply resolve itself. Or, as one of the most eloquent exponents of cybernetics would put it: 'equilibrium is restored in the act of being lost' (BEER,1966). What cyberneticians like Beer are pointing out is that in nature there are numerous examples of processes like this, in which, without any outside intervention or 'controller' order, as represented by a state of equilibrium, is restored. Such 'equilibrating' processes, as they are sometime called, are therefore of tremendous importance, their existence needs to be recognised and an important job for the planner is therefore to identify them and understand them.

Up to this point, cybernetics would appear to be giving substantial support to the advocates of 'laissez faire' and minimal government intervention. It is, therefore, hardly surprising that Hayek, who received the Nobel Prize for Economics and is regarded by some as the 'father' of Friedman's Chicago School of Monetarism, is also cited in the works of cybernetics. Cybernetics however goes further and points out that while it may be true that, left to themselves, systems will eventually 'right themselves', or find a new state of equilibrium, the outcome may not always be a very desirable one. Disequilibrating processes, in which a small change, or imbalance, is magnified - by positive feedback - may take over and bring about a situation which is not only undesirable but from which an equilibrating process makes it very difficult to escape.

A classic example of this, which has already been touched upon in Chapter 2, is the running down of public transport in many large cities. Rising affluence results in more people using cars to get about and this, in turn, leads to traffic congestion becoming more of a problem. This then makes it difficult for buses to run on time and people, who previously preferred to use public transport, find themselves having to use their cars in order to avoid waiting around at bus-stops or to be sure of arriving at work on time. This causes a further twist of the 'vicious spiral' downwards and the end-result, in some American cities at least, is an almost non-existent public transport network. A more controversial example might be that of the British economy, which may be currently experiencing a similar 'vicious spiral' as unemployment generates more unemployment.

Guiding Change

This raises the key question of how and when an intervention should be made. Interestingly enough, one of the most eminent of those who laid the foundations for the profession of town and country planning, Geddes, was probably closer to an answer to this question than most of his modern successors. Geddes was trained as a biologist and a botanist and saw urban growth as an organic, evolutionary process. The idea of a survey, as a necessary precursor to preparing a plan, originated with him but he saw it as 'something that would give the planner a sensitive understanding of an existing environment and enable new growth to

be grafted on to it without changing its essential character' (RAVETZ,1980). This notion of exercising a subtle and benign influence on an existing, naturally evolving order, was shared by another eminent writer on planning, who argued that 'significant improvements will come only through applying art and thought to the city's central human concerns, with a fresh dedication to the cosmic and ecological processes that enfold all being. We must restore to the city the material, life-nurturing functions, the autonomous activities, the symbolic associations that have long been neglected or suppressed' (MUMFORD,1961).

Valuable as such exhortations are, there is clearly a need for more specific and concrete guidance to give to the practising planner who would like to follow in the steps of Geddes and Mumford. As is so often the case, it is easier to point to examples of how not to do it, than to examples of practice that reflect such an 'organic' concept of planning. Many would now point to the city centres that become a concrete no-man's land at night, high-rise blocks of flats that no-one wants to live in, new council estates that become vandalised ghettos after just a few years. Such problems were anticipated by at least one writer (JACOBS,1961) but her warnings were ignored. More recently, another American has demonstrated, using computer models of urban systems, how they often respond in what he calls a 'counter-intuitive way' to attempts to solve the problems of urban decay (FORRESTER,1969).

It is difficult to do justice to his work without recourse to the mathematical relationships and computer calculations on which it

is based. One can however gain some insight into the basic ideas by means of simplified example. Thus suppose a local authority is concerned with the emigration of a substantial proportion of its population from the area to outlying areas and it is especially worried by the result of a recent census, which shows that many of the emigrants are young, skilled workers. It might believe that the reason for their leaving was too long a council house waiting list or the generally 'grotty' environment in some of the inner-city areas. It decides to embark upon major building programme. Before long, the costs of this programme have forced rates up and the increases fall especially heavily upon local firms. This may lead eventually to some firms deciding to move out of the area and yet other firms being discouraged from moving in. Unemployment rises and consequently, instead of migration out of the area being reduced, it is actually increased.

The trouble with an example like this is that although the argument is a plausible one, it is not difficult to suggest alternative outcomes at almost every stage in the argument. For instance, the assumption that a higher rate will cause local firms to move out of the area is questionable, to say the least. Understanding of the factors which cause firms to locate in an area or decide to move out of it is not all that well developed and, one could equally well argue, an improved environment and better housing could prove to be a more significant factor and result in firms moving into the area, in spite of the increase in rates.

Forrester's models, although more complex and sophisticated, nonetheless depend in a similar way upon assumptions about relationships that can easily be criticised. This has led to their rejection by many people. However, while the conclusions to be drawn from a particular model may well be dubious, there is a danger of missing the essential point that Forrester is trying to make. This is simply that in a complex system, the consequences of apparently desirable and well-meaning interventions may turn out to be very different from those anticipated.

CHAPTER 5

PLANNING AND THE CONTROL OF COMPLEX SYSTEMS

In the previous chapter, the possible aspirations of land-use planning were discussed without much account being taken of the very real obstacles which stand in the way of such aspirations being achieved. Of particular importance in this regard are the difficulties of actually exercising control over the use of land and the various other activities with which land-use planning is concerned and the inadequacy of the feedback on which effective control must be based.

It is the failure to recognise these problems that has led to the application of the so-called 'cybernetic' model of control in the 'systems approach', as described in Chapter 1. If planning is to be effective, it must come to terms with these problems and this, in turn, requires that a more appropriate concept of control should be developed. Before looking at some of these problems, it will be helpful to look briefly at the more limited and simplistic models of control on which so much of present practice appears to be based.

Control in Engineering Systems

The basic concept of control originated in engineering control and is more directly applicable to relatively simple systems, such as

electronic devices, where a rigorous theory of negative feedback control can readily be applied. The classical situation is one in which the aim is to keep the output of a device as constant as possible in the face of random disturbances from its environment which cause the input to the device to vary. In many cases, both input and output can be described in terms of a single variable, such as current or voltage. More ambitious applications can be found in the control systems of oil refineries and petro-chemical plants but even here the basic control problem is essentially a simple one. Seldom are more than a few variables being controlled and their inter-relationships can be described in a relatively straightforward way; any environmental disturbances are assumed to be unrelated and random.

Not only are the workings of such a system supposed to be well understood but, furthermore, control is exercised very directly by means of specific actions whose effects are predictable and readily enforceable. Systems performance is monitored through a limited set of quantitative indicators, the current levels of which indicate deviations from the desired stable state of the system. If the system appears to be moving significantly out of control, the range of possible interventions open to the controller can be reviewed, their effects predicted and a preferred intervention can then be chosen by reference to intended aims. If there is more than one such aim - for instance, if a balance is sought between the rate of production and the quality of a product - then it is supposed that these can be brought together within a single 'objective function'. Under these conditions the control system can, in theory, be fully automated:

once the initial objectives have been defined, little or no human intervention becomes necessary.

Among the assumptions underlying such control is the assumption that the system is clearly circumscribed and that its state has little or no effect on the behaviour or state of environmental variables. On this assumption, the main problem in designing control devices can be seen as that of ensuring that environmental disturbances do not result in unstable behaviour and that transient responses can be rapidly damped. Furthermore control is only ever exercised over the system itself; environmental disturbances are assumed to be uncontrollable.

Despite these stringent assumptions, the simple feedback model is one which has often been invoked in the design of monitoring processes in the urban planning context, as may be seen from a cursory examination of several authorities' accounts of their planning process (FLOYD et al,1977).

Management Control

The essential difference between engineering control and management control lies in the removal of the assumption that it is desired to maintain a given steady state, the characteristics of which do not change over time. In the management situation, it is supposed that targets for outputs may be changed over time: in the simplest case, targets for production may be changed from

month to month or year to year, based on some prediction of changing demand or other variables. If the system appears to be moving significantly away from its desired trajectory, the opportunity arises to review the trajectory as well as the performance and modify the desired trajectory if the earlier targets now appear to have been unrealistic.

A classic instance of this type of system is a financial control system which involves an annual budgeting process. Although many organisations have sought to automate the control aspects of such a process, the budgeting process still calls for judgmental inputs, in the form of intelligence about the dynamic forces of change within the system's environment.

In the management control context, planning is often seen as an extension of the budgeting or target setting process into a longer term future, coupled perhaps with a move away from the aim of expressing all targets in common financial terms. This concept of managerial planning has itself become a strong influence in the design of systems for development planning, assuming that the development plan is primarily an instrument for plotting a course of development for the future. Although such a view has been claimed as a definite shift away from the 'blueprint' or 'end state' orientation which was widely criticised as a feature of the traditional development plan system, the change is only marginal; in many cases, the concept is now simply that of a moving 'end state' or an evolving 'blueprint'. In keeping with this management control model, the role of the monitoring process may be seen as one of not only detecting

departures from plan but also of identifying conditions in which the plan itself should be changed. Often however this latter task is seen as coming within a distinct 'review' activity.

Controlling Changes in Population and Employment

The difficulties that the real world presents to any attempt to 'implement' plans in this way will now be considered. It will be recalled from Chapter 4 that a central theme in much planning work is the need to keep population and employment in balance. That is to say, planners do not want the numbers of jobs to grow so fast that there are not enough houses to accommodate the larger work force needed. Nor do they want the number of houses being built to result in an influx of people in excess of the number of jobs being created.

Probably the most significant obstacle to achieving such aims is what are usually referred to as the 'time lags in the system'. The local authority's main control lever, in relation to both people and jobs, is their power over the development of land and, in particular, their statutory right to refuse an application to build a house or a factory on a specific piece of land. But the consequences of granting permission are far from clear cut. There is no obligation on a developer to proceed with his application and he may sit on it for several years and may, in fact, never take it up. After a certain number of years, it may be possible for the local authority to revoke its permission but

this seldom happens. A recent study (HEALEY et al,1982) found that in one area, over half of the permissions granted in one year had still not been taken up a year later.

It is equally difficult for the planners to forecast accurately just how great an increase in population will result from a given development. An important factor is the average size of households. If this is, say, exactly two people, then 4000 people will require just 2000 new dwellings. Conversely, 2000 new dwellings will then give rise to an increase in population of 4000. This average household size is however not a constant and, over the years, it has been steadily getting smaller.

Furthermore it will obviously depend upon the age distribution of the population. A high proportion of old people in the population will mean more households of just two people or even one. A large number of young families will mean many larger household sizes. Planners can influence whether buildings are occupied by one group or another by, say, giving permission for a block of one or two bedroomed flats but this degree of control falls far short of that required. Their difficulties in this regard are made greater by the fact that there will always be a certain proportion of buildings which are not occupied. This 'vacancy rate' varies from one area to another and, like the average household size, also changes over time.

Even greater problems are experienced in controlling changes of employment. The planners can give permission for a new factory or office, with a certain (maximum) amount of floorspace. Just

when the factory will be built is no more predictable than in the case of houses; and just how many people it will employ is even more uncertain than is the number of people that will occupy a given housing development. Different kinds of industry will clearly have very different characteristics in this regard. As in the case of housing, some degree of influence can be exercised over the kind of industry that is permitted in a new development but their control over changes in use is extremely circumscribed. This is partly on account of the way in which distinct 'classes of use' are defined. Instead of their being related to such things as the average number of employees for every thousand square feet of floorspace, they are concerned rather with the nature of the product, whether the manufacturing process produces 'noxious odours' and so on. Examples of such classes are 'catgut manufacture, fish curing, animal charcoal manufacture, bone boiling, blood boiling'! This problem is further exacerbated by there being certain categories of development - for example Ministry of Defence buildings and some buildings and some development by statutory undertakers like the water authority - which do not require planning permission.

Information on the Actual Population and Employment Levels

If steering the local ship of state is a bit like driving a very old car with a tremendous amount of slack in the steering wheel, the driver's vision may be likened to that provided by a shattered windscreen. In fact, it is in some respects worse, for with a

shattered windscreen you can look out of the side windows to see where you are and out of the back window to see where you have been. The planner seldom knows even where he has been, let alone where he is now.

Except that is every ten years! For every ten years the government sends round questionnaires to every household in the land and finds out how many people are living there - and much else besides. So when the results of this Census, as it is called, becomes available, very precise information on the population of an area can be obtained. But then during the ten years which intervene between each Census, this information becomes increasingly out of date and planners have to try and determine what changes in the population have taken place. There are no standard ways of doing this and each authority seems to tackle the problem in a slightly different way. Most of them though will make use, to different extents, of a variety of indirect indicators of change.

These include such things as new housing completions - data on which can be obtained from the building inspectors in the district authority - school rolls, and the electoral register. Most authorities have computer programmes which, given such data, will produce 'small area' population estimates. The problems inherent in making such estimates are all too apparent however from the often large differences that emerge between a local authority's own estimate of the population in its area and central government's estimate. These differences take on a much greater importance than would be the case if it were only the planners who

were interested in the figures, for they also form the basis for calculating the level of rate support grant the local authority receives from central government.

Estimating the number of jobs in an area is equally problematical. The Department of Employment carries out an Annual Census of Employment and computer tapes, on which the data are stored, are made available to local authorities, as well as print-outs of the data. The data do not though make it possible to estimate absolute levels of employment but only really permit comparisons to be made between different industrial sectors or between one year and another. Most local authorities place as much, if not more, reliance on 'softer' forms of information, such as newspaper articles or factory closures.

Not surprisingly it is even more difficult to 'see the road ahead' and forecasts of population and employment changes require many assumptions, and some of a rather dubious nature, to be made. Several authorities, including East Sussex, have computerised their planning application data so that data, on whether the application was approved and when, the number of dwellings or the amount of floorspace and so on, are readily available. In spite of the uncertainties concerning the take-up of the applications, these data can be used as a basis for forecasting population and employment changes. Quite apart from the difficulties of translating planning applications data into changes in population or employment, there is yet another problem with regard to relating changes in the one to changes in the others. At any one time only a certain proportion of the population in an area are

economically active, that is available for employment; like household occupancy rates and vacancy rates though, the 'activity rate' is not a fixed quantity. With more old people in the population, or more children, the rate will fall. If more married women work, it will rise. Predicting what the rate will be in even five years time is therefore tremendously difficult.

Determining which Control Action to Take

Land-use planning has been likened to trying to drive an old car with very ineffective steering and a shattered windscreen. This comparison though could be said to be making it sound too easy. At least the driver of such a car does know that, if he wants to change direction, he should turn the steering wheel; if he wants to slow down, he should operate the brake, and so on. The planner, on the other hand, even if he were better informed on where he was and where he was going and knew just what effect a particular action might have, faces yet another difficulty.

Suppose, for example, that the planners in East Sussex knew for certain that unemployment was increasing in Brighton and that this was because more people had moved into the area during the last five years than was warranted by the increase in employment that had taken place over the same period. Suppose further that they could predict exactly the consequences - in terms of increases in employment and population - of any planning application being granted. The question remains as to whether they should relax

their restrictive policies on employment. Has the short-fall in jobs resulted from these policies or is it rather the result of national economic conditions? If the policies are having the effect of holding back employment growth in Brighton, are they - as was hoped - at the same time making it more likely those same jobs will be created in the less prosperous areas of the county?

One further aspect of this problem should be mentioned before moving on to consider how a more appropriate concept of control might be developed for such situations. This stems from the fact that, like rules, policies are made to be broken. They are not binding on the authority and the elected members, in particular, do not always feel that they should adhere to a policy just because it is in the structure plan. Should they refuse an application that the policy indicates should be permitted, the applicant can appeal and will probably be successful. But no such appeal can be expected should they allow one that should have been refused, according to the policy. The division of the planning function between counties and districts has made such an eventuality even more likely and a number of counties have experienced considerable difficulty in getting their districts to adhere to structure plan policies, even when these have received the official seal of approval from the Secretary of State for the Environment.

Changes in Policy

Just what is meant by the term 'policy' and the many forms it can take is something that will be explored in some depth in a later chapter (Chapter 7) but, for the time being, it will be enough to note that, in many respects, it can be regarded as determining the 'behaviour' of a local authority. Consider, for example, one of the policies in East Sussex's Structure Plan:

'These types of development will normally be acceptable where the predominant activity of the firm, business or organisation is to serve all or part of the Brighton area. Moreover, any permission given will be restricted to a total increase in floor area not exceeding 25 per cent over that occupied by the firm, business or organisation within the area on 1st January 1975'. (EAST SUSSEX C C,1975)

Such a policy says, in effect, how the local authority will behave when an application of a certain kind is received. A change in the policy would represent a change in its behaviour. By regarding policy in this way, it becomes possible to see the likelihood of a link between the question of what should trigger off changes in policy and Ashby's work on ultrastability, control and essential variables. The form of control envisaged by Ashby, it will be recalled (from Chapter 2), is concerned not with triggering off pre-determined responses to situations, as in the case of a simple thermostat, but rather with triggering off changes in behaviour or, as would be the case here, with changes in policy. These changes in policy would then be triggered off

by information revealing that certain 'essential variables' in the socio-economic system with which planners are dealing, were straying outside of their limits.

The rationale for wishing to maintain these 'essential variables' within certain limits would be, as in the case of natural organisms, that they are closely inter-dependent, so that if one goes out of control, they all go out of control. Thus population, employment and the number of houses might be regarded in this way. If however they are to be maintained within certain limits, it would be necessary for fairly up-to-date information to be obtained on them. This points to things such as housing completions, the unemployment rate, the number of vacancies or volume of traffic on a certain road at a given time, being monitored closely.

One or two planning authorities, such as that of Hertfordshire (HERTFORDSHIRE C C, 1976), have attempted to develop a planning process something along these lines but success in operating it has been very limited. Probably the most difficult part of any such exercise is determining the limits of the 'essential variables'. It is possible that computer simulation models - particularly those of the kind developed by Forrester - might help here but, so far, those authorities that have attempted such an approach have relied more on intuition than anything else.

This is not the only problem though. Nothing has been said so far as to how quickly the behaviour of the organism, or the policy on, say office building in Brighton, is going to stop changing and

settle down. Developers, in particular, would be most unhappy if the policy were to be changed every week or so. Talk of maintaining 'essential variables' within prescribed limits would not impress them or assuage their irritation with the planners. Nor, for that matter, would the councillors or the Department of the Environment be all that happy. Ideally then the 'trial and error' or 'hunt and stick' process, as Ashby calls it, will rapidly 'home in' on a policy that successfully maintains the 'essential variables' within their limits for a wide range of development pressures without any change being needed. In other words we are looking for a process whereby the policy becomes 'adapted' to these pressures over quite a short period of time and changes are only required when major shifts in external circumstances occur.

Ashby has proposed that adaptation of this kind would take place sufficiently rapidly provided the environment that was being adapted to was what he calls 'polystable', that is rich in states of equilibrium; and it consisted of a large number of sub-systems that were only weakly inter-connected. In translating this into the situation with which planning deals, he may be saying that the planning process described above would work if it were possible to divide up the real world, with which it must deal, into relatively autonomous sectors, such as housing, transportation, and so on.

This, of course, is what actually happens in practice. But what if this process of dividing the world up fails in its object of yielding relatively autonomous sub-systems? Increasingly it is being suggested that this is precisely the reason for so many of

the world's problems (BOHM,1980) and, as was discussed in Chapter 3, it has been suggested that it also underlies many of the mistakes of modern architecture (ALEXANDER,1964).

An interesting concept, which may offer us a way out of this difficulty, is Popper's concept of 'plastic control'. If one simply substitutes 'plans' for 'theories' in his definition of this (in Chapter 3), then one obtains a very interesting statement of the nature of planning and, at the same time, of a more realistic view of the way in which plans will determine what happens in the real world. In other words just as engineers are guided in what they do by an array of scientific facts, hypotheses and theories, so too can planners - who are, after all, a kind of social engineer - be seen as doing what they do within a framework provided by information on population, policies and plans. Policies will thus change not only as a result of the kind of process discussed in the previous section but also as a result of the kind of critical debate and search for coherence that, according to Popper, characterises scientific approaches to problem-solving. If an engineers's drawing is part of a process which, hopefully, will ensure that a bridge does not fall down, then a plan is part of a process which, hopefully, will ensure that high-rise flats are not built and riots, such as those seen in Brixton and Toxteth in 1981, do not occur.

CHAPTER 6

INTER-ORGANISATIONAL PLANNING

Questions concerning the nature of planning are fascinating and, until satisfactory answers to them are found, planning will continue to be a somewhat confused, confusing and often ineffective activity. However, for the planner, faced with the immediate problems of, for example, whether or not a by-pass round Brighton should be built, the issues may appear rather abstract, not to say esoteric. Instead of dithering around the fringes of a vast social and economic system, agonising over where and how he might intervene, he is much more likely to be in the 'thick of it', grappling with concrete problems and in danger of becoming hopelessly entangled in a network of interconnected decisions and uncertainties. For him a much more real cybernetic issue is how to draw a boundary round the problem with which he is dealing or, faced with a large complex set of inter-related problems, deciding where to start in attempting to resolve them. In other words, how should he define the system with which he is concerned, and what should be regard as significant in its environment?

Drawing a Boundary round the Brighton By-pass

At first sight, the question of whether or not to build a by-pass round a town is a simple one: if existing roads through the town

have too much traffic on them, resulting in congestion and delays, then presumably a by-pass is needed. And at first, it might appear that there is little more to be said, apart from deciding on a line for the by-pass and on what its capacity should be, that is whether it should be an ordinary two-lane road, a dual carriageway, or whatever. But, in fact, the question is considerably more complex than this. To begin with, there is the question of whether the present traffic congestion is going to continue if a by-pass is not built. Until recently no-one would have thought of raising such a question. Since the invention of the motor car, traffic has increased year after year and there seemed to be no reason why it should not go on doing so. Then, following the Arab-Israeli war, the large increases in oil prices and a growing awareness of the finiteness of the world's resources of oil, growth in traffic ceased to be an accepted fact of life. So now, although there are few signs of traffic actually declining, objectors to the new road schemes can legitimately raise the question of whether a new road will be needed in, say, ten years time.

And it is a question that is singularly difficult to answer. Virtually no-one anticipated the events that resulted in the present concern with the future supply and cost of fuel and, given the present unsettled situation in the Middle East, no-one can predict with confidence that equally untoward and unexpected occurrences will not be repeated. Thus the planner, sitting in his office and attempting to decide whether a by-pass should be built, could quite easily find himself attempting a political assessment of the future of Iran under the Ayatollah Khomeini.

Or, recognising that this was perhaps somewhat outside of his professional expertise but that the future price of petrol might depend to some extent on the use of alternative fuels, he might instead decide he needed to know more about Britain's nuclear power programme.

Most planners, though - and they will tend to be the ones who stay sane - eschew such a broadening of the boundaries of their problem. They will probably refer simply to the view of, say, the Department of Transport. If the Department is forecasting a growth in traffic up to the year 2000, then that will be good enough for them. Their problems will not however be over. For future traffic is also going to depend upon changes in land-use, especially those affecting where people live and work. A new housing estate or the closure of a large factory, may well have a major effect on traffic in the town - and on how much of it might transfer to a by-pass, if built.

Uncertainties of this kind are much harder to deal with. They cannot be sloughed off by referring to some authoritative source of information. They are the kind of uncertainties which tempt planners, and others, to broaden the boundaries of their problem in a different sort of way. They feel the need to consider a whole cluster of decisions at the same time. To consider one in isolation would be considered reprehensible. In fact, some writers have suggested that it is the inter-relationships between a number of decisions that make necessary the activity of planning.

Having drawn a boundary around such inter-related choices, the question then becomes one of where to start on the large and often very complex problem that results. Or it may present itself as a question of how to break down the large 'strategic' problem in such a way that several individuals can go away and work on it at the same time.

Local Plans and Structure Plans

It is quite helpful to see the present land-use planning system with its hierarchical structure of regional, structure and local plans, as one way of tackling such a problem. To simplify somewhat - and adopt a fairly restricted view of the function of planning - it may be supposed that the 'strategic' problem is essentially to accommodate a given level of population growth in a county, such as East Sussex. Not only must certain physical constraints, such as not building in the many areas of attractive landscape, be observed; the present economic climate means that the resources available for new houses, new roads and community services are limited.

In theory at least, it would be possible to tackle this problem 'in one go', so to speak, and work out a very detailed allocation of land to housing, roads and so on, sufficient to cater for the growth in population, and then cost it out in equally great detail. If the total amount of resources required turned out to be greater than those likely to be available, then economies would

have to be sought. To attempt such an exercise on a county-wide scale would however require an availability of detailed local data - on existing land-use, physical constraints on building and so on - and an analytical capability that simply does not exist in any county authority.

The solution proposed by the new development planning system is, in effect, to tackle the problem in two stages. First, it is suggested, the population growth over the county as a whole should be allocated to a number of smaller areas. In arriving at such an allocation, inter-relationships between population growth, new housing, employment changes and transport, should be taken account of. But the physical and resource constraints would only be considered in a fairly 'broad-brush' way.

The local plan represents the second stage of such a decomposition of the problem. Given the population growth indicated by the structure plan, the local plan will be expected to show in detail just how such a population growth can be accommodated. It will contain a very precise statement of which parcels of land are to be allocated to new housing, the line of any new road that will be required, the location of new schools and so on. It will involve, too, an attempt to estimate the resource requirements of all these schemes. And not just those for which the local authority is responsible. It will also have to ensure that any new investment in water supply or sewerage facilities, by the water authority, will prove to be feasible.

This top-down view of the process was, perhaps, a natural one for central government to adopt, and adopt it they did. The 1968 Act and the subsequent Development Plans Manual, specifically require that local plans should be drawn up within the framework of the structure plan. Many planners 'on the ground', so to speak, were not so sure. From their perspective, the preparation of local plans had much to contribute to the work of the structure plan. For them, 'a broad intention for population distribution in the structure plan would need to be examined in relation to housing and housing land capacity in local areas. But at the same time the local planning studies and designs could suggest problems, priorities, opportunities and constraints which should be taken up in the structure planning process' (MCCLOUGHLIN,1973).

This bottom-up view of the planning process can be taken a stage further. The planners, who are really 'on the ground', are the ones who are actually dealing with the applications for planning permission, the development controllers, as they are called. It has been suggested that detailed (local) plans could 'almost arise from the work of development control. The case worker comes to have a very rich and detailed understanding of the area for which he is responsible - of the physical environments and its potential, of its work and its people. To discount or discard this valuable source of information (as is mostly the case at present) would be foolish in the future; the hope is that local plans will provide the formal framework for such methods of working' (MCCLOUGHLIN,1973).

Even if one accepts the top-down view of planning as a two-stage process, in which strategic decisions are taken first and then translated into more detailed form, there remain questions regarding the nature of the links between the two stages. So far, attention has been focused on the possibility of strategic decisions being taken concerning the distribution of population growth in an area and then their being translated into physical forms and resource requirements. In the light of the foregoing discussion, it would of course be perhaps more sensible to talk of their feasibility, in both physical and resource terms, being tested. But one could conceive of other ways of decomposing the problem and tackling it in a way that retains the essentially hierarchical and top-down nature of the present planning process.

One alternative possibility, suggested by the planners in Hereford and Worcestershire, would be for the structure planning stage to produce an allocation of resources, rather than a distribution of population. The local planning stage would then determine how many houses, community facilities and so on, could be provided for this input of resources and hence the level of population growth that could then be accommodated.

Counties and Districts

The Planning Advisory Group, whose recommendations formed the basis for the new planning process and, in particular, the separation of planning into two stages - structure and local

planning - reported in 1965 and the new process was given statutory form in an Act of Parliament in 1968. Six years later, in 1974, a major reorganisation of local government took place, creating a new two-tier structure of counties and districts. Many of the problems experienced in relation to the new planning process are generally regarded as stemming from the division of the planning functions into two parts, one the responsibility of the counties and the other of the districts; such a division had not been envisaged by the Planning Advisory Group.

Thus, in most areas of the country, development control - the processing of the application for planning permission - is carried out primarily by planners working in the districts. Local plans too are prepared chiefly by other district planners. The work of structure planning, on the other hand, is done by planners in the county. Apart from the obvious difficulty this creates for a close inter-linking between the two activities, the division poses difficulties of a more political kind. Where a county and its district are controlled by different political parties, there is often a great deal of conflict with regard to the actual policies in the structure plan. Even where political control lies with the same party the allocation of resources, that a particular population distribution or policy in the structure plan implicitly represents, may be a source of bitter conflict. In relation to differences in the attitudes of districts to their county's structure plan, one research study found that 'such variations could be traced in most cases to political assessments of where district interest lay, especially in relation to any policies with either an explicit or an implicit element of territorial

redistribution of either resources or the costs of growth. Such attitudes were to be found both in cases where there was a difference in the political control of authorities and in cases where districts, county and central government, were under the same party, though there were always particular issues in contentious fields, such as that of housing policy, where differing party ideologies tended to come to the fore' (FRIEND et al,1981).

There has also been a great deal of conflict over the actual scheduling of local planning work. In theory, this is something that should be hammered out between the county and the districts. In fact, many districts have gone their own way and there are still areas where there is still no agreed scheme. This is probably because the scheme, superficially a rather boring and innocuous document, represents a critical set of choices over priorities in relation to development and the allocation of resources. Thus the publication of a local plan can be not so much a coherent and objective translation of structure plans into detailed programmes of investment as a significant bid for scarce resources.

The length of time elapsing before a county's structure plan reached the point of central governmental approval has also created tremendous problems of co-ordinating the work of local planning with that of structure planning. Clearly with approved structure plans in only two counties by 1977, the work of local planning could not be delayed until an approved structure plan was in existence. Furthermore, with the major changes taking place

in the 1970's, and assumptions of growth giving way to recession and scarce resources, local planners have often found that no sooner did they have an approved structure plan on the table than the county would be conducting a major review of it!

Getting the Firms in or the Plans out?

Meanwhile, time waits on no man, not even planners. While all this structure and local planning activity has been going on, the developers in some areas have become increasingly vociferous in their complaints that not enough land was available for development. In the past local authorities have always included - within the definition of what they call 'available' land - sites which have been released but for which the necessary infrastructure may still be wanting.

This may have been reasonable at a time when public expenditure was less rigidly constrained but, increasingly, developers have been finding that many sites are not in fact available - at least in the short term - because resources are not immediately available for servicing them. Sometimes, in order to get things moving developers have found themselves having to make substantial contributions towards the capital costs of putting in a water supply, sewerage or access roads. They have passed this cost on in the form of higher house prices, with the result that the individuals who buy them are, in effect, paying for something which normally they could have expected their taxes to have covered. In other cases, local authorities have found themselves

having to grant permission on land that was not originally intended for development. According to a major survey, these may amount to as much as half of all permissions (HOUSE BUILDERS FEDERATION, 1977).

Furthermore, many structure plans have failed to get to grips with this problem. Contrary to the advice from the Department of the Environment, they have tended to assume that most development in the short-term and medium-term (the next five years) will take place on land where permission has already been granted or which has been released for development. Seldom have the resource implications of this assumption been investigated, although presumably some assurances were received from the relevant agencies - who would also have been able to raise this issue at the Examination in Public of the structure plan.

On top of all these pressures on planners to short-cut the lengthy and complex planning process brought about by the 1968 Act, there is the problem of making a local plan 'stick'. It is one thing to draw up a neat, well thought-out and researched plan for development in an area and another thing to ensure that the capital investment it requires will actually come about. Other agencies may agree to the feasibility of their providing the necessary services by a certain date, but their appearance in the plan falls far short of a legally binding obligation. In other words, the planners may find a very good 'solution' to 'the problem' but there is no guarantee that anyone else, even other departments in the local authority itself - will implement that solution.

Consequently, there are several areas where planners have engaged in activities that receive little or no recognition in the 1968 Act, or the accompanying Development Plan Manual. In East Sussex, for example, the planning department has tried to ensure that its work is relevant to, and influences, the processes in the authority whereby priorities for expenditure are determined and, in particular, those relating to the authority's capital investment programme. Thus the preparation of its Annual Position Statement is synchronised closely with the drafting of a report for the authority's Policy and Resources Committee. Similarly, a close relationship has been developed with the Transport Policies and Programme team in the Engineer's Department.

Attention is also given in East Sussex to influencing the capital investment programmes of other agencies, such as the water authority. The approach they have adopted can be seen as representing not only a move towards viewing the planner's function as that of a co-ordinator, but a shift away from what might be termed the 'parade-ground' concept of co-ordination, whereby one omniscient authority dictates to other agencies exactly when and where development and investment should take place. Many planners are increasingly seeing themselves as 'reticulists' (FRIEND et al, 1974), identifying not so much when and where development should take place as when and where co-ordination and consultation should take place between other agencies, and facilitating it wherever possible.

The Planner as Reticulist

The 'reticulist' concept is an interesting one. In many ways it is a more acceptable and respectable name for what is commonly known as a 'fixer' or a 'wheeler-dealer'. It is rather more than this though and it is useful at this point to return for a moment to the earlier, simplified, two-stage model of the planning process. This, it will be recalled, involved a strategic authority - the county - identifying 'the problem' - or, in reality, a set of inter-related problems - arriving at a 'broad-brush' solution to the problem; and then inviting other authorities, the districts, to 'fill in the detail'. What is being seen in several authorities - most notably, perhaps, in Berkshire - is the development of a very different kind of approach, in which the local agencies go ahead and attempt to 'solve' their local problems; and the role of the strategic, county authority is to facilitate the process of mutual adjustment, of expectations and solutions, that will inevitably be required.

Such an approach raises a whole lot of interesting questions, the answers to which are not to be found in any text and which planners are having to work out for themselves as they go along. For instance, having identified the need to involve the water authority in some kind of co-ordination process, the Berkshire planners are faced with the question of which organisational level in the water authority should be approached. Should it be the regional water authority, or one of its divisions? And which department in the authority would be the most appropriate one to

deal with? And then there is the question of who exactly should be involved. If meaningful commitments are required, then the representative will have to be a fairly senior officer. But the pressures of time on senior officers will inevitably be greater and, if a considerable investment of time in meetings or whatever is going to be needed, then someone more junior will probably have to be sought. On the other hand, if effective participation in the co-ordination process is going to require a high degree of political awareness and sensitivity to constituency interests, the involvement of the chief officer in the authority, or even of elected members, may be essential.

Then there is the question of what form the co-ordination process should take. A major aspect concerns the degree of formality which should characterise the process. At one extreme there is the possibility of it being conducted largely by means of ad-hoc telephone calls, while at the other, one can envisage a very formal process of regular meetings of representatives of each agency, where discussion is centred on a detailed agenda and the objectives for each meeting are clear and specific and what takes place is minuted.

Then there are questions of timing. Mention has already been made of the planners of East Sussex synchronising their work with their own authority's capital budgeting process. If they are to influence the investment programmes of other agencies, they must develop an equally sensitive appreciation of the planning and investment processes in other agencies and, in particular, of the timing of important decisions. To take an extreme example, if

the time required to develop an increased sewerage capacity in an area is, say, five years, then informing the authority that such an increase will be needed in six months time is not going to be of much help - however thorough the analysis leading up to the recommendation and complete the information on which it is based. Often though the synchronisation needed will be a matter of producing a piece of information, a report or whatever, by a certain date, on which a committee meets - or rather, sufficiently in advance of it in order for it to be digested.

Chicken and Egg Situations

Perhaps the most fascinating and most important aspect of the reticulist function is that relating to what has been termed the 'chicken and egg' situation. Or, to mix metaphors, how can the planners 'get the ball rolling'?

At one extreme, there is the basic and probably still the most common mode of proceeding, according to which one authority produces its set of proposals and other authorities then comment upon them. Such a process of consultation may require the other authorities to simply state whether the set of proposals is acceptable or not. One possibility here might be for the first authority to invite the other authorities to comment upon a range of options and, perhaps, express a preference for one set of proposals over another. The difficulties arise however when an authority finds it difficult to even formulate its proposals until other authorities have 'come clean' regarding their intentions and

these latter authorities are in precisely the same dilemma regarding the uncertainties about the intentions of the first authority. This is the 'chicken and egg' situation referred to earlier. Thus one of the officers in a regional water authority might complain that the planners in the districts are very unwilling to commit themselves to a particular development until they know what servicing constraints exist. But when the planners approach the water authority to try to determine whether there will be any problems in providing water or sewerage at a site, the water authority is likely to respond that in order for them to answer such an inquiry, they need to know exactly what is required over the area as a whole; only then, they say, can they determine where financial constraints are likely to bite and which developments may have to be delayed.

It would of course be possible for planners in the county to ask, say, the water authority to produce for the districts a detailed capital programme - putting on one side their concern to 'fit in' with the districts' needs - and then let the districts try to produce a development programme that took account of the resulting constraints as far as possible. It might turn out that some additional investment in water supply or sewerage was going to be required. The water authority might then revise its capital programme and try to meet as far as possible the servicing needs of the districts' development proposals. After several such iterations of this process of mutual adjustment, a mutually acceptable set of development proposals and capital investment might eventually be arrived at. And then again, it might not. Or it might take far too long.

CHAPTER 7

THE NATURE OF POLICY

Although the term policy has been used occasionally in earlier chapters, very little has been said regarding its precise meaning. In effect, it has been assumed that it is a term in common usage and that most people have a fairly good idea of what is meant by it. This is alright up to a point but the time has now come to consider more carefully the nature of policy. The assumption that policy statements are all of one kind can be a very dangerous one and many of the problems experienced by planners in local authorities stem from a failure to recognise that policy can take a variety of forms and serve a variety of purposes.

Different Kinds of Policy

One of the misconceptions that underlies so much discussion of policy is that policy is always of the 'Ten Commandments' kind, that is 'thou shalt ...' or 'thou shalt not ...' Such a policy statement not only gives very explicit instructions on what should be done, it contains no 'ifs' or 'buts' or any qualifications; nor does it offer any rationale. It is rather like a recipe, which says 'take 4oz of butter, place it in the bowl.... Heat the oven to 380°F....' and so on. Would it matter if one measured out 5oz of butter, or heated the oven to 390°F? The

recipe does not say. It is not possible to work it out because the reason why it prescribes a temperature of 380°F is not stated. Anyone who has tried to follow a set of instructions for almost any device, such as a new camera, will know the frustration that this kind of approach can give rise to. Developers experience the same kind of frustration when faced with policy statements of the kind 'no development will be permitted on Site X' or 'building will be at a density of 20 houses per hectare'. Such statements leave no scope for the exercise of discretion.

Although a computer program that will bake a cake is still not on the market, a simple program is, in fact, a slightly more complex form of policy statement than a recipe. Thus in a computer program consisting of a series of instructions - to manipulate numbers usually and not food ingredients - some of the parameters of the program can be varied. In other words, the amount of butter in the recipe might be a variable quantity. Changing these amounts to what in was referred to in earlier chapters as a change in behaviour. Surprisingly, one comes across few policy statements of quite this kind. Perhaps, with the advent of micro-computers and increasing familiarity with computer programming, one can expect planners to express their policies in such a way more often. Then one might find a structure plan containing a policy such as 'all applications for development in villages with a population of less than X will not be permitted. Phone your local planning office to find the current value of X!'

Planners however do make use of another kind of statement, also found in computer programs : the conditional statement. Thus, in

East Sussex, in the case of manufacturing industry: 'this type of development will be acceptable only when it is required by industrialists already located within the Brighton area, whose proposals will not result in more than 40 new jobs or 929 square metres, whichever is the greater'.

Here is a statement which specifies not only how an application for manufacturing development will be decided but also indicates the circumstances in which such a policy will apply - that is, within the Brighton area and in the case of manufacturing industry - and it does so in a way that leaves quite a lot of discretion to developers. Any application that results in fewer than 40 new jobs and uses less than 929 square metres of plant will - at least according to this policy - be permitted. One writer has, in fact, suggested that almost all land-use planning policy statements have this form. That is, 'the outcome is not a proposed course of action to deal with a specific problem situation, but a proposed guideline, or set of guidelines, for people dealing with some class of future problem situations'. He goes on to point out that 'the articulation of a policy statement demands a prior act of classification' (FRIEND,1974).

This is of fundamental importance for it underlines the link that has been proposed with learning and with the kinds of scientific theory building and testing that Popper is concerned with. Classification implies both the development of concepts and the ability to recognise when a situation falls into a certain category.

Thus in the case of the East Sussex policy on manufacturing industry, one needs to be able to determine whether the industrialists requiring the proposed development are already located 'within the Brighton area and also whether the development will not result in more than 40 new jobs'. In many instances, arriving at such a classification may be not at all straightforward and may depend upon a number of assumptions.

Although the discussion has now moved some way from the kind of simple and rigid kind of influence implied by 'clock'-like control (as opposed to 'cloud'-like control), we are still dealing with policies of an essentially prescriptive kind. Underlying them is a rationale which is often implicit and not always very clear. The person following the recipe will usually realise that they are making a cake but the developer may be quite ignorant of the reasons for the policies that will determine the outcome of his application. Often he will not care a great deal anyway. But sometimes it might help a great deal if he had a better idea of what these policies are based upon and especially of what they are trying to achieve. This applies probably to an even greater extent to the development control officer in the district who actually has to apply them. In certain circumstances all that may be required, in fact, is for the end-result that is wished for to be communicated in the form of a policy statement. Thus a structure plan policy might simply be of the form 'population in Brighton should grow by only 10,000 over the next ten years'. District planners might then be left to determine how this end-result might be achieved. Or it might even be of the form 'population growth in Brighton should be approximately in line

with employment growth'.

Now it may be thought that this thesis, by a somewhat long and tortuous route, has arrived back at its starting point. For, once again, the discussion is of a control level, such as employment growth and the next step must surely be to monitor employment growth and try to keep it on course. The crucial difference however is that the policy being considered is a communication between a county and one of its districts. How the district actually proceeds, whether it does try to meet such a 'target' or ignores it, is not specified. There is a world of difference between a policy that says 'thou shalt achieve population growth of 15,000 over the next ten years', and one that says 'would you please try to achieve a population growth of 10,000 over the next ten years. If you don't, then ...'.

It is one of the most perverse aspects of the 'systems approach' that it fails to recognise a statement such as the latter as a legitimate form for policy to take. It insists instead that such statements are aims, which must be generated by a 'political process' and form an input to the policy-making process rather than an output from it.

Planners and Individual Values

The shortcomings of such a view are underlined by the recent work of an economist, Hirsch, who suggests (HIRSCH,1977) that even

individual values should not be taken as 'given' but are instead a legitimate subject of concern for those seeking to tackle social problems.

Hirsch arrives at this conclusion as a result of a highly original analysis of current social problems and a very tightly argued consideration of how they can be solved. His starting point is the observation that an increasingly significant phenomenon in advanced industrial societies is the pursuit by more and more people of what Hirsch calls 'positional' - as distinct from 'material' - goods. Examples of 'positional' goods are access to beautiful countryside, a house in the suburbs and educational advantage, such as that provided by a degree. In each case, because the supply of what is sought after is limited - and cannot be expanded as demand increases, as in the case of material goods - the result of increasing demand is that no one individual achieves what he expected. Thus someone who buys a house in the suburbs, finds some years later that, with more and more building, he is no longer on the edge of the countryside, factories and offices have moved out to the suburbs and his suburban 'idyll' is at an end. A similar case is that of the holiday-maker in Spain, say, who complains that the once quiet village he goes to every year has been spoilt by 'tourists'. In just the same way a degree is no longer the passport to a remunerative and successful career. Perhaps though the simplest and most readily understood example of this phenomenon is that of a crowd waiting to see a procession go by. If everyone stands on tiptoe, no-one in fact gets a better view. They just end up with even more tired feet!

Each of these phenomena pose, in a somewhat more complex form, a dilemma for the individual similar to that known as the 'Prisoners Dilemma' or, alternatively, as the 'Free Rider' problem. In the case of the Prisoner's Dilemma, each prisoner will do better if he co-operates with the other prisoner but does best of all if he deceives the other into thinking he will co-operate but then behaves according to his own self-interest. Similarly, the 'Free Rider' benefits by not paying his fare while everyone else conscientiously does and, if all but one person in the crowd standing on tiptoe refrains from doing so, the one person who does not clearly benefits.

In extreme cases, it is thought reasonable to legislate. Thus while it might be in someone's self-interest to simply kill or maim all the other contenders for a job he was after, the sanctions against such an act are sufficient to discourage most people from doing so. Therefore one possibility would be to make standing on tiptoe illegal. Making it illegal to move to the suburbs or go to popular tourist resorts is, however, clearly not on. Are there more subtle ways of curbing individual self-interest and encouraging people to act in a more altruistic way, so that both they and their fellows are collectively better off? Hirsch argues that there are. He points out that people do not, in fact, always act in a self-interested way. He cites the example of people voting in elections.

More generally, he argues that 'if the rationale of collective action in an individualistic culture has been formalised only in recent times, this largely reflects the atrophy of the original

foundations of economic individualism itself. Such atrophy can be seen as the nineteenth century heresy. In its origins two centuries earlier, economic individualism was predicted on an underlying moral - religious base. Adam Smith's economic analysis in the Wealth of Nations ... rested to a substantial extent on his social analysis in The Theory of Moral Sentiments'. He points out that Smith believed that men 'could safely be trusted to pursue their own self-interest without undue harm to the community not only because of the restrictions imposed by the law, but also because they were subject to built-in restraint derived from morals, religion, custom and education'.

According to Hirsch, the problem in tackling the problems posed by the demand for 'positional' goods is not then that individuals always will behave and always have behaved in their own self-interest, but rather in what he calls the 'depleting moral legacy'. He points out that many of the values, which underpinned the workings of the free enterprise system, have been eroded. Many of them are, furthermore, no longer relevant and new values are needed. In other words, a 'moral re-entry', as he calls it, is needed. In order to get some idea of what Hirsch is getting at here, it is useful now to return to the case of the Brighton bypass.

The deterioration in public transport services provides a classic illustration of how the pursuit of self-interest can have outcomes that satisfy no-one. Like the Free Rider, and the holidaymaker who deplores the way tourism has spoilt his favourite haunts, the car-driver in cities wishes that everyone else would travel by bus

or stay at home. Of course, they do not and the result is congested city centres in which journeys take far longer than they would if everyone travelled by bus. The deterioration in public transport services has however taken place gradually and, with the exception of one or two transport authorities who have tried to reverse the process by offering very low, subsidised fares, it is generally believed that it is difficult, if not impossible to reverse this process. The East Sussex planners, while believing in providing support for the buses, regard as unrealistic and uneconomic any attempt to solve the problem of congestion in Brighton by means of massive investment in public transport.

Hirsch acknowledges that one cannot solve such a problem by forcing people to travel by bus, nor does he suggest the 'subjugation of individual judgement on moral issues and behavioural choices to the thought of some Chairman Mao.... Thought control remains the most horrifying threat in the collectivist intrusion'. Instead, he proposes that the way ahead lies in identifying obstacles to the kind of changes in individual motivation and behaviour that are needed and then in removing, or reducing, these obstacles wherever possible

Before considering how this might apply to the problem of city centre traffic, it will be helpful to consider a similar question that is currently causing a good deal of 'heart-searching' both amongst the general public and the medical profession: how can people be persuaded to get their children vaccinated against whooping cough if the risk of damage from the vaccine is greater than the risk of damage from the disease itself. This is yet

another example of the 'Free Rider' problem. If no-one gets their children vaccinated, the risk of one's child becoming infected and suffering damage as a result becomes quite high. But if most people get their child vaccinated, one can avoid both the risks of infection and of damage from the vaccine by not inflicting vaccination on one's own child. One answer to this problem - and the one currently in operation - is simply to obscure this dilemma and try to persuade people that it really is in every child's self-interest to be vaccinated. The other possibility, though, is to reduce the risk of brain damage from the vaccine, thus reducing the 'costs' of acting in the collective interest.

Similarly, in the problem of urban congestion, one might identify the possibility of more people using a bike to get to work or wherever, as a 'solution' that involves individuals incurring an extra 'cost' in the form of a greater risk of being killed or injured. One might speculate that if this risk could be reduced, then more people might be prepared to put 'pure' self-interest on one side and act in what they saw to be the interests of the community as a whole.

Now it is not being suggested that this is the answer to the problem of urban congestion. It is merely an illustration of the kind of thinking that Hirsch is advocating. It implies that planners should not take existing values and patterns of behaviour as fixed attributes of the social and economic systems they wish to influence. They should instead examine them 'critically' - to use a favourite Popper word - and regard an examination of them

and of reasons why they may or should change, as a legitimate issue in a planning document.

Selecting Appropriate Forms of Policy Statement

The implication of all this is that planners face a bewildering set of choices when - after deciding what planning is all about (Chapter 4), deciding how to divide the job up (Chapter 6), coming to grips with their feeble control over and inadequate information on development (Chapter 5), they arrive at last at the stage of actually formulating some policies. Not only do they have to choose a policy - or, in theory, develop a range of options for the elected members to select from - but they must also decide the form such policies should take. And, as has been seen, these can range all the way from very explicit, concrete and detailed proposals for action - such as build a bypass in 1985 - to apparently vague exhortations to other bodies - or even individuals - to conduct their affairs according to certain values, criteria or whatever. What should guide their choice?

In a study of the 'policy games' played in Examinations in Public of a number of structure plans, it was noted that 'in seeking to influence the location and scale of particular kinds of development, they can choose to put forward numerical limits, targets or quotas; alternatively, they may choose to concentrate on non-numerical statements of proposed criteria, such as the designation of sites for development, or on contingency statements

bringing a policy into operation only under certain conditions' (FRIEND et al,1981).

They go on to suggest that the choice of a particular 'logical type' of policy will determine, to a considerable extent, the kind of debate it gives rise to and the way in which it will be attacked or attempts made to discredit it. For example, a policy expressed in terms of numerical targets 'can be discredited if the assumptions on which they are based are subject to rapid erosion'(FRIEND et al,1981). Participants at Examinations in Public talk despairingly of the 'number games' in which they become embroiled. Other forms of policy statement may result in 'word games', in which the degree of specificity of the policy is questioned, or 'map games' in which the differential treatment of different areas in a county is debated. They also point out that certain forms of policy statement will attract particular 'policy readers'; community groups, for example, will be much more likely to respond to policies that relate to particular sites.

It should be added that it is not only community groups that will find it easier to relate to the more specific and concrete proposals. Planners too, as was mentioned in Chapter 4, have also had difficulties in operating at a more strategic level. It is worthwhile, at this point, to enquire into just why strategic forms of policy statement are necessary at all, if both planners and public were happier with the more specific and concrete development plans prepared under the 1947 Act. The conventional answer to this question and the one underlying the recommendation of the Planning Advisory Group that brought about the introduction

of the new structure planning system, is that the more detailed plans were too 'inflexible'. They could not be changed quickly enough to keep pace with changing circumstance.

Although this is undoubtedly part of the answer, there are also other, more subtle, cybernetic reasons. At least as important must surely be the fact that someone, sitting in county hall, simply has not got enough information at his disposal to enable him to prescribe with great precision what should happen in Little Piddlington. He must leave a certain degree of discretion to the man 'on the spot', such as the development controller who is much more familiar with the special circumstances surrounding a planning application, the detailed 'lie of the land' and so on. The question for the planner in county hall should not, in fact, be 'how much discretion can I permit the planners in the district' but rather 'how much constraint is really necessary. Do I really need to constrain them?' Eventually, he may even come to think less in terms of constraint and policy statements of the 'Ten Commandments' kind and - following the example of Christ - address the planners in the districts more in terms of parables!

CHAPTER 8

DEVELOPING A POLICY FRAMEWORK

One of the reasons why people find it so difficult to grapple with questions regarding the nature of planning and policy-making is that the kind of strategic issues, with which they are concerned, are so remote from everyday experience. In order to progress further in this exploration of policy-making, it will be helpful to move down several levels through the local government hierarchy and consider the role of policy in the context of something much less grand and much more concrete, a social service facility. The particular one with which this chapter will deal is a rehabilitation centre for ex-psychiatric patients: the Westminster Work Centre. It is a fairly new centre and it will be possible to examine how a framework for policy has evolved and to explore further the different forms that policy can take.

First of all though, it will be necessary to say a few words about the background to the setting up of the centre and the service it is supposed to provide.

The Westminster Work Centre

Westminster is an inner London borough with a psychiatric hospital

admission rate that is one of the highest in London. In spite of this, there is a shortage of in-patient beds and only one day-centre with many of its places taken by semi-permanent clients who, although capable of a more taxing activity, have nowhere else to go. A study, commissioned by the City's Social Services Department, concluded that the City should therefore set up a sheltered workshop for such people and for those with other disabilities trapped in other similar centres.

Unable to attract financial support from central government for such a scheme, the City did not however pursue this idea. As is so often the case, the possibility of progress in this area now depended on an initiative from the voluntary sector and a year later the Westminster Association of Mental Health (MIND) set up a working party to tackle the problem. The working party eventually recommended the setting up of a rehabilitative work centre.

Each member of the working party, if asked, would probably have given a different interpretation of the title 'rehabilitative work centre', but most would have agreed that such a centre should help its clients get back into some form of employment. The nature of the help to be provided was, at this stage, not really specified. The prevailing view in the working party though was that most existing centres, with similar remits, were failing to meet the needs of a substantial proportion of their clients - and potential clients - who rejected the help they were offered; this failure was attributed, at least in part, to the very simple, and often menial nature of the work they provided for clients. It was

decided, therefore, that the work that clients would do in the proposed centre would be more interesting and fulfilling and that aspects of it would provide scope for more intellectually demanding and creative tasks.

This idea, which might be regarded as forming a preliminary articulation of a key policy for the centre, was closely related to another important assumption: that there was a substantial number of intelligent and quite well educated, ex-psychiatric patients who found existing centres especially alienating and unhelpful and were consequently in particular need of a new approach to employment rehabilitation. There was a suggestion that the centre might give this group priority when it came to selecting clients but this did not become an admissions policy.

It was recognised however that some criteria for admission might be desirable, in order that the centre should be both financially viable and effective in achieving its aim of helping clients back to open employment. It was agreed that anyone who was still experiencing acute symptoms of a psychiatric illness would not be admitted.

Initial Formulation of Policies for the Centre

The centre opened in 1980 and, during the first twelve months of operation, 39 people were admitted to the centre. A printing process was selected as the focus for its work and a large volume

of pictures, key fobs, suitcase name plates and office name plates were manufactured and sold. A small surplus on the cost of raw materials was realised. This was no mean achievement, given the economic recession which had begun to seriously affect even the south east by this time. But the working party, which was now in effect a management committee for the centre, did not allow the pressures of achieving financial viability to divert its attention away from what was happening to the people it existed to help.

As might be expected, the initial concern was with the extent to which the centre should be open to all or, in other words, the nature of the criteria governing admission. Although, as noted earlier, there was a desire to exclude only those who were still acutely ill, some members of the management committee felt there was a need to refuse admission to people who were assessed as being unlikely ever to be capable of returning to open employment. It was argued however that no proper basis for making such an assessment existed and that in centres where such an admissions policy was applied - either implicitly or explicitly - the judgement was usually very subjective and depended on information of an often incomplete and unreliable kind.

The working party eventually confirmed the more open admissions policy but proposed that the centre should admit clients for a trial period of a month. If, by the end of the month, staff were agreed that an individual was not going to benefit from continued attendance at the centre, they should be discharged. It was also agreed that wherever possible, the individual should be referred to a more appropriate facility, such as a day hospital and that,

if the original referral to the centre had come from such a source, a condition of admission should be that they would be taken back at the end of the trial period.

In practice, it proved difficult for staff to adhere to these admission policies. A few referrals were refused admission, not because they were acutely ill, but because staff were convinced, following an interview, that they would not be able to benefit from attendance. No-one, on the other hand, was discharged at the end of the one month trial period. This was partly because it proved difficult to get referring sources to agree to take clients back, but also reflected a reluctance on the part of staff to give up on someone they had come to know well. That there might be clients who would have been discharged if the centre's policies had been strictly applied, only became apparent toward the end of the first year. Although the staff had not felt it necessary to report it to the management committee it emerged, in the course of casual conversation with a member of the committee, that several clients were reluctant to leave the centre. They appeared to prefer working at the centre rather than in open employment and, when staff suggested they should look for jobs, a marked lack of enthusiasm to do this was observed. The reason for this was not at all clear. One member of the staff thought that they found the work they were doing in the centre more interesting and satisfying than the work they expected to find in open employment. Another possibility was that they were unwilling to risk yet another failure to cope with a 'proper job', especially if this then resulted in a recurrence of their psychiatric illness.

Whatever the reason, it was clear that these clients were no longer using the centre in order to help them to get back into employment and were possibly preventing others, who did wish to do so, from attending. It was by no means certain though that the staff were wrong not to discharge them. They were aware, as the management committee came to be aware, that the existence of a sizeable group of such individuals posed a question as to whether the work centre should only be concerned with returning people to open employment. Did this really reflect the greatest need, or was there an equal need to provide alternative 'niches' for people who were either unable or unwilling to face the greater stresses of open employment? If this were the case, it meant that consideration needed to be given to broadening the scope of the functions the centre was supposed to perform or, in other words, modifying its aims. The question was raised as to whether it was realistic for the centre to both try and get some clients back into open employment while at the same time allowing others to remain there indefinitely. Were the two aims incompatible? Several members of the management committee were concerned that the presence of this latter group would adversely influence what might be termed the 'work culture' of the centre. A more concrete objection was that their presence might affect the willingness of potential members of the first group to ever start at the centre.

Developing a Policy Framework for the Centre

The need for a more comprehensive and coherent framework became increasingly clear towards the end of the first year of the centre's operation, with it becoming evident that the management committee had failed to make clear what was expected of staff who were, in consequence, at risk of being wrongly accused of not operating the kind of centre that was originally envisaged. It was also clear that it was going to be very difficult to know whether practice in the centre conformed to what had been envisaged, and that there was no way of determining whether the centre was achieving anything at all in relation to the clients that had passed through its doors.

The first issue to be decided was whether the centre should continue to consider its main function as consisting of getting its clients back to open employment. The possibility existed, as was noted earlier, that it should also regard the provision of semi-permanent occupational niches, for clients who no longer wanted to go back to employment, as an equally - or possibly even more important - aspect of its work. Another reason for reconsidering the goal of open employment was the increasing level of unemployment, together with indications that these were likely to continue. It could be argued that Westminster, with its large numbers of office workers, was likely to be especially hard hit by technological developments such as the word-processor. The management committee however eventually agreed that the primary aim of the centre should be to enable its clients to obtain employment and that it should not be providing the kind of

occupational niches referred to earlier.

It was recognised though that clients unwilling or unable to go into open employment could not be simply discharged to a life of inactivity or to the less demanding environment of a day centre. Instead, the need to provide sheltered employment was stressed. This had, in fact, been an integral part of the original conception of the centre, which had emphasised that it should not become just a workshop. This aim had rather got lost sight of in the initial struggle to get the workshop off the ground, but experience was confirming its relevance and the management committee now reaffirmed the commitment to one member of the staff spending a large part of their time in seeking the agreement of local employers to providing sheltered situations in their firms.

Clarifying the aims of the centre was one thing, but how to achieve them was, not surprisingly, a much more difficult problem. In the absence of even an embryonic set of guide lines as to what constitutes good practice - based either on theory or experience - the tendency has been, in centres of this kind, to leave almost everything other than decisions on admission and discharge to the discretion of staff. Some centres have probably been lucky and, thanks to intelligent and dedicated staff, achieved a measure of success - although there is little in the way of hard evidence for either success or failure in this area. Apart from the rather chancy nature of such an approach, it also suffers from the grave disadvantage that any success it might achieve is extremely difficult to replicate, as it is very difficult to find out why it has succeeded. Even the staff themselves may be unaware of just

why they are doing a good job! The reason for failure is equally difficult to diagnose in such circumstances.

As it was an experimental centre, the management committee of the Westminster Work Centre felt that it was essential that something should be learned from its experience. It was recognised too that a clearer statement of what the centre was supposed to be doing - its operational policies - would also greatly facilitate an evolution of these policies in the direction of better practice and a greater degree of achievement of its aims. What then are the points at which what happened in the centre should be subject to some degree of control and monitoring?

As has already been noted, there is general agreement on the need to have some kind of admissions policy, however ill-defined and crudely applied. In the case of the Westminster Centre, the more selective policy that was originally envisaged gave way to one that was much more open. In the course of developing the policy framework, this open-door policy was confirmed and it was decided that the only criteria for exclusion from the centre should be that an individual was still in the acute phase of their illness or that their behaviour was extremely disturbed. A more precise definition of these criteria was not however attempted and there remained considerable scope for staff discretion in making these judgements. Given such an open-door admissions policy, the management committee recognised it was essential that clients' progress be assessed and reviewed on a regular basis. Just how this should be done and whether it should be of an informal kind or a more formal procedure possibly involving other professional

workers, was not so easily agreed. So far this issue has not been resolved. At the nub of the issue is the question of how far the management committee should attempt to evolve a clearer articulation of its rehabilitation philosophy and the extent to which the centre's staff should be required to work within the constraints implied by this.

Aims and the Coherence of the Policy Framework

Having set out, at some length, some of the policy issues confronting the centre's management committee, it is now possible to examine a number of crucial, cybernetic questions which these issues raise. First and foremost, is the question of what is meant by the 'aims of the centre' and what is their role in the functioning of the centre. And, furthermore, why is so much emphasis placed by so many people working in the field of policy-making and administration - whether they be practitioners or researchers - on determining what the aims of an enterprise should be?

Often it is assumed that the answer is self-evident. Surely, it will be argued, it is impossible to do anything - at least of a rational kind - unless one has first of all formulated clearly what it is one is trying to achieve. A cursory study of what actually happens in real life - in the case of individuals and organisations - reveals however that this is simply not so. Few individuals, if interrogated, would be able to say what were their

aims in life. In fact, the people who could clearly articulate these would probably turn out to be a small, perhaps insignificant, minority. Many people might even find it difficult to say why they were doing whatever they happened to be doing at the time. 'That's how I always do it' might well turn out to be the most common form of reply.

Many organisations would also be found to be equally bereft of a clearly stated aim, acknowledged by its members and readily given by them if solicited. It is now generally recognised that the notion that the aims of business organisations is 'to make a profit' or 'to maximise their profit' is far too simplistic. But to arrive at a concise statement of the aim or aims of, say, Imperial Chemical Industries, is far from easy. Public bodies find it even more difficult to express their aims. In the case of the Westminster Centre, the absence of a clear statement of aims did not, though, prevent it from getting on with the job of obtaining, finding and setting up a workshop.

It would be wrong, on the other hand, to suppose that the discussions and somewhat vague formulations of the centre's aims were irrelevant and did not influence the setting up of the centre and its subsequent operation. Although no clear statement of aims was ever formally agreed and written down, there was general acceptance of the belief that the centre was to provide rehabilitation to a particular group of people, those disabled by psychiatric illness. Furthermore rehabilitation was understood to be concerned primarily with enabling them to obtain work in open employment.

It has been seen how these statements raise as many questions as they answer, but they do, at the same time, inform to quite a considerable extent, the nature of the activities that the centre will provide and the kind of people it should admit as clients. Had the centre been designed for mentally subnormal adults, the printing process would not have been selected as an appropriate form of work. Similarly, the focus on psychiatric disability had significant implications for the other agencies, from which clients might be referred and which were to be notified of the centre's existence.

The centre is perhaps not unusual in this respect and it might be concluded that most organisations - and individuals - do have some idea of their aims, however vague and incomplete these may be. It might also be concluded that these aims do, somehow, inform their actions, though in precisely what manner is not at all clear. The question of the way in which broad aims inform specific actions turns out to be a central one. In order to throw some light on this, it will be helpful to look again at the issue raised in the previous section: should the centre be concerned only with getting clients back into open employment? Or, with rising levels of unemployment, has this become an unrealistic aim?

This became an issue in the course of the first year of operating the centre, as it became increasingly evident that some clients did not wish to leave the centre and seek open employment. It was noted too how this initially raised questions regarding whether or not these clients should be discharged as not being able to benefit from the centre. The consideration of this

however soon became broadened into a wider discussion, and questioning, of the overall aims of the centre. A change in these was also recognised as having important implications for other aspects of the centre's operation.

This process is very reminiscent of the way in which scientific knowledge evolves. New facts come to light and cause people to question the theories they have about the way the world works. Changes in the theoretical framework then suggest new phenomena for empirical observation. This suggests the possibility that aims stand in a similar relation to specific actions as theories do to empirical facts. It may be supposed that just as there is an intervening level, that of hypotheses and generalisations, so too in the world of policy there is an intermediate level of policies which have a somewhat narrower range of application.

In other words, the essential characteristic of an aim - as distinct from other kinds of policy statement - may be their more general application. They do not simply apply to one particular kind of activity but, instead, are designed to inform a wide range of activities. The parallel with scientific theories can be pushed further. It indicates a rather different relationship between aims and more specific policies than that usually assumed. The conventional 'rational choice' model of policy-making assumes that such policies can be derived from broader aims by a logical, deductive process. In the world of scientific theories and observations it is, however, hypotheses and observations that are linked in this way. The theory provides a framework within which a coherent body of hypotheses and observations can be developed.

Changes in theory are brought about not by a new observation but rather by an apparent inconsistency between a new fact and an old fact - or hypothesis. The new and the old can no longer be contained within a single, unified coherent theory.

In much the same way, a policy framework needs an over-riding 'something' - which may be referred to as 'aims' - that gives coherence to - or 'justifies' - the more specific policies which directly influence what is actually done in particular situations. Looked at in this way, the attempt to encapsulate the aims of an enterprise - or an individual - in a single sentence, such as 'the aim of the centre is to enable psychiatrically disabled people to return to open employment' is seen to be misguided. Instead, it would appear that one should be thinking in terms of an evolving framework - or infrastructure (FLOYD et al,1977) - of common assumptions and 'theory' which underlie and support a more specific set - or superstructure - of policies. The practical implication of this, in the case of the Westminster Centre, is that simply specifying in more detail the nature of the client group for whom the centre should cater, or whether open employment should be the only aim, is not enough. An equally important aspect of the development of a policy framework, it is suggested, is to clarify and agree, and preferably set down in writing, issues such as those regarding the nature of rehabilitation and future employment opportunities.

One of the most confusing and unhelpful features of discussions of policy-making is the tendency to use terms such as 'aims', 'goals', 'objectives' and 'targets' almost interchangeably.

Where they are distinguished, there is often a tendency to assume they are related to each other in the form of a hierarchy - a hierarchy of intent. By beginning with a consideration of aims, it might have been thought that aims are being placed at the apex of such a hierarchy. The adoption of the terms 'policy infrastructure' and 'superstructure' should, however, have made it evident that such a view is, in a sense, being turned not only on its head but that different kinds of relationship are being proposed between the various aspects of the policy framework.

Goals and Objectives

The intention is not to do away with terms such as 'goals' and 'objectives'. Both terms can usefully be applied in the context of the Westminster Work Centre. In order to maintain some degree of consistency with common usage, it is first of all necessary to enquire into the usual meanings ascribed to the terms. More often than not, the term 'goal' has connotations of something of a rather more long-term nature than 'objectives'. It is also frequently assumed that it is nonetheless something which can be 'attained'. In other words, an individual knows whether or not a goal has been achieved, or reached; its achievement, or non-achievement, is measurable or at any rate registrable.

One might therefore say that enabling clients to return to open employment was a goal for the work centre. But the question might then be asked, how is one to know if this goal has been

achieved? If five clients return to open employment on leaving the centre, but four others return to hospital, has the goal been achieved or not? Furthermore, it might be asked, what if two of the first clients eventually lose their jobs? These questions suggest the need to formulate the goal in more precise terms. For instance, it might be suggested instead that it was 'to enable at least half of the centre's clients to obtain open employment'. But in this form it is still impossible to measure achievement, for nothing has yet been said about how long a period is to elapse before a decision is to be taken that certain clients, who remain at the centre for a long time, are never likely to find open employment. A measurable goal might be 'to enable at least half of the clients to find open employment within a year of admission'.

The trouble with such a goal is that it takes no account of the aim of the centre to enable clients not only to find employment but also to retain it and be employed for a substantial proportion of the rest of their working life. This, in turn, implies the need to formulate a much more long-term goal in terms of clients' employment experiences over a substantial period following their leaving the centre. Such a goal might be 'the average proportion of time spent in open employment by a client, during the five years after leaving the centre, should be at least 50%'. Such a goal reflects much better the aims of the centre, rather than one formulated in terms of what clients do immediately after they leave. Its usefulness lies in the possibility of being able to make a quantitative comparison of what actually happens with the goal, and thus provide a feedback on the centre's performance.

Such feedback is essential if the centre is to develop and 'learn' to rehabilitate clients more effectively. A number of problems remain though. For one thing, the feedback is a long time in coming. It will be at least five years before any information on performance is available. Furthermore the specification of 50% of time being spent in employment is quite arbitrary. If it is not achieved, it may not be any reflection on the centre and may simply be due to the characteristics of the clients referred to the centre.

The Role of Objectives

An objective may be regarded as something which makes it possible to obtain a measure of performance over a much shorter time period than a goal of the kind discussed above permits. It should, perhaps, be noted in passing that this distinction is rather different from one that is often made in the literature. There an objective is sometimes used to mean simply a quantitative version of a goal, which is expressed in more qualitative and general terms. The distinction made here between bases for providing short-term, as opposed to long-term, feedback on performance is a much more important one.

It is essential too to be clear about the relationship between goals and objectives. The relationship is assumed to be of the form 'in order to attain goal X, it is necessary to achieve objective A'. In the case of the Westminster Work Centre, there

are a number of such objectives that might be formulated. For instance, it might be suggested that one necessary, though not sufficient, condition of attaining the goal formulated above is that the work performance - as rated according to some assessment schedule - of clients should improve during their stay at the centre. One might go further and state the objective in terms of each client's work performance, reaching some specified level or, alternatively, of an average level of work performance being achieved.

Once again though one becomes aware of the somewhat arbitrary nature of the objective when expressed in such a form. How is the target level to be worked out? And what is the nature of the evidence for achievement of such an objective actually contributing to the goal? Has a statistical correlation between the two ever been demonstrated?

No satisfactory answer can be given to any of these questions and one is led to the conclusion that such objectives are indeed, as was suggested earlier, very much akin to hypotheses, to which only time and experience can lend any validity. It may well be that, in some social policy areas, established links can be shown to exist, although a superficial consideration of the area of education must cast doubt on this. What evidence exists, for example, for the view that good 'A' levels, a reasonable educational objective, do make for a good employee, a good citizen or a full life - possible educational goals?

So far, emphasis has been placed on the role of objectives in providing a basis for assessing over a much shorter term period, the performance of the centre and hence the likelihood of it achieving its longer-term goals. Objectives can also be extremely valuable in relation to delegating responsibility to staff in such a unit. In an area such as is under consideration, where so little is known with regard to what constitutes 'good practice', it will often be appropriate to instruct staff concerning the aims, goals and, more especially, the objectives of the centre, and then leave them considerable discretion with regard to how these are actually achieved. Ideally, they themselves will learn how best to achieve the objectives, as they gain experience and more insight into the nature of the rehabilitative process.

Prescriptive Policies

Such discretion is undoubtedly necessary and, many would argue, is desirable as well. It can equally be argued though that if the activities of staff and, more generally, what goes on in the centre, is left entirely to their discretion, the opportunities for more systematic learning are lost. Furthermore, even if staff themselves are able to learn more informally from their experience of operating the centre, little of this will be communicated to the outside world. Learning of this kind will, as suggested earlier, be greatly facilitated if what happens in the centre is prescribed to some extent. It should be noted that

this need not imply an autocratic form of management. The staff themselves may not only agree to comply with, but also themselves formulate, a basic set of policies regarding the form that rehabilitation should take in the centre.

An example of such a policy might be the setting of certain constraints on the kind of work which clients are asked to do. Thus it might be indicated that all clients should be offered the opportunity of doing work requiring several different levels of skill. Such a policy might be extended to prescribe the way in which they should progress through these different levels. Another example might be a policy requiring staff to reduce the amount of supervision given to clients, wherever possible, in order that they gain experience of working with minimal supervision and can be assessed in such situations. Other policies, that have been discussed by management at the centre, include one that seeks to lay down basic procedures for making diagnosis of client's work problems and assessing work performance at regular intervals. Once again though it is important to stress that just as in the case of the link between objectives and goals, the relationship between application of these policies and the achievement of the objectives is, inevitably, a somewhat tentative one. As such, it is essential that they are subjected to critical examination and this, as will be seen in the next chapter, is a central aspect of the monitoring and development of the policy framework that must take place.

Operational Policies

It may have been noticed that, so far, no mention has been made in this chapter of an important class of policies which received a considerable amount of attention when the centre was being set up. There was a good deal of debate regarding the extent to which the centre should be open to everyone, or whether admission should be restricted in some way - for example, according to the degree of psychiatric disability or the age of referrals. It is crucial that the nature of such policies, and the way in which they differ from the aspects of the policy framework considered so far, should be elucidated. Admissions policies of the kind discussed do, in fact, provide a useful basis for investigating these issues but two quite different functions have to be distinguished. These can be discovered by asking why admission to the centre should be restricted. Or, alternatively, what might happen if it were not? To begin with, the possibility exists of the activities at the centre being disrupted by someone who is still acutely ill and who, consequently, behaves in a bizarre or a violent manner. A rather more interesting possibility is provided by the fear of the centre 'silting up' - a very common fear in a variety of social service facilities - if people are admitted, who although not acutely ill, are so disabled that their prospects of open employment are slight.

An important reason for anxiety about this occurring lies in its possible effects on further recruitment to the centre. Less disabled clients, with good rehabilitation prospects, may be deterred from coming to the centre or, if the situation becomes

very bad, it will simply be impossible to admit them because no vacancies exist. The potential therefore exists of an initially small problem of this kind becoming exacerbated and a spiralling down of the centre's effectiveness taking place. Too high a proportion of very disabled clients may also, it is sometimes suggested, result in a work environment that is inappropriate and unhelpful to others who might otherwise benefit from its rehabilitative qualities. In the Employment Rehabilitation Centres (ERC) run by the Manpower Services Commission, a similar argument is used to justify restricting the proportion of clients who are ex-psychiatric patients, to a fifth of the total.

Thus, admissions policies of this kind can be said to contribute to the more effective operation of the centre. They do not contribute directly to the rehabilitation of individual clients. It is worth noting the two quite distinct forms so far encountered. In the case of the first, certain criteria are applied to determine whether or not a referral should be admitted to the centre. In the second, that of the ERC, the policy takes the form of a limit on the range of a variable, the proportion on 'quota', of ex-psychiatric patients that is permissible at any one time. The proportion is being seen, it would appear, as an 'essential variable' in the sense discussed in earlier chapters. It may therefore be useful to regard an important aspect of the policy framework as being concerned essentially with defining certain 'essential variables' and the limits within which they must be maintained.

Discretion and Autonomy

The restrictive criteria for admission can, however, be viewed in a rather different light, one related to the need for autonomy. 'Autonomy' is another of those words, like 'objectives', which tend to be used in a variety of ways and it is often taken to be synonymous with 'discretion'. Having a degree of autonomy is frequently equated with 'having a degree of discretion' and both are understood to mean that some degree of freedom exists with respect to what can be done in a given situation. It is extremely useful to draw a distinction between these two concepts and to reserve that of 'autonomy' for a particular aspect of the policy framework which will now be considered.

So far, attention has been drawn to only one possible consequence of more disabled people being admitted to the centre - that of an adverse effect on its performance, which may itself lead to a further worsening of the situation if no remedial action is taken. One can though see this in somewhat different terms, as posing a threat to the achievement of the centre's objectives. More generally, it might be suggested that a failure to exert some degree of control over the characteristics of the client intake into the centre, will make it difficult for the centre to achieve the objectives - and the goals - that it has been set. In other words, if goals and objectives are to make any sense or be at all realistic, they must either take account of possible variations in such things as the client intake or the intake must be kept within certain limits.

It is perhaps fair to say that insofar as this problem is recognised by those concerned with the management of social service facilities - and other enterprises for that matter - the usual approach to the latter is to provide some means for keeping the intake constant or, at least, within certain limits. A major failure, it has been suggested (MILLER,1978), of management is to neglect this aspect, so that operational units - whether they be work centres or factories - and individuals are set objectives which are unattainable on account of the unforeseen and uncontrolled variations in their inputs. Autonomy, as the term is used here, is just the ability to exercise some degree of control over these inputs. Thus by permitting the work centre - or rather the staff of the work centre - to restrict in some way the client intake, management is giving them a degree of autonomy. The degree of discretion, on the other hand, granted them is represented by the degree to which their actions and decisions are constrained by the prescriptive policies discussed in the previous section and the objectives they are supposed to achieve.

CHAPTER 9

EVOLUTION OF THE POLICY FRAMEWORK

The previous chapter attempted to elucidate various aspects of the policy framework and to explore the problems that arise when one is attempting to devise such a framework for a new enterprise, such as the Westminster Work Centre. This chapter will examine the ways in which such a framework may change over time and the principles that should guide such change if the centre is to become both more effective and, at the same time, continue to be relevant. In considering these changes, the analogy already pointed out - between a policy framework and a body of scientific knowledge - will be seen to retain its usefulness. Not only can parallels to the processes of revising hypotheses and formulating new theories be discussed, but the concept of a paradigm shift, where the whole framework within which theories are formulated undergoes a thorough-going revision, will be found to have its counterpart in policy-making.

An important consequence of adopting such a perspective is that it emphasises the need to revise policy because of initial ignorance regarding the behaviour of the system it is designed to influence and of the environment in which it has to operate.

Monitoring the Achievement of Objectives

In the previous chapter, it was pointed out that it might be several years before useful information became available, on whether or not the goals of the centre were being achieved. It was suggested that shorter-term objectives, against which individual clients' progress could be measured were therefore needed. A more immediate feedback on performance would then be possible. A number of problems remain however.

In order to see this, suppose that monitoring of the work performance of clients, who are about to leave, reveals that it is falling below the level believed to be necessary for them to be able to cope with open employment. What is to be done? Although the use of a shorter-term objective has reduced the time required to obtain information on how clients and the centre are faring, any action taken is still going to take some considerable time to feed through and influence the degree to which the objectives are achieved. The actual clients, whose work performance was measured will, in any case, have left and there may be nothing that can be done to help them further. It may, in fact, be necessary to modify the policy framework in the hope that future clients will benefit, and performance as measured by achievement of objectives will eventually improve.

But which policy should be changed? Are clients not being exposed enough to opportunities for working in conditions of minimal supervision? Or is insufficient attention being paid to their acquisition of basic skills? Or is it because the ambience

of the centre has degenerated to the point where it resembles a day centre, rather than a work centre, as a result of too many severely disabled clients being admitted? There is no simple answer to this. Although a tremendous amount has been written about control, both in man-made systems and in natural organisms, this fundamental issue has not really been dealt with.

Of course a closer examination, of the way in which the work performance of clients is falling short of the mark, may indicate the area in which rehabilitation in the centre is inadequate. Thus the assessment of work performance may even include an attempt to measure the extent to which clients can work unsupervised. If scores in this area were low and largely responsible for the poor overall performance of clients, it would be reasonable to conclude that it was the policy on working in unsupervised situations that needed amending. Often however monitoring will not throw up such clear indications of what needs to be done. It might, of course, if objectives had been deliberately selected so that they were linked as closely as possible to specific policies. Thus, instead of a general objective relating to overall work performance, a narrower one, concerned only with an assessment of clients' ability to work unsupervised, might have been formulated. Information revealing that only small improvements were being achieved by clients in this regard would then indicate more clearly the need to modify the policy on clients' exposure to situations varying in the degree of supervision provided.

Policy Stress

Another reason for changing a policy may be that staff find themselves unable to adhere to all the policies that are supposed to govern their actions. For example, it might have been decided initially that the admissions policy should be one of accepting all referrals for a trial period of one month. At the same time, it might also have been proposed that the proportion of more severely disabled clients should not exceed one quarter. Application of the open-door policy without breaking this quota might well have been possible in certain circumstances and several months might have gone by without any problems being encountered. Eventually however it is likely that an increasing number of referrals of more disabled clients could pose a dilemma for staff. Should the open door policy be breached or should the quota be permitted to rise?

Faced with this kind of problem, a common response is to permit a temporary breach of one or other policy but to continue with both policies unchanged. This might seem a quite reasonable and pragmatic way of carrying on but, if it occurs frequently or is practised on a wide scale in relation to other policies, the picture of what is happening inside the centre becomes extremely blurred. If the centre fails to achieve its objectives, this can no longer be attributed to inappropriate policies but might simply be due to failure to apply them. Likewise, a successful centre, as indicated by monitoring of the achievement of its objectives, cannot be imitated by the adoption of its approach, as represented by its policy framework.

It might be argued that while outsiders may be less informed of what is going on inside the centre, staff themselves will nonetheless know what they are doing and be able to communicate this; but there are major drawbacks to relying on learning taking place in this way. To begin with, staff may not have a clear idea of what they are doing. Each one may well be reacting to similar problems in different ways and even one individual may act differently on different occasions.

Thus there are distinct advantages to staff adhering to a policy and modifying it if it proves impossible to apply. This conclusion is reinforced by staff turnover, so that even if a member of staff does know what he is doing and has learnt effective ways of rehabilitating clients, he may well take that knowledge with him when he leaves. Of course, it might be possible to get him to write it down beforehand but again one is up against the snag that all too often such knowledge is 'implicit' and difficult to articulate in a form that can be communicated.

If the wisdom of modifying policies when stress between them is encountered is acknowledged, one is then faced with a further problem. Which one should be modified? It is possible that intuition would suggest that one policy is more important, in some way, and should be kept the same. Thus in the earlier example of the conflict between open door and quota policies, it might be felt that the former was a basic element in the philosophy of the centre; while the latter was rather arbitrary and increasing the quota might not have any serious consequences. But an

alternative point of view might equally well prevail, suggesting that exceeding the quota might jeopardise the whole future of the centre, while the open-door policy reflected only a somewhat idealistic and hence unrealistic orientation that would have to give way to harder realities.

Policy and Change in External Circumstances

So far in this chapter any reference to changes in external circumstances has been deliberately avoided. It has been assumed that changes in policy have been stimulated instead by experience revealing their failure in achieving objectives or by stress between them. This could be expressed somewhat differently, as the failure of the policy framework to 'match' the circumstances in which it is being applied. Given different circumstances, it is possible that the framework might have been appropriate. Conversely, a policy framework which is matched to a particular set of circumstances may well be found wanting if these change. The change may, in other words, lead to stress between policies and thus objectives - or ultimately goals - no longer being achieved.

It is important, when discussing changes in external circumstances, to distinguish between several quite different kinds of change. The previous section did, in fact, mention the possibility of a higher proportion of seriously disabled clients being referred to the centre. Such a change might well be

temporary and be due to variations in the number being referred from different sources. It might not reflect any long-lasting changes in the world outside. It would clearly be wrong to make changes to the policy framework in response to such change, only to find that such changes needed to be reversed when the proportion of more severely disabled referrals reverted to its previous level. One might say that changes of this kind need to be 'assimilated' by the policy framework. That is to say, such changes should not result in stress between policies or affect the achievement of objectives.

One way in which this can be achieved has already been discussed in the previous chapter, where the notion of autonomy was considered. By restricting the client intake, the centre may be insulated from change in the referral pattern. By granting staff this degree of autonomy, management can enable them to maintain a constant 'milieu interieur', so that such changes have no effect on what happens in the centre or on the achievement of its objectives. But what about the situation in which changes of this kind cannot be so easily kept at bay but instead do penetrate the boundaries of the centre? One example of this happening might be the seasonal fluctuations in the demand for the centre's products. These would have a marked effect on the amount of work being done in the centre, on the demands made on the clients and on the 'worklike' ambience of the centre. These, in turn, might lead to a deterioration in the achievement of objectives and hence to an apparent need to modify policies. The term 'assimilation' might most properly be applied when the policy framework is such that this does not happen.

It has already been observed (in the previous chapter) that the relationship between the achievement of objectives and the attainment of longer-term goals, is not necessarily a fixed one. Thus it was noted that, while a certain level of work performance might be a virtual guarantee of finding and keeping a job when unemployment is low, substantial increases in unemployment might well mean that achievement of the objective was no longer so closely linked to attainment of the goal of resettlement in open employment. It is evident then that a change in external circumstances may require not only a modification of prescriptive policies but also of the objectives component of the policy framework.

Two central cybernetic concepts may well be extremely relevant here. The first is that of adaptation (discussed at some length in Chapter 2). What might be signified by saying that the policy framework was adapted to the environment of the centre? A possible answer to this question could be to say that changes in the policy framework were 'directively correlated', to use Sommerhoff's term, with changes in the environment. Furthermore, it might be stated that the 'coenetic variable' in this case was the level of unemployment. In other words, instead of a response to changes in the level of unemployment only occurring after monitoring reveals that the goals or objectives of the centre are no longer being achieved, policies would be modified immediately.

Of course, as has been seen in the previous chapters, such shifts do occur in a somewhat ad hoc, unsystematic way. Thus the basic proposition that the centre existed in order to get clients into

open employment has been gradually eroded as the management committee became increasingly aware of the effects on the centre of rising levels of unemployment. What Sommerhoff's ideas suggest is the formulation of such changes in more precise terms; that is to say, the formulation of what might be termed a 'meta-policy' which states just how the policy framework should change in response to changes in external circumstances and, in particular, in response to changes in a 'coenetic variable' such as the level of unemployment.

One possible example of such a meta-policy might be an injunction to give more emphasis in the rehabilitation programme to job-finding skills, such as presentation at interview, when unemployment levels are high. A more precise formulation might actually prescribe exactly how the different components of the work performance score should be weighted according to the current level of unemployment. Such a policy could equally well be geared to forecasts of future levels of unemployment. In this way, it is possible to conceive of a policy framework - incorporating a meta-policy dimension - that was adapted to a range of external circumstances.

Monitoring of Essential Variables

It is not at all clear how the aspects of monitoring and the development of the policy framework, considered so far in this chapter, are related to one other important aspect, the monitoring

of essential variables. This aspect was implied by the recognition that such variables might be identified in the operation of the centre. The problem for monitoring is that the critical limits of these variables are not known. In the previous chapters, it was suggested that if these variables are permitted to go beyond certain limits, a steadily worsening situation may then be experienced. In this, the variables themselves stray even further from the limits and, at the same time, cause other 'essential' variables to go out of control. In the case of the work centre, it has been suggested that the proportion of more severely disabled clients may be a variable of this kind. The critical limits of this variable are however not known initially, and their existence is only a hypothesis.

Presumably the initial task for monitoring is to detect whether a runaway process does occur and in what circumstances. Although in principle this presents no special problems, the technical problems may well be considerable. Substantial fluctuations in the proportion of severely disabled clients and in other possible 'essential variables' may well occur; determining whether these are the result of random fluctuations in the referral of clients of whatever, would require the use of sophisticated statistical techniques.

As in the case of discovering the failure to achieve goals or objectives, there remains a further problem of determining what should be the appropriate response if an essential variable does stray outside its limits. What policy should be modified, and how? In the case of Ashby's homeostat, the selection of a new

step function is a random process. Whether such an approach would be feasible, in the kind of situation considered here, is questionable.

Ensuring that the Centre's Response to Change has Requisite Variety

The relevance of Ashby's 'Law of Requisite Variety' to the problems of managing a work centre is perhaps equally uncertain. At present, it could be argued, the absence of a comprehensive and rigorously adhered to policy framework means that the response of the centre to change is not lacking in variety and that it is indeed too great. Nonetheless, insofar as the expectation is that the policy framework will evolve towards a more comprehensive and detailed specification of what happens in the centre, Ashby's strictures may well be pertinent. They are a reminder to the management committee that however desirable such a framework may be from the point of view of increasing the effectiveness of the centre and its capacity for learning in the short-term, there is a limit to how far such a process should be allowed to go.

Just as random genetic mutations enable species to adapt to unexpected and unpredicted changes in the world they inhabit, so too must a policy framework permit and even facilitate such departures from the norm.

Major Shifts in Policy

Before leaving this exploration of the role of policy in the running of the work centre, and moving on to examine the part it plays in the wider inter-organisational context of rehabilitation services in Westminster, one final point should be made. Up to now it has been assumed that, somehow or other, it would be possible for the policy framework to become adapted to external circumstances. The possibility has been ignored that while policies might be changed in the right direction, the pace of change might be too slow so that by the time a 'match' was achieved, the external circumstances had already changed. Another, more important possibility, is that no such matching of policy framework to external circumstances exists. In order to see this, we need to look no further than the example of high levels of unemployment already referred to. It may well be that no matter what changes in objectives are made - such as giving greater emphasis to job-seeking skills - or what changes in ways of achieving these are tried out, the goal of clients being employed for an average of at least, say, five years after leaving the centre is simply unattainable.

In the previous chapter, a possible response to such a situation was touched on. There it was seen how the management committee found themselves considering the possibility of re-orienting the centre, so that it was not only concerned with getting people back into open employment. The goal of providing longer-term, sheltered employment in the centre was suggested. Such a change would clearly have major repercussions for both prescriptive

policies and objectives and might well imply major shifts in both. More generally, it might be suggested that a management committee might simply become aware of a lack of progress in adapting the policy framework to external circumstances. They might, for instance, find that stress between policies was becoming an increasingly common phenomenon. Or it might be that changes in one policy appear to be leading to problems in applying other policies so that change, far from improving the situation, was only making it worse. The resolution of such situations need not be limited to the reformulation of goals. They might call for a reconsideration of other aspects of, what was termed in Chapter 8, the infrastructure of policy. That is to say, they might indicate the need for reconsidering some of the underlying assumptions and philosophy on which the work centre and its policies are based. Such a process corresponds closely to what is sometimes described as a review of policy, although its wider aspects are not always explicitly recognised.

One aspect in particular is worthy of mention. This is the possibility that small, marginal changes in the policy framework, of whatever kind, are inadequate for coping with the challenge posed by major changes in the external circumstances. It is instructive to compare such a situation with the kinds of situation described by Kuhn (KUHN,1962), which require a paradigm change. In the case of the work centre, an example of this might be when levels of unemployment have risen to such a level that the whole concept of rehabilitating ex-psychiatric patients for open employment comes into question. No amount of tinkering with policies, goals and objectives may prove sufficient and what is

required instead is a complete rethinking and reformulation of the policy framework.

A similar phenomenon can be observed at the level of structure planning. Here a number of local authorities have been compelled to completely revise the whole philosophy and direction of the plan from one focused upon restricting economic growth and development to a concern with attracting new industries and encouraging employment growth.

CHAPTER 10

INTER-ORGANISATIONAL POLICY-MAKING

So far this discussion of policy-making has been limited to the context of a single facility. The time has now come to extend it to a consideration of policy in the wider context of several facilities and, in particular, of rehabilitation services for the mentally ill in Westminster. First of all, it will be necessary to examine briefly the nature of these services and some of the problems that are experienced in operating them, especially in regard to their inter-relationships with each other.

Rehabilitation Services for the Mentally Ill in Westminster

The main occupational rehabilitation facility in the City, prior to the setting up of the work centre, was a day centre. This can cater for about 60 clients and provides a range of activities, typical of day centres: simple, unskilled manual and clerical work and therapeutic group discussions in the morning; dancing, games and outings in the afternoon.

Although less oriented towards employment, the health services in Westminster also provide day hospital facilities that may, in some cases, cater for this more disabled group. Most referrals to them are, however, likely to come from the in-patient wards of the

psychiatric hospitals. The largest of the day hospitals is part of the psychiatric unit in St Mary's Hospital. It has 80 places and, unlike the other hospitals in Westminster, primarily serves a catchment area which includes the Paddington district of about 40 000 people. The other main day hospital, at Tottenham Mews, is based on the Middlesex Hospital. It has about 40 places but does not cater exclusively for Westminster residents. There is also a much smaller unit at the Westminster Hospital, as well as one at the Marlborough Day Hospital with 30 places; but both of these are thought to have only a small number of clients who are resident in Westminster.

Employment services provision is even less accessible to Westminster residents, who must travel over ten miles in order to get to the nearest Employment Rehabilitation Centre (ERC) in Perivale. There are just three such centres serving the whole of London, so that each is, with between 100 and 150 places, serving a population of about three million. Not surprisingly, there is often a substantial waiting period, especially in the case of ex-psychiatric patients, as Manpower Services Commission (MSC) policy says that this group should not exceed one-fifth of all those attending at any one time. Furthermore, unlike the day hospitals and day centres, the period of attendance is also limited to an average of between six and seven weeks and is seldom more than ten weeks.

The employment rehabilitation centres are also considerably more selective so that many ex-psychiatric patients are judged to be too disabled to be able to benefit from attendance. Where there

is some doubt with regard to suitability, they are sometime referred to an Industrial Therapy Organisation (ITO) in Hanwell. Satisfactory performance there is then a condition of being eventually admitted to the ERC.

Attendance at the ERC is itself often a pre-requisite for admission to the training programmes provided by the MSC. These are provided by Skills Centres - there is one of these at Perivale, adjoining the ERC - in the case of manual skills and at colleges of further education in the case of non-manual skills, such as book-keeping. The courses are usually of six months duration.

Just as these end-points of the employment rehabilitation system are all outside the City, so too are many of the starting points, the Industrial Therapy Units (ITU) in the large mental hospitals, where the majority of Westminster residents continue to receive in-patient treatment. These hospitals - Horton and Banstead - are both located in Surrey, over twenty miles away from the City. Many of those attending ITU's in these hospitals are long-stay patients, so that the work done and the demand made on patients must be geared to this group, rather than to the small trickle of short-stay patients, who are living in the community most of the time.

Mention must finally be made of the individual professional workers who, although not directly concerned with rehabilitation, nonetheless can play a crucial part in guiding their clients through the complex network of provision and eventually finding

them employment. These are the field social workers and the Disablement Resettlement Officers (DRO). In both cases, the mentally ill are only one of the many groups amongst their clients and just how much time and assistance they give to them is left to the discretion of the individual social worker or DRO.

Inadequacies within the Present Services

Not surprisingly, such a multiplicity of different services, managed by a large number of different agencies, is itself the source of many problems. It will be useful to look first of all at the ways in which the individual services themselves can fail to meet the needs of the mentally ill.

In the case of Westminster - and many other areas - the inadequacies of the services become evident from the day of admission to hospital. Taken over twenty-five miles away from their homes and places of work, patients are immediately placed at a grave disadvantage. Not only is it difficult for their families to visit them but the possibility of keeping in touch with employers and ensuring that their job is kept open is greatly reduced. When in hospital, many patients will, furthermore, spend most of their time sitting around, watching television or playing games. Some will be persuaded to do occupational therapy but only a small proportion will be engaged in a work-like activity.

The reason for this is often the scepticism of doctors and nurses as to the therapeutic or rehabilitative value of the work provided. The work is usually very simple and repetitive, requiring very little mental effort or social interaction with others. Part of the reason lies in the need for the units to cater for the much larger number of long-stay patients, but the pressure on supervisors to make sure deadlines are met for completing the sub-contracted work is also a factor. This compels them to simplify the work, which is already of a fairly elementary nature, and to allow patients very little, if any, discretion in how they carry out and organise the work.

Similar criticisms can be levelled against the Hanwell ITO, which provides for a few Westminster residents the next stage in their rehabilitation. Greater demands are however made on workers there. Irregular attendance and poor time-keeping, which are common in the hospital ITUs, are not tolerated. A considerable number of people, who are unable or unwilling to comply in these respects are dismissed or, to be more precise, their courses are terminated. The MSC, who pay those attending an allowance - which is just a little above the level of unemployment benefit - regard the unit as providing a kind of training course. The course is supposed to last no longer than six months and, after this period, the allowance is progressively reduced until, after twelve months in attendance, it has ceased altogether. In order not to discharge individuals prematurely, the ITO has, in the past, maintained the value of the allowance out of their own resources. As more and more people who, in the past would have found work, have been unable to do so, this has become

increasingly difficult. Consequently, many of those attending are discharged before they have employment simply because of the withdrawal of the MSC's support for them. The luckier ones may return to the hospital ITU or be found a place in a day centre, but many inevitably regress further to a life of total inactivity.

For many more Westminster residents, the next stage in their rehabilitation after leaving hospital will be attendance at either a day hospital - most probably the one at Tottenham Mews - or the Terrace Day Centre. The emphasis in both facilities is on keeping people occupied rather than preparing them for employment. As noted already, the day centre does insist on regular attendance and good time-keeping and, in this respect at least, could be said to provide an environment closer to that of employment than that of the hospital ITU or the day hospital.

In the context of this network of provision, the Westminster Work Centre can be regarded as attempting to provide an alternative and more appropriate stage on the way back to employment than that provided by the Hanwell ITO. As was mentioned in the previous chapter, the work is more varied and some of it is considerably more demanding, in a number of respects, than that done at the ITO. No time limit is placed on clients' attendance here.

The maximum period of attendance allowed is also widely regarded as a major fault of the MSC's Employment Rehabilitation Centres. A ten weeks stay is seen, by many, as quite inadequate in the case of ex-psychiatric patients. The short period of the ERC course does though, to some extent at least, reflect the fact that the

ERCs appear to be concerned primarily with the assessment of clients rather than with their rehabilitation. A major investigation of the performance of ERCs also drew attention to the absence of any procedure for systematically diagnosing or assessing individual disabilities and their contribution to the overall handicap in respect of employment. It provides evidence for the failure of ERCs to tailor the courses to the individual needs of clients. Most damning of all, it shows how the final assessment is often based very largely on observations made during the first week or so of attendance (CORNES,1982).

The Lack of Coherence in Rehabilitation Provision

Many of these criticisms stem, in large part, from the absence of any clearly thought out philosophy of rehabilitation. This is also one of the factors underlying the fragmentation and lack of coherence that characterises provision in Westminster - and most other areas in the country. In just one area, the Borough of Croydon, an attempt has been made to develop a number of levels of provision that represent distinct stages in a rehabilitation process. A key element in the underlying philosophy is the assumption that ex-psychiatric patients need to progress gradually through a number of such stages, before they are ready to cope with open employment. These stages are: first, the industrial therapy unit at the large mental hospital, which is actually within the Borough; then the day centres, of which there are several in the Borough; then an ITO, which is located within the

sheltered workshop, which makes up the fourth stage; and finally, a number of industrial enclaves where small groups of people can work in local factories but continue to be employed by the local authority. In addition to this ladder of services, there is also a fairly explicit policy of not allowing people to 'fall off the ladder'; that is, leaving or being discharged from a facility and not being found a place on a lower step of the ladder.

By contrast, the situation in Westminster appears quite chaotic. Many patients are discharged from the hospitals, where they may at least have been engaged in industrial therapy, to the community, without any referral being made to a day hospital or day centre or any other rehabilitation facility. Similarly, clients may leave or be discharged from a community facility and no attempt made to find them a place elsewhere. No well-defined route - or routes - through the network of facilities exists. Some individuals may go straight from hospital to the work centre, or even the ITO or the ERC, while others may return to open employment after only attending the day hospital or day centre.

Part of the reason for this is simply the absence in Westminster of any mechanism whereby an individual's rehabilitation programme can be arranged and monitored. Something of this kind might well be the province of a social worker or of the DRO, but neither of these groups of professional workers are inclined to see their roles and responsibilities as encompassing such a wide remit. Whereas the earlier mental welfare officer might have taken on such a task, the present generation of generic social workers lack experience in dealing with the mentally ill, and are often too

busy or absorbed in meeting their statutory obligations towards children or old people to invest much effort or time in dealing with ex-psychiatric patients. The DRO is similarly involved with other groups of disabled people although, unlike the social worker, he is not obliged to give priority to one group or to another. He is however subject to a more subtle kind of control, in that his own performance is closely monitored in terms of the number of people he places in open employment. As physically disabled clients are generally easier to place, there is also the greater risk that, if they are found employment, their bizarre behaviour, absenteeism or simply their leaving the job after only a short time, will make it difficult for the DRO to place any more clients with that employer.

The lack of any overarching administrative structure for routing ex-psychiatric patients through the system is not the only problem however, for the network of facilities in Westminster does not really constitute a system at all. No attempt has been made to relate what each facility does to the provision made by other centres. It would not be possible to use them as a series of steps on the ladder back to open employment, as in Croydon. Each facility is based upon a different conception of rehabilitation. Neither their aims, nor their operational policies - insofar as these are even made explicit - have been formulated in a way that takes account of the aims and policies of the other facilities. The failure of facilities to articulate their aims and policies makes it extremely difficult for such adjustments to be made.

The Role of Policy in Making Provision More Coherent

Here it is possible to discern the very important role that policy can play at this level in local services. It is also possible to distinguish two very different ways in which such policy can be determined and why the tendency to think in terms of only one of these has been a major obstacle to development in this area.

As was pointed out in Chapter 7, a very common assumption with regard to policy is that it is essentially prescriptive in character and that it is the means by which one level in a hierarchy seeks to dictate, or prescribe, what subordinate levels in the hierarchy should do. In Chapter 8, it was seen how some of the policies of the work centre could be regarded as being the way in which the management committee could prescribe how staff were to act in relation to admission of clients and other matters. Although such a view made sense, it was evident that the reason for constraining staff in this way was not because the management committee knew best. In fact, it was made clear that the committee were well aware of the absence of a well-articulated philosophy of rehabilitation and of accepted norms of good practice. The reason for constraining the actions of staff was, it was argued, that it was only by doing this that the committee, the staff themselves, or outsiders, could learn anything from experience at the centre. It was further emphasised that the staff themselves might well formulate the policies and the prerogative of management was rather to insist that there should be a policy framework and that it should be adhered to.

Here too it is possible to envisage the policies of the various facilities as being prescribed by some overarching authority, although - and this is a part of the problem - no such authority exists. It might be suggested that central government could, or should, fulfill this role but the departmental structure of central government makes this unlikely. Even if it could be assumed that such authority were located inside the Department of Health and Social Security, the likelihood of a coherent set of operational policies being formulated, and adhered to, would be remote. It is just conceivable that the health services in Westminster might be 'brought into line', although the existence of several interposed management layers - the regional health and district health authorities and the management committees of the individual hospitals - would make this unlikely.

The likelihood of the facilities, that are managed by the City's social services department, adopting policies determined by the DHSS is even smaller, given the even greater emphasis on the independence of local authorities. However, even if health and social services were somehow to be developed into a more coherent system of provision, there is simply no way in which the facilities of the Manpower Services Commission - an autonomous, albeit a publicly accountable, agency could be brought into such a scheme. And, of course, there is the voluntary sector which, although often dependent on central and local government finance, is even more jealous of its independence and its freedom to be innovative and radical in its approach to the provision of services.

Finally, it is necessary to observe that, even were all these administrative obstacles to disappear, there remains the even more fundamental problem of making it possible for a central controller in the DHSS to have access to the information needed to both design the policies appropriate to the local situation and to monitor them. It is, nevertheless, precisely the prevalence of this top-down view of how policy is generated that results in a policy vacuum wherever the multitude of different agencies makes such an approach impractical.

There is though an alternative approach to the problem, one that might, in contrast, be characterised as bottom-up. Here, as in the case of the work centre, policy would be seen not so much as a way of ensuring that the right thing is done, but rather as a way of removing some of the uncertainty that surrounds the actions of staff and, more generally, what happens in a particular facility. Now however the reason for doing this is not to permit learning to take place but rather to enable others, not working in that facility, to know something about what goes on there. To take a simple case - and one that featured prominently in Chapter 8 - this might relate to admissions to the centre. By having an explicit and clear policy, a centre not only ensures that its own staff and management know something of the background of the clients, it also provides information on this to workers in other centres - and other professional workers, such as DROs and social workers.

Developing Consistent Policies

A consideration of the different kinds of information of this kind which might be communicated will be deferred until a later section but it will be useful to examine in greater detail the process whereby the policies of several facilities might be modified in such a way as to make the rehabilitation system more coherent. This can best be done by continuing with the relatively simple example of admissions policies. At present, none of the centres providing some form of rehabilitation have a written, explicit statement of the criteria which new clients must satisfy. Consequently, several centres - for example the Terrace Day Centre, the ITO and the work centre - are providing alternatives to each other. This is not necessarily wrong, as it may well be that different categories of ex-psychiatric patients require different forms of rehabilitation. The problem however is that there appear to be some people who are unable to benefit from any of the existing forms of provision, while the absence of a series of stages, each resembling more the conditions of open employment than the preceding one - as in Croydon - means that many people fail to progress and others fall off the ladder. One solution to this problem might be for the centres to adopt somewhat restrictive admissions policies, with each one seeking to cater for varying degrees of employment handicap and hence readiness for open employment.

A fairly obvious pattern might be for the Tottenham Mews and St Mary's Day Hospital to cater for those recovering from a psychiatric illness. Their patients would then move on to the

Terrace Day Centre, which would also accept referrals of chronic, ex-psychiatric patients from the community. The next stage might be the Westminster Work Centre and from there clients might be referred to the ITO. This would feed into the Perivale ERC, from which, hopefully, people would go into either sheltered or open employment. Such a scheme is, of course, somewhat idealistic and, in reality, there would be several departures from this pattern. A number of people might be able to 'by-pass' one or more facility and it is quite possible that, as was discussed in Chapter 8, many more would become stuck at one or more level.

What matters though is that the transition between the various facilities would be less great and the rehabilitation programme at each one could be matched more closely to the particular needs of the more homogeneous group of clients that would result. In order to achieve this, how then would the admissions criteria of each facility have to be formulated?

One particularly simple approach would be for the day hospital to state simply that it would only admit patients referred by the psychiatric hospitals' in-patient units, the Terrace Day Centre to admit only those referred by the day hospitals, and so on. This would however be far too rigid and fails to allow for those leaving hospital who may require only a limited amount of rehabilitation and may, for instance, wish to go straight to an ERC. It would also be inappropriate for people who drop out of the system by discharging themselves from, say, the day centre but subsequently wish to return there. Rigid application of the above scheme would mean they could only get back in by first of

all being re-admitted to hospital.

A more satisfactory approach would be to base admissions criteria on an objective assessment of individuals' disabilities and readiness for employment. This is essentially the approach taken in education, where admission to many educational institutions is based upon performance in exams. Although the move toward comprehensive schools has radically modified this, as regards entry to secondary schooling, it continues to play a major part in determining admission to advanced-level courses, universities and higher degrees. The difficulty, in the case of rehabilitation, is that there are no such objective assessments of mental disability, or of the extent to which it results in handicap in respect of employment. Where some degree of selection exists in centres, such as those in Westminster, the assessment is almost entirely of a subjective kind and the criteria remain vague. If the admissions policy were set down formally, it would amount to little more than the condition that there appears to be a reasonable likelihood that a client will benefit in some way from attendance at the centre. Judgement of this usually depends on the impressions formed at a face-to-face interview, a rather inadequate description of their previous employment and whether or not the individual seems interested in attending and eventually seeking employment.

The solution to this problem would seem to lie in the possibility mentioned in the previous chapter, of identifying measurable correlates of success in employment. There it was seen how these would provide the basis for defining a set of objectives against

which both the overall achievement of the work centre and the progress made by individuals could be determined. If such a set of measures could be developed, they might also be used as a basis for a set of more objective admissions criteria. Admission to each facility would then be mainly dependent on the measures lying within certain ranges or, alternatively, an overall combined score lying within a certain range. In practice, a rather less rigid set of criteria, analogous to those determining admission to, say, an advanced-level course - such as so many 'O' levels, English language and mathematics essential and high grades in other subjects - would probably be required.

Agreeing to Consistent Policies

Assuming, for the time being, that it would be feasible to arrive at a more consistent set of policies, there remains the problem of actually persuading each centre to adopt them and, perhaps more important, to actually adhere to them. We have already dismissed any possibility of this being brought about by some kind of central edict, emanating from some point in the central government machine. There remains a more practical but by no means straightforward alternative; that is for representatives of the different agencies responsible for the various facilities in Westminster to come together and attempt to thrash out a consistent set of policies.

Several problems present themselves immediately. To begin with, the number of individuals that would have to be involved is surprisingly large. The two day hospitals are in different health districts and it would be necessary for each to be represented. Choosing a representative would not be easy either. Involved in the running of the day hospital are several different professions - psychiatrists, occupational therapists and nurses - each with a rather different perspective on the day hospital's role and mode of functioning. There is only one day centre, the Terrace Day Centre, but although this is financed by the City's social service department, it is actually managed by the Institute of Social Psychiatry. Representatives of each would almost certainly have to be involved. In the case of the work centre, it would probably be possible to have it represented by one member of the management committee or by the head of the centre, but the involvement of both would be desirable. This also would apply to the ITO, whose board of management would wish to attend, as well as the manager of the ITO. Furthermore, the dependence of the ITO on Manpower Services Commission funding, means that it would be necessary to involve the latter too. The most likely person would be one of the senior DROs for the north-west London area. The involvement of area management as well as the manager himself, would almost certainly be necessary in the case of the ERC.

It is easily forgotten that even such senior representatives would be unable to commit their agencies to any policy. They would still have to refer recommendations back to their own management committees for approval. Modifications might then be proposed and the representative would then have to take these back in turn,

for further discussions with the representatives of the other agencies. It is easy to envisage a process of this kind going on for a considerable time and for the representatives, on occasion, to find themselves going round in circles.

But why, it might be asked, should there be any problem? Surely the aim of developing a more coherent system of rehabilitation will be seen to be both reasonable and desirable. Why should not the various agencies be able to quickly come to an agreement on a consistent set of policies? There are, in fact, several reasons why this process will not proceed smoothly. Essentially, this is because the management of each centre are far from being free agents, able to develop policies in a completely unrestrained way. The nature of the constraints are however of several kinds and will now be examined in turn.

Factors Constraining the Policies of the Centre

Constraint is perhaps most obvious in the case of the Employment Rehabilitation Centre. There are 27 such centres in the United Kingdom and together they form a major component of the services provided for disabled people by the Employment Services Division (ESD) of the MSC. Like many other central government services, their operation is governed by a large number of policies, which are determined centrally within a policy branch of the ESD. One such policy says that the proportion of mentally disturbed clients at a centre should never be greater than one-fifth. Another

says that the maximum period of attendance at a centre is ten weeks. Both of these may well turn out to be incompatible with the development of a more consistent framework of policy.

The manager of a centre would however not be able to modify the policies of his centre simply because other agencies in his area believed that this would enhance the ERC's contribution to the overall system of rehabilitation in the area. He might point out, for example, that the policy limiting the proportion of mentally disabled clients to one-fifth is based on the view that a larger proportion than this would impair the effectiveness of the centre. Not only would other physically disabled groups of clients be adversely affected but the mentally disabled themselves would fare less well in a centre where they were too numerous. (The evidence in support of this view is somewhat flimsy and the view is by no means widely accepted. Nonetheless, the policy is adhered to with a fair degree of rigour).

Even where it was agreed that the advantages of modifying a policy to meet local circumstances outweighed any possible disadvantages, the manager would find it very difficult to persuade his superiors, at area management level or the higher echelons of management, to permit any departure from official policy. Here one might well be up against a more subtle kind of what was termed meta-policy. This says, essentially, that services operated by central government should all work within a broadly similar set of policy constraints. The reasons for and the assumptions underlying this, are seldom articulated or made explicit but they are a very important aspect of the policy issues being explored in

this thesis.

The constraints on other centres' policies are less obvious,, because none of them are governed by such a well-articulated and detailed policy framework as is the ERC but the constraints on them are no less real for all that. Consider, for example, the ITO in Hanwell. There, as has already been noted, the length of stay of clients is determined not so much by an explicit policy of the ITO managing body but rather by the reduction in the training grant made to clients by the MSC after they have been there six months. This external constraint has much the same effect as if the ITO adopted a policy of discharging clients after six months of attendance.

Financial pressures of a rather different kind also act as a constraint on the types of work the ITO can provide for clients and on the way in which the work is organised and managed. Like most centres of this kind, it has elected to make sub-contract work the basis of its operations. This is work which firms cannot do or do not wish to do inside their own factories and choose instead to sub-contract outside. One reason for doing this is that the work is so menial and boring that their 'able-bodied' employees simply do not wish to do it and the firm has difficulty in finding anyone else to do it. Such work is usually of a manual kind and one example would be stripping the ends of short lengths of wire; another would be cutting up lengths of such wire. A fairly typical job in many work centres consists of stripping or cutting hundreds of such pieces of wire each day.

Even more important than the unskilled and often trivial nature of the tasks they are required to do, is the almost total absence of opportunities for workers to organise the way they do the work or to work closely with others. The pressure of meeting contract deadlines usually means that the workshop supervisors are unable to allow much discretion to individuals. Instead, they must supervise closely everything that is done and intervene immediately if any problems arise.

Management at each of the centres will also encounter other difficulties in modifying their policies. These originate in the way that policies interact with each other. A fairly straightforward example of this might be the interaction between policies on admissions and on length of stay.

Several of the existing facilities, such as the day hospitals and the day centre, do not specify a maximum length of stay. As a result, the number of people that can be admitted is dependent on the number who are discharged or leave voluntarily each month. This may, on occasion, mean that referrals cannot be accepted. In order to operate a policy that, for instance, required the day hospitals to accept all referrals from the in-patient wards of the psychiatric hospitals, it might be necessary at the same time to increase the turnover in the day hospital by prescribing a maximum length of stay, at least for certain categories of patients.

Similarly, if the ERC were asked to increase the maximum length of stay of the psychiatrically disabled clients from, say, ten weeks to twenty weeks it might be pointed out that this would in turn

mean planning a further restriction on the admission of such clients to the ERC, given the policy of not permitting the proportion to rise above one-fifth.

In the examples considered so far, of both external and internal constraints on policy changes, the consequences of these changes have been relatively obvious. Often however the consequences are much more difficult to anticipate. This means that external constraints on policies may sometimes be ignored. Only after the changes are introduced does it become clear that such constraints existed. As a result, it may prove impossible to adhere to the policy. Alternatively, the policy may be followed but only at the cost of failing to adhere to other policies or of failing to meet other constraints such as the need to 'balance the books'. To illustrate this, suppose that the ITO has agreed to provide work for its clients of a more skilled nature. Only after several months, or even years, have passed does it become evident that, in order to obtain sub-contract work of this kind, it is necessary to take it on at uneconomic rates or with unrealistic deadlines. Adherence to the policy may then result in a steadily weakening financial situation, while a determination to not allow this to happen may force management to take on more of the menial, unskilled work that it had agreed to phase out.

The implication of this is that, just as there will inevitably be a considerable amount of 'toing and froing', as the interaction between policies and the external constraints on them are teased out and investigated, so too will there be a need for further mutual adjustment of policies over a much longer period of time,

as the unanticipated consequences of changing them become apparent.

CHAPTER 11

GOVERNMENT AND THE MUTUAL ADJUSTMENT OF POLICIES AND PLANS

A central theme in this thesis, equally evident in the consideration of planning and of policy-making, has been the importance of what has been termed the 'mutual adjustment process'. This is the process whereby the plans and the policies of several agencies interact with one another and progress, hopefully, towards some degree of mutual compatibility and coherence. An important claim of this thesis is that cybernetic ideas are extremely relevant in gaining an understanding of this process and in developing ways of facilitating it.

This final chapter will attempt to emphasise these points and, at the same time, to argue that they provide a novel perception of the role of government and of central government in particular. First of all though it will be necessary to say a few words about the meaning of the term 'government'.

The Meaning of the Word 'Government'

The Oxford Dictionary tells us that 'government' is the more modern word for 'governance' which, in turn, is the 'act, manner, fact or function of governing, sway, control'. The word 'govern' itself has several distinct meanings. One of them is 'to rule

with authority, conduct the policy'; another, which is rather more helpful, is 'sway, rule, influence, regulate, determine' etc. If we look under 'policy', we find 'course of action adopted by government'!

One might have hoped that some of this vagueness and ambivalence might have been cleared up by cybernetics but, in this instance, one is disappointed. Most writers about cybernetics are fond of using Watts' governor as the archetypal cybernetic device. This would seem to suggest that government might be concerned with self-regulation. Interesting though this is, it certainly bears very little relationship to either popular conceptions or the strictures of the Oxford Dictionary. Not quite as common a view, though still a significant one, is the view that cybernetics itself is essentially concerned with government. But just as many cybernetic texts begin with the example of Watts' governor, so do many of them explain that the word 'cybernetics' comes from the Greek word meaning 'steersman', helmsman'. (It is not surprising that the advocates of a 'systems approach' to planning chose to think in terms of the plan being kept on course.)

This confusion is not helped either by the way in which both central and local government have increasingly become involved in the provision of services and the redistribution of income. Whatever the merits or drawbacks of these roles being combined with a true governmental one, it certainly does not aid the better understanding of the nature of the latter. This is perhaps especially so when some aspects of service provision and income redistribution do serve a governmental function.

It will be helpful to develop, therefore, a rather different conception of what government is all about. This centres on the belief that its essence lies in the regulation of relationships. Two quite different forms of relationships need to be distinguished here. The first of these is that between individuals. Much governmental intervention here takes the form of legislation and there was a time when government consisted largely in the enacting of such legislation - and its implementation. Today, this remains a major feature of governmental activity but with the proliferation of organised groups and large powerful organisations, government has also become concerned with the regulation of the relationships between organisations. It is probably fair to say that there has been a tendency to approach this form of regulation in a manner that is similar to that found successful in regulating the relations between individuals - that is by means of legislation.

Government and Policy Infrastructure

One alternative mode of intervention is through the exercise of influence over what, in Chapter 8, was called the policy infrastructure. In the case of the example of developing a more coherent system of rehabilitation services in Westminster, one might regard the ideal situation as one in which all the rehabilitation units operated within, and were guided by, a single common infrastructure. What might this mean in practice?

In the first place, it would mean that instead of the present hotch-potch of conflicting and often vague and inexplicit goals for the individual units, the objectives of each unit were derived from a single set of goals, which were defined for the whole rehabilitation system. It would also mean that the assumptions on which both the derivation of objectives and the prescriptive policies were based, would be shared by all the units. One would not encounter, for instance, a divergence of view as to the feasibility of psychiatrically disabled people achieving open employment in the current economic climate. And thirdly, appropriate limits would be placed on certain critical variables, so that runaway, positive-feedback processes did not disrupt the system. In particular, the staff of one unit would be prohibited from acting in such a way as to make it impossible for other units to operate effectively.

Of course, such an ideal is not normally going to be attainable. The goals of the units will not be entirely shared, there will be some disagreement on underlying assumptions and units, sometimes, will be adversely affected by the activities of other units. What is more important is the means by which the ideal of a common infrastructure is to be attained. Its imposition from 'above' has already been implicitly rejected - this being the 'top-down' mode of government that has been criticised on a number of occasions. Instead, it is being suggested that the part to be played by government is rather one of facilitating the processes by means of which such a common infrastructure might evolve.

It can do this in a number of ways. First of all, it can draw attention to conflicts in the present system, between the goals of one unit and another. At present such conflicts are simply not investigated or publicised, even by the organisations - such as joint planning teams - which might be expected to be concerned with such matters. Government might also encourage units, and the services of which they are a part, to articulate more clearly the assumptions on which their policies and decisions are based. This is, in fact, what has happened in the case of the structure plans which local authorities are required to produce. While many of the more ambitious aims of the structure planning process have not materialised, there can be little doubt regarding the value of the tremendous amount of work that has gone into articulating and recording in published documents, the infrastructure on which local authorities' land use policies are built. Water authorities are now much more aware of, and understand much better, the ways in which the local authorities forecast, or justify, the increases in population which form a crucial element in the preparation of the water authorities' own plans. Developers too are certainly much better informed now with regard to the basis of the restraints imposed on them by the policies that determine the outcome of their planning applications.

Once such conflicts have come to the surface, the problem arises as to how they are to be reconciled or, in other words, how can a process whereby a common infrastructure gradually evolves be instituted? And what form should it take? These questions have been addressed, to some extent at least, in earlier chapters.

The design and monitoring of such processes and the setting up of the requisite organisation, should form a central feature of a bottom-up approach to government.

It is possible to see this in terms of a development whereby government becomes increasingly sophisticated and less and less dependent upon the mandatory exercise of power. In the course of such a development, less and less reliance is placed on detailed, prescriptive policies which specify precisely what action is to be taken according to particular circumstances. Initially, the transition is towards the specification of the objectives to be achieved by such actions. Subsequently, the emphasis should be on setting the broader aims, or goals, of the organisations to which decision-making power is increasingly devolved. What is being proposed here is a final step by which government abandons its right to dictate what these goals should be but relies more and more on the individual organisations to work together to develop a common and coherent policy infrastructure.

Local and Central Government

Such a view of government as being primarily concerned with enabling and facilitating collaboration, offers a new perspective on the roles of local and central government and the relationship between them. As has already been seen, the need for collaboration exists at a number of levels and is of several kinds. To begin with, there is the collaboration that must take

place between the various rehabilitation units in a small area such as Westminster. The responsibility for seeing that it does take place might well lie with the local authority, although it could equally well be done by an independent agency. Whichever alternative is chosen, the term 'local government' is clearly appropriate.

Then there is the need for collaboration between the various department within an organisation such as a local authority. During the last few years, there has been a tendency to seek to augment, or even replace, such collaboration by a form of top-down co-ordination, such as corporate management and planning. These new initiatives have not been all that successful and what is now needed is the development of more effective means of collaboration. Such collaboration, it might be argued, is at the heart of local government. It is interesting to note that it is still customary to refer to the education authority, the planning authority, the transportation authority and so on, as though these were independent agencies. If indeed they were, the term local government might usefully be restricted to the process, and its associated inter-organisational structures, whereby collaboration between these authorities and others, such as the health and water authorities, was made possible.

Of course, not all services are provided by independent local agencies. Apart from the amalgamation of several services into a single local authority - or rather two, those of the county and the district - many services are provided by local branches of national bodies such as the National Health Services and the

Manpower Services Commission. The existence of such bodies is, inevitably, a major barrier to effective collaboration between services at the local level for, as has been seen already (in Chapter 10), the local branches of such national bodies are constrained to a considerable degree by policies determined at the centre. In the case of an organisation such as the Manpower Services Commission, their freedom to negotiate and vary these policies at the local level is extremely limited. In the case of the National Health Service, the freedom to modify policies in the light of local circumstances is greater, but limitations undoubtedly exist.

Putting these complications on one side, it is interesting to ask - in facilitating collaboration between organisations - what would be the role of central government, if all services were provided by independent, or at any rate, fairly autonomous agencies. The answer, it is suggested, lies in the need to ensure that the mutual adjustment process, brought about by collaboration, is a stable one, especially in the context of changes in external circumstances, such as changes in the level of population. This is, in effect, the realm in which regional strategy teams have struggled to make their mark. Far from being something that central government can hive off to small temporary teams of professional planners, it would appear to be an absolutely central concern of government. It is also one that is closely bound up with the process of resource allocation. Resource allocation is something which not even the severest critic of central government would accuse them of neglecting, or hiving off. It is also, of course, a major bone of contention between the central government

and local authorities. How does it fit into the perspective on government being developed here?

Policy-making and the Allocation of Resources

The relationship between policy-making and the allocation of resources - finance, manpower and so on - in government, has always been a confused one and is likely to remain one for some time to come. What is clear is that it is its command over resources, emanating from its exclusive rights over taxation, that gives central government so much of its influence and power over the actions and policies of both local agencies and large national concerns, such as the Manpower Services Commission.

In the case of the Manpower Services Commission, this power is exercised in a fairly straightforward way, insofar as the Commission, although an independent body, is obliged to reflect the political values of the party in power. If it fails to do so, the central government can, for instance, simply appoint different people to the Commission or, as has happened recently, replace its chairman with someone of a similar political persuasion. In the case of the National Health Service, control is exercised in a more subtle way and the link with resource allocation is more explicit. Thus plans and budgets are submitted by the lower tiers - such as the regional authorities - and the approval of these is contingent upon the budgets and plans - which may include specific references to operational policies -

being acceptable to the higher tiers. Ultimately, approval for the whole service lies with central government in the form of the Department of Health and Social Security.

It is thus possible for central government to specify precisely the level of health services that district authorities should provide - for example, the number of psychiatric in-patient beds per 100,000 of the population - and use its power over the approval of budgets and plans to see that this level is eventually achieved. There is no theoretical reason why it should not exercise a similar influence over social services provision, although the larger role played in this by the voluntary sector would mean it was inevitably more difficult in practice. In fact, however, the jealously guarded independence of local authorities has meant that the degree of influence achieved by central government, over the level of social services provision, is much less than in the health services.

Thus, although central government does specify what it regards as proper levels of provisions for, say, places in psychiatric day centres per 100,000 of population, local authorities have not always taken much notice of them. To some extent, there have been good reasons for such neglect. One of these is that such an approach fails to take account of the need for the system of services to evolve in a coherent and balanced way.

While there is no obvious and simple solution to the problem of determining priorities, as between different types of services and client groups, the perspective on government being developed here

does offer an approach to resource allocation which goes some way to meet this difficulty. Thus, instead of using a fixed and rigid comparison, with predetermined and questionable levels of provision as a basis for the allocation of resources, central government might instead use its power in this regard to strengthen its attempts to get local agencies to collaborate with each other. The receipt of both capital grants and revenue support could be made dependent, not on the achievement of questionable provision targets but, instead, on the evidence of collaboration taking place and, more importantly, on evidence of its fruits.

Within such a framework of resource allocation, local agencies would always be free to go their own way but, whether managed by voluntary bodies or by local authorities, support from central government funding would only be forthcoming if they collaborated with other local agencies. An important justification of such a stance might be in terms of resources being used most effectively. For, it might be argued, one consequence of better collaboration would be that existing resources would be utilised better and additional resources would also be more likely to achieve the greatest benefit.

Government and Change

There remains one absolutely crucial issue that has, so far, not been confronted. It is the role of government in relation to

change. One of the most telling criticisms made of the systems approach was that its intellectual origins lay in the belief that planning and government were essentially concerned with the maintenance of the status quo, of a steady state, or of equilibrium. It failed, or so the critics argued, to acknowledge or deal with the management of change - at least, of major and radical changes in society.

Some of these criticisms were based on a misunderstanding of the concept of equilibrium - or rather a failure to realise that it is meaningful to talk of equilibrium in a system that is changing or growing - such as any developing organism. Nevertheless, as was noted earlier, there was indeed, amongst many advocates of a systems approach, what might be termed a 'thermostatic control mentality'. In other words, there was a tendency to think of control as always being of the kind exemplified by the thermostat.

The possibility of a much broader concept of equilibrium and the role of government in relation to it is however evident in a good deal of cybernetic writing. This suggests that government should be concerned with ensuring that disruptive, vicious circle-like processes do not result from the mutual adjustment of the various local agencies to each others' actions and policies. It also draws attention to the possibility that those mutual adjustment processes in society can lead to equilibrium-like situations, which are not only undesirable but also very difficult to escape from. In other words, situations may occur that are all too stable.

Occasionally the apparently disruptive efforts of local agencies have therefore to be seen not as something to be restricted or held in check but rather as the stimulus for a major shift, of the kind described in Chapter 9. Such a view is, perhaps, more antithetical to the top-down view of government than any of the other proposals put forward here. Government, as the facilitator of radical change, which emerges at the local level, may correspondingly be the most important aspect of the more cybernetic perspective on planning and policy-making this thesis has sought to articulate.

REFERENCES

- ALEXANDER C (1964) Notes on the Synthesis of Form. Cambridge, Mass:Harvard University Press
- ASHBY R (1954) Design for a Brain. London: Chapman & Hall
- ASHBY R (1956) Introduction to Cybernetics. London: Chapman & Hall
- BEER S (1966) Decision and Control. London: Wiley
- BEER S (1979) The Heart of Enterprise. Chichester: Wiley
- BERTALANFFY L (1950) The Theory of Open Systems in Physics and Biology. Science 3,23-29
- BLOWERS A (1980) The Limits of Power. Oxford: Pergammon Press
- BOHM D (1980) Wholeness and the Implicate Order. London: Routledge, Kegan & Paul
- BRUNER J, GOODNOW J and AUSTIN G (1956) A Study in Thinking. London: Champman & Hall
- CHADWICK G (1971) A Systems View of Planning. Oxford: Pergammon Press
- CORNES P (1982) Employment Rehabilitation. London: HMSO
- DRAKE M (1979) After Systems Theory (in Trappl, Hanika & Pichler,1979)
- EAST SUSSEX CC (1975) County Structure Plan. Brighton: East Sussex County Council
- EMERY F (1969) Systems Thinking. Harmondsworth: Penguin
- EMERY F and TRIST E (1965) The Causal Texture of Organisational Environments. Human Relations 18,21-32

- FLOYD M, SUTTON A, FRIEND J and BAILEY L Monitoring for
Development Planning. London: Department of the Environment
- FORRESTER J (1961) Industrial Dynamics. Cambridge, Mass: M IT
Press
- FORRESTER J (1969) Urban Dynamics. Cambridge, Mass: M IT Press
- FRIEND J (1974) Conjectures on Policy-making. London:Tavistock
Institute
- FRIEND J, YEWLETT C and POWER (1974) Public Planning : The
Intercorporate Dimension. London: Tavistock Publications
- FRIEND J, LAFFIN M and NORRIS M (1981) Competition in Public
Policy : The Structure Plan as Arena. Public Administration
59,441-463
- FRIEND J and JESSOP N (1969) Local Government & Strategic
Choice. London:Tavistock Publications
- HAMMOND K (1966) The Psychology of Egon Brunswick. New York:
Holt, Rineholt and Winston
- HEALEY P, DAVIES J, WOOD M and ELSON M (1982) The Implementation
of Development Plans. Oxford:Oxford Polytechnic
- HERFORDSHIRE CC (1976) County Structure Plan. Hertford:
Hertfordshire County Council
- HIRSCH F (1977) The Social Limits to Growth. London:
Routledge, Kegan & Paul
- HOFSTEDE G (1975) The Poverty of Management Control Philosophy.
Working Paper 75-44 of the European Institute for Advanced
Studies in Management
- HOUSEBUILDERS FEDERATION (1977) Land for Housing. London:
Housebuilders Federation

- JACOBS J (1961) The Death and Life of Great American Cities.
Harmondsworth: Penguin
- KUHN T (1961) The Structure of Scientific Revolutions.
Chicago: University of Chicago Press)
- LEE D (1973) Requiem for Large-scale Models. Journal of the
American Institute of Planners 39
- LINDBLOM C and BRAYBROOKE D (1963) A Strategy of Decision. New
York: Free Press
- MCCLOUGHLIN B (1969) Urban Regional Planning. London: Faber &
Faber
- MCCLOUGHLIN B (1973) Control and Urban Planning. London: Faber
& Faber
- MILLER E (1979) Autonomy, Dependency and Organisational Change
(in Towell and Harries, 1979)
- MUMFORD L (1961) The City in History. London: Secker & Warburg
- NAGEL E (1956) Logic without Metaphysics. New York: Free Press
- PLANNING ADVISORY GROUP (1965) The Future of Development Plans.
London: HMSO
- POPPER K (1945) The Open Society and its Enemies. London:
Routledge, Kegan & Paul
- POPPER K (1979) Objective Knowledge. Oxford: Clarendon Press
- POPPER K and ECCLES J (1977) The Self and its Brain. London:
Springer International

- RAVETZ A (1980) Remaking Cities. London: Croom Helm
- ROSENBLEUTH A, WIENER N and BIGELOW J (1943) Behaviour, Purpose and Teleology. Philosophy of Science 10,18-24
- RUSSETT C (1968) The Concept of Equilibrium in American Social Thought. New Haven: Yale University Press)
- SCHON D (1971) Beyond the Stable State. Harmondsworth: Penguin
- SILVESTER M (1973) The Contribution of the Systems Approach to Planning. Socio-economic Planning Sciences 7,91-103
- SOMMERHOFF G (1969) The Abstract Characteristics of Living Systems (in Emery,1969)
- TOWELL D and HARRIES C (1979) Innovation in Patient Care. London: Croom Helm
- TRAPPL R, HANIKA F and PICHLER F (1979) Progress in Cybernetics and Systems Research. Chichester: Wiley
- VICKERS G (1965) The Art of Judgment. London: Chapman & Hall
- VICKERS G (1968) Value Systems and Social Processes. Tavistock Publications