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Raven, J. (1995). *The New Wealth of Nations: A New Enquiry into the Nature and Origins of the Wealth of Nations and the Societal Learning Arrangements Needed for a Sustainable Society*. Unionville, New York: Royal Fireworks Press; Sudbury, Suffolk: Bloomfield Books. (Chapters 1 [which summarises the whole book], 4 [“Some Observations on Money”], and 17 [Summary of Parts I to III and overview of Part IV: The Way Forward] are available at www.npsnet.com/cdd/nwn.htm).

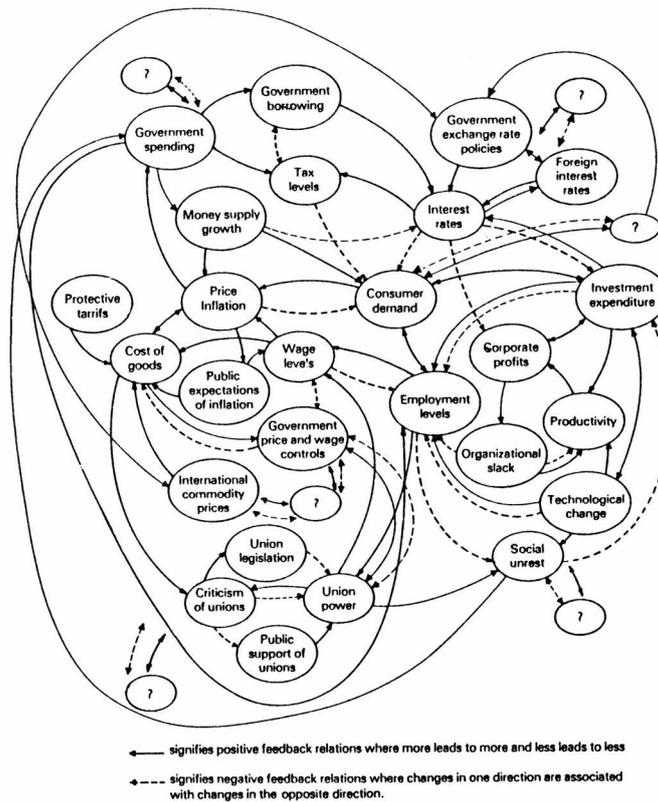
Chapter 20

Using Systems Diagrams to Guide Social Action

This chapter has been written to illustrate the value of condensing thinking about the systems processes which determine social processes into flow diagrams. Most of the actual content of what will be said is not new. What is important is the way in which the information has been summarised so as to facilitate identification of what needs to be done to move forward.

Preparation of the chapter was stimulated by the work of Morgan^{20.1}. Diagram 20.1, which is reproduced from his *Images of Organization*, deals with inflation. Most analyses of this problem, like most of the policy analyses we have discussed, fall into the trap of “thinking in lines”, searching for simple causes that lie at the “root” of the problem. Thus, level of employment, money supply, trade-union power, wage rates, interest rates, and government spending have all at one time or another been identified as the root cause. The diagram focuses attention on how the network of positive feedback loops that amplify prices can be stabilised through negative feedback. One is encouraged to find ways of redefining the total system.

Diagram 20.1 Price inflation as a system of mutual causality



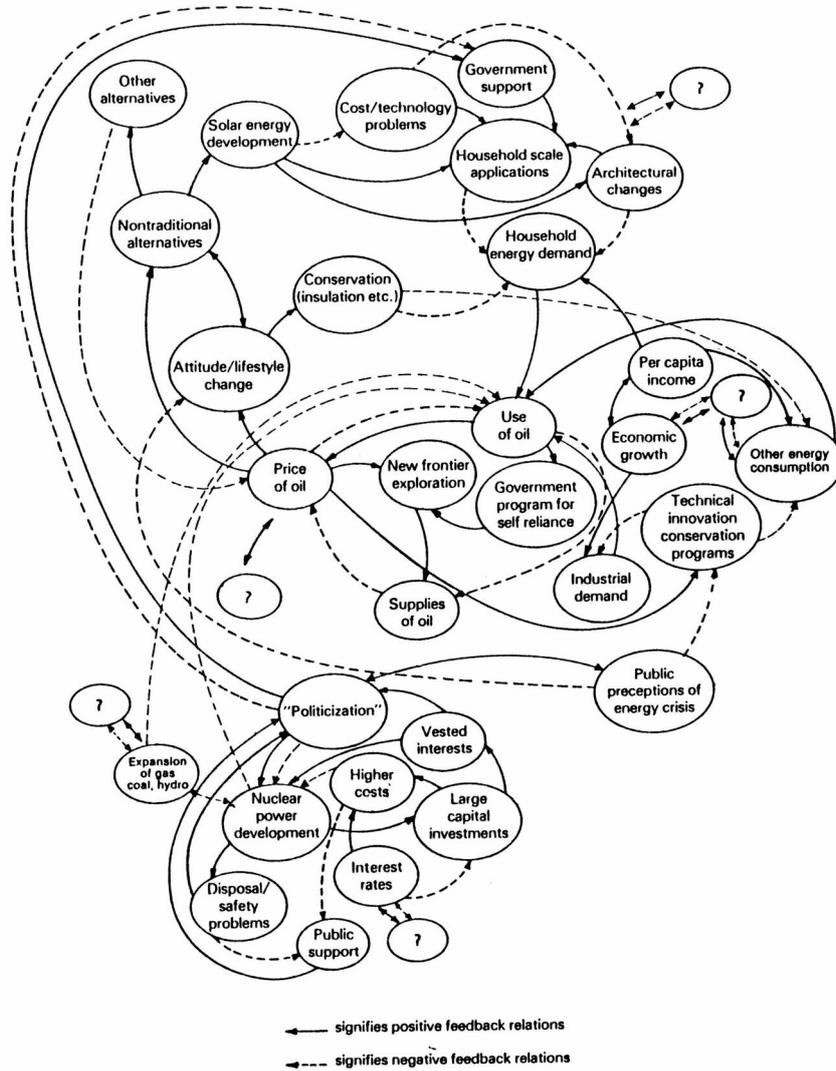
When we understand the problems of price inflation as a system of mutual causality defined by many interacting forces, we are encouraged to think in loops rather than in lines. No single factor is the cause of the problem. Price inflation is enfolded in the nature of the relations that define the total system. Many of the links represented in this diagram are deviation-amplifying (heavy lines); negative –feedback relations (dotted lines) are more sparse. Positive feedback thus gains the upper hand. The system can be stabilized by strengthening existing negative-feedback loops and by creating others. Many government policies implicitly attempt to have this effect. For example, wage and price controls introduce negative-feedback loops that attempt to moderate the wage-price spiral. Government or media criticism of trade unions as unreasonable, greedy “villains” attempts to weaken the positive-feedback loop between public support and union power, in the hope that it will moderate the power of trade unions to negotiate higher wages.

In understanding this kind of mutual causality, we recognize that it is not possible to exert unilateral control over any set of variables. It is thus necessary to adjust interventions to achieve the kind of *system* transformation that one desires.

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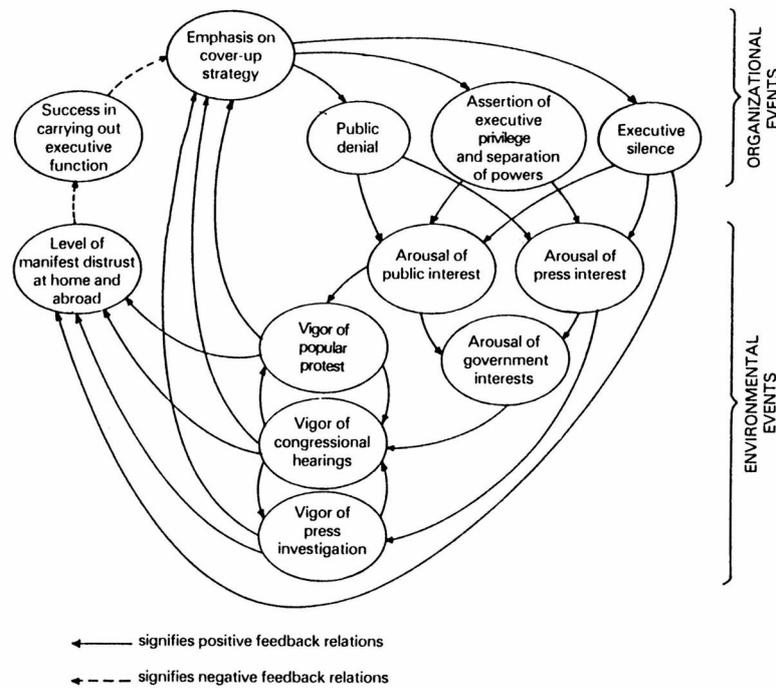
Similar comments could be made in connection with Diagram 20.2, which relates to the power industry.

Diagram 20.2 Positive and negative feedback in the power industry



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Diagram 20.3 The Watergate Affair: positive and negative feedback in the Nixon White House



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Diagram 20.3 applies the same kind of analysis to a set of more detailed organisational and inter-organisational relationships. It shows how an initial impetus (in this case the Watergate burglary, not shown in the diagram) can reverberate in a way that transforms a wider context of relations, here the Nixon White House and the whole American political scene.

As Morgan comments:

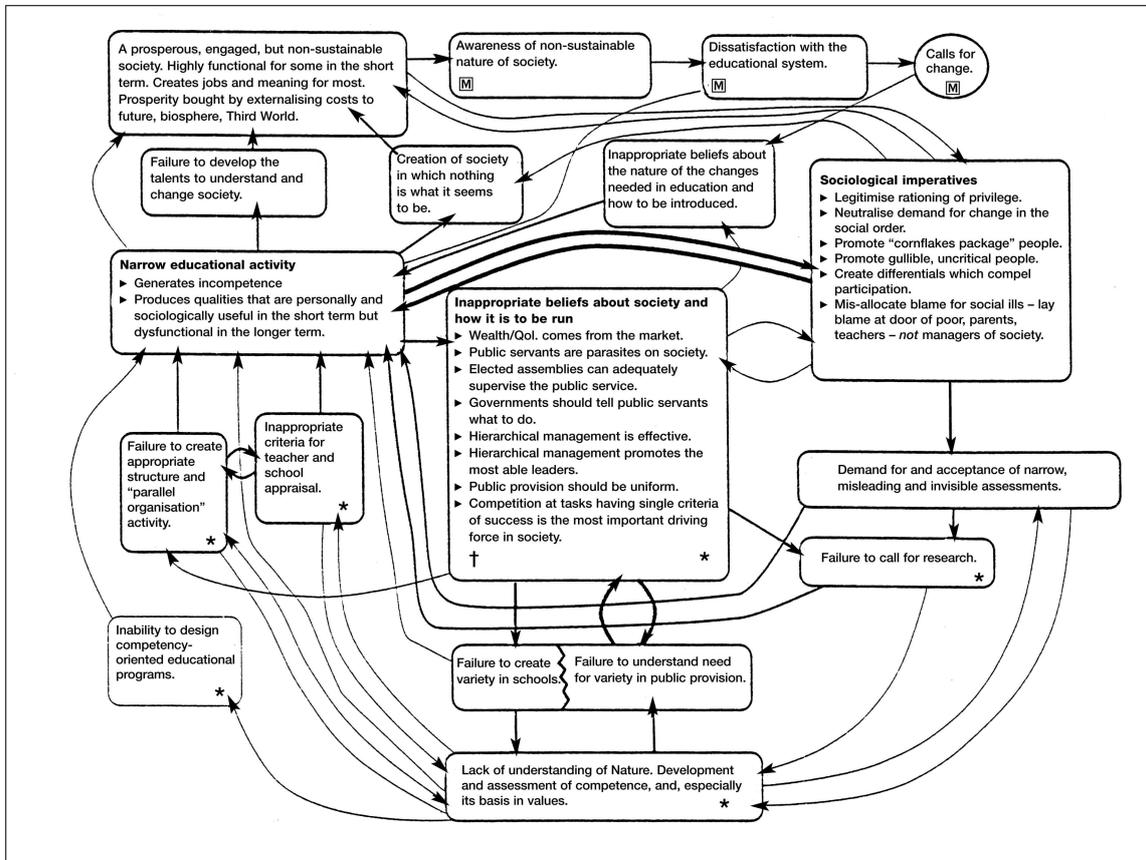
“When we analyse situations as loops rather than lines we invariably arrive at a much richer picture of the system under consideration. There are many levels at which a system can be analysed, and the choice of perspective will very much depend on the nature of the problem with which one is dealing... systems always contain wholes within wholes, and one often finds that the problem with which one starts quickly becomes part of a larger problem requiring a broader focus... This broadening or deepening of the analysis adds to the complexity of the overall picture, but often brings benefits in that it may identify new ways of solving the problems of specific concern...

In conducting this kind of analysis it may not always be possible to map the loops defining a system with the degree of certainty and completeness that one might desire. In complex systems the degree of differentiation is high, and there are usually numerous intervening processes shaping any given set of actions... (Nevertheless this kind of analysis) provides a powerful tool for guiding decisions and interventions”.

The Educational System

We have drawn up and published a similar diagram dealing with the educational system (Diagram 20.4).

Diagram 20.4 Feedback Loops Determining The Nature of Educational Provision



*Intervention in these cells would help change the nature of the qualities nurtured and rewarded in the system. Motives which could be harnessed to do this are marked [M].

†These need to be replaced by acceptance of the need to make managed economies work – to find way of giving effect to information concerning the public long-term interest, the need to explicitly create variety and information on the personal and social consequences of the options, and to find ways of holding public servants accountable for, and getting them to act in, the long-term public interest. This means systematic, broadly based, evaluation and participative democracy.

The most important points it illustrates are:

- i. That the key points at which intervention is required are far removed from the symptoms of malaise. The nature of the key problems which must be tackled have not, in the past, been at all obvious to most professionals, let alone politicians;
- ii. That the fundamental sources of the problems of the educational system stem from the *sociological* functions which the system performs for society. Unacceptable though it is to discuss these, one ignores them at one's peril.
- iii. That the most important developments that are needed if the system is to function more effectively involve changes in our beliefs about how society should work and the introduction of research-based arrangements and tools which will enable it to function more effectively.

The diagram shows how the narrow nature of educational provision is heavily over-determined by multiple, interlocking, and self-reinforcing processes - and thus why the system is so difficult to change. It shows how the effects of any single change will be negated by the rest of the system. It shows why “common-sense” reform has not worked in the past and will not work in the future. While indicating the sources of the motives for educational change, it also shows why it is so difficult to harness those motives to the kind of activity that would be required to produce a positive effect.

The diagram encapsulates many observations made earlier. In particular it indicates:

1. That the narrow educational activities which dominate schools are produced by:
 - i. A series of sociological imperatives (e.g. that schools assist in legitimising the rationing of privilege);
 - ii. Inappropriate beliefs about the changes that are needed in education itself, the management of the educational system, and the management of society;
 - iii. Failure to initiate research into such things as (a) the nature of competence, (b) how its components are to be nurtured, and (c) how to manage educational processes in order to nurture generic high-level competencies;
 - iv. Inappropriate beliefs about how society works and about the developments needed to make it work more effectively;
 - v. The absence of systematically generated variety in, and choice between, educational programmes having demonstrably different consequences for the lives of those concerned and the societies in which they live;
 - vi. Failure to implement “parallel organization activity” to generate innovation within schools and the educational system more generally, and
 - vii. Inadequate dissemination of the results of existing research into the nature, development, and assessment of competence, and, especially, the implications of the values basis of competence.
2. That this narrow educational process has a series of knock-on effects which finally contribute to its own perpetuation. The competencies and beliefs that are nurtured in schools reinforce a social order which offers major benefits to “able” people who do what is required of them without questioning the social order or the contributions which the organisations for whom they work make to society. That society creates endless work which gives a structure and psychological meaning to people’s lives, but does not enhance the general quality of life. It creates wealth at the expense of the biosphere, future generations, and the Third World. And it protects its citizens from a knowledge of the basis of their wealth. The educational system helps to teach a host of incorrect beliefs which collectively result in nothing being what it is popularly or authoritatively said to be. The resulting double-talk makes it extremely difficult to conduct any rational discussion of the changes needed in society. The sociological imperative that schools assist in legitimising the rationing of privilege helps to create a demand for, and encourages acceptance of, narrow, invisible, and mis-labelled assessments. Those predisposed to acquire these “qualifications” are not inclined to see the need for, or to commission, genuine, enquiry-oriented, research or notice other talents in their fellows. Teachers who discover the hidden competencies of their “less able” students experience acute distress. The lack of understanding of the nature of competence leads to a failure to underline the need for a variety

of value-based educational programmes and thus to the perpetuation of narrow educational activity.

3. That the main motives for change are a widespread awareness that there is something seriously wrong with society and that the educational system needs to nurture new competencies if that society is to be changed. The educational system fails miserably in its manifest task of identifying, nurturing, recognising, and utilising most people's motives and talents. However the diagram also shows that the most commonly proposed solutions to the failures of the educational system, based as they are on fundamental misunderstandings of the nature of modern society and of the processes required for its effective management, lead into a feedback loop which stresses centralised prescription of goals followed by tight monitoring procedures and thus to exacerbation of the problem.
4. That there are several points at which it should be possible to intervene in the network to create a positive upward spiral. These include:
 - i. Evolving a better *understanding* of the nature of modern society, how it works, and how it could work more effectively - that is to say, attacking the central box in the diagram. This could be done by introducing programmes of adult civic education designed, not to inculcate the received wisdom, but to promote the development of new understandings through action-learning.
 - ii. Promoting wider recognition that it is not possible to get value for human effort in modern society unless better means of monitoring and evaluating the long-term effects of what is being done are introduced and unless better ways are found to give effect to such information. This points to the need to introduce more, and more appropriate, social research and evaluation activity, and to find ways of holding public servants accountable for seeking out and acting on information in an innovative way in the long-term public interest.
 - iii. Introducing the "parallel organization" activities that are required to promote innovation within schools and the educational system more generally.
 - iv. Establishing a greater variety of distinctively different, value-based, educational programmes and providing information on the short and long-term, personal and social, consequences of each.
 - v. Creating public debate about the forms of supervision - the nature of the democracy - needed to ensure that public servants seek out and act on information in an innovative way in the public interest.
 - vi. Disseminating what is already known about the nature, development, and assessment of competence and its implications.

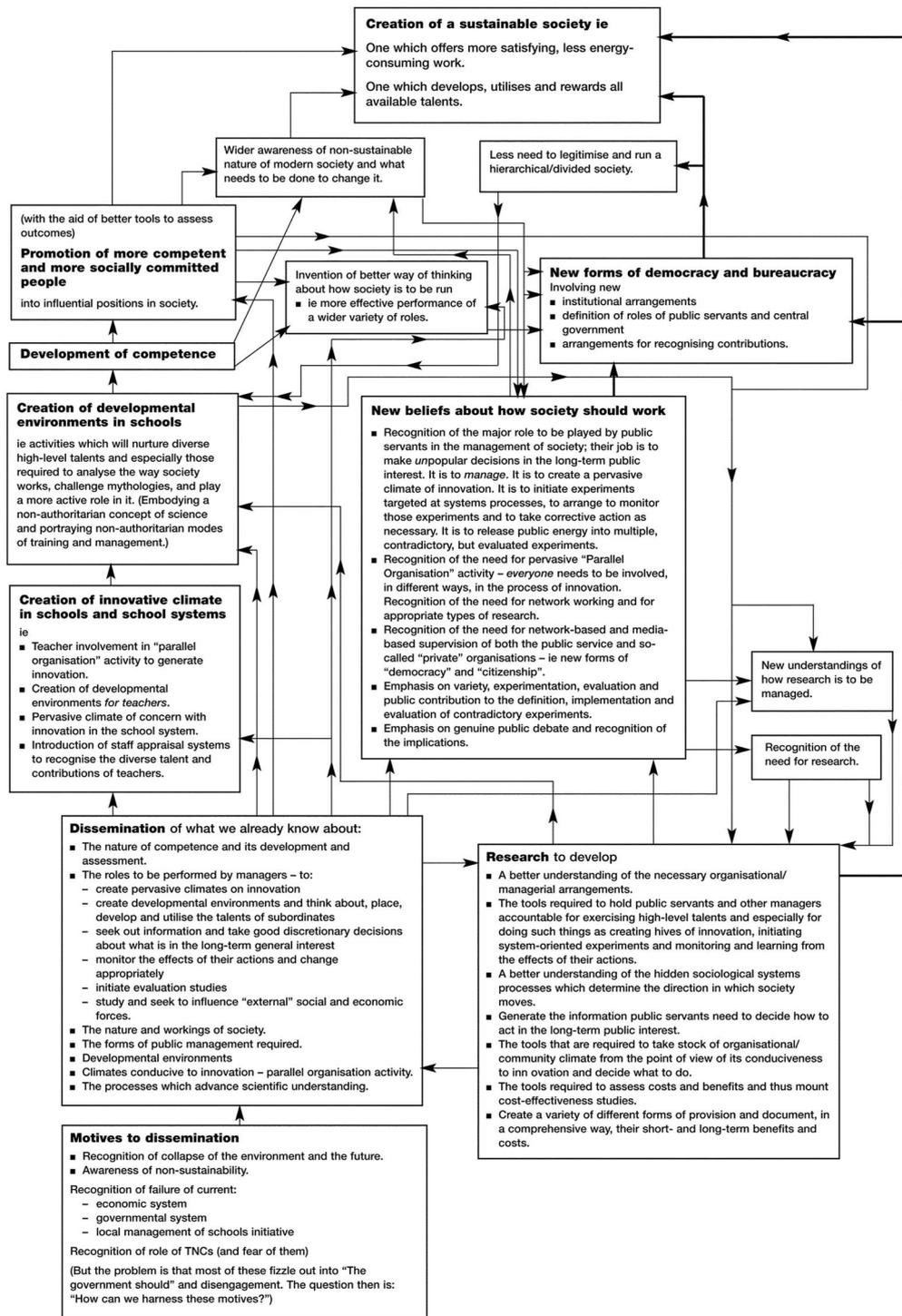
Note how the most crucial points of intervention lie *outside* schools and classrooms and that the most important development from the point of view of finding a way forward is the introduction of an effective experimentation, monitoring, learning, and management *system*.

Although audiences with whom this diagram has been discussed have generally found it helpful, the view has been expressed that it did not indicate how a re-designed system might work.

After numerous false starts, Diagram 20.5 was prepared in an effort to meet this need. It brings together what we have learnt about the developments that are needed if we are to have a more

effective educational system - i.e. one which translates shared values into effect - and shows how the components would reinforce each other to generate change.

Diagram 20.5
New societal management arrangements



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Dissemination of what is already known about:

- The nature of competence and the ways in which the development of its components are to be assessed.
- The roles to be performed by effective managers, and public servants in particular; and
- The nature and workings of society.

could impact:

- The climate for innovation in schools.
- The quality of the developmental environments available to pupils.
- The level and diversity of talents nurtured and credentialed.
- Awareness of the non-sustainable nature of modern society and the developments needed to impact it.
- Wider recognition of the developments needed to run society more effectively.

These developments would be mutually supportive. What is more, the developments in education would flow round to reinforce changes in society and these in turn would facilitate - rather than inhibit - developments in the educational system.

The diagram clearly shows how both the specific developments required in the educational system and the developments required in the processes which are employed to manage the educational system link to the central aims of this book - to clarifying how to move toward a sustainable society. A sustainable society *will* only be produced if we develop and deploy high-level competence effectively ... but this development itself will only come about if we change the way we manage society. The key developments that are needed are new forms of democracy and bureaucracy. But to get these we need changed beliefs about the topics covered in the central box in Diagrams 20.4 and 20.5. These changed beliefs - the ones this book has been devoted to developing - would both lead directly to new forms of bureaucracy and democracy and to the implementation of the research needed to develop the understandings and tools that are needed to run modern society effectively.

The heaviest feedback loops are those on the right hand side of the diagram, and it is on producing the developments indicated by the contents of the boxes which precede them that attention needs to be focussed.

Perhaps one of the most important lessons to be drawn out of the diagram is that, if we wish to find a way forward, we need to concentrate our minds - not on the TNCs (trans-national companies) and all the other horrors reviewed in previous chapters - but on finding ways of running the sectors of the economy which have already been socialised - i.e. taken outside the market mechanism - more effectively. Once we have done what is necessary to run our educational system more effectively, our health care system more effectively, our welfare system more effectively, our physical planning process more effectively (relocating homes and workplaces in the process), our policies designed to enhance the quality of (working) life more effectively, our socialised insurance and pensions systems more effectively, our transportation policies more effectively, our agricultural systems more effectively, our crime control systems more effectively, and our environmental policies more

effectively, we will have little difficulty extending effective management to the remaining domains of the economy.

Perpetuation of a Non-Sustainable Society

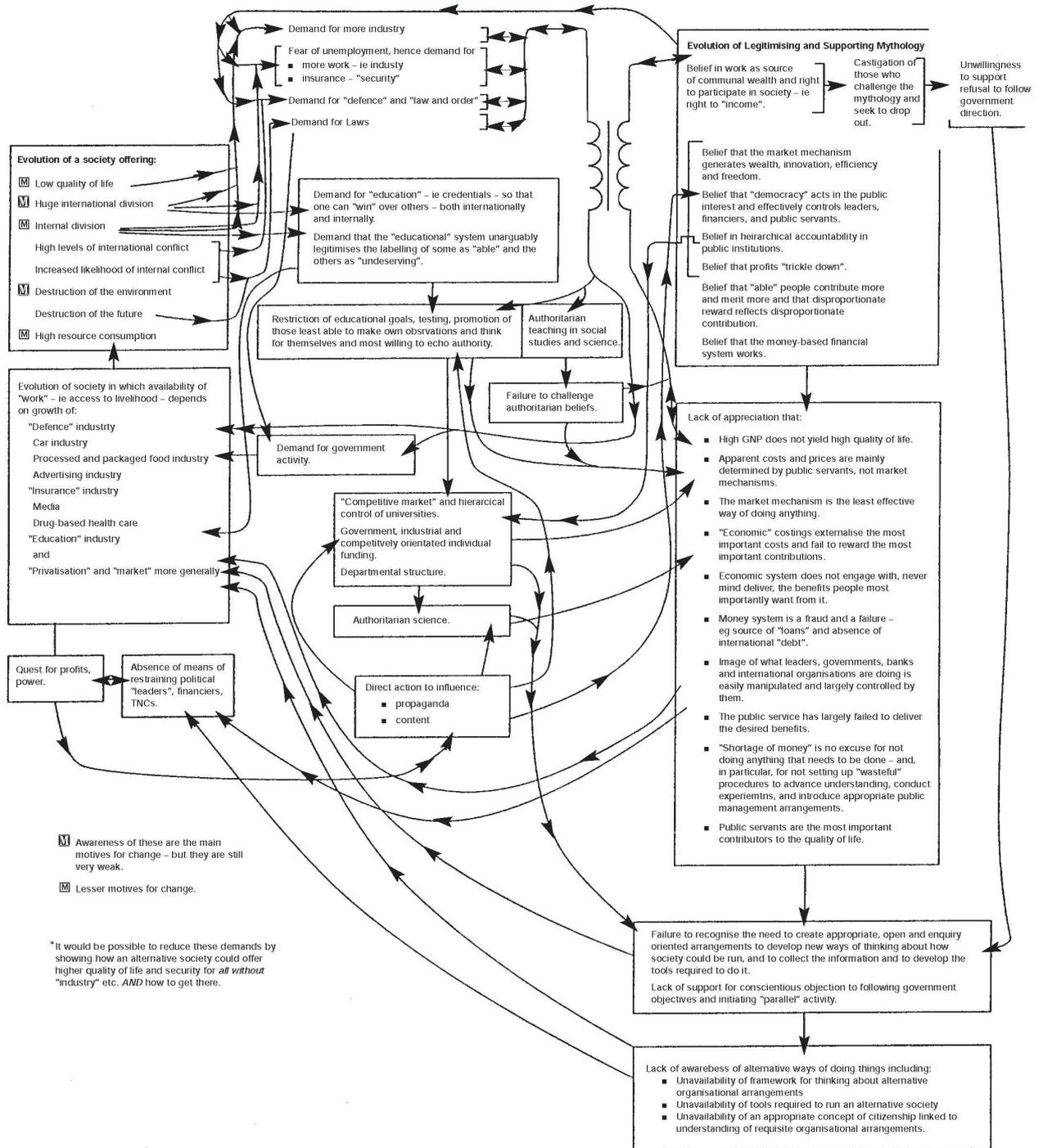
The final diagram to be reviewed in this chapter was prepared to summarise much of what we have learnt in this book and, in this way, highlight the key points at which intervention is required. Diagram 20.6 first indicates that the main engines of modern economies - the defence, transportation, agribusiness, insurance and banking, health care, and educational systems - result in a non sustainable society which offers only a low quality of life to the majority of its inhabitants (and even worse conditions of life for the majority of those who inhabit the planet), creates huge disparities in wealth and well-being both between and within societies, has high levels of international and internal conflict, nurtures endemic fear of the dramatic escalation of such conflict, and, at an ever increasing rate, destroys the environment and the potential of the planet to survive in anything approaching its present form.

These symptoms of malaise - some of them potential motives for change - as they interact with conventional economic, social and political thoughtways, channel felt needs for urgent change into demands for “more of the same”. Thus the development of more industry, transportation, and commerce is typically seen as the only solution to poverty, both nationally and internationally. The spectre of unemployment - and especially its association with lack of access to goods and services, amenities, and health care - leads those who are relatively well-off to make increasing demands for insurance and the educational qualifications which will help to assure continuing employment. The fear of international conflict leads to a demand for ever-greater “national security” systems despite their ever more lethal nature. Fear of the conflicts which are likely to arise from the increasing discrepancy between the “haves” and “have-nots” within society provokes demands to strengthen the power of “law enforcement” agencies and for the introduction of more powerful arrangements to quell protest and potential insurrection. All of these combine with an awareness of the deteriorating environmental situation to fuel demands for more government action.

The apparent viability of these solutions to our problems depends on acceptance of established thoughtways. Consequently, public discussion of the problems and their solution reinforces those thoughtways through constant repetition. And the thoughtways in turn channel thinking into demands for more of the same as the solution to the problems.

Core beliefs in this process include the notion that wealth derives from “work”, with its corollary that those who do not work are not entitled to share in communal wealth. While the work ethic on which this thinking is based may once have been grounded in reality, this is no longer the case. “Work” has changed in character in such a way that much modern work is, at best, useless and, more often, destructive. Despite this fundamental flaw, the persistence of the work ethic legitimises demeaning and degrading treatment of both those who are forced to drop out of the system and those who have chosen to do so in order to engage in more ethical activities designed to promote the long-term public interest.

Diagram 20.6 Feedback Loops Perpetuating Non Sustainable Society



This demeaning treatment of large sections of the population has resulted in fewer calls for revolution than might have been expected. Reinforced by the myth that we live in a democracy in which the will of the majority is sovereign it has led mainly to higher levels of competition to get

back into the system. This has had the effect of strengthening - rather than challenging - the network of supporting beliefs.

The belief that work within the existing framework provides the only legitimate claim on wealth contributes to an unwillingness to support protesters and maveriks. More generally, it leads to a failure to recognise that we need much more actively to support those who are inclined act on the basis of their perceptions of the long-term social interest when this conflicts with their short-term self-interests - i.e. their consciences. Such support could be provided by arguing for the legitimacy - rather than illegitimacy - of refusing to follow government rules and laws. This is particularly important in that willingness to follow the commands of “leaders” and “economic imperatives” and failure to challenge authoritarian social and economic theories (itself a product of acceptance of authoritarian teaching in “science” and social studies) are among the most important sources of our problems. Support for such moral action might take the form of ensuring that it does not mean loss of income were it not for the belief that such failure to “work” *should* carry the penalty of loss of income - because the assumed failure to contribute to society is itself immoral.

The perception that we need “more of the same” to solve our problems is also supported by a swathe of socio-economic beliefs to the effect that market activities are the main source of wealth and the belief that democracy (i) exists and (ii) enables us to control our leaders, financiers, TNCs, and the public service and to run society in the public interest. While the diagram acknowledges that these unfounded beliefs are in part deliberately crafted and propagated by those who profit from them, it also reminds us that they are reinforced by the operation of the system itself.

The acceptance of these beliefs is both a result and a cause of failure to collect and disseminate counter-information and generate and disseminate alternative ways of thinking. The hegemony of the beliefs contributes to a failure to recognise the need to establish more appropriate institutional arrangements to generate a better way of thinking about society and to develop the tools and expectations that are required to run it. In the absence of this understanding and these tools there can be very little effective challenge to orthodoxy.

But the failure to develop alternative ways of thinking is also driven by another process. The conspicuous differentials in economic well-being within and between societies lead - in the absence of any reliable information on how the educational system does and could operate, and in the context of the dominant mythology - to a demand for more “education”, both within and between nations. The provision of this education generates some of the “work” required to keep society going. But, more importantly, the linking of education to the achievement of national and individual competitive advantage results in a demand that educational credentials be seen to unquestionably separate the deserving from the undeserving. This contributes to a narrowing of our concept of merit and a demand for simplistic testing. Fuelled by the dominant economic mythology and pressure from those whose relative position depends on the perpetuation of the existing social order, these pressures strengthen the demand for authoritarian teaching ... both in social studies and the natural sciences. *Non-authoritarian* teaching outwith a well-developed framework for thinking about multiple talents, their development, and their recognition leads to weak and diffused, but nevertheless deeply disturbing, challenges to sociologically vital core beliefs about how society and the educational system should work. It is therefore rapidly - and relatively easily - eliminated. At

the same time, promotion of those least likely to challenge received mythology into influential positions further undermines challenge to the social order.

Authoritarian teaching and forms of assessment which actually pick up both the willingness and the ability to regurgitate (rather than question) received opinion and the willingness to do whatever authority requires for the sake of personal advancement leads to the students at universities being restricted to those least willing to think about society and to act in ways which are not just in their short-term, personal self-interest.

However, the teaching and research of university staff is further constrained by forces flowing from belief in the appropriateness of hierarchical accountability in public institutions. This both prevents staff obtaining external funds to adventure into the unknown and deprives them of ways of getting credit for their work should they decide to do so. The admission of those students who are most concerned only to advance themselves by doing what those in authority want further restricts enquiry-oriented teaching. The effect of these forces operating to restrict the flow of both new ideas and enquiry-oriented individuals from the universities is further reinforced by direct intervention from those with a vested interest in perpetuating the status quo.

The net result of these processes is a widespread failure to recognise key defects in our societal management arrangements. These combine with the previously mentioned authoritarian beliefs to produce both a failure to recognise either the need for new ways of thinking and an unwillingness to accept the kind of messy, open, enquiry-oriented arrangements which would be required to evolve them. The “work ethic” leads directly to castigation of those who cannot “obtain external funding” for their research and those who seek to experiment with alternative lifestyles. The fact that people are in some sense aware that systemic intervention is required if our problems are to be overcome reinforces their disinclination to support those few who are still inclined to act on their own (moral) insights into what would be in the long-term interests of society. And this reluctance turns into active opposition among the vast majority who believe that systemic intervention *requires* - is, indeed, to be *equated with* - authoritative, governmentally-organised and controlled, *system-wide* intervention. As far as they can see, the success of the latter will, by definition, be undermined by any challenge.

From the diagram, it is obvious that the main motives for change are weak and that the loop into which they feed both reinforces, and is informed by, widely held beliefs.

Those who become aware of the need for change are usually in no position to recognise that the developments that are needed lie in the bottom right hand corner of the diagram. Still less are they in a position to press effectively for such developments. The effects of any well-intentioned, individualistic, actions they may be able to initiate are cancelled by the reactions of the rest of the system - and especially as a result of conflict with other people’s beliefs and the need to do such things as retain a job in order to avoid demeaning treatment.

Just as the educational system operates to pull people into line and force them, in their own short-term interest, to behave in ways which are socially dysfunctional, so does the broader social system of which the educational system forms a part.

What the diagram shows is that possible points of intervention include:

. Finding ways of restraining those pre-occupied with profits and power from having so much influence on what happens. This means developing media they do not control and focussing the attention of those media on more important topics. More specifically, it means disseminating awareness of what we have seen of their activities and the writings of authors, like Chomsky, who have written more extensively on the subject. It means developing tools and arrangements to expose more of their behaviour - and its consequences - to the public gaze. It also means each of us taking more active steps as citizens to expose what is going on, personally refusing to submit to pressures, and actively supporting those who refuse to submit to such pressures and suffer the consequences.

- Taking direct action to promote the development of more appropriate societal management arrangements.
- Pressing for the establishment of the institutional arrangements required to advance understanding and develop new administrative tools and arrangements.

Notes

20.1 Morgan, 1986

References

Morgan, G. (1986). *Images of Organization*. Beverly Hills, CA: Sage.