

**UC Berkeley**  
**IURD Working Paper Series**

**Title**

WHAT DOES A POLICY EXPERT KNOW?

**Permalink**

<https://escholarship.org/uc/item/4tk536d2>

**Author**

Krieger, Martin H.

**Publication Date**

1971-08-01

WHAT DOES A POLICY EXPERT KNOW?

Martin H. Krieger

August 1971

Working Paper No. 144D

This paper is a continuation of a series of essays which, though related, are not sequential. They include:

"Is it Worthwhile to Do Public Policy Research"

"Planning for an Affect Based Society" (WP-144B)

"Advice as a Socially Constructed Activity" (WP-144C)

The last two as well as this essay, are edited excerpts from WP-144.

## TABLE OF CONTENTS

	Page
INTRODUCTION . . . . .	1
ROLES	
POLICY EXPERTS . . . . .	7
PLANNING . . . . .	19
KNOWLEDGE	
KNOWING . . . . .	40
GROUP KNOWING . . . . .	56
TRUTH FINDING . . . . .	68
KNOWLEDGE TECHNOLOGY . . . . .	77
PROBLEMS . . . . .	83
MILIEU	
ORGANIZATIONS . . . . .	94
SOME GLOBAL QUESTIONS	
SOME DIFFICULTIES . . . . .	102
POLICY . . . . .	115
REFERENCES AND BIBLIOGRAPHIC NOTES . . . . .	121

## ACKNOWLEDGEMENTS

The staff of the Institute of Urban and Regional Development, my colleagues in the College of Environmental Design and especially in the Department of City and Regional Planning, and others from a variety of Departments of the University created the right milieu so that I could figure out what I wanted to say. Melvin Webber, Director of the Institute, has been especially kind.

Some work preliminary to this, but essential to it, was done while I was a visitor at the Seattle Research Center of Battelle Memorial Institute. Support in another phase was supplied in part by the Beatrix Farrand Fund of the Department of Landscape Architecture of the University.

My wife Susan made the big difference.

## INTRODUCTION

There is some discussion abroad today about the potential for a policy science. This is derived, in part, from discussions of twenty years ago as well as more recent developments in policy analysis and bureaucratic control. Originally, the issue centered on how certain modes of understanding, disciplines which had developed in a way that could be characterized as scientific, would be capable of lending to policymaking their scientific qualities and thereby transform it. Now, some see a more integrated policy science as being possible. (Lasswell, 1970).

I have mixed feelings about such an endeavor. I suspect that it represents a very expensive way (compared to alternatives) for improving policymaking in the short and medium run, and a somewhat uncertain long term investment. As I understand it, the purpose of policy research is to improve the relationship between intents, actions, and the world in which they function. A policy science may not be the way.

Science, with its commitment to understanding and explanation (and not so much its methods), has been successful in the realms of physical and, perhaps, biological technology. Art, whose commitment is more toward integration than understanding through analysis, has been a powerful instrument of social technology.<sup>1</sup> An approach which integrates the verificationist impulse of science with the integrationist

---

<sup>1</sup>I am aware of some of the difficulties of maintaining this distinction. But it seems real. Still, even when humanists talk of validity, they are really searching for an integrity of genre and detail. See Hirsch, 1967, pp. 199-200.

qualities characteristic of art may be appropriate for public policy research in the next few years. This essay is an attempt to show how such a synthesis may be possible.

A major confusion that seems to inform (or misinform) the literature relates to what we mean by "science." Having been trained as a physical scientist I am especially sensitive to what I consider to be misperceptions of the nature of scientific work. At the same time, I am aware that it will not do to just generalize from my meager experience or, for that matter, had I spent the better part of my life doing physical science would it be much more justified. The confusion seems to have been created in the minds of social researchers trying to improve the workings of their profession by making it more scientific. What they heard in grade school about the scientific method became their common sense and was never informed by further empirical work to check out their biases.

I would take the statements about the nature of science activity from such differing writers as Kuhn, Polanyi, Zima, Feyerabend, and somewhat less so from Popper and Nagel, as being essentially in the right direction. Any random selection about science from the literature of the methodology of political science of the past twenty years or sociology of even earlier, even when cognizant of the above writers' works, is most likely to be quite weird, usually misinterpreting them. This reflects certain internal difficulties within the social research professions. These professions had to assert the importance of universalistic ideas of evidence, expose some rather pernicious biases, and effect a general uplifting of the professions' public reputation. Science to the rescue!

Still, I want to make some sense about what I mean by science, without having to go through all of current philosophy of science or social research. Let me try.

We may talk of two kinds of abstractions of science -- as an ideal and as practice. For the moment neither need have much to do with what happens when "good" science is done in society. Science as an ideal represents a model of understanding with commitments to universalistic modes of evidence, usually a naturalistic orientation toward ontology, a belief in the possibility of causal models, the value of quantitative abstraction, and an instrumental orientation. As practice, science is a method of embodying this ideal with constraints of individual capabilities and idiosyncracies, political demands, and economic limitations.

Somewhat modified versions of these models of ideal and practice become the actual ideals (norms) and practices of science as it is done. Many of the characteristics that I shall ascribe to public policy understanding apply to science-as-done. They are a product of social forces operating on the abstractions (to talk in terms of reified agency, in reverse no less!).

I shall be arguing that the abstractions of policy ideals and practice are somewhat different from those of science (or art, for that matter). Policy is a means of articulating intent and not of developing understanding. Theory and practice are intimately related but not identical. The real but superficial similarities between science-as-done and policy-as-done should not confuse the important differences between them. These differences, especially in epistemology, will be the substance of this essay.

The confusion is, however, somewhat more subtle than the difference between understanding and intentionality. Knowledge may be understanding relating to the explanation and prediction of what happens. The logical hypothetic-deductive model taught in grade school may be useful (and usable!) here. Knowledge is also something that is produced. The observations of Kuhn in particular (with a grain of salt from Feyerabend and Popper) get at some crucial characteristics of this activity. He emphasizes the ambiguities of the process, the significance of world-view in figuring out what is known, and the importance of social factors in scientific activity. Having been chastened by Kuhn, many feel, social science methodologists in particular, that they have a real grasp about science in the world.

Yet they seem to miss the differences between science as a (Kuhn-like) activity and policy making. Both deal with ambiguous situations and social factors. But science is a much smaller activity (which is subject to and a product of policy) than policy (Churchman, 1970). The intents of science as an activity relate to its ideals, while the intents of policy making relate to the fulfilling of other intents about more mundane things like life, death and taxes.<sup>2</sup>

### The Argument

My problem is to show how better understanding of public life can improve informed action and increase the informedness of action.

---

<sup>2</sup>Zetterberg, 1962, makes this point by distinguishing the scientific basis for policy advising from advice as a scientific activity.



Certain people make socially justified claims to understand public problems. Let us call them "policy experts" or "experts" for short. The source for this justification may be partly due to the systematic method that they use and partly due to the beliefs that they hold. The situation is not quite so simple, however. These people have been able to convince others of the justice of their claims to knowledge even when their modes of proof are flawed and when others may find their beliefs incongruent with their own.

What convinces others of the expert's claim? I will argue that the manner in which the expert integrates within himself what he knows, and the interpersonal mode of transmission of his knowledge are sensible factors in determining the justice of his claim. Organizational milieu and local politics are also important.

I will not make an empirical argument here. Recent discussions in the literature of urban planners and foreign policy planning give ample case histories<sup>3</sup> (Rabinovitz, 1969; Allison, 1970). Rather, I want to explore a theoretic argument that tries to make sense out of this behavior.

Throughout my discussion, I shall be using a concept which I call "expert knowledge." One purpose of this discussion is to explicate such a concept. Because it is pervasive, is used before it is fully articulated, and has a technical meaning in this essay, I will give a preliminary definition of it.

Expert knowledge is the knowledge possessed by policy experts which is the basis for their claims to competence about policy advice.

---

<sup>3</sup>Policy planners of one sort or another are one of the popular incarnations of these experts.

It is similar, but not identical, to advice about other questions such as those in medical diagnosis or legal procedures. Though this knowledge often includes systematic explicit articulated techniques, its crucial qualities are not primarily these. Rather, I shall be concerned about what Polanyi has called things of which we know but cannot tell.<sup>4</sup>

Another pervasive concept in the discussion will be that of self. Self is taken to be the internal integration, in whatever degree that has happened, in the mind and psyche of an individual of his past history and experiences which determine how he sees himself acting in the world and the way he interprets others' actions. A variety of concepts of self are useful. The self may be seen as that which experiences or what is experienced -- the knower versus the known. What I would want to emphasize is the specialness of each person since his experience set and his ability to link experiences is a product of his life -- which is his.

---

<sup>4</sup>Polanyi tries to explicate this situation in terms of a psychological perception model. It is implied that these untellable things are permanently so. I have no such idea in mind here. Expert knowledge is conventional, and eventually often ends up as common sense to all or a technique accessible to many.

## POLICY EXPERTS

We first need to sketch a role model for a policy expert. A number of orientations are possible. One would emphasize an expert's capability to predict what will happen and verify statements consistent with social practice. Another would emphasize the quality of performance in bureaucratic or interpersonal environments. Here, I want to explore the manner in which expertise is socially decided upon, conferred onto a person, and results in performances which are considered (characteristically) expert.

### Who Are The Experts?

There are many people in a society who know a lot about some specific area. A few will know so much more than others (who know about the subject at all) that they will be given special titles. One that is often given to them is that of "expert." The designation of expertise is a social act and depends on the consensual agreement of others that the expert really does know a lot about the area for which he claims expertise. Not only is the knowledge socially acknowledged, but this acknowledgement is also based on performance. A person performs well when there is a demonstrated connection between what he says he can or will do and what happens as a consequence of such action. It is assumed that the probability of superior performance in the future is causally related to performance in the past.

Although experts must be socially designated and personally competent, they may not necessarily support current societal policies.

They may take a critical stance toward problems, as defined, rather than directly addressing themselves to solutions. Such critics may or may not be part of the social establishment. If they are, they may be considered wise men. If they are not, they often take the roles of intellectuals or artists. In these roles they are explicitly distancing themselves from others in the society, most strongly from experts who are pursuing the currently acceptable societal goals.

The antithesis of the intellectual is the technocrat. He rarely questions goals and problem statements, but is dexterous at figuring out what to do within a constrained area. We can be surer of the competence of a technocrat than that of an intellectual, artist, or even an ordinary expert, since technocrats have prescribed areas of knowledge. Usually there are prescribed good behaviors and good performances that are explicitly known.<sup>5</sup>

I shall be concerned with a very special kind of expert in this discussion -- policy experts. They stand somewhere between wisemen/intellectuals and technocrats. Policy experts try to figure out statements of general action or standing rules. What seems especially interesting is that they often deal with problems that are poorly defined. They are concerned with consequent contingencies and unpredictable consequences as well as with a policy-maker's action.

---

<sup>5</sup>If there were no technocrats, ordinary societal life could not take place. A commitment to technocratic expertise is almost fundamental to a commitment to complex social life. Those who complain of technocrats usually are complaining that they dislike the extension of technocratic expertise outside of the ordinary behaviors of life. That "ordinary behaviors" is a difficult term to define is certainly one source of the argument between those who see technocrats everywhere as a danger, and those who see them as the necessary basis for modern life.

Of course, some policy experts are at each end of the spectrum. What will concern me here is the problematic character of being in the middle.

Another characteristic of policy experts is that they are committed to public action. That their expert opinions, judgments, and actions will have to face those of a much larger group which is not under their control, influences their behavior substantially. Ultimately, they cannot indulge themselves much more than the public will allow.

These experts must be political. They are concerned about power in public action. In that sense, they find it difficult to be fully committed to "right" solutions outside of the frame of power and politics.<sup>6</sup>

Where do these experts come from? Today, most of them have academic training. They are trained as "educated men," as scholars or professionals. Some of the most important experts today are lawyers and economists. Lawyers are likely to be chosen for their familiarity with political and administrative processes and their capability for working on publicly known problems which have time constraints. Economists have seemingly been chosen for their special technical expertise. Significantly, economics is currently the most policy

---

<sup>6</sup>It is often said that the time horizon of these experts is rather long since they are committed to large statements of policy. I have a feeling that the definition of an expert in terms of this time horizon will not work, however. Politicians, who are claimed to have short time horizons, can have them only because they can redefine problems to suit the moment, while ignoring the consequences beyond their term of office. Experts, if they are committed to the politician for whom they are working, will have the same horizon as their boss. On the other hand, the ethos of academic and scholarly work implies a time horizon which is quite long so experts may have that time horizon, implicitly or by professional commitment, also.

oriented of the social studies.<sup>7</sup> In the future, the nature of the experts of a society will depend on what knowledge is considered significant and relevant for good action. I suspect that new kinds of experts will be needed if current trends have anything to do with the future.

People usually become experts because they are intelligent or especially sensitive. Lacking this, if they have good contacts in the world of expertise and in the world of conventional power, they may also succeed. Finally, they may be good intermediaries and can develop links between disparate interests and groups. The mantle of expertise permits them to do this "impartially."

#### The Public Stance of Expertise

Though experts are people who are knowledgeable, they rarely play roles which primarily emphasize their technical knowledge. They need not adopt such a passive role. An expert can be a professional or a political actor as well as a knowing one. He may act as a professional, whether doctor, lawyer, or academic where his commitment to service is a primary component of his self-definition. That he knows a good deal about a situation is only important insofar as he serves his clients' needs.

Or, the expert may see himself as dealing mainly with power, with deciding who gets what, at what time, and in what degree. He

---

<sup>7</sup>I suspect that the congruence between "control" and descriptive variables, characteristic of much of current economics, is only partly related to the logic of the research enterprise. The ability of experts to make the modes of operation of a system parallel available expertise is real. The success of economics has been in its ability to influence the manner of policy formation, as much as the policies formulated. Other such successes at influence in the field of social "problems" can be seen in health and welfare policy.

may be a leader or a follower, but the substance with which he deals relates to power.

Or, experts can answer technical questions as they are posed or, if necessary, rephrase questions in a satisfactory form, and then provide answers to them. The expert may go so far as to say that he actually knows something, and that is really his business. He is very knowledgeable about a certain field and is quite willing to help someone concerning the question at hand. The knowledge role may be a mystification of his actual role, but it is important to note that he may think of himself in that way.

The significance of the choice of public stance, whether professional, political or technical is that it determines some of the environmental influences on the expert. Does he respond to his colleagues and to his client, to the exigencies of power, or to the needs of truth?

In that experts are concerned about control (profession), the mediation of differences (politics), and truth (science), there are others for them in their environment who have coordinate roles with respect to these aims.

The control that experts exercise over some others is a continuum from that of the client relationship in medicine and law to a highly political position where the expert is in the hands of the person whom he is helping. As a mediator he must deal both with ideologists and rule followers. Ideologists know what they believe and are not likely to be influenced by his expertise, while rule followers know what they are doing (bureaucrats) and see little reason to believe that expertise is useful or relevant to their own tasks. With respect to other experts who are concerned about the truth, the expert has to contend both with

his colleagues and his debunkers. His colleagues may be his supporters, but they are always sensitively attuned to the truthfulness of all his statements, those of little consequences as well as big. His debunkers are not similarly committed to the same truths as he is. The best the expert can do is effectively answer their replies, but it is unlikely that he will ever be able to satisfy them.

The expert is constantly between the client and the powers that be, his colleagues and debunkers, and those who believe and those who know exactly how. These tensions determine the social manifestations of experts in their formation of professional societies, in their explicitly anti-ideological commitment, and in their extreme commitment to certain forms of truth finding.

The environment has a determining influence on the kinds of experts that are used in social situations. Yet, at the same time, experts help transform the environment and, insofar as their own models of it are effective, they confirm (or conform) the public image of the social situation in terms of these models. The power of experts often lies in this image-making capability. At the same time, often because no one knows what to do with them (for "production"), they serve important intelligence -- as contrasted to intellectual -- functions in a social system. They are the communicators and travellers. In inheriting this role, they also inherit a real responsibility. Not only are they communicators, but they become responsible for accurate communication. Their interstitial role does not free them from organizational responsibility but, rather than having responsibilities within the system, they have total systemic responsibility. Not surprisingly, because of their image-making and communications functions, they are subject to a great deal of pressure and must be circumspect about what they try to do.



### A Classical Perspective

Plato and Machiavelli present opposite views of the public style and private commitments of experts who advise in an occupied role. The following two quotations illustrate the difference. Plato is committed to ideas, to the adviser, and, finally and most importantly, to the truth. Machiavelli is concerned about power and even when he is prescribing actions for the adviser, his commitment is to the advised.

One who advises a sick man, living in a way to injure his health, must first effect a reform in his way of living, must he not? And if the patient consents to such reform, then he may admonish him on other points? If, however, the patient refuses, in my opinion it would be the act of a real man and a good physician to keep clear of advising such a man -- the act of a poltroon and a quack on the other hand to advise him further on those terms. The same thing holds in the case of a city, whether it have one master or many. If a government that proceeds in orderly fashion along the right course, seeks advice about its advantage in some matter, it would be the act of an intelligent man to give advice to such a community. In the case, however, of those who are altogether astray from the path of right government, and will by no other means consent to go on the track of it, who on the other hand give notice to their adviser to keep his hands off the constitution under penalty of death if he disobeys, and order him to cater to their wishes and desires by pointing out the easiest and quickest method of attaining them permanently, in that case I should think the adviser who consented to such conditions a poltroon -- the one who refused, a real man.<sup>8</sup>

The advisors of a republic ... are undoubtedly in a difficult position; for, unless they recommend the course which in their honest opinion will prove advantageous to that republic ... regardless of consequences, they fail to fulfill the duties of their office, while, if they recommend it, they are risking their lives and endangering their position, since all men in such matters are blind and judge advice to be good or bad according to its result. Nor do I see any way of avoiding either the infamy or the danger other than by putting the case with moderation instead of trying to force its adoption, and by stating one's views dispassionately and defending them alike dispassionately and modestly; so that, if the republic accepts your advice, it does so of its own accord, and will not seem to have been driven to it by your importunity. When you act thus, it is unreasonable for a people to wish you ill on account of your advice, since it has not been adopted against the will of the majority. Danger

<sup>8</sup>Plato, Seventh Letter, in Hamilton, 1961, pp. 1579-80.

is incurred only when many have opposed you, and, the result being unfortunate, they combine to bring about your downfall. And, though, in the case we have taken, there is lacking the glory which comes to the man who in opposition to the many, alone advocates a certain course which turns out well, it has two advantages. First, it does not entail danger. Secondly, if you tender your advice with modesty, and the opposition prevents its adoption, and owing to someone else's advice being adopted, disaster follows, you will acquire very great glory. And, though you cannot rejoice in the glory that comes from disasters which befall your country, it at any rate counts for something.<sup>9</sup>

The obvious differences between these two prescriptions lie in how much they respect the life of the expert versus the integrity of his viewpoint. Staying alive, being pragmatic, is Machiavellian; maintaining one's principles, being idealistic, is Platonic (or at least Socratic). Less trivially there is a disagreement as to whether there is a truth that will lead to good action and the sources for such a truth. For Machiavelli the good is defined by the politics of the time, even though the advisable (that which the advisor believes to be good action) may differ from it. Plato's good and its relationship to ideas are systematically given and if current politics refuses to acknowledge these, then it will have to face the consequences.

Their different attitudes towards what is the proper role of the advisor are telling. Plato represents the norms of occupational performance -- an internalized self-regulating occupation which has exclusive access to the "science" that is related to better action -- the ideal of the professional. Machiavelli hints at the practice of occupational performance -- responsiveness to clientele, self-interest on the part of the professional, a sense of the powers that exist -- the ideal of politics. Note that neither concedes much to the knowledge of the client; they assume their own technical competence.

<sup>9</sup>Machiavelli, Discourses, Book 3, Chapter 35, as quoted in Gorham, 1970, p. 176.

### What They Know

Characteristic of all experts, whatever their commitment, is that they know much more about a subject than they can convey to someone else. "Expert" is derived from the Latin for "having tried." The experience of "having tried" is rarely explicitly reducible to a finite list of statements. So his qualifications tend to be difficult to describe. Also, the expert cannot assume that he will be listened to, or that vital roles will exist for him unless he makes himself needed. So he cannot be transparent. Rarely are people so confused that they will be willing to call on an expert without his having convinced them that his expertise would be useful. This is one reason why professional organizations aim for public licensing and legitimation of the expert role of their members.

Yet the expert does not claim too much. One finds that most experts, if they survive at all, claim that they have very little influence. Economic advice-givers constantly talk about political imperatives and private influence that ignores their advice. Psychotherapists always maintain that they are only one small influence on total social functioning and that the larger social system is much more significant than they are. Counselors to political personalities often describe themselves publicly in terms of a single input of no great importance -- just that they are trying to make things a bit better.

There is a genuine conflict between the role of an expert who knows something and can therefore do something, and his overt maintenance that he is a small and perhaps insignificant influence in the action process. The conflict occurs in the realm of responsibility.

The problem with the designation "expert" is that this responsibility is not explicitly acknowledged.

I still have not said very much about the characteristics of what the experts know. Is it scientific, is it like connoisseurship, is it inside dope, is it pure fakery? Successful performances might be based on any of them and modes of certification are not obviously effective in distinguishing them. We shall come back to this point in a later chapter.

### Policy Experts in Society

How are those who are concerned about improving public policy-making to use such experts? One may ignore the unspecified nature of the source of the knowledge, publicly designate a person an expert, assume that the designation of expertise is publicly givable, and then proceed to ask the expert for advice. The catch, of course, is that the designation of expertise is not being done publicly at all. A small cadre of men have decided that another man is an expert.

Say, however, that some people wish to challenge the status designation of this expert. If they are not the ones who originally granted him this designation, then, in this scheme, there is little reason to suspect that they may claim the right to take away the status. They may claim the right in that the expert was undemocratically "elected" to a status, but they do not seem to be able to make any claim in the sense that they are experts on experts. If they were, they could invalidate the original group's designation of expertise for a person. Priority of claim, a way of adjudicating among the groups, is not very faithful to what we usually mean by "experts." What can we do in this situation?

We may decide that anybody can adequately challenge another's expertise, and at the same time say that anybody can designate anybody else as an expert. This solution still seems suspect. Expertise does have some meaning, when we use it, related to the superior performance of certain tasks. An expert is supposed to be able to do something, more or less well specified. The arbitrary designation of someone as an expert seems to vitiate the meaning of the term.

We know that the problems that people do consider important, relevant, worthy of attention, depend on who they are. Someone may challenge another's expertise and, implicitly, the group that gave that person the designation by denying the worthiness of the problems on which he is expert. We are likely to end up with each group having its set of experts and related problems, while groups and experts will rarely confront and deal with each other. This kind of multi-oligarchic system of knowers does seem very real when we look at politics in a public society.

But we still evaluate others and experts; we still can compare. How does this happen? How are we to "open up" the role and status of expert while retaining the significance of its meaning in terms of performance? How do we inject ourselves in?

A first approach to answering this question is to describe a context in which experts operate. People call on experts when they want to know about something or when they want an opinion concerning a problem about which they are insufficiently confident. If we are concerned with problems of policy and public action, then the activity of calling on experts is similar to one that is called "planning."

The usual definitions of planning in public life may seem very far from what I have been talking about. However, if we abstract from

these definitions, we find a common core that is quite close to a problem concerning the designation of experts. This will lead us to a whole new set of problems for planful action.

### Conclusion

Experts are social creations.<sup>10</sup> Sourced in a belief in some technical knowledge, the role may attain legitimacy when it becomes putatively professional. However it is quite likely that experts play deeply political roles underneath. Still, we note that experts can be challenged on the basis of what they know. Our problem is to figure out what that is.

---

<sup>10</sup>See Friedson, 1970 for a discussion of medicine and Benveniste, 1970 for policy experts.

## PLANNING

Planning is a process of using what one knows about the past, the present, and the consequences of action to influence present actions. If it is possible to make a distinction between an idea and an action related to it, then planning may be seen as that which intervenes between impulse and action. This suggests that we need only plan when our impulsive actions are not desirable.

Planning may seem like a trivial and at best undistinguished activity as I have defined it so far. Of course, we all think about what we do, so why should we designate such thought to be planning? The term is a highly image-laden one, both politically and socially, and we may imagine that there are cultures for which the idea of planning does not exist. There exist cultures for which "futuraity" is meaningless. My definition is incomplete in that I have elided over one crucial point. I have not specified how to use what you know to decide what you should attempt to do. Herein lies the normative aspect of planful activity. Planning, of necessity, demands that there be a more desirable direction or end state of action than some others. Your knowledge of the world tells you something about the difference between where you are now and where you might want to be. Planning is an intervention between possible worlds and the one that we experience every day. This definition of planning can accommodate a variety of expertise, while a more complicated definition presumes on the nature of the acceptable expertise.<sup>11</sup>

Societal planning involves people, called planners, who are using their expert knowledge in a social activity. It is not the

<sup>11</sup> Analogously, if I define science as organized activity to learn about

only activity wherein expert knowers perform, but an important one for the realm of policy.

Planners want to influence their society. Often they are commissioned by the society to plan for it. Not only is planning societal, it is social; planning is done in groups. It is rare that one man does the planning job exclusively; usually it is a team. These considerations suggest that what planners know must be communicable in part to the larger society, and others must be able to share in a planner's sense about the world.

When we examine what planners know, when we ask how do they produce plans, we find that planning often involves highly expert but inexplicit knowledge. People who plan are considered creative, for they must invent solutions to problems or design possible normative pictures of the world. They exercise judgment since they have to choose between alternatives which are not well defined. Experience and savvy seems to make a difference. Planners must sometimes guess since they cannot know everything about the situations they deal with. How do planners communicate with the society and how can they convey what they know to other people?

An answer given by many who have thought about problems of planning, is that there is no communications problem at all. They would say, "At the moment, it may seem that the planner possesses a highly personal knowledge. But this is not really so. Systematic investigations should show that most, if not all, of a planners'

the world, then there are many ways I may be able to do science. If, however, I define it in terms of a proverbial, though probably false, "scientific method," then I might be describing present day science quite well, but I may not allow for expansion of its methodology and style in the future.



work does involve a substantially well-defined technique which others can understand and thereby participate in using." Whether or not we can fully understand planful activity in terms of systematic well-phrased technique is not my concern at the moment. My guess is that we cannot. Our question is about how planners can and should act now.<sup>12</sup>

We started out asking how to make sense of the use of expert knowledge in public policy making. Planning provides a useful model in which to look for a possible answer. But if planning activities, which I claim already use expert knowledge, are to make sense, if we are to explain why planners are permitted to exist and why plans are actually fulfilled in part, then we are forced to understand how an expert's knowledge can be public. I want to propose a model for planning activity that shows how this might work.

#### Conventional Models for Planning Activity

Before doing this, I want to look at two of the conventional models for what planners do. The first emphasizes the problems of knowing, while the second emphasizes the processes of mediating diversity.

Models of planning that focus on the problems of knowing emphasize the importance of modifying what we do by what we learn. They are almost always cybernetic in orientation and assume that we may, perhaps asymptotically, trace the consequences of our actions

---

<sup>12</sup>Another way of viewing this argument is to ask whether planning is a conventional science. I think not. There is too intimate an interaction between what we know about our environment and our goals, which are self-formulated and self-involved, to believe that we can separate planning as a technique, as a science, from the planner himself. I do believe that it is possible to understand planning in a systematic way, but the appropriate model will not be conventional science.

over a period of time with some success.<sup>13</sup> Variants of this model put greater or lesser emphasis on how much we need to know and how much we need to learn.

They do not deal in a systematic way with two important aspects of planning. Normative prescriptions, while obviously necessary in any planning activity, are not discussed much. This might be understandable if our problem of knowledge utilization could be well posed without considering normative questions. I do not believe this is possible, however, since knowledge is used to create tentative images of what may happen in the future. We then can compare these to the images we have of the present and influence present action accordingly. This comparison process requires that the nature of the image we have of our desirable state or path influences the formulation of the likely state or path that will emerge from a planned action. If the nature of these two images were too different, in cognitive style or semantic content, for example, then the comparisons would be impossible. Images of the future determine present action and plans related to it. Also, information and knowledge usually exist for a purpose. The interestingness of a datum depends on our plans and the desires we have. Normative prescriptions influence these directly.

A more serious objection to these models is that they lead to narrow prescriptions of what we should know about our environment. In current practice it seems that certain kinds of (scientific) hard data are preferred over most knowledge that is available. A scientific

---

<sup>13</sup>There is a real need here for a synthesis of the cybernetic models of planning and the psychoanalytic one (planning interposes impulse and action -- a representation of the ego). What one would hope to do is to figure out how the ego influences the images of the future that affect planful strategies.

model is implied which suggests that the personal nature of the planner is something that will wash out when good planning practice is achieved. This strikes me as being a highly unrealistic assumption.

Some other virtues are ascribed to science as a model.

His (the new planner) special character mirrors the special character of science. To a degree far less common in other interest groups, he has learned to doubt; to question his beliefs, his data, and his findings; to submit his conclusions to critical evaluation by his peers; to tolerate uncertainty and ambiguity; to bear the frustrations of not knowing, and of knowing he does not know; and, by far the most important, to adopt the empirical test for validity. (Webber, 1965, p. 296)

Webber goes on to argue that planners, in their systematic accounting for the effects of actions, "may help to eliminate the most negative consequences of partisanship and of ignorance."

It may be true that science possesses these virtues. And it also may be true that this virtue is not possessed by partisan interest groups. But I would argue it is not from a commitment to know critically about the empirical world that science succeeds, but rather from a commitment to understand and know about how the scientist learns of that world.

Intimately related to this is the commitment to an empirical test for validity. It seems dubious to me to carry over to planning activity the kind of test modeled after the physical sciences. It is proper to be concerned about sets of ideas that do not come down to meet the test of action. But the environment of planning is sufficiently changing and malleable to make conventional comparisons of theory and practice very difficult. The appropriate test lies in the realm of performance and successful articulation of the policy intent of the expert.<sup>14</sup>

---

<sup>14</sup>A slight variant of these planning models are those, usually called decision analysis schemes, which try to systematically combine what

A second set of models deal primarily with processes of mediating diversity. They explicitly deny the possibility of making end states well-defined, the possibility of predicting the likely consequences of action over the long run, or the ability to explicitly analyze what we are doing and combine our knowledge in a systematic way. Rather, they suggest that decisions be made incrementally, and that models for combining what we know be in terms of the resolution of conflict as contrasted to the resolution of conflicting facts. These models explicitly take into account political and social realities. They may even seem more democratic since one's claim to legitimate involvement in the planning activity is that one has an opinion that one wishes to push, as contrasted to having knowledge (arbitrarily defined).

These sets of models still do not deal with some central questions. There is still no good idea of what is worth knowing about the world or how to certify knowers. In rejecting synoptic technique, they do not systematically consider how we are to deal with performance problems. An important insight that may be adduced from them is that the relative parity of knowers determines which knowledge gets used to a much larger extent than acknowledged by those who use the first model.

A problem for me with both kinds of models is that what they explain may not be related to what planning is about. The style of explanation used in both is remarkably similar. A model of planning is as an activity which has some very well-described character, which is testably true or false, and which is different from the other model is known about a situation. Such models do not talk about how we are to learn about the situations, nor do they address the question of what we should know. In that sense they are useful technical additions to our armory, but they are not responsive to my fundamental questions.

in a distinct and irreconcilable fashion. These qualities do not tell much about what characterizes the manner in which expert activity in the realm of conscious public policy making, which activity I call planning, can be responsive to the knowledges possessed by the expert which he knows but may not be able to specify explicitly.

### Planning and Feeling

It is possible to develop a model for planning activity in which expert knowledge plays a natural and public role. For this model I shall make some assumptions about human nature.

1. People are good sensors of the world. They are reliable observers of what happens. Their reliability may be improved by systematic training; whether they see something more clearly depends centrally on what they wish to observe.

2. People can come to agreements about situations. There are many cases where a group of people talking together will eventually come to some agreement about what they know. And for the cases where they disagree, they may be able to understand why they disagree based on some personal characteristics.

3. People's guesses and experiences play a primary role in composing what they know.

4. There may be some techniques which can supplement people's abilities to be good sensors, to come to agreement, and to better use their experience.

Given these assumptions, I want to show how expert knowers might plan and do so with public consent.

The procedure I will follow will be fairly radical. I have no doubt that once we are given a sufficiently well defined context,

it is possible to measure (and quantify) any property, create laws of relationship (perhaps causal), and pursue a task that resembles a cartoon of the physical sciences. But I want to choose an aspect of expert knowledge that seems least amenable to such isolation. Can we develop a reasonable way of talking about experts planning for the difficult-to-know-about subject of societal mood and feeling -- affect? I believe that if I can make an argument for this activity, then it should be possible to develop an analogous argument for the potential usefulness of expert knowledge in more concrete situations.

Another reason for pursuing my investigation along this line is that I suspect that affectivity will become a significant societal value, as knowledge is supposed to be now, in the future. I am curious about the systematic societal effects of this.<sup>15</sup>

We do plan for affect or feeling. The design of great cathedrals and the production of television are intentional actions whose aim is to evoke certain feelings from the participant in their processes. Novels, movies and theater share in this quality. All of these activities have very peculiar people (planners!) involved in creating them -- novelists, churchmen, artists, and directors.

In order to make an investigation of this activity, I will look at what planners do and at what we might mean by affect. We will distinguish affective planning and planning for affect.

What do we mean by planners and affect? Planning, to repeat, may be viewed as a procedure which tries to use our knowledge of a social system to guide that system in a desired direction, taking into

---

<sup>15</sup>See "Planning for an Affect Based Society."

account the alternatives available, and the repercussions of the chosen (and unchosen) actions, while maintaining a future orientation. Ways of knowing, acting, and predicting are crucial to the process.

Affect can be taken to mean feeling or emotion.<sup>16</sup> Our affective knowledge enables these feelings. An immediate problem with affective knowing is how do we "know" what other people are feeling? Some people claim to be able to know how other people are feeling, and it is generally acknowledged that they are pretty good at it. It does seem that the communication of affect may be more difficult than the communication of cognitive knowledge. It helps that you are "feeling" about an outside world and if you are empirically oriented, this world may serve as a useful mediating influence around which to discuss what you know of it.

Planning for affect seems to be different from planning for the more conventional needs of men which include food and shelter and work. Different ways of knowing, acting, and predicting may be needed if we are to plan for affect. The interesting question is whether there is something called affective planning -- a planning mode that is a product of planning for affect.<sup>17</sup>

Affective planning may be taken to mean planning that shares in the ambiguities and richnesses characteristic of feeling. It is planning that depends on intuition and subjective (often expert) modes

<sup>16</sup>It may be true as Rabkin, 1970, says that, "Affect in present day theory resembles the phlogiston substance of fire or the caloric substance of heat ... They cathect ideas in the same way that electricity substance was thought to coat pitchballs." (p. 11)

<sup>17</sup>Or to rephrase it in terms of expert knowledge: Is there a mode of using expert knowledge in the realm of deliberate public action which is responsive to the frequently personal characteristic of that knowledge?

of knowing. To analyze this in more detail I divide planning activity into inputs, analyses, and plans (or plan-making).

We may have affective inputs which include intuition, the results of psychotherapies, or of person-centered social studies. One uses the knowledge of self to know of the social system. All of these are highly individual ways of knowing, for which there do not exist generally accepted ways of saying explicitly what one knows.

Analysis of data may be affective or not. How people understand better, without doing "scientific" kinds of verification, is exemplified by "the man who understands people." It is a question of sizing-up situations using much of the unmentioned, non-explicit data that are in the environment. Again an empirical mode is always assumed. John Seeley has stated it well:

I do take it that there is an apprehensible internal connection among things, and a corresponding highly symbolic way of talking about or representing them, that is set over against the external connection among them, whose vehicle is the sign and whose cumulative theoretical deliverance is science, and the practical outcome of which is technology. (Seeley, 1960)

We can mix affective ways of knowing with non-affective modes of analysis and vice-versa.

An example of the discussion so far is found in the life of one of my colleagues. Until recently, she had done survey research on people's feelings about their homes. To a large extent she had partially affective inputs and non-affective analysis. She was planning for affect. As a result of these investigations and alterations in her personal outlook, she recently concluded that an introspective and Jungian analysis of the house as a symbol should lead to new avenues for determining how satisfactions with the home might be increased. At this point she became more of an affective planner.



Some distinctions will clarify what I mean, but others do not. I am not quite interested in the range of the vision (holistic vs. atomistic), or the style of empirical evidence gathering (naturalistic vs. experimental). Rather, I want to know how we choose what is interesting or relevant about what is known and our attitude towards it. A dimension relevant to this is provided by the clinician-investigator distinction. A clinician is concerned with, "Empathy, warmth, integrity, commitment ...," while the investigator deals more with, "... sensitive objectivity ... formulation into clear and testable theory ... replicable demonstration." (GAP, 1969, pp. 108, 120)

A plan itself can either be affective or non-affective. The traditional general plans and even many of the new comprehensive plans are highly non-affective in their ways of knowing, analysis, and evaluation of client preferences. If a plan addresses itself to the sensational level of individuals, realizes that outputs have much to do with how people feel about their condition, and that changes and management may take place on the level of the individual psyche, then it might be called affective.

Affective planning is that planning which uses affective modes of knowing or analysis.<sup>18</sup> If we are to plan for affect we shall need affective planners. These kinds of planners will not lead to simple solutions to problems, since most of the traditional difficulties of planning will not be avoided. But we will be able to inform our planning by new insights.

<sup>18</sup>Recent discussions of scientific modes of knowing and the behavioral sciences make it clear that intuition, guesses, intensely personal ways of knowing, play important roles in how scientists function. (Polanyi, 1962)

Affective planners might adopt a Kantian imperative something like, "Always see in your policy the possibility of making love to (of loving) those whom you affect, including your self." They might have an erotic sense of reality, rather than the traditional dominating one.

For the affective planner, the world is meaningful in contrast to just existing. What happens affects how he behaves, and the events that occur have special import for his life. The same is true of his actions as a planner. These occur because he assumes that intentionality is a primary characteristic of what happens to people, and that they will assume that what happens is intended, even if some of the manifestations of intent are surprising.

Affective planners will find it useful to believe that the world has or makes sense. This sense is a coherent image of what happens, The images that are used in planning serve as contextuating ideas for societal guidance, including narrative images and role prescriptions for the planner. The affective planner's role is to make up these images. As Churchman would say, he is telling stories.

What about conflicting images? Novelists fight to impress their images on the society. So do planners. A big change will be that planners will have the relevance of their actions and their plans determined by the images which they have created. And the ends to which these images are created is a reflection of their own internal needs. The sense-ness of the world makes for the sense-ness of the person who is trying to make sense out of the world.

Our choice is not whether we shall or shall not use affective planning. The choice we face is how can we best use affective and non-affective modes of knowing and analysis in doing planning. This issue will become more important as we become more anxious to plan for affect.

### Planning and Sexuality

We may fruitfully explore the meaning of affective planning in the context of one epitome of affectivity -- sexuality. There are certain parallels between sex and planning. The analyses that have illuminated sexual activity, and related social phenomena, can help us understand planning and planners.

Planning has usually meant, though not by explicit intent, the exclusion of sex. The model of planning that emphasizes information and systematic inquiry almost always excludes personal data and prefers "hard" information. This need not exclude data about sexuality, but does exclude data that is based on man's sexual nature. The second model of planning involving mediation is mostly concerned with power. Though sexuality is one base of power, it is almost always ignored, in academic studies at least, in favor of political or economic power. Rarely are people seen to be arguing sexually; rather they are using their (political or economic) muscle.<sup>19</sup> A group of planners who might be especially aware of sexuality are those who are concerned with "planned change" and the use of organizational theory in action. But even they rarely mention sexuality, though it must be a primitive in any theory they propose.

Most planners base their justification and the legitimacy of their interventions on technocratic expertise.<sup>20</sup> If their non-political, non-economic persons were to get in the way, they fear that there would be little reason to listen to them versus others. This desire for a certain form of legitimacy based on input criteria (technocratic expertise) may be valuable for gaining access to a situation, but in

---

<sup>19</sup>Even Millet often restricts her analysis to the latter.

<sup>20</sup>The rest talk of beauty or political reform.

the end, performance probably depends more on the non-technocratic and the personal than most planners would want to admit in public.

Planning may also be anti-sexual. Insofar as planning intervenes between impulse and action, then it may seem that it gets in the way of full impulsive sexuality. But is sexuality "best" exhibited in its impulsive form? We get the impression from the many handbooks concerning sex that deliberate sexuality has its virtues. Still, sexual technique gets in the way of freedom, and that sexual technique implies some normative statements about sexual performance. These normative standards are another way that society articulates its social repressiveness.

Another way in which planning can be said to be anti-sexual is seen when we consider the nature of orgasmic responses. If there is some reason to believe that an important part of well-being depends on full orgasmic response, fully played out, then planning is certainly the wrong approach. Plans rarely get carried out; and most planning is abortive. Were planners to currently plan their own sexual lives, they would make great diagrams and would do marvelously with the reports, but they might never get to bed. The nature of the social performance of planners is very far from what might be called an interesting sexual performance and this must have a debilitating effect on their lives. At the same time, their sexuality must constantly be frustrated when they go to work.

We note that the frustration of planning must also extend into the milieu of everyday work. Planners, as I have said, work in teams. Often, especially when some aspect of a plan must be produced, they may have to work for some time continuously and quite closely together. Whatever satisfaction they may achieve in a sexual way from producing

their plans must be frustrated by the nature of the process of producing it (much of which must be true for most of bourgeois capitalist life). Most planners, like most of the technocratic elite, are men. And most neither choose to have, nor are interested in strong affectionate (vs. affective) relationships with co-workers. So in their work, as for most technocrats, they must leave parts of their selves at home.

Perhaps this whole scene is what professional planners want. They may be "up-tight," middle class people who would rather have work that involved neat situations, which are unlikely to be reality tests, than complex and ambiguous ones which are always under contest and modification (Dyckman, 196-). All the sterility and impotence normally associated with formal planning may serve the planner's deeper psychic needs.<sup>21</sup>

Even if this picture of the nature of most planners is correct, it is not totally valid. Planners are courageous. They are willing to give up the intimacy of the planning practice that they may use for their own lives and try to work on larger issues over which they have much less control. They risk the likely difficulties of communicating with the rest of society, when they need only face the more common ones of intimate communication in their own lives.

Planners are peculiar in that they prefer the non-routinized and the innovative, over the regular. They are intrinsically concerned with change and the future. They are some of the few societal entrepreneurs around. They are visionary architects who offer images

---

<sup>21</sup>Planners have been characterized as, "predominantly universalistic, affectively neutral, collectively-oriented and functionally specific, as well as achievement oriented." (Margy Meyerson in Dyckman, 196-, p. 164). This is essentially Parsons' definition of a profession. Friedson, 1970, finds much to disagree with in this definition.

of the future, knowing that they may influence but not shape (in a decisional sense) what happens.

Their concern with change makes them constant societal doubters. Planners are often criticized for pattern maintenance activities, that is that they are not much more revolutionary than anyone else. That they are of the society and its elite does not make this surprising. But because planners must always concern themselves with change, they are some of the few people (perhaps like scientists) to whom doubt is a natural everyday concomitant of their work.

Most people know that planning causes a meeting of private and public interests. What is more significant is that planners must have their public professional doubts influence their personal private behavior. They bring home the world with themselves and they are among the few technocrats who do so.

What happens to planners who find themselves in situations where they do have influence and responsibility? Some just retire out of the "politics" of the situation; others may meet the situation and "grow" into the problems. The identity crisis that planners will face at certain times needs societal and institutional support so that they make a more gentle and successful transition into "adults."

Presumably this situation might be different if the planners were allied to the very powerful, such as in centrally planned societies. The problem in our country is that planners, while agreed with and in the saddle, have no horse to ride on and "can't get it up." In the United States, the problem is that even if planners get someplace, they are likely to view themselves as castrated by the time they arrive.

Planners may suffer from constant sexual frustration and their lives are a series of coitus interruptus. It is no wonder they would not wish to exercise their sexuality more. If conventional planning leads to some difficulties in sexual quality-of-life, an unconventional planning with people explicitly using their sexuality might be different. Would this still be planning? An explicit model of planners in the world suggest that the answer to this question is yes.

### Sexual Planners

How are we to transform planning to avoid its becoming a frustrating activity that is debilitating for its practitioners and subsequently limiting for the society? Certainly not just by ordering everybody to be free and open, by saying that planning involves sex, and changing the image of the profession.

Some things cannot be changed. Planners must deal with the future and the consequences of present action. They cannot become anti-intellectual as such or anti-critical. These are some of their major functions. Planners try to make for consistent relationships between present action, future consequences, and desired states. Also, a commitment to sexual planning does not mean that planners will become unintellectual. Ideas and their systematic articulation are important. What those ideas are and how we choose to systematically articulate them can be quite varied.

If planners were to aim to be better embodiments of the "public interest," they might be able to escape some of these dilemmas. True, there are many difficulties with maintaining an image of a public interest in a partisan world, but I would imagine that a planner could try to adjudicate within a small range of interests as well as search

out and highlight what holds the society together. He might act as a good "generalized other," trying to see the various interests as they see themselves and as others see them. The planner becomes a sensitive viewer of the world and himself. He may work in the interstices trying to make for better fit and more coherent direction between actions.

This role would naturally make it easier for the planner to respond to his sexual self. By incorporating this into his practice, it is more likely that he will be a sensitive "other." Not only because people are sexual, but because the metaphors that are suggested by sexuality are different than those suggested by the normal tools of planners.

The planner would become a designer of actions, in his own mind, that should be more acceptable to others. Knowing others well he could be more sure of the actions' acceptability and the kinds of trade-offs that would be necessary. His individuality would fit in since he would be a designer and not a technocrat. The emphasis would shift to creativity and away from justification.

Of course there will be autocrats and evil planners. But they will still be under the control of the polity.

Rather than fear sexuality, we would have planners bury themselves in it. Planners would become searchers for fulfilling goals rather than "make do" ones, since they would have such an ethos in their own everyday lives.

The relationship of sexuality and money (made by Brown) is a useful one. At one time, planners might have been accused of ignoring costs and the economic facts of their plans. Now they do not and we



are pleased that they are so practical. But now we need to make sure that they do not get buried in the money they are so used to.

What kinds of planners have I created here? If they are sexual, we might want to explore some sexual designations for them and see how they fit.

Planners, ideally, would be erotic and not horny. Life would not be constantly frustrating, but would always be informed by sexuality. When things become difficult they might become horny, but more likely, after a time, this would be translated into deviance or repressed neuroticism. Were they deviant, then they could play out their sexuality, although in many forms this deviance would lead to sexually perverted lives which would not be fulfilling. Also, sexual perversion might lead planners to be poorer "generalized others" since they would get out of the habit of looking for symbolic interaction with others. On the other hand, if they were repressed neurotics and were more capable of responding to difficulties in social life by expressing these in their personal lives, we might have them lose their capabilities for vision, utopia, and creative futures.

What kind of sex should be part of their lives? The restriction to genital sexuality leads to control and looking for finite extensions of events. A more polymorphous perverse super-genital sexuality would be a source for greater expression in all systems, a sense that everything matters and that articulations of events are complex and not easily bounded.

The sexualized planner will have to tread a middle road in each of these qualities. He will want to be erotic, but sometimes realize that he is horny. He will want to be deviant, but keep his ability to repress himself and be responsive to societal repression. And finally,

no matter how polymorphous perverse he be, he might want to be able to realize the difference between genital and super-genital sexuality.

What kind of organizational milieu will be needed for this kind of planner? "Any individual through whom subjective intensity may intrude upon the processes of bureaucratic equilibrium is extremely threatening to our society." (Friedenberg, p. 190) We do not know how to have expressivity, risk, or sexuality become part of the social scene without destroying its possessors. This is our real problem.

### Picking Up The Pieces

We seem to have come pretty far from the nature of expertise by now. We started out wondering whether a non-science model of an expert could be made sensible. I then suggested that we look at a radical form of such expertise in terms of planning for affect. Then going even more to the left I brought in sexuality as a model for planning. What observations can be abstract from this journey?

In our examination of planning for affect it seems that the kind of planners involved would be altered by the substance of their planning. Affective planners would have their selves involved in their planning. How they formed issues and consequent actions would come to react back on their selves in an intimate way. When we come to sexuality as a model for affect the involvement increases. Erotic integrating wholeness is the ideal. But because we are dealing with sex, we are immediately aware of the associated fears that are often present. Fears of going off the deep end, of losing control, of losing civilization. One answer is involvement and following all the way through (a la Brown).

Perhaps the most obvious conclusion is also the most important. It is that experts do not exist outside the realm of exercising their expertise, the realm I call planning. Since they cannot escape, they must make do and fit in at least. If they withdraw into their own worlds they no longer are experts -- a status they may or may not value.

Still, what does an expert know? What is demonstrated when the expert performs? Are we justified in relating knowledge claims to trust? That is the question to which I now want to turn.

## KNOWING

I now want to look more carefully at the concept of expert knowledge. Several questions motivate my inquiry. What are the operating modes of knowing that influence public action? How do groups of people come to know something? What is the process of verification that is peculiar to expert knowledge? And, are there techniques for improving our capability of knowing expertly?

Expert Knowledge

There are wise men in the world. Though they usually know a great deal, we do not say that all men who know a lot are wise. Provisionally we can say that men who are wise have a special kind of knowledge, expert knowledge, that distinguishes them from other knowers. Expert knowledge is consequently not a direct product of formal education. Most formal education tries to inculcate systematic ways of dealing with questions. Frequently these ways are embodied in formal puzzle solving rules. It seems that wise men operate not only on the basis of formal rules, but have transcended these rules so that they may be able to deal with situations to which the rules do not properly apply.

The self of the expert is deeply involved in expert knowledge; the man who knows expertly is as much a part of his knowledge as what he has observed and tried to understand. Since the person and his self are involved with this knowledge, it is possible to replace scientific certainty, whatever that is, by personal risk: the statement by the knower that he knows and is responsible for his knowledge. Thereby a measure of public or social accountability is given to this knowledge.

### Characteristics of Expert Knowledge

Expert knowledge is distinguished from other knowledge by its orientation toward problems, the softness or vagueness of the data it handles, and its manifestation in terms of intuition, wisdom, or judgment as contrasted to intelligence, smartness, or consistency.

Expert knowledge is manipulated by thought processes which are more like problem working than logical thinking. Logical thought involves an economy of expression and explicitness of meaning, a sureness of deductive power, a completeness of the cognitive field in question, and a high degree of generality with respect to the processes employed. By contrast, problem working tends to be complex both in the statement of the problem and of the connotations of what is being said. No prescribed guaranteed procedures exist for going from the beginning to the end of such work, but there exist useful procedures, some of which are called "heuristics," which are suggested as possible ways of figuring out what to do. Since no prescribed sets of rules exist, guesses on the part of the problem worker are constantly needed to figure out which method to try out. A good problem worker not only knows something about the particular rules that may be useful to him, but also knows something about how successful such rules have been on similar problems in the past. In this sense, problem workers are aware of their problem working process. Finally, problem working thought is incomplete, in that the processes you know may be insufficient to solve all the problems that might be statable within the available language.<sup>22</sup>

---

<sup>22</sup>This characteristic is also possessed by complex logical systems but, in contrast to students of logical thought systems, problem workers are not very much upset by this fact and do not expect that their methods will be complete.

Expert knowledge is soft knowledge. Hard knowledge is knowledge that has a systematic and a well-defined base of support in other known things, and is characterized by having well-defined limits of application and degrees of generality. This is not the case for soft knowledge. Soft knowledge has support, but the basis for that support in previous knowledge may be quite complex, and just why that support is good may not be explicitly clear. Consequently soft knowledge does not have well-defined limits of applicability since the nature of its support is not well-defined.

It tends to be stored (remembered) in archetypes or in specific case studies, as contrasted to general laws. Diaries and novels are frequently filled with soft knowledge that may be extremely useful, but not particularly well-stated as general principles.<sup>23</sup>

Intuition and wisdom are examples of expert knowledge. Both are characterized by the softness of their knowledge base and the problem oriented character of the thinking associated with them.

Intuition is not meant to be a mystical term. Intuition is exhibited when ". . . an individual approaches a new and inexplicit problem, and solves it without the aid of what would be considered to be adequate information. In this process the thinker or problem

---

<sup>23</sup>The designation of "soft" or "hard" is not immutable. We may learn so much about a field of inquiry that it becomes hardened. Also, questions asked about a perfectly firm knowledge set may throw a whole field into turmoil. As a result, the methods of deduction peculiar to the field may be doubted, or the experimental data become irrelevant, and the field becomes "soft." The history of classical mechanics is a good example of these changes. The two hundred years preceding the development of quantum mechanics may be viewed as a hardening of classical mechanics. The doubts raised by experiments and quantum theory about the predictions of classical physics put the explanatory apparatus of mechanics into question. Only by the development of procedures within quantum theory which showed that in a well specified realm one could continue using classical techniques could it be said that classical mechanics was hard knowledge again.

solver is seen to draw on his store of knowledge, experience, and habits, to vary these, to carry out covert and even unconscious trial and error behavior, . . ." (Westcott, 1968, p. 40) Archetypes and instantial cases, if we have a rich enough set of them, make for good intuitive power. Of course, a person must be able to use these examples and know (there it is again!) when an example is sufficiently "close" to the question at hand to be applied. Good expert knowers are good choosers of examples.<sup>24</sup>

A person's experience is explicitly used as a tool to explore the space of options. This may be analogous to Merleau-Ponty's argument that we must use our bodies in order to exhibit intelligence.

Intuition differs from wisdom in that a person can teach it to another. It may not be possible for one person to tell someone else how to think intuitively, but he may be able to act as a model.<sup>25</sup> For example, in the training of a natural scientist it is possible to develop good physical intuition in a student. This intuition does not come solely or mainly from systematic studies, but most likely comes from imitation of the teacher.

Intuition does possess certain properties related to wisdom. A person who is wise not only has information and technique about his world, but exists in a state of awareness of that world. Wisdom is holistic; intuition often particularistic. Wise people interact with their environment to increase their sense about that environment, although they are not necessarily increasing their explicit knowledge of what is going on. Wisdom is intimately bound up in a person's

<sup>24</sup>Cairncross, an expert advisor, has argued for the importance of its intuitive basis. See Fishlock, 1971, and Miller, 1971.

<sup>25</sup>See Polanyi, 19-- , and the discussion by Blum, 1970, of theorizing.

experience and accumulates over his lifetime. It seems quite difficult to convey wisdom to young people or to transfer wisdom as such to others. It is possible to transfer the fruits of it in the form of material records.

Judgment can often represent an exercise of expert knowledge under situations requiring choice. The judge must evaluate the various statements concerning a situation for truthfulness and relevance, and exercise some faculty in choosing the significant or interesting points of difference. He then must decide on the choice. In so far as he involves himself in the process, especially in the choices of relevance and significance, he may be using his expert knowledge.

#### The Person as a Knower

What are some of the more explicit characteristics of the involvement between self and knowledge?

Knowledge resides in the user and the observer and not in the objects of which we have knowledge. How a person's apprehension is organized depends on the aims of the person who knows as well as the nature of what he knows. The meanings that we derive from our observations and understanding are determined by, and determine, the way we organize what we have seen. One would expect that there are no general ways of systematically ordering expert knowledge since two users of that knowledge may have different purposes in mind, and therefore would be expected to have different ways of organizing what they know.

If you know something, how does another person come to know what you know? What is explicitly transmissible from you to another person is different from what you know and believe. Therefore, they must go through a similar experience and not only just hear about it.



On the other hand, it is true that there are ways of describing some experiences vicariously so that another person will know what you know.

I think both of these descriptions are true in part, yet they miss an essential point. The way we transmit what we know to others depends on the nature of that knowledge. It is probably true that the more expert the quality of what you know, and the greater it depends on your self and your own organization, the greater is the need for another person to go through the experience of knowing in the way you did if he is to understand the situation in the same fashion.<sup>26</sup>

Knowing does not exist in a vacuum. The social and political context and the "common sense" that is accepted, determines the kinds of doubts that people express.<sup>27</sup> If we trusted our selves and we believed in a certain commonness of people, then we would not have to worry whether other people can understand expert knowers. We would believe them without much questioning them. For example, after a very few tests we decide to trust most people's sense about colors or verticality. We trust that they have similar sensing and assessment capabilities to ours. The same should be true for expert knowledge.<sup>28</sup>

<sup>26</sup> Ayer, 1958, has argued that we should be able to transmit all the things that we "know." That something is a private feeling is a useful, but not necessary, convention. (pp. 226-254) My own feeling is that whether or not this point of view is correct, an economic analysis, which takes the cost of learning into account, would have to reject Ayer's perspective, at least in the extreme. Rather than tell anybody about an experience, experiencing the experience may be more effective in teaching the person about the experience.

<sup>27</sup> Schütz has used the fact that we do have a common set of conceptualizations of the world as the basis for his philosophy of social science. The nature of knowers and knowledge acquisition can be derived from this observation.

<sup>28</sup> The determination of color or direction is not simple, as current efforts in artificial intelligence attest. Thus it should not be assumed that such "commonplaces" are so different from expert knowledge in complexity.

The uniqueness of experience that makes for expert knowledge is likely to make its esoteric character unavoidable.

The manner in which access to these experiences is controlled is the mechanism that maintains the esoteric. That we live individual lives that are different and differentiated (in work and place, for example) is especially important. Other controls on access to experience include class and status requirements, racial and sexual prerequisites, and professional rules. Not only do these create the esoteric, but also the justification for some to assert that they can regulate access and thereby maintain their esoteric knowledges.

#### The Nature of Expert Knowledge

What might we say about the nature of expert knowledge? Expert knowledge is subjective in that the self of the knower is bound up with what is known. It is objective in that it tries to deal with the external world in such a way that one can affect that world intentionally. Expert knowledge is inexact. The set of situations to which our knowledge applies are not well described, and the boundaries may change when we learn new things. Expert knowledge is logical (or natural) in the sense that it is purposeful, but not in the sense that it has a very simple or well described structure.

The cognitive style that is most consistent with expert knowledge is more likely to be a literary or case study sensibility (idiographic), rather than a symbolic, formal, or generalized law picture (nomothetic). The preference for the idiographic over the nomothetic cannot be complete, though. A specific, richly articulated explanatory metaphor still has to be chosen from among presumably many others. (It is conceivable that the expert knower has one

all-purpose metaphor, but I would find this hard to believe.) Some form of generalized rule probably determines which metaphor is chosen. It is possible that a metaphor for choosing metaphors exists and no nomothetic principles are around.

A Rationalist Model of the Expert Knower:  
Chomsky's Competent Speaker-Hearer

Having gone into some detail about the properties of an expert knower, and discussed some examples, I want to explore some abstract models of the expert knower to see if we can derive a positive definition of one. I shall discuss three models. One, the rationalist, is sourced most recently in ideas of Chomsky; the next, empiricist, is sourced in current work on artificial intelligence; and the last, also empirical but with more theory, comes from social science.

The question that Chomsky asks is how is it possible for someone to know that a sentence that he has never heard before is grammatically correct and how is it possible for someone to create a new grammatically correct sentence never spoken before? How can we understand the judgments of a native speaker (his intuitions) about what is correct?

The usual questions that have been asked in linguistic research, previous to Chomsky's work, have been about developing compact and efficient ways of organizing the observed phenomena about languages. In psycho-linguistics, a central question concerned how people learn a language. Chomsky's approach led him to answer both of these questions but from a somewhat different route.<sup>29</sup>

<sup>29</sup>The intellectual history is not quite the same as the conceptual one I have sketched here. The philosophic interpretation seems to have come after the mathematical developments, rather than before.

Chomsky's philosophic perspective goes back to Cartesian rationalism. Simply put, this position asserts that our knowledge of the world does not derive simply from an accumulation of our empirical experiences. Rather, much of that knowledge comes from internal (to the mind) processes that reason to correct descriptions of the phenomenal world. What is, is not what we observe, but what we put together in our minds as a coherent whole. Such a position is often thought to be anti-scientific-empirical and Chomsky has spent substantial time in trying to make clear that this is not the case. Rather it encourages us to ask different questions in our empirical research.

The mechanism for working out the consequences of Chomsky's position is something like the following. First of all we abstract away from everyday language to acceptable language. We now deal with a "competent speaker-hearer." This means that we exclude slips of the tongue, memory lapses, etc., but include slang and acceptable varieties of usage. This language is said to have two structures. The surface structure is the ordinary grammar that most of us learned in school. We note that sentences with very similar surface structures can have very different meanings (here, with respect to agency).

- (1) Someone expected the doctor to examine John.
- (2) Someone persuaded the doctor to examine John.

How is this possible? We might say that meaning has little to do with syntax and our problem goes away. But, if we believe that such an appeal is not satisfactory, Chomsky offers the alternative of a deep structure. It is in the deep structure that the potentials for meaning are harbored. Sentences which may be superficially similar may have dissimilar deep structures. We say that a sentence

is derived by transformation from a primitive sentence which determines its meaning. For example:

similar	{	Someone expected the doctor to examine John. (1)	
surface			
structures	{	Someone persuaded the doctor to examine John. (2)	
		I expect <u>an event</u> . <sup>30</sup>	{
<u>derived from</u>		I persuade <u>you</u> .	
			deep
			structures. (4)

Our intuitions about meaning are based on the assumption that our brains operate by means of these transformations. A comparatively small number of rules serve to generate the complex sentences.<sup>31</sup>

The analogy of the competent speaker-hearer with the expert knower is easily made. The expert knower deals with situations that he has never seen before and gives his opinions on actions which have

<sup>30</sup>From N. Chomsky, in R. S. Cohen and M. W. Wartofsky, eds., Boston Studies in the Philosophy of Science III, Dordrecht-Holland: Reidel, 1967, p. 85.

<sup>31</sup>There are some difficulties with taking this idea wholesale. First of all, I am not sure that we have to have a position on whether innate ideas do exist. Innate ideas, which take the form of the generative grammar for Chomsky, may be embodied in the form of archetypal examples for the expert knower. (See the discussion below of heuristics and superempiricism.) But the knower has experienced these examples, so in some sense they are not innate. The significant operation is deciding that an archetype is relevant to a problem at hand. This "matching" faculty could be said to be an innate ability, but good arguments could be given for it being something that is taught by trial and error. Relevance, for phenomenologists, would be exhibited in the form of Sorge or Dasein. This is peculiar to a human being. But it is not an innate idea in any more sense than we would say that anything that makes people what they are, are innate ideas.

When Chomsky abstracts the "competence" from the "performance" of good speaker-hearers, he assumes that there is some meaning to competence outside of performance. For an expert knower this may not be the case. Perhaps, only in performance is his knowledge meaningful and responsible.

never happened or been done. The intellectual problem here is to understand the nature of his intuitions. What does he know?<sup>32</sup>

To apply the model baldly we can say that policy situations as interpreted by the expert have both surface and deep structures. The logic of surface descriptions of the policy problem is not known now, but would deal with the actors, the effects of their action, economic constraints, and so forth. While these examinations of behavior can say little about the intents or meanings of policy and actor, a deeper structure of description permits these meanings to be derived.

An example of these distinctions should be helpful. If we examine the behavior of welfare rights organizations and of labor unions we find that on the surface they are similar. Both are concerned with improving the lot of their members and they are less interested in non-members in the same situation. However, at a deeper level of intention it can be argued that they differ. The welfare rights organization is saying that "society must be fair" while the labor union is concerned with individual rights.

We see the reverse situation (similar deep structure and dissimilar surface) in another example. There is little in common in the behavior of witch doctors in tribal environments and requests for Spanish speaking schools in the U.S. Yet at the level of intent and meaning both concern supplying clients with services that they want.

What kinds of questions is one likely to ask if one took such a model or knowledge seriously? I can paraphrase Chomsky: (1) What is the structure and grammar of expert knowledge? (A grammar of intention, not behavior.) (2) What is the nature of the interaction with the environment that makes the expert knower competent? (An ability to

---

<sup>32</sup>Clowes, 1971, points out the intuitive basis of Chomsky's tests of the quality of descriptions. The methods involve paraphrase, anomaly and ambiguity.

interpret in a satisfying manner). (3) What kinds of experiential data would confirm the existence of expert knowledge? (Successful policy proposals). We elaborate on these questions in the rest of this chapter.<sup>33</sup>

### Experts and Artificial Intelligence

From examining the current research in artificial intelligence, it seems to me that the most impressive machines are those that perform rather complex tasks as contrasted to being quite versatile at doing a number of simple seemingly unrelated tasks. We are more impressed by a machine that recognizes scenes or plays good chess, than by one that can solve a few logical problems. This may or may not represent a proper appreciation of intelligence. Still, I suspect that most would agree with my observation.

If we look at how these impressive machines work we note that they operate on a mixture of some general principles (first order logic) but often their power lies in a substantive knowledge of the nature of the problems that they are good at. They know tricks that only an experienced expert would know.

The method by which they work is to recognize when such tricks are needed and to apply them. This process of recognition, of distinguishing crucial classifying features, may be a good model for the expert knower. He recognizes cues.

---

<sup>33</sup>It seems to me that the answer to the last question is moot in any case. If we are concerned with knowledge useful for public action in a genuine situation, then the confirmation of the existence of expert knowledge cannot come from some simple experimental design. It will have to come from the more comprehensive explanatory power of such an idea (it makes sense out of more and is richer in suggesting resonances of the idea) and in its ability to increase the utility of knowledge in policymaking.

The unanswered problem is how does he recognize cues and order their importance. To say that he learns obscures the problem, since the nature of the reinforcements are part of his discriminating ability. But if we concentrate on the problem we may discern operating features of expert knowledge.

#### Zetterberg's Model

Zetterberg has tried to specify how sociological knowledge, in the form of theory, could inform practice. His model is structural and not epistemological, but is worth describing since it is one of the few that has been explicitly worked out.

He defines the competent practitioner (unrelated to Chomsky) as one who is competent in translating scientific theory into practice. There is a partially scientific basis for his knowledge. The basis includes professional creeds, case studies, rules of thumb, descriptive orientations, and the application of scientific (sociological) laws. Outlining the laws of sociology as he sees them, he applies them to some problems. The method of application is: (1) an exploratory inquiry, (2) a scholarly understanding of the problem, (3) a scholarly confrontation wherein the practitioner explains his understanding of the problem to the client, (4) a discovery of solutions, and (5) scientific advice.<sup>34</sup> The question that concerns me is how we go from (1) to (2). Zetterberg cannot say more than that one learns to do this by doing. He concludes that research gets used when there are relevant scientific findings and there is cooperation of the knower and the actor -- especially if they are goal congruent.

---

<sup>34</sup>See "Is it Worthwhile to do Public Policy Research?" for a similar process.



He points out that there are some fallacies that we must avoid. They are: (1) a belief that we apply social science by popularizing its content, (2) a belief that the content of knowledge to be applied should match the content of the practitioner's problem (precluding theoretical generalization), and (3) that there is a very large number of social problems.

Zetterberg is trying to show how we might use this theory and not so much all other kinds of social research and knowledge. Though he gives credit to the value of descriptive orientations, my feeling is that theory, for him, involves causal explanations. Yet when I look at what he does in his analysis, when he goes from the problem to the theoretical descriptions ( (1) to (2) ), I wonder if he would be better off concentrating on how theories train attention on important characteristics and not causal effects.<sup>35</sup>

#### Mechanical Experts

New expert knowledge is created by having experiences accumulate in a person. After some time that person is more capable of giving good advice based on his knowledge. He seems to have a richer set of archetypes.

This answer may seem strange to scholars occupied with building up the body and store of knowledge. From this perspective, when one more person increases his knowledge, even if everybody but he knows what he learned already, the amount of knowledge goes up. Yet it is not so strange. Since expert knowledge can be exhibited by giving advice, we would expect that an increase in the number of advice-givers would result in an increase in knowledge. It seems impossible

---

<sup>35</sup>See "Is It Worthwhile to Do Public Policy Research?"

to distinguish new from repeated knowledge in a precise way. This would suggest that even if we were to develop ways of conveying capabilities inherent in expert knowers through vicarious or surrogate experiences, we would want to count the creation of new expert knowers as part of new expert knowledge.

If we could really define a new bit of expert knowledge, then the method of its creation would be clear. It is created as a product of experiences which are not similar enough to past ones to permit easy applications of past action to the present. Being forced to act, the expert knower creates knowledge by his action.

Could we have a machine that had expert knowledge and could give advice? If that were so, then we would be sure that we could codify one method of expert knowing and what is known. From current research it seems that we could probably develop a machine that could absorb experiences and structure them. It is most likely to be successful in cases where we require the machine to deal with only a single type of experience. Whether the machine could give advice is not clear. Advice-giving depends on the character of the person to whom advice is being given. And this means that the machine that can take in experience must also be able to use its experience flexibly.

#### The Dangers of Expert Knowledge

If people can go crazy, and expert knowing is intimately dependent on persons, then it is likely that there may be some dangers of expert knowledge. It is certainly the case that some of the mentally ill are quite ill, even if much of current criticism of these designations points out their social sources. There are dangers if expert knowledge goes crazy. I think, however, that these dangers are not

greater than the dangers that men face when they go crazy. The benefits to be gained by acknowledging our selves in the knowledge process outweigh the dangers of ignoring the potential.

That conventional knowers deny their own person's involvement with what they know does not mean that they are not involved. The systematic procedures which try to eliminate personal bias will also make it difficult for a group of sick persons to diagnose their illness internally. The self-examining quality of expert knowers encourages self-diagnosis.

If expert knowledge is attached to persons, then it may turn out that there would be the development of a super elite of expert knowers, even more dangerous than the elite we now have of professional knowers. Most people are capable of being significant contributors to expert knowledge, and all are capable of challenging it on its own grounds. This should ameliorate the danger of elitism.<sup>36</sup>

It might be said that a major problem with expert knowledge is that people cannot be relied on to know about things if they care very much about them. My belief is that we cannot rely on people who do not have a stake in their knowledge above and beyond the status that knowledge possession gives them. Commitment, when explicitly stated, gives one an understanding of another's valuational scheme. This may provide for a more intimate basis for trust than only "examining the evidence."

---

<sup>36</sup>It would be nice to believe that expert knowers could transcend their eliteness. Even if all can be expert knowers, if such an ability is valued, then differentiations of ability will be discerned and valued accordingly. The trick is to somehow avoid valuing one's self based on this. This may be inherently contradictory with respect to personal responsibility, but perhaps not with respect to social responsibility.

## GROUP KNOWING

How do other people know what you know? How do you know that they know what you know? Answers to these questions are essential if we are to understand the nature of public action that is based on expert knowledge.

The personal character of expert knowers might make expert knowledge unamenable to sharply defined disagreements between knowers. The dialectic, a useful way of exploring the consequences of such disagreements, may be difficult to apply to the personal quality of this knowledge. However, a virtue of expert knowledge is that the way a person comes to know something becomes part of what he knows. Challenges to this way are possible. On the other hand, the need for action as a result of expert knowledge cannot permit a real stand-off between knowers if they must act in concert. The polarization characteristic of a dialectic cannot be maintained longer than the time allotted to before-action thought.

Group Knowledge Does Not Equal the Sum of Individual Knowledge

We might say that the knowledge that is possessed by a group is just the sum of the knowledge possessed by the individuals who comprise the group. But we know this is not the case. Trivially, even if we have a large number of people who consider themselves a group of knowers, each may specialize in one aspect of knowledge. He can have faith that someone else within the group will know of the fields about which he has not learned very much. Synergism is relied on. But this picture is over-simplified. Organizations, or groups of people, exhibit characteristics which make the trivial model inapplicable.

In an organization the process of public confirmation of what is known, the consensual agreement to act as if something were the case, involves more than people agreeing individually that something is so. The consequences for the organization, and the relative positions and relationships of people within it, will influence the process. At the same time, we may have islands of belief in certain knowledge within the organization. An island retains its cohesiveness partly on the basis of shared beliefs. Structural effects affect shared knowledge.

The disjunction that I would hope to bridge is that between public justifications for knowledge and private justifications. Insights that people may possess about the world, which may be very useful for their own action, seem to need entirely different rationales when presented in public. Were we to accept the highly self-oriented character of what we know, then it might be possible for there to be greater congruence between the justification we give to ourselves for what we know and that which we give to others. How we came to know (our selves) may become part of the justification.

So, group knowledge cannot be the simple sum of individual knowledge. In fact, it may not be possible to combine the sensibilities of very disparate knowers in such a way that the combination would be useful for action. For example, if two knowers have differences such that one believes something to be true and the other, false, and no one knows how to deal with such a conflict, then what would be the gain of adding their knowledge together? There must be a certain level of homogeneity of cognitive style and experience among knowers if group knowledge is to be useful. Chomsky's model suggests that on at least one level, that of understanding how we manipulate what we

know, there may be a common basis. Experts may actually have a small number of operating styles, through which they go from their experience and their observations to give recommendations. However, two knowers are never the same. Even if they have similar partial sets of experience, they would have to have similar sets of experiences for their whole lives to be identical. Still, this will not be needed for practical action.

### Models For Group Knowing

What are the ways by which a group can come to know something together? How should they develop procedures to integrate the expert knowledge of their members, and thereby come to a better understanding of a situation? These questions concern both those people who are experts and wish to improve their competence, and those who are looking for advice and wish to know how they may choose from among experts. I discern two models for such group knowing methods -- an economic model and a dramaturgic model.

The economic model for group knowledge is called "economic" because it assumes that the individual knowers are independent and it tries to combine what they know in a way that their dependence on and interaction with each other is controlled and small. This is reminiscent of much of economics and physics. Economic models lend themselves to mathematical representations and, accordingly, there has been substantial investigation of their formal properties. Let us look at several of these models.<sup>37</sup>

<sup>37</sup>I have left conventional science out of this discussion. The main reason for doing so is that while truth-finding may be characteristic of scientific method, group knowing is meta-scientific method. The influence of Kuhn's work lies in his pointing up this distinction. How scientists come to a group knowledge of things is no different than the expert knowers' methods.

The Delphi method for combining the wisdom of experts is one of the most notable. A series of questions are asked of a panel of experts and they indicate their answers, giving both an estimate of the answer and, perhaps, an estimate of the error. The manager of the Delphi exercise then combines the answers of the panel, averaging them in some way, to obtain a measure of the mean answer and its dispersion. He then feeds these back to the panel and asks them to re-estimate their personal answer to each of the questions again. What is hoped is that the differences between panel members, revealed to each member as a result of the first round, will cause a panel member to take that difference into account in his second estimate. It may cause him to re-think his way of coming to the first answer he gave.

Note that because there is a manager of the Delphi exercise, and he intervenes between the panelists, there is no personal interaction of the panelists. This is considered desirable since it is felt that personal influence and prestige may get in the way of more adventuresome or unorthodox answers. From the point-of-view of expert knowledge this objection seems curious. Personality and commitment seem essential. If we were freer in the exercise of each, then some of the objections voiced by the Delphi supporters would be less important.

Another procedure which disentangles the influence of experts even further, yet does permit them to indicate their personal commitments and beliefs in an answer, is provided by statistical decision theory and decision analysis. Experts are asked to suggest what they believe is the likelihood of certain events taking place and how much they would bet on their estimates. Systematic procedures then exist for combining these probabilities and bets to obtain a most

likely set of probabilities for the group. One can derive a betting strategy which should give the largest returns. The commitment aspect of the expert is explicitly taken into account in this method, but the interactions of experts are left out and significant ambiguities exist about the interactions.<sup>38</sup> An example will make this latter point clear.

Say we have a group of experts, each of whom is asked to choose between situation A or B. Each expert makes his own estimate of the probability that A or B is the winner, and the odds he would bet on each choice. Using the above procedures, each expert comes to his own conclusion as to which choice he would bet on. It is possible that each would have different estimates of the probabilities and betting odds, yet all the experts agree that they would bet on choice A. If we averaged the bets at this point, we find that the group bets on A to be the best choice.

However, it is possible to construct plausible cases wherein if we first averaged the probabilities assigned by the experts (a not unreasonable thing to do), and then averaged the bets they would be willing to make, choice B would turn out to be the best bet. The first case is called the Paretian optimum, for each man is happy with the solution, even if a systematic way of combining results, the second or Bayesian, disagrees with him.

A variant of the decision analysis idea is the perceptron. A perceptron is a weighted sum of the opinions of a set of experts. No interaction is permitted between the experts. At any time, the

---

<sup>38</sup>A parimutuel system assumes that all the bettors are equally expert (weighted only by the amounts of their bets). Presumably the odds at any time determine, in part, betting behavior. In this sense the experts' judgments are pooled. A "prisoner's dilemma" situation, in which the experts would be better off if they pooled their judgments, is another case.



weighting factors given to each expert are fixed, though we can conceivably create a scheme whereby the perceptron could change its weighting factors depending on past experience. I mention perceptrons only to make one point about them. If we assume that the knowers have fairly well-defined ways of operating and are not particularly complex, then the capability of a perceptron is remarkably limited. The ability of a perceptron to successfully analyze new situations, except in some very special cases, will involve the perceptron's having an expert for each situation. The information needed to store these special case judges (and their weighting coefficients) may be greater than the information needed to describe the situations originally. If we are to combine our judges in a particularly simple way, and if we assume that the judges are not particularly complex, then we really do not have too much of a capability at all.<sup>39</sup>

Economic models, by their nature, do not deal with the selves of the knowers in a deep way.

Dramaturgic models deal with interaction and self and assume that the basic processes involved in coming to some sense of group understanding require interaction. These models are not so easily quantified, though they may be characterized systematically.

Bargaining models are some of the most simple, well-specified, and best understood of the dramaturgic models. Even the value of feigning and concession have been thought through. These models take into account the values of each knower, the possibility that a concession now results in greater rewards in the future, and that each bargainer must deal with his own image of the other, as well as his

---

<sup>39</sup>The difficulties that have been found in brain simulation efforts reflect this point. See Minsky and Papert.

self. A problem with bargaining models when we are talking about a set of knowers is that we do not know what they are bargaining for. What is the currency they can exchange with each other? Why should they bargain? We have to add to the bargaining model something that represents the bargainer's personal commitment to his ideas. It is then clear that what is being dealt with when people bargain about what they know is their selves and statuses, the reliability of their observing and thinking processes, and the esteem in which they are held by others. Bargaining provides one means of converting personal knowledge and sense about the world, into socially determined rates of risk. These risks ascertain the "truthfulness" of a statement in terms of the likelihood that such a statement will lead to a certain end.

Still, if someone were to bargain with his life when he is about to be shot we might doubt his assessments of situations. Sincere bargainers must have some degree of voluntary choice when they bargain. Because they have the option not to bargain, and just go away, the fact that they enter into a bargaining procedure suggests that they are committed to what they say.

Another useful approach is what I will call the Yaqui way of knowledge, the procedures used by an Indian guru to gain collective assent. If we are to talk about the ways we have come to know things, then we must have a common language to describe those ways. At the same time, that language determines how we conceptualize what happens. It may be possible to have a guru who is able to structure the experience of a set of knowers, supplementing their ability to describe what has happened to them, so that they may be able to talk to each other better. This implies that the guru is capable of

developing archetypes so that others may appreciate the one he is describing in their own terms. A less likely alternative is that the group itself develops a language in which it may talk of its own experience.

Another realization of a dramaturgic model is one in which we perceive the knower as part of the system he knows. What he learns about that system depends on how he evaluates what he does not know about it. Then the problem of group knowledge really becomes, how should one knower interact with other knowers to find out what he does not know, and how should all interact with what they know about, so as to find out what they do not know?

For example, if we are to evaluate a social program, we could have an evaluation staff that is charged with evaluation. An alternative is to diffuse this task throughout the organization and have someone in charge of low-level coordination. The evaluation's value to the organization (especially as a group process) could be substantially greater when we use the second method. This method has sufficient feedback to help the organization and strengthen its members.

Dramaturgic methods of combining what individuals know, so that they may have some sense of group knowledge, are probably the most useful and most consistent with what I have suggested so far concerning knowledge for public action. Their emphasis is on how individuals change in the process of knowing and how they take the world into themselves when they learn. The aggregating facility in economic models is attained at the cost of having abstracted and simplified actors. This makes it difficult to understand (for an economic model) how rich past experience is played out in the present. If our concern is with

how people use what they know in differing situations dramaturgic models seem appropriate.

The discussion in this section may be viewed in the light of some aspects of the sociology of knowledge. It is suggested that the problem I discuss here is fake. It is not the case that some people know things and that they are trying to convince others of what they know and thereby reach some consensus. Rather, the whole social system determines what can be known. Those who have the real power (often economic and other powers are equated) control the world of ideas. Within that world there may be some arguments about what the group knows, but that world is limited. We are all marionettes.

Perhaps we are. But I doubt that we can be so simplistic in deciding who pulls the strings -- power is a co-ordinate relationship and the overall influence of wealth power, although substantial, is not complete. An alternative position is that we are culture bound, that our abilities to conceptualize are severely limited by language and common categories. Even if we believe that this is true, this perspective does not account for the emergence of revolutionary ideas in any place. The "seeds of revolution" and change may be inherent in a certain form of society, but it is not apparent that the seeds of ideas are there also.

People make the world for themselves from their experience. Sometimes, if only because they are not well programmed machines, they do the unexpected -- including having some new ideas. How these ideas make their way in the world (and they do since some survive) is my concern. This question cannot be answered in the context of the picture of society with a Bill Baird at the top and the rest of us on stage. Bill is down there with us.

### Certifying Expert Knowers

If knowers are not all the same, how does a group of them decide to admit a new member into its ranks. What are the professional standards for expert knowers?<sup>40</sup> We would expect there to be two sets of standards. One, of the profession, for admitting people into its ranks and keeping check on them, and one, of the society, that determines what is a professional performance. These are intimately related, but it is likely that the profession has the weight of control over both.

The popular way of determining professional standards is in terms of credentials and examinations. Credentials are obtained by going to school and passing school examinations. They represent the past with respect to the certifying agency. Professional examinations are given to test current performance and knowledge.

Expert knowers might opt for an alternative credentialling procedure. An implicit assumption of the conventional procedure is that commitment to the profession is a product of the substantial study required to pass the examination -- otherwise, why would one go through the effort? The socialization during training channels this commitment into professionally acceptable forms. Expert knowers would reverse the covert and overt. Commitment would be tested first, while systematic knowledge would be assumed to be acquired. If you

---

<sup>40</sup>I jump here from an organization of knowers to a profession of knowers. The reason for doing so is that any group that has no public commitment can decide to bring in new members with constraints only determined by the wishes of the membership. On the other hand, a profession needs to continuously guarantee that a certain service will be provided by one of its certified members. These external constraints determine, in part, the examination and formal character of admission standards.

are committed to a profession, then it is natural to assume that you would want to know enough to be a competent practitioner.<sup>41</sup>

What may be implied by these methods of certification is that someone is certified insofar as his joining the group represents an involvement of himself. Then, and only then, will the risk he takes and his degree of involvement in the expert knowledge the group possesses represent as much of him as the profession would expect him to give in his own advisory work.

Those who are outside of a profession would find these methods of certification amenable to their challenges. Because most professions cannot guarantee perfect performance or scientific knowledge, most of us must accept their claims to competence on faith. On the other hand, it might be easier for a client to assess commitment. Whether this commitment is to clients is an equally important assessment. Since quacks can actually do substantial harm, we would still want some technical performance measures, perhaps set by the profession. But these can only be viewed as preliminary to professional certification.

### Summary

The problem we face is that people who know and who have some sense of the experience they have, do not know what they know. At the same time, other knowers and users of their services must evaluate these knowers and choose from among them for advice. A dramaturgic technique is helpful. Such a technique combines (1) the virtues of

---

<sup>41</sup>The early craft guilds had this character. My guess is that the length of time for the apprenticeship was not so much determined by what you needed to learn, as by a test of commitment. That this procedure conveniently kept the numbers of those in the profession to a manageable level does not pre-empt other explanations.

commitment of individuals, with (2) a bargaining process that permits them to interact so that they may iron out their differences, with (3) an attempt to formulate a language so they can describe "where they are at" to each other, and with (4) a realization that the knowers are part of what they know and that they must interact with that at all times.

## TRUTH FINDING

How do we come to believe that something is "true?" How does a person increase his knowledge, and how does he combine what he knows to form his images of the truth? These problems differ from those of group knowing, since truth finding can be done by one person. We are now concerned with verifying that what a person knows relates in a sensible way to the objects about which he knows (reality testing), rather than with the process of reaching a consensual agreement about what is known. Clearly these are related processes and, as suggested in the previous section, comparisons of what people know with what they know of are intrinsic to the functioning of group knowledge processes.

### Why Have Truth Finding?

We search for truth about a situation because we believe that some statements are more useful than others for understanding how we should act in order to achieve what we want. Also, we want to be able to deal with outright, intended, misleading statements on the part of other persons.

It is strange that we believe that some statements are more true than others. It is especially strange to believe that we might order statements in a hierarchy in terms of their truthfulness. Both beliefs reflect a more fundamental belief that knowing has something to do with better action.



True statements may be said to be those statements which guide a person to action which is more likely to lead to intended consequences.<sup>42</sup> A statement is true for a person who is concerned with a certain type of action. There are some classes of situations for which a very large number of people do agree on what are the true statements. Some of these, commonly known as scientific problems, are remarkably well-defined areas of concern and rarely deal with (the "self" of) self-organizing systems. Others, which comprise our common-sense ideas of the world, are so pervasive that we assume them for most of our other activity (including truth finding). When we question these latter statements we become philosophers.

My guess is that for most problems of public action concerning public policy there are classes of statements which are probably more true than others, but it would be quite difficult to order the truthfulness of statements within each class. If we are concerned with one man's action at one time in one situation, then it may be possible that the class of relevant true statements is substantially smaller than the class of statements which are not true and, also, that the class of statements that are true is small of itself.

We need systematic ways of discovering the truth since there may be intentional fakers among those who are said to know something. It would be preferable to eliminate them from consideration in coming to consensual understanding of what we socially believe before they

<sup>42</sup>What exactly is "intended" at any time is a real problem with this definition. Is long term intent or intent at the moment of action the appropriate measure? What if we cannot apply a discount rate? More importantly, are we to consider conscious intents only or, as I believe we must, need we consider un-conscious intents also. A statement that is "consciously" false might be "unconsciously" true. Also, the designation that a statement about a system is "true" may falsify the statement by having the system react to the designation.

confront other believers on a personal level. Say, however, that two persons disagree, and they are acting in good faith and neither is a charlatan. We will need ways of systematically dealing with the very substantial differences in their representation of what is true. Then we may be able to handle diverse descriptions of a situation, yet not be forced to eliminate any one even though it differs with another.

What may be most disturbing to those who are absorbed in truth finding is that, for expert knowledge, truth-finding cannot be an end in itself. Responsible action is an end. If the truth is useful, fine; but it is not obvious that intentionality has much to do with good action, however defined. And even if intention is positively related to good action, it is not clear that knowledge improved the quality of intention.

### Kinds of Truth Finding

In previous sections we have found that it is useful to divide methods of knowing and group knowing into those which involve the self and those which do not. We find a similar split when we look at methods of finding the truth. Each of these methods can be characterized in terms of: (1) how many statements are true for a given situation, (2) how critical the truth is to the occasion we are discussing, and (3) how well-defined the truth statements are.

Truth finding by resolution is what supposedly takes place in a scientific revolution. Resolution occurs when we are given a small set of statements which are candidates for truthfulness, which tend to exclude each other, and which are well-defined. One finds the truth by choosing one statement at one time in a well-defined way and designating that as the true one. Scientific research methods have

been well developed to do precisely this at certain crucial times. But not all scientific activity is concerned with resolving the truth in this grand sense. Much of it is concerned with accumulating small truths which lead to the development of a class of mutually exclusive statements for which resolution does take place. Still, we may formulate a model of scientific activity which says that we are always doing some form of resolution when we do science because when we measure some quantity we are then excluding other values as candidates for that quantity.

A serious objection to this model of science is that it is never possible, in a formal way, to resolve a truth from a set of statements merely by doing experiments. (Feyerabend, 1965) The faith of the experimenter in himself, as well as some real leaps of faith in the deductive schema, are needed to choose the one truth. I think that this criticism is crucial and it justly emphasizes the importance of self in resolution-type activities. For the moment, however, the fact that most of those who are concerned with sketching a model of scientific activity prefer not to admit the possibility of self playing a central role in that activity is perhaps more important than what may be true about scientific activity.<sup>43</sup>

The social function of assuming that scientific activity is characterized by resolution is that the reliability of the results do not depend on the person who performs the activity. Since so much of its activity is esoteric in nature, it is important that science

---

<sup>43</sup>That men may act in social institutions (or political ones) to force consensus about what is true is conceded by many scientists. (Recent research suggests that Newton's behavior in spreading his theory is a good example of this. [Manuel, 1968]) What they do exclude is the psyche of the scientist and they tend to see him exclusively in the restricted social role.

assures the rest of the society that though scientists are not accountable in general, scientific activity has built in accountability. The self is left out of resolution for the simple reason that to admit that the self is part of it, is to take away the legitimacy of scientific resolution in social situations.

We search for a solution when we do not have a small class of truths from which to choose. A solution is a truth in a very different sense than a resolution is a truth. Solutions can be characterized by their multiplicity, and our task is to choose just one from a reasonable number of possible solutions. We find solutions to problems rather than choose from some well-defined alternatives. These problems are typically rather poorly posed and it is the function of the truth finder or solver to pose the question well enough so that he can find an answer. Much of scientific activity is actually of this type. To have a problem, whether it be about science or about any other thing, represents a state of not knowing what to do or what the alternatives for action are. Since problems are not well posed, the solution to a problem turns out to involve a reformulation of the problem in such a way that potential action becomes clear and better defined. The reformulation is done by the solver and his self can be deeply involved in doing it.

Legal truth finding is a method distinct from that of resolution or solution. Justice demands that a trial arrive at a "correct" verdict and that the jurors be "sure" of it. There is only one truth, the occasion is a moral one, and that truth must be very well-defined. The truth is exhibited in the decision of a jury or a judge. Facts about the case are relevant to finding the truth insofar as they

contribute to the sureness of the decision.<sup>44</sup> That conviction depends on there being no reasonable doubt as to the guilt of the accused makes it unclear whether we are dealing with the problem of resolution or solution. The legal model is only slightly relevant to most cases of public decision making since rarely must we be sure that we are acting correctly.

Some methods of truth finding involve the self in a more systematic way: the evaluation of social programs, heuristic reasoning, and "super-empiricism." Each gives us a hint as to what the truth might be.

The evaluation of social programs may be viewed as a process of learning. One finds the truth by constantly reformulating one's understanding of what the problem is and what the desired goals are. Such a model of evaluation permits the possibility of many truths. Each of these truths depends on how the system has evolved, each incorporates action as an intrinsic part of the truth finding process, and for each, the problem is not likely to be well posed. When we evaluate we are not only trying to decide what should be done, but we are concerned with what should have been done and what happened in the past. In this sense, evaluation is not a process of finding a most desirable truth so much as one of finding a set of do-able actions related to achievable goals that meet the needs of some group. Since the evaluator is the person who is doing this reformulation (of history), often as an expert, his self may play a central role in the design of the evaluation. Rather than view evaluation as a process of doing

---

<sup>44</sup> Experts still play a complex role in the law. Expert knowledge is forced into confrontation with other expert knowledge in a trial. What is sufficiently common knowledge to be incorporated is always an area of controversy.

experiments independent of the personality of the experimenter, a view that is held by many, I would view evaluation as a process of becoming more aware of what the situation is and was in a certain program. This perspective makes it clear that those who do the evaluation of the program need to be those who are deeply involved in it. The evaluators may be people who are not technically trained. They evaluate because they must understand their action better so that they may direct their future actions toward more satisfying ends.

Heuristic methods of truth finding bear a close relationship to a possible way in which we think. A heuristic is a rule of thumb that may work in finding a truth. Typically, it is said that we have a collection of heuristics in our head for figuring out what may be true.

Heuristics include, among others, "generate-and-test," "matching," "hill-climbing," and "heuristic search." In generate-and-test, we have a procedure for generating possible truths and a way of testing each for truthfulness. In matching, we have a collection of true statements and match the proposed statement with one of them. In hill-climbing, we compare the statement we have with some other proposed statements and if one is closer to being true, then we choose it as our new truest statement. In heuristic search, we try to connect what we know with what we want to test for truthfulness. We see if we can go (in a logical sense) from one statement to another by means of a series of steps. We have a set of transformation operators which change statements into each other. We then explore applications of these operators to what we know and see if we come closer to what we want to prove. If an operator sets us closer, we remember it; otherwise it is rejected.

Implicit in all of these methods is the existence of ways for comparing statements or for testing the truthfulness of a sub-statement automatically. For many problem areas these ways do not exist.

To summarize, heuristic methods of truth finding usually lead to several truths, each of which helps in working on the problem at hand. Heuristics require fairly precise problem statements.

Super-empiricism is a way of relating evidence through general archetypal laws. Super-empirical truths are well chosen examples (done by "good choosers"?) which encompass a substantial amount of observations about the world. They are not abstracted laws, but are more like ideal dramas of what takes place. These truths are not unique, although one version of the truth may be especially useful to each man. They are usually concerned with situations involving people and they may or may not deal with well-defined problems. Super-empiricism involves a leap of faith from a set of experiences to an ideal characterization of that experience. This is an essential part of expert knowledge. People believe super-empirical statements because they put together so much of what they know in a systematic way and these statements provide operating modes for action in the future.

Novels and plays are the most likely sources of super-empirical truths. Yet it is also possible for descriptions of activities outside of a fictional context to be true in this way. In commenting on everyday life, the truth finder may epitomize it. Mere listing of details or cases that are relevant to a certain truth is not sufficient. The truth finder must point out what makes a set of cases illustrative of an ideal type.

Super-empirical truths may deeply involve the self of the knower. He must match his own experience set with the ideal picture and distinguish

the most significant aspects of that experience set from other parts. He is always trying to make another knower understand by emphasizing that part of the experience of the other knower which makes it clear why the super-empirical truth is correct. This is like the Yaqui way of knowledge. In expert knowledge, we find that truths expressed in terms of paradigmatic stories are the most effective way of telling what we know.<sup>45</sup>

Each of the preceding kinds of truth finding points up some important characteristic that is related to expert knowledge. Methods of solution depend on how a problem is formulated. Evaluative techniques suggest the importance of the self in describing any situation. Heuristic models are concerned with the possibility of having open and constantly changing images. And the archetypal super-empirical model suggests the importance of the images that we use internally, to organize what we know, for external statements of truth.

---

<sup>45</sup>It should be possible to become fairly systematic in characterizing the value of the stories for understanding situations. In trying to set up artificial belief systems (within a machine), Colby and Smith developed measures for the credibility of a proposition. They are based on its (the proposition's) foundation in other statements that are believed (in the sense that it could be "deduced" from them), and its consistency with other believed statements (in the sense that they could be "deduced" from it).



## KNOWLEDGE TECHNOLOGY

I now want to examine possible techniques for improving expert knowledge. A technique is a systematic procedure that is specified well enough so that someone else can understand and reproduce what you are doing.<sup>46</sup> Technique is desirable insofar as it does not become dogma and that it is modifiable by thought and by learning from experience.

Our problem is to develop institutionalized places for "action" (in the sense of placing bets). In these places, our intuitive knowledge, which is highly personal, is transferred to the social realm, and our ignorance, which is also personal, becomes social risk. We want to make the self and self-interest become part of the social milieu. I propose that we do this by making one individual's expert knowledge interact with that of others. Interactive techniques that I shall discuss include gambling, goal-seeking behavior, coalitions, shared image systems, conscious problem-solving (design), and methods of increasing intuitive power.

Implicit in the argument is a belief that mutual influence leads to a better understanding of situations. This is intimately related to how the situation comes to be defined socially.

If we are concerned about public action, what does "understanding a situation" mean? In understanding a situation we must know something about the possibilities for our action in it. Understanding includes

---

<sup>46</sup>I have defined "technique" in the sense of systematic procedure, rather than in terms of a personal trick way of doing something. This is to put the definition in the same sense as technocratic has come to mean.

both a static part -- what is, and a dynamic part -- what is possible. Even in dynamic understanding, however, we never predict. We simply see what the potential changes are. The path that is chosen is known only in action.

### Interactive Techniques

Gambling or "efficient" knowing is a practical and well-specified technique for combining the knowledge of knowers. We may be able to know efficiently if the situation and alternatives are reasonably well specified. Then we act in an "efficient" manner (reflecting such knowledge) if we are rational in the economic sense. The valuational scheme is in terms of trade-offs.

We have discussed efficient knowing before when we examined decision analysis. How people gamble and their personal estimates of odds compared to more scientific determinations (probability and decision analysis) have received some attention. Systematic techniques have been developed to find the most fruitful way of investing in research while minimizing cost and risk. Utilitarian procedures, such as cost-benefit analysis, are another approach to efficient knowing.

Efficient knowing technologies have some deep problems. They demand clear statements of future alternatives and of values and probabilities. The former requirement makes it difficult for such a method of knowing to incorporate learning and changes of objectives, while the latter may represent unduly strong requirements on our ability to predict.

Strategic knowing is a modified form of efficient knowing where a cybernetic sense informs the concept of the best use of what you know. What we may learn from our inquiries will cause us to change

our values, probabilities, or goals. At the same time, our current actions are seen in the context of a collection of coordinated actions in space and in time. A sense of strategic knowledge is what informs some conventional planning activities.

Strategic knowledge techniques leave out important processes relevant to expert knowledge. The personal dynamics involved in learning are not discussed. More importantly, no mechanism of integrating what people know, so that goals are set, is given. Strategic knowledge, like efficient knowledge, assumes that we are given the information and we need, somehow, to process it. It provides a way of integrating disparate information, but it does not provide a way for letting the information of one knower inform the judgment of another.

Coalitions of individuals in which a group of knowers is required to come to some statement about their knowledge so that they all are satisfied, provide an important medium for influencing knowledge. People are forced to use coalition methods when the rewards for their services are provided only to the group. Much studied in social psychology under the rubric of group problem solving, techniques involving coalitions depend primarily on personal influence. This is in direct contrast to Delphi techniques. Coalition pictures of group knowledge point up the importance of short-term bluffing for some of the actors. They take positions which they do not necessarily hold. In coalitions, there is a possibility that personal interest will be translated into a socially measurable object, for to concede a point someone must realize that his concession is likely to bring him more good than harm. A currency develops between individuals which relates what they know to their personal stake in that knowledge. The virtues

of science are incorporated in that if two knowers disagree, they must come to a common statement that can be issued by the group.

How does experience or knowledge become expressed in terms of this currency? If it is purely on the level of histrionic ability, which may be feigned, then why use coalitions? My guess is that if personal influence within the group can be made to depend on the commitment of an individual to the solution of a problem, then it may be possible for coalitions to be responsive to expert knowledge.

Designers have to produce single things that will do a number of tasks at the same time. In fulfilling the requirements of a design, they have to synthesize. The distinctive methods they seem to use involve breaking down a problem into component parts and then, by selecting from sets of stock solutions for the sub-problems, putting together a solution.<sup>47</sup> The process is sequential, since the solution to a current sub-problem depends on the preceding ones. It is also tentative in that a particularly difficult sub-problem may force rejection of solutions chosen for already "solved" sub-problems. This is a procedure quite suited to a learning and simple-minded creature like man. One of the significant aspects of design as a knowledge technique is its procedural specificity. Most of the other techniques I discuss are black boxes with respect to implementation.

Image schemes offer a practical technique of synthesizing knowledge and making such knowledge available to others. Synoptic images of situations, filled with particular detail (to make for easy projection), and generalized situations (to make for wide applicability),

---

<sup>47</sup>How exactly one should, or does, break down and then put together a problem is a question of current controversy.

use the imagination of the knower to go from a problem statement to a course of action suggested by the image.

The syndrome model that is used to describe medical disease is a good example of this. One tries to describe a disease that is manifested in terms of distinctive characteristics easily identified by others. The intuitive understanding that someone is ill and that a set of individuals have a common illness is abstracted to a small number of identifying characteristics which will connote to another physician a similar state of health.

We might think it would be possible to generate all the syndromes and classify people's states of health (with respect to such syndromes) by systematic combinatorial methods. But most such combinations would have a population that is very low, if not zero. The function of image schemes, such as syndromes, is that the experience of an expert is used to generate the most likely set of cases. Archetypes are similar to syndromes. Myths are yet another way of organizing expert knowledge. The myth becomes a way of accounting for a large amount of data yet at the same time it is a synthesis of what people know, both in remembered experience (history) and personal experience.

#### Interactionist Knowing

A big technological change in knowing would be an explicit and continuous concern with the self and history of the knower in the process of figuring out what is known. Rather than develop procedures which systematically proscribe the actions of the knower so that he is not overly involved, we might admit of all involvements but require as full reporting of them as possible.<sup>48</sup>

<sup>48</sup> The cost of doing this reporting should not be underestimated. Since

In social research the methods characteristic of symbolic interactionism offer a good example of an ambiguity with respect to this point. The scientific Comtean model is not dead in the minds of the symbolic interactionists and they do not want to get too personal. So they prescribe the degree of involvement of the knower if he is not to become "overly" influential on his findings. On the other hand, he is encouraged to deeply involve himself in his situation and take participant roles since it is assumed that this is the only way to learn some things.

Psychotherapists must also be aware of their behavior in the process of knowing. Training analysis serves this function by giving them first-hand experience of being analyzed. Still, the model is limited. Surgeons do not have their appendixes removed.

#### CONCLUSION

It seems possible to describe a kind of knowledge that is personal yet responsive to a societal milieu. This knowledge seems to be of the sort that experts possess. The sources of the consensus among those who know and their effectiveness in using what they know is not in the content of the knowledge. Its truth lies in the interaction of the knowers and in their need to make sense to each other.

It is not coincidental that such knowledge is a description of the (objective!) social world. The social world is that knowledge.

---

the knower wants to convince others of what he knows, he might consider this restraint on his behavior worth the cost. Still, some kinds of known things are never likely to be known except by one person, since reporting the process of knowing either by recollection or real-time recording destroys the experience.

## PROBLEMS

I have talked about planning as a model for an activity which combines knowing and acting and about the nature of that knowledge. We need to understand the process by which we use our knowledge to figure out what to do. A useful model of such a process is problem solving.

We often phrase our inability to figure out what to do in certain situations in terms of problems. Situations come first and problems are abstractions from them.<sup>49</sup> Our discomfort with a situation is the basis for a problem. Planning and public policy making usually consist of problems. But is this always the case? I think not.

Two important characteristics distinguish problematic situations. The first is that problems involve action that takes place now, and second, problems involve choices that matter.

There are times when the way we deal with our inability to figure out what to do is not put in the form of a problem. There are situations where we have questions about action, but we know what to do about answering them. If we know what to do right now, we do not have a problem right now. For example, scientific tests to determine what is true are often not problems in this sense, since the actions for performing the scientific test are well specified.

Another situation in which we do not say that we have a problem is when the actions we might take do not exclude or affect each other.

---

<sup>49</sup>Note that we can have a situation consisting of problems. This essay is a statement of, and working on, a problem about problems.

Also, a problem does not exist if no matter what we do, things will turn out fine. We may still have a question of choice; however, we do not face a problem but a dilemma.

We want to understand how problems concerned with public action can involve the selves of the persons who formulate the problems. To do so we shall examine the nature of problems and how we work on them.

### Conventional Problem Solving

Within psychology and computer science, substantial research has been invested in trying to understand the nature of problem solving. A cartoon of this is to be found in operations research. (Ackoff, 1968) The research designs are all of the same sort. Given a problem statement that is fairly precise and descriptively complete, how does a person work on it, or how should a machine be programmed to work on the problem?<sup>50</sup> Almost always, it is assumed that a solution exists in the sense that a short statement can be given which "solves" the problem.

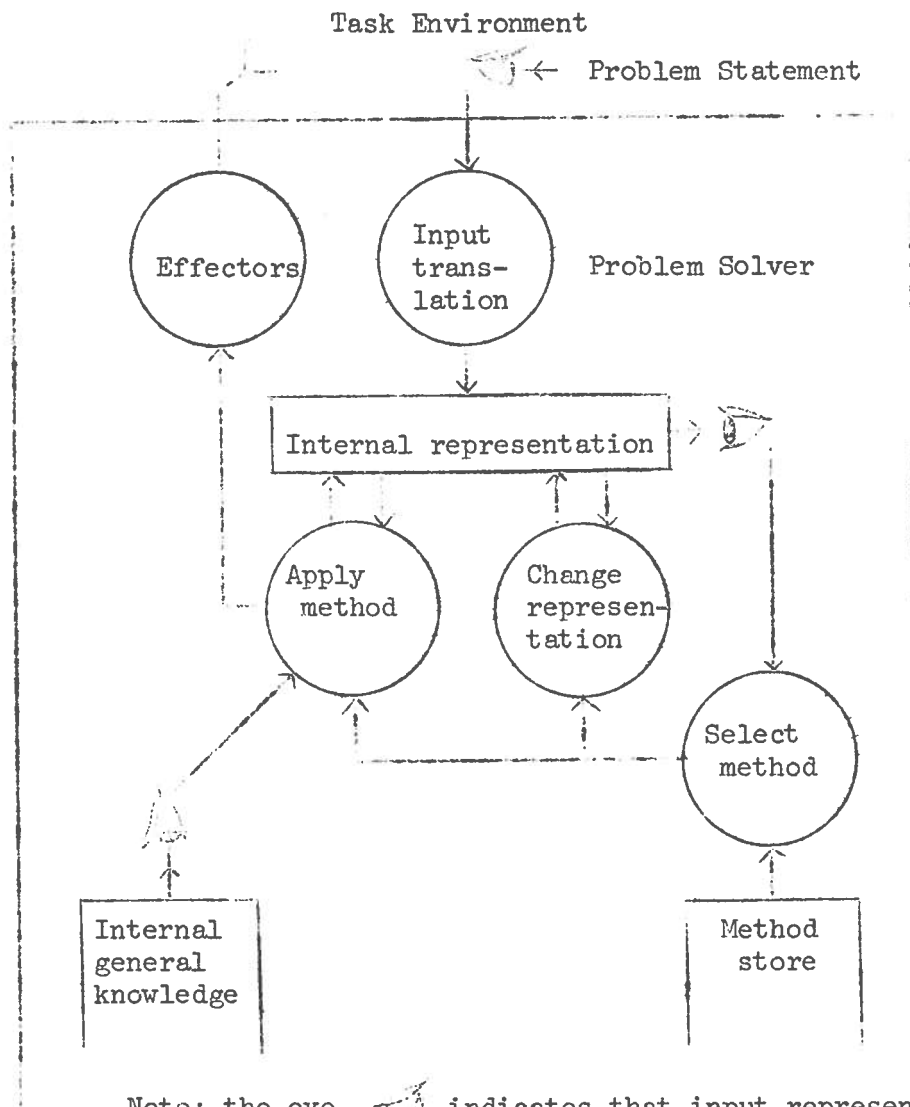
Kleinmuntz, Taylor, and Newell should be consulted for some recent reviews of this work. Let me quote from Newell:

A rather general diagram, shown in Fig. 10.1 (next page), will serve to convey a view of problem solving that captures a good deal of what is known, both casually and scientifically. A problem solver exists in a task environment, some small part of which is the immediate stimulus for evoking the problem and which thus serves as the initial problem statement.<sup>51</sup> This external representation is translated into some internal representation (a condition, if you please, for assimilation and acceptance of the problem by the problem solver). There is located within the

<sup>50</sup>Reitman, 1970, has worried about how people complete descriptions.

<sup>51</sup>"Its statement form is clear when given linguistically, as in 'Where do we locate the new warehouse?' Otherwise, 'statement' is to be taken metaphorically as comprising those clues in the environment attended to by the problem solver that indicate to him the existence of the problem."





Note: the eye indicates that input representation is not under the control the inputting process.

Figure 10.1. General schema of a problem solver.

memory of the problem solver a collection of methods. A method is some organized program or plan for behavior that manipulates the internal representation in an attempt to solve the problem. For the type of problem solvers we have in mind -- business men, analysts, etc. -- there exist many relatively independent methods, so that the total behavior of the problem solver is made up as an iterative cycle in which methods are selected on the basis of current information (in the internal representation) and tried with consequent modification of the internal representation, and a new method is selected. (Newell, 1969, pp. 367-369)

Policy problems do not have solutions in general. They are almost always so poorly posed that the studies from conventional problem solving do not apply directly, although they may apply when some of the big problems are reduced to sub-problems that are of the conventional character.

#### The Nature of Problems

Some characteristics of problems that distinguish one from another include the structure or definition of the problem, its malleability to re-definition, and the nature of its solution.

Problems can be more or less well-defined and well-prescribed. The quality of the definition of a problem determines the way we work on it. Let us call the work we do on problems, once they have been initially stated, a process of de-problemizing a situation. De-problemizing refers to the situation which is the source of a problem and not just the problem itself. If you put energy into the problem and do things about it, you are working on it. If you believe that the problem has a specific de-problemization which really deals with the questions in the problem-as-posed, then a solution is said to exist.

A problem is well-defined if a way of de-problemizing the situation is available which is specified and leads to a satisfying prescription for action on the part of the problem poser. Also significant for the well-definedness of a problem is that the method

of de-problemizing be automatic or sufficiently well specified so that we can give an explicit set of rules to a person so that he can de-problemize the situation for himself (or with a group). Not only must the de-problemizing method be clearly stated, but also the person with the problem should be able to follow the instructions. We require a systematic procedure for de-problemizing the situation, for such procedures permit us to give a set of criterial qualities to be searched for in the problem statement which tell if the problem is well-defined. This is the characteristic of much of formal logic.

Most of the time this criterial set does not exist. Usually, we deal with systems which are self-organizing, which can exhibit goal-oriented behavior, and which are self-examining. As a result, we never can give a simple rule for saying when we have de-problemized a situation; nor can we say that we have a solution that is true or false in the sense that it logically follows from the problem statement; nor can we say that we may apply a de-problemizing method that we have developed in the past to the present situation. The past influences our description of the present, yet there is no reason to believe that the present is similar to the past. Situations tend to be viewed as unique in self-organizing systems and that makes their de-problemizing extraordinarily difficult.

A second major difficulty is that we do not have a good language for describing most problems. There is no canonical form for posing problems and, therefore, there is no obvious way of limiting our solution sets. For a similar reason, the set of permissible operations that we may perform to de-problemize a situation is unknown, and may

arise only out of the statement of the problem. To summarize, there does not seem to be much hope for problem working (or "solving") systems.

Most problems that are faced in public policy making are poorly defined since they involve a self-organizing system, which includes the problem worker, and an insufficiently powerful descriptive language to provide for canonical treatment of situations. If you believe that you have a handle on how to de-problemize a public policy question, then I suspect that it is likely that a good deal of your self is involved in your technique. You must be capable of understanding where you are within a situation, and abstracting what you understand about that situation and relating it to what other people understand. Then you must believe that you can provide a set of actions for yourself which will de-problemize the situation. Insofar as problems are posed by someone in the public realm, and these problems are genuine ones, then the self of the problem poser is deeply involved in the problem.

Not only are we concerned with the degree of definition of problems, but we are also concerned with the possibility of changing those definitions. It is the experience of most problem workers that the ability to change a definition of the problem is one of the most powerful tools in working on it. Having a large number of ways of representing a problem is very much like having a full three-dimensional view of a scene. What turns out to be significant in many problem areas is that there exists a representation of the problem, a de-problemizing representation, which immediately suggests a suitable de-problemization of the situation.

When people work on problems, they often try to tell someone else about them. In conveying the essence of the problem to someone

else, it may get re-defined either by the person who is telling of the problem or by the person who is listening. The interaction of the selves in such a transactive procedure injects the possibility of new representations arising because of the experience of the hearer. Thus, a problem that is malleable to re-definition is also one that is likely to be de-problemized.

Are problems ever solved? A solution to a problem exists when we have a situation in which a series of well-defined choices for action are posed and one choice is taken. In this sense few problems are solved, but most are not. The problems we solve may be the ones for which we do not have time to do much thinking, or those which are so resistant to redefinition we solve them in an ad hoc way. Still, the solution of a problem may not be equivalent to the de-problemizing of a situation. The original reason why the situation became a problem may still exist; we could have bought short-term relief from the irritation.

Most problems are not solved, but only de-problemized. The reason why the situation became a problem fades away. The problem is reposed and weakened; sections or parts of the problem may even be solved. Also, we may not really wish to solve a problem, but only wish to work on its solution. In this sense, de-problemizing is an active process that is beneficial of itself. It is often said that a man who poses a problem also possesses its solution within himself. No one else can possibly offer him a solution since his motivating concern is dealing with the original sources of the problem and not the problem-as-posed.

### Having a Problem

Problems become defined in terms of a person's experience and self. They are had by individuals who have had some experience related to the problem. To "have a problem" is to experience.

Problems are had by people. Since a problem involves a choice of current action, and individuals can act, persons can have problems. When I say that a society or an organization has a problem, I am saying that I have proceeded to synthesize my experience about some aspect of that collectivity and defined what I believe are the choices available to each member of the society. But the problem is posed by me. Others may concur in the definition or choose another one. Often when people say that the society has a problem, what they are trying to do is to limit (by taking over the problem defining process) the set of choices that are to be designated by the members of the society.

Problems are not suppositional; they arise out of genuine choices of action. We may be able to feel that we are dealing with a problem outside of history, but all problems that are genuine involve actions that are likely to be taken.<sup>52</sup> If a problem is posed in time, we may view a problem as a critical point in a sequence of actions and view the action previous to the problem's statement as the experiential base for posing the problem. Our "working" on the problem is, to a large extent, a choosing of our future.

Because persons have had different previous experiences, it is unlikely that one person's problems are the same as another's. A situation may seem problematic to two individuals but how they define

---

<sup>52</sup>Since problems are products of the "definition of the situation," W. I. Thomas's statement that a situation is real if its consequences are is a parallel formulation.



### Working On A Problem

We work on problems not only to de-problemize the situations that brought them out, but because we enjoy working on them as such. In working out a problem we are also working out our own positions with respect to the questions posed, perhaps implicitly, by the problem.

If we are concerned with specific methods that are used to work on problems, methods which manipulate the problems and which may inform our own self-conceptions, then there is not much relevant research. As I have said, most research has assumed that problems are well enough posed so that our major concern is with solution. It is possible to develop models of problem working which include a self which learns, which has experience, and which increases its experience, but even here most models assume remarkably well-defined problems.

Artificial intelligence research suggests some characteristics of the way fairly well-defined problems are worked. Sometimes the problems are just solved, because the way we have described the problem immediately leads to a solution. More frequently, we have to try a variety of ways of describing a problem until one leads to a solution. Another possible technique is to assume various simplified forms of the problem, for which solutions are clear, and then apply such solutions to the more complex problem. All of these techniques are helpful in conceptualizing the methods that we use to work problems that are well-defined. But very little is said about dealing with problems which are not well-defined in their original statement.

I expect that if problems are poorly posed we will have to find techniques of problem-solving and problem-working which will depend on the past experience of the problem solver. Some of these techniques may be uniquely suited to human beings. "Think of God." or "Take a



nap." might be good recommendations. "Fancier" procedures, such as synectics or brainstorming, could be helpful. But if we want to have procedures that will help a machine to deal with poorly posed problems, a different style of prescription will be needed. Some of the heuristic methods discussed in the last chapter might help. But they will probably have to be specialized to certain fields of problems and they will have to assume a certain store (experience) of cases. They become part of a machine which has "experience" and matches new problems to old experiences. For the matching procedures to work at all, a stylized presentation of problems is likely to be required. A machine has, in effect, a "cognitive style" and can best interact with problems presented by a certain type of person.

One's self determines the definition and working of problems. If the self is not involved at these levels, then it is likely that problem solving and problem-working become an oppressive task which does not lead to answers true to the person who is working them. We now want to ask what kinds of organizations are most likely to provide sufficiently open environments so that problem-working may be responsive to the self.

## ORGANIZATIONS

Where do we work out public policy problems? Usually, not alone, but rather in organized groups. Studies of how people function in organizations often are concerned with the role of the expert. Traditional organizational role models of expertise seem inadequate to include experts who have expert knowledge. These models emphasize the importance of narrowly defined technical knowledge and under-emphasize the significance of personal commitment in the role model.<sup>54</sup> I suspect that the source of this misplaced emphasis is the explosion of the importance of certain technologies (electronic and space) in some few "modern" milieus that have been studied. A concomitant rise in the adherence to a non-political ideal on the part of the scientific community, as they have become better supported by the polity, is a second reason.

Substantive knowledge or technique, itself, is insufficient to determine organizational rules. (See LaPorte, 1971) Persons who possess technique may have some discretion in how they exercise it and their selves. Also, the base for technical knowledge is, in part the commitment of the knower and that, too, transcends the knowledge of the technician.

The Self in the Public Realm

I discern a complex of constraints that may appear when one operates in the public realm and at the same time admits the possibility

---

<sup>54</sup>Personal commitment should be distinguished from bureaucratic role. The risk taking characteristic of commitment implies contingency for the organization with respect to the individual. This sounds more like business entrepreneurship than scientific research.

of a highly subjective use of one's own self in one's expert knowledge. Most of these constraints are not particular to operation in the public sector, and some organizational models have been developed to deal with them. We shall find, however, that a few are special and we will be forced to search for a more adequate model.

The constraints include:

(1) Problems are defined by the expert himself and the answers are similarly defined. Someone has to articulate the source of public discontent and it is frequently the role of the expert to do so. Politicians and others may choose to define the problem, but then they will often search for confirmation from among the class of professional knowers. The problems which the expert works on are his own, and he must somehow convince others that his definition of the problem is an appropriate one.

(2) Problems rarely repeat in real life situations. When they seem to repeat, it is the small differences between previous formulations of the problem and the current one that are crucial. Therefore, constant innovation is required on the part of the problem worker.

(3) No action in the public sector is without risk or without losers. Because men are thinking beings and can react to both people's actions and the intentions of their actions, their responses to intervention in the public sector are difficult to predict. Designers of public interventions will find that, often, the consequences of effecting their designs are surprises to both the designers and the public. Designs will have to be altered in light of them. The public and the experts must be prepared for this. A knower must be insulated

from his failures, in this sense, if he is to succeed in prescribing good actions some of the time.

(4) Because problems are self-defined, are constantly changing, and are unpredictable in their consequences, it is extraordinarily difficult to evaluate the quality of public advice or expert knowledge. We rarely can do true social experiments since if something is learned along the way we would rather implement it than wait for the next trial. The classical model of a controlled experiment is not useful in a public political situation. If one views evaluation procedures in terms of a learning model, one way out of the controlled experiment dilemma, then we still do not know whose learning is to be measured and how to measure it. The adviser in public does not know the criteria by which his success will be evaluated.

These next two constraints are particular to the self operating in the public arena.

(5) The results of working on problems will affect the self of the problem worker. Usually, those who work on problems are involved with the problem situation in an intimate way. In any case, they have some commitment to the kind of answer they offer. Minimally, they know what their own recommendations are and can act knowing that a policy maker knows of their recommendation. The public adviser is constantly haunted by several levels of consciousness.

(6) His consciousness may even extend to the fact that his own self-interest is involved in the recommendations he makes. Advice that is given may affect the distribution of goods and power. If advice giving is not a complete sham, then power is intimately involved with what one knows. Advisers to the public are deeply involved with political process.

The self of the expert is intimately involved with the advice he gives. As a result, it is difficult to disentangle the observer-advice giver from the situation-advice given. This makes for special roles and organizations for utilizing expert knowledge.

#### Some Model Organizations

Are there organizations that have successfully dealt with all of these constraints? I think not. My reason for believing so is that the self, as such, and the political nature of expertise are denied explicit overt roles in public policy making. Even in conventional research, their role is minimal if it exists at all.

We do find a more modest approximation to a public policy organization in innovative scientific research. All the constraints but the last two are present. In innovative research, problems must be defined by the researcher himself; innovation, by definition, is required; risk is substantial; and how research should be evaluated is difficult to know, especially in its intermediate stages (which may last many years). The parallel between innovative scientific research and public policy advising is not surprising when we realize that information needs and production requirements critically influence organizational structure. They are similar for both.

What do we know from studies of scientific research organizations? They can be characterized by a non-hierarchical structure linked in a loose and changing way. Individual fulfillment is not viewed as being subordinate to organizational success, but rather as coequal to, if not paramount over, organizational goals. The structure of the organization is such that competence in solving problems as

formulated determines command structures rather than hierarchical positions within the organization.<sup>55</sup>

It would seem that this model should be a good first approximation to some of the characteristics of a public advice organization. But not quite. Some differences are likely to be induced by the constraints of politics and self.

Knowledge is political. What one knows can and does influence the distribution of power and those who are powerful can and do determine what is known. Yet this model does not acknowledge that knowers are a class and have their own interests. Nor does it acknowledge that different knowledge will serve the interests of different classes. Also, since the content of most scientific research is different than that of public policy making in more than subtle ways, the norms of science, which involve something about knowing the most about things, will conflict with the norms of public policy making, where knowledge about a situation should not be too explicit if we wish to have a reasonable working out of problems (by means of compromises and deals).

Selves are different from roles. If individual competence is highly prized in scientific research, it is the individual as a scientific person and not as his self that is valued. It is assumed that his psyche has little effect on what happens, and it is also assumed that this can be washed away eventually. We find that in order to adequately analyze people's public behavior (for policy making) we must know of their psyches, and not only of their more

---

<sup>55</sup>In organizations where rank cannot be avoided, such as the army, adaptations to this rule are made. Men are sometimes summarily promoted to suitable ranks dependent on their technical expertise, avoiding the normal process of rising through the ranks.

publicly given reasons for holding certain beliefs. This is also true for much of scientific research, but usually the accepted canons of behavior (even during so-called revolutions) will mask idiosyncracies.

Currently, however, the nature of confirmation in advice giving is such that it is possible to justify, with seemingly equal degrees of "objectivity," disparate positions. To understand this, I suspect that the psyche of knowers must be integrated into what is known.

Still, at this late point in our argument it may be wondered why we have to be concerned with a different definition of expert and expertise when we are dealing with public advice giving versus scientific research. An expert exists only in a polity; to be an expert means that some amount of choice is arrogated to you by someone(s). A polity may permit a person to make choices for it, and thereby gives up some of its power. Scientific research and public advice giving arise out of different aspects of the polity. Hence the very different definitions of expertise.

#### Organizations For Advice Giving

These problems of organizational design are likely to be resolved by designing organizations with two special characteristics. The first is that we invest the authority of expertise in those who have a prudent personal risk in the venture to which they are giving advice. They must be committed to the organization in which policy is carried out and not to some outside (professional) organization. This means that the designation of expertise may often be vested in those whose technical competence, as conventionally defined, is low, but whose commitment is high. We can then make explicit allowance for

the self in public policy-making and for the interest of the self and the class of knowers in such action.

There may be some problems with duplicity on the part of knowers. They may say they are committed but really not be. Traitors (and the un-patriotic) are a traditional problem. Another problem will be that professional organizations, which set standards and certify professionals, become useless artifacts in this system. Their resistance to it will be substantial; a fight will be required. Still, I would think that a personal risk criterion is a good one. Experts need to be accountable, both to their professional interests and to those whom they help. If accountability criteria are difficult to set, especially on the output or user side, it does not mean that we can ignore them.

A second requirement will be some arrangement to diffuse through the organization the knowledge possessed by the so-called experts. It will then be possible for the commitment of the experts to lead to belief in their recommendations by members of the organization. Not only will they (the organization's members) be convinced of the goodness of the recommendation, but they will believe it and have a commitment to making the recommendation succeed.

These recommendations will be very demanding on people since high degrees of trust and openness will be required. A social commitment of the individual is needed if we are to use both commitment and knowledge diffusion in the expert roles. It is likely that this kind of social commitment will meet with resistance since experts and others may view it as a fragmentation of the self. Also, knowledge of ourselves is frightening to most of us, yet if we are to be .



responsible in these situations we shall have to know more about ourselves. The demands likely to be placed on the self, when we use our selves in public advising, will react back on the demanding system.

## SOME DIFFICULTIES

When one prescribes for a person's self, it is not surprising that the self will react to such prescriptions. The reactions are defensive and in defense. The sources of these defensive reactions are significant. I suspect that academics, intellectuals, those of the left, old and new, and behavioral scientists see one common complex of difficulties associated with what I have said in these essays. My suspicion is that the difficulties named, though plausible, hide more fundamental concerns (or fears). These lie in the area of affectivity and sexuality in public life.<sup>56</sup>

Maslow has explored these fears in the operation of the natural and social sciences. (Maslow, 1966) My concern is to look at how they operate in the public policy realm.

I discern four clusters of concern. The first is that if we live in a mundane world and our everyday problems are ever present,

---

<sup>56</sup>The likely reaction of audiences other than the intelligentsia is somewhat different. Those who consider themselves working class, as well as blacks and others who view themselves in under-class terms, may see these prescriptions as being too long-term and insufficiently responsive to present problems. My reply is simple. I have not tried to be responsive to the short-term. I have looked into substantial reorderings of the social system that I suspect will result in a better life for those who are disadvantaged now.

From the other end of the spectrum, there may be criticism suggesting that I have not gone far enough. The perceptive critics of "technique," and those who are pursuing a growth-filled existence, would see this essay as being too narrow, while "Planning for an Affect Based Society" as being too technical. Especially with respect to the latter, if I want to be sufficiently programmatic and responsive to large-scale problems some techniques, especially economic and organizational analytic ones, are helpful. If we are to have a more humanized life we shall probably have to plan more and have more technique than we have today. We need to carve out areas in our life which may both benefit from the richness of our technological capabilities and be shielded from their oppressive character. This requires that we design environments rather than let them happen.

we have no time for affect. The second, remembering the character of fascism, is a fear of the tyranny of the emotions. The third, originating in the great successes of the natural sciences in the last hundred years, centers on objectivity and the survival of science. Last, there is a deep discomfort about the ethics of masterminding or manipulating others. I will deal with each of these in turn.

#### The Mundane World and Beyond Post-Industrial Society

Public social policy concerns include income, housing, health, welfare, education, and transportation. For the most part, social policy has focused on the provision of services and materials that could not be provided by the private sector.<sup>57</sup> At the same time, there has been a commitment to a more equitable distribution of these goods -- under the rubric of social welfare or of equal opportunity and the elimination of poverty.

But policy goals can also be formulated in terms of the less tangible qualities of pride, justice, opportunity, and freedom. The services that were formerly considered the central interest of social policy become instrumental to these ends. More significantly, the service concerns of social policy may only be a small part of the possible resources needed to fulfill the less tangible demands.<sup>58</sup>

---

<sup>57</sup>Tentative analyses of the private sector, or even a return to using it for distribution, are currently in fashion.

<sup>58</sup>The recent concern for income maintenance strikes me as being on the level of the service concern. It is assumed that if you give the poor money, they will take care of their higher needs.

It would seem that a concern with self and with shareable expert knowledge in society would be quite helpful in being responsive to less tangible demands. Yet it can be said that they detract attention from consideration of the vital questions of housing, health, etc. Why should this be so? My guess is that very few are committed to the intangible values. Disease and structures are more easily conceptualized than pride and justice. Were we committed to these then the avenues of intervention, both in the lives of the "haves" and the "have-nots," would become more substantial. Rather than be limited to the issues concerning the left-outs, social policy might actually affect the lives of everybody.

It is true, as critics allege, that a beyond post-industrial society in the future, and a concern with the intangible and affect now may not ameliorate today's most pressing problems. Still, if we wish to sketch what the future policy issues will be and act in a playful way with respect to these issues, then we must deal with affect.

A more aggressive rejoinder would be that the redirection of interest from the everyday material concerns to those of the everyday affective, would not necessarily mean that the service concerns of social policy will be ignored. It may be that they will then become satisfied to a much greater extent than they are now. This will happen because housing, health, etc., will no longer be considered the limiting resources of the society and could be more equitably distributed since they did not "count." Those in power would view them as being insignificant differentia among various classes. The new resources for affect may be more equitably distributed in the population compared to the more material resource capabilities. It is not likely that

development of a new resource will cause a revolution, but it may be a crucial aspect of substantial societal change.

It seems foolish to freeze to death and at the same time feel good. This would be a cartoon of the society where the new resources took over from the old. More likely, the availability of a resource mix of old and new should make for a more efficient (in the economic sense) provision of quality of life.

### Tyranny of the Emotions

Nazism and thought reform are viewed by many as the product of emotional tyranny. These twentieth century horrors are said not to come from some sort of reasoned commitment to knowledge and understanding, but from a diabolic take-over of the human being through his emotional affective self. What is suspected as a major attack on autonomy is attributed to the emotional outbursts characteristic of some totalitarian regimes.

I really do not see how this supposition can be maintained. I suspect that we make moral judgments about actions, and then claim that the methods or styles of those actions are bad. At the same time, I would suggest that the way we characterize those methods that lead to acts which we judge to be bad is independent of the "real history" of the event. We automatically designate "bad acts" in terms of our favorite evils in society.

Today many would agree that the actions of the Nazis were reprehensible and also that the actions of the United States in Vietnam are similarly so. The Nazis' action is called immoral and the source for this bad behavior is ascribed to their emotionalism. This, of course, ignores the highly reasoned character of much of their action.

The Vietnamese war is also called immoral, and the source for this bad behavior is ascribed to rational technology. This ascription ignores the influence of highly unreasoned factors in our behavior. I would argue that the source of both of these bad behaviors is neither emotionalism nor rational technology. Rather, these imputed sources were and are the currently popular evils of their times, and they are called to service to explain undesirable occasions. History is neither cognitively logical nor affectively illogical. We reify our personal fears of feeling or technique and project them on to what are patently inhuman acts.

Except in extreme cases, a mode of acting, whether emotional or cool-reasoned, is no assurance of proper or moral judgments and actions. This is independent of the question of whether moral actions lead to moral consequences. If we desire humaneness and respect for individuals, we need to have a primary commitment to these values. No specific means guarantee that the consequent behavior will be desirable.

It is probably true that moral judgments are sourced in our feelings, and it may be useful to involve our selves and our own experiences explicitly in making moral judgments. I do not believe that science of itself provides many clues, if any, as to what would be moral action.

If we fear emotional tyranny, and the basis for that fear is not likely to be in a fairly sensible version of history, then I still would like to understand the source of that fear. I suspect that expressions of the danger of emotional tyranny represent fears of dealing with the sexual aspects of our lives. Sexuality is one of the strongest of our emotive modes. We will have to develop a grammar and

style of sexuality that is natural, expressive, and responsive to our fears. This grammar must make significant distinctions concerning freedom and sexuality.

Anyone who tries to distinguish psychoanalytic processes from thought reform has a similar problem. Lifton offers one answer in his effort to distinguish open personal change from closed change. In open change we question identity, rather than assault it; we are accepting of our self-image, as well as critical of it; and we re-form ourselves from many alternatives, rather than accept only one image as a possible choice. Correspondingly, a grammar of sexuality will have to transform sexual expression from some of its more compulsive manifestations to a much more highly articulated quality which is critical, expressive, and growing.

A more political approach offers another way of developing a sense of the meaning of autonomy and freedom and thereby protection from tyranny. The view of Marcuse, which suggests that total toleration can actually result in a decrease in freedom, must be integrated with our more "uncritical" and power-ignoring conceptions. If our whole societal system is organized so that our ability to express our sexual selves is highly repressed, while our cognitive selves can actually play themselves out in a grand and possible self-destructive fashion, then we need to restructure that organization. To do so, a moral examination of what we tolerate is in order. This is not to reject wholesale, as Marcuse does, a liberal ideal of tolerance. The consequences of our political beliefs, the quality of their actual performance, needs to inform the beliefs we hold.

### Objectivity and Proofs

On Gouldner is certainly right that the belief of many sociologists in detachment and objectivity may be a way of evading their moral responsibilities or of making their peace with the status quo. But it is also true that Gouldner's proposed alternatives of "self-knowledge" and "value-commitment" may be a way of encouraging the indulgence of prejudice and polemic. When a social scientist's discoveries threaten Establishments, detachment and objectivity certainly function, as Gouldner says, to insulate him against his sense of political impotence to implement those discoveries.

But this does not exhaust the significance of objectivity for sociologists. Much of the modern history of sociology has been a history of research that threatens not Establishments, but the liberal sociologists' own Romantic image of a noble but fettered human nature which, liberated from the false consciousness created by exploitive institutions, could create the Heavenly city in the here and now. Where, in short, the sociologist's disillusion is with "people" rather than with the benevolence of Establishments, objectivity functions to insulate him against the pain of his own discoveries.

On balance, then, it seems to me that a sociologist's interest in the truth (although certainly not his interest in power) is better served by a norm of objectivity which, when distorted by any of the Baconian Idols, can be invoked by a critic to expose those distortions (that is what criticism is for, and no sociologist has been better at it than Gouldner) than by a norm of "commitment" or emotionally whole authenticity, which can easily lead to a veritable orgy of self-congratulatory moralizing and counter-moralizing from which there is no escape at all.

Part of my skepticism regarding Gouldner's rejection of objectivity as "repression" and his affirmation of moral feeling as "liberation," then, is founded in precisely the same concern for the consequences of ideas that distinguishes Gouldner's own book.

Bennett Berger, 1970, reviewing Alvin Gouldner, The Coming Crisis in Western Sociology.

Bennett Berger's anxiety over one view of a subjective social study is a good sample of the conflict felt by many who are sympathetic to the view that persons have a big effect on social science understanding, but who are not convinced that the solution offered in terms of acknowledging that fact is adequate or even in the right direction.

The image of objective knowledge, the archetype of which is represented by the natural sciences, has been a powerful influence on



social studies. Science has been remarkably successful in avoiding deception, at least when observed from the outside, of forcing the confrontation of opposing ideas, and of eliminating the idiosyncratic from its bosom.<sup>59</sup> It would seem that if we are concerned with effective public action all of these characteristics would be desirable. Yet, the proposal presented here seems to bring in all the problems associated with the idiosyncratic qualities of individuals and their personal lives. A science of public action would be constantly invaded by the peculiarities of those who are involved in its investigation, and it would lack the sources of respectability characteristic of science.

Even if this public action science were scientifically respectable, the one-dimensional character of most scientific investigations, (narrowly-defined (precisely defined!) problems which do not admit of malleable reformulation) is unsuited to social "problems." Public action problems are political and need to be amenable to redefinition so that bargaining can occur. We may call this deception, but problem malleability does suit political environments. The natural sciences have succeeded in avoiding deception by defining their problems rather narrowly. This is fine if the making and taking of problems can be done so. Public action, however, does not have this freedom.

Although highly touted, the confrontation of ideas is rather rare in the natural sciences. Most of the time systematic building-up of science is taking place. On the other hand, in the sphere of public action these confrontations are frequent since this is the nature of politics.

---

<sup>59</sup>Yet Feyerabend, 1965, suggests that the idiosyncratic may be the basis for its success.

Finally, how we evaluate the dangers of idiosyncracies in public action depends on whether we view such idiosyncracies as the products of geniuses or madmen. It would be appropriate to develop and use societal and organizational models that can filter out madmen and transform their perceptions into socially useful knowledge. Some similar process will be needed for geniuses.

Models of objective knowledge are not responsive to questions of one-dimensionality, political confrontation, or idiosyncratic behavior. Still, public action does require consensus. If the so-called scientific approach is not about to yield consensus mechanisms, we may achieve it through politics themselves.

There are advantages to a positive self-involvement in public action studies, in contrast to the objective knowledge position.<sup>60</sup> By avoiding the pretense of objective study, we can deal more directly with biases and problems that people induce. The release of tension involved in denying their presence and creating an air that they do not exist would supply energy that could be used for systematic understanding of the influence of self in public policy making.

The polemics and prejudice that most fear as being attendant in a return to more self-aware social studies come mostly from our ignorance of our selves in the world and our relationship with others. The fear that a self-indulgent, rather than critical, stance will result from a commitment to self is similarly sourced. A critical stance based on a sexual understanding of the world and one's own relationship

---

<sup>60</sup>Note that this is not meant to necessarily advocate the extreme position of the engagé researcher pushing his political beliefs overtly and all the time. I might want to take such a position; however, I believe that one may separate, perhaps only conceptually, political self and personal self.

to the data that are experienced is not only a realistic possibility but a present reality for many. For some, there may be a reasonable fear that if they were to become more self-centered, they would not be able to be critical.

It is illusory to fear that if we get our selves involved in social studies, we will become subject to the vagaries of political (and social) pressures, while we supposedly remain free of them if we are scientific. Rather, I suspect that we will gain freedom from our self-involvement since we may be able to transcend some of the role prescriptions that dominate a scientific model.

I see in the self and a commitment to subjectivity the possibility of avoiding the greatest fears of those advocating objective science. It may not be possible for persons educated in the old style to fulfill the possibilities, but this does not preclude the possibility for others.

#### Controlling Others

A fear of controlling others' lives and being controlled by them is pervasive. At the same time we have become used to manipulating the more overt aspects of emotional life through accepted political and social controls. We may argue that the fear of emotional control is related to a fear of sex. Our only modality for controlling sex is repression. We have not learned how to (explicitly) use sexuality in a broad spectrum of relationships. When we do use it, it is often considered unacceptable if it is overt, unfair if covert. Our fear of controlling others' emotional lives is a reflection of our inability to develop an articulated language of using our sexuality and affect.

We cannot avoid this fear. The complexity of our lives has technique as a basis for its viability, and demands for decentralization

and smaller spans of control are likely to be effected best by greater planning and even more sophisticated technique. Explicit interventions into our emotional lives will have to replace the covert and unexamined interventions that we use now. What we need to have is not "less" control, but a greater variety of controls and de-controls and a more developed sensibility for using them.<sup>61</sup>

A more sophisticated perspective sees control as a reciprocal and changing process. Assent to be controlled does imply consent, and the roles of controller and controllee do change depending on the situation. Power inequities force us to reconsider the value of these concepts, though. To be in a controlled position may imply consent, but the degree of voluntariness of assent depends on relative power. So we might want to make sure that the techniques for emotional interventions are more equitably distributed than they are now.<sup>62</sup>

### Beyond Sexuality

I have suggested throughout this discussion that a fear of sexuality and our inability to be sexually articulate are fundamental sources of a fear of an affectively oriented world. Loss of control is intrinsic to sexual activity in its "ideal" form, and the fear of this loss is pervasive. Sexual fears become expressed as doubts about emotion and feeling, rather than affectivity. I believe that we might

---

<sup>61</sup>Though I do not believe that we can educate ethical sense by scientific investigations, I am not too hopeful that we can do so by affectual ones either. Still, if our feelings are better educated, and if ethical sense is related to how we feel, ultimately it just may help.

<sup>62</sup>The powerful are not likely to give up their power readily (even if the source of power lies in the future) without getting something in return. Or, as is more likely, the changes in emotional interventions will be done outside of the ordinary channels at first, and substantial options will be retained by the originators of the interventions.

fear pure emotion and feeling, were they not informed by a sophisticated grammar of expression. This grammar permits us to use our resources in a planful and deliberate way.

I have not been talking about raw emotions and feelings. I have been concerned about the knowledge of our selves and our feelings which is an amalgam of affectivity and cognition. This kind of knowledge can also be feared. It would increase our responsible action since we should know about what we are acting even on the affective level. Yet I think that we should be able to develop social means of growing so that we are strong enough to deal with these fears.

They will remain with us. Our alienation from our own selves and our own bodies will not soon disappear. Only if we return to our selves and our bodies will we have a sense of our selves in the world.

Even if you were to become sexually articulate, a problem remains (as one always must). In examining your self, and in being an aware and questioning actor in the world, you must constantly "break face." The roles that you fulfill, the expectations you have of yourself and of others, and the reciprocal expectations others have of themselves and you, require some uniformity and predictability. If you are constantly examining then the future is always tentative.

At the same time action may be precluded by constant examination. The existence of a world out there may seem to create "objective" events which require action. We can not always be self examining. The self examining planful actors advocated here have to transcend the necessity of understanding.

My concern with predictability and action ultimately reveals how poorly worked out these ideas still are for me. The projected social scene, in which actors know that others are self-examining like themselves would create a different kind of expectation of predictability and a different source for action than we now experience.

## POLICY

Policy chapters are usually added on to works of social inquiry, or works of social inquiry are added on to policy recommendations. Rarely are they coordinated. A reason for this is that it is difficult to develop a study that integrates findings with actions proposed to remediate or alter the situation that has been studied.<sup>63</sup> To "avoid" this happening I wrote my policy ideas in the middle of figuring out what I was going to say, and tried to make sure that there was a connection between policy recommendations and the arguments in the rest of the text.

Like all planned conclusions for any study, whether philosophic, theoretic, experimental or empirical, where you end up may not be where you planned to end up. Below are my original ideas.

## SOME ANSWERS TO UN-ASKED QUESTIONS: LIKELY POLICY RECOMMENDATIONS

1. Expertise will have to decline. Status is no guarantee that a man will be able to be instrumentally useful in solving your problem. (Is "solving your problem" the correct formulation?)
2. Others should be able to understand the expert. In explaining what you are doing, deceit is not acceptable.
3. Self examination is a useful way of deriving hypotheses. Nowadays, we know this but it is not considered central.
4. If anybody is to be able to put his ideas to work and thereby fight the expert system, we need ways of separating the subsystems so that experiments can take place in a suitably realistic but disentangled setting.
5. "Wise men" will need a new role so that they don't compete directly with other knowers.

<sup>63</sup>One source of this difficulty is that social studiers usually maintain an apolitical stance. If they are to recommend actions, these recommendations must come from some conception of why the studied situation is problematic. This usually requires some political values.

6. Self-knowledge will be vital so that people will be able to deal with epistemological questions at that level. Ad hominem explanations are equal to abstract arguments.
7. New truth-finding procedures will need to be tried out. If we don't "toss dice" or do controlled experiments, then what should we do?
8. A large infusion of cultural styles from indigenous but ignored cultures should take place. "Soul" for everybody.
9. The nature of certainty needs to be better defined. Ethnographic or participant observer types of studies need to be part of education.
10. Organization theory provides the way of dealing with big systems?

June 9, 1970

If I were to alter these now, I would want to put greater emphasis on power, sex, the mechanism of operation of experts, truth and science, and problems related to reliability and verifiability. I have dealt with these questions in some detail in related texts but, in some sense, they were not on my mind when I drafted my "action" recommendations.

This essay has been about a philosophy of social action. In that sense, policy recommendations cannot have the force of testable predictions. Rather, such a framework tries to isolate and emphasize important factors for action. What is needed is a predictive model of the actors that I describe. This model would be testable.

Still, some predictions and choices for action are implicit in the analysis. These relate especially to conflicts about seminal values and resources and may be tested as organizing ideas by evaluating the explanatory power of history written using them.

What is a suitable future context in which to ask these questions about conflicts of resources and values? Since, futures are chosen in a political fashion, even the methods that seem "scientific" will lead



to different futures. The futures that are predicted by different methods differ in their emphasis and in which events they select as being relevant.<sup>64</sup> The value conflicts may be fruitfully viewed in terms of a culture/counter-culture split. The split is most tellingly revealed in resource limitations. For if time or people's attention is limited, as it seems to be, then differing needs for either will have to be resolved concretely in terms of them.

Ordinary views of the future emphasize politics as it is. International conflicts are taken for granted and substantial resources must be devoted to maintaining psychological and material readiness. Given the productivity of material technology, the demand on psychological resources is perhaps most important. But the counter-culture "wants" to transform the psyche's sensibilities. Thus, the abstract conflict of values is played out on people's concrete attention spans.

Another point of conflict will be revealed in the world of work. The counter-culture talks of fulfilling work; the culture talks of post-industrial knowledge work. These are not necessarily congruent in any obvious way, not only because people have different cognitive styles, but also because knowledge work can be as dehumanizing as industrial work. Brains can be used for their sheer brawn as well as their sensitivity.

Conflicts over resources are resolved by bidding up their prices or by finding substitutions for them. Both phenomena take place today. It is difficult to attract much attention with the announcement of international conflict without having that attention becoming hostile. The potentially dehumanizing character of think work (such as programming)

---

<sup>64</sup>Writing about the future is not much different than writing history. These critical views would be standard for historiographers.

has forced the conditions of employment of some knowledge workers to be generous toward their idiosyncracies. Another way out is to form a synthesis of resource needs and pursue a multiple use strategy. We may search for roles that meet large scale technical needs of society and personal needs at the same time. The usual arguments against multiple-use strategies apply. It is said that they are really a hodge-podge of uses put together to get a more palatable package, but nothing is really better. A corresponding argument for social theory would be phrased in terms of false consciousness, incremental and one-dimensional change, and "only revolution can cause real structural alterations." The only good thing about multiple-use strategies is that they are pragmatically political; they satisfy a sufficiently large number of special interests that they may be viable.

Given these conflicts and a "multiple-use" strategy, a variety of social responses are available. We might just ignore these conflicts socially and let individual choices resolve conflict at the personal resource levels. This is the conventional market (of dollars, guns, ideas, coercion). We might let people go to war over the issues. We might assume that change would be so slow as to permit new resource resolving organizations to evolve in a gentle fashion. The conflicts represent choices of political merit and not only of personal whim. An alternative would be public action that is thought out, that is planned..

Such a societal response is a policy oriented one. Explicit choices (distinguished from pure covert power politics) of actions and alternatives influence other actions. Contingencies are not ignored but given overt attention. Policy-run societies can change rapidly since they can make choices and act on them. Surely there will be explicit reaction to choices, but there is some hope for mediating these actions.

What haunts me in this vision is that, as for other visions, I do not see how an erotic sensibility will be able to function in it. The current system of educating knowers, elevating them to expert roles at a suitable point, and isolating experts in a scientific environment (which then trains new experts) is anti-erotic. It is too isolated. If good performance of experts were to matter, the current system isolates them from the reactions and evaluations of others. So this system of expertise just cannot work.

What will?

Though easy to talk about, an erotic sensibility is quite difficult to describe in an operational way. We know that it has something to do with "including," with taking what is and dealing with it and investing it with love and sexuality.

But all of this says very little about how such a system is viable. Viability implies an ability to survive bad times. The assaults against an erotic vision will be real. There will be losers if it comes to pass. Also, it is only a matter of faith that men can maintain an erotic sensibility and not go off the deep end, becoming incapable of doing the daily work needed to sustain life.

At the same time the erotic could be destroyed by having a public existence. The immediacy of intimate experience is of a different character than current public experience. So if we are to ask for a meeting of these two, and not be ashamed of it, our public lives will need transforming. (Holbrook, 1971)

Even if we were to have a suitable image of the expert erotic world, we need some ways of connecting it with real action. And that

means that we must be able to ask questions about what is, which actions (and interventions) work, and where the future evolves from. And that is where I started.

## REFERENCES

There are comparatively few direct references in the text. This reflects difficulties in citing specific attribution when certain sets of works proved useful for starting me thinking about a problem. The bibliographic notes help to make these debts clear.

## BIBLIOGRAPHIC NOTES

(1) Wilensky covers the problems of organized intelligence and offers a typology of knowledge men. Archibald offers another typology based on her interviews with experts in international relations.

Znaniecki offers a standard (and most referred to) discussion of the sociology of knowledge and knowers. Benveniste tries to place the expert in a more worldly world.

A history of technocratic expertise is offered by Kelly. Gorham talks knowingly about how experts must act to be effective in a government bureaucracy. Benveniste and Ilchman's collection explores expert roles in international advising. Cairncross writes tellingly about the roles of being an economic advisor.

(2) Jack Seeley's ruminations about planning and society have deeply influenced my own approaches to these questions. Richard Sennett's analysis of the practice of planners in cities is a nice synthesis of Erikson and traditional ideas about city planners.

John Friedmann and Abraham Kaplan have written about planning as a social process. Webber, Deutsch, and Meyerson and Banfield have presented various versions of the knowledgeable planner. Churchman discusses the planner as an inquiring system with some values always in mind.

Miller, Galanter, and Pribam, and Boulding talk more about planners and their images.

Polanyi, again, is a source for a model of the knower who is also a person.

(3) Scriven discusses exactly what is involved in "seeing" and the problems involved with intermediate images. Kaplan, on intuition, and Gouldner, on wisdom, investigate social science knowledge. Westcott has a comprehensive review of intuition. Though I have read Laing, it was not in the context of writing this. His influence must have gotten through the back door.

Churchman, and Minsky, emphasize the importance of the user and semantic character in organizing what is known (the last part of Minsky's address to the ACM on problem thinking is a good statement of the value of program writing as a way of learning). Rescher and Helmer gives a detailed analysis of inexact knowledge to justify the Delphi procedure.

Chomsky (see Hook for some comments) expresses his philosophic position best in Language and Mind. See also the comments by Harman.

Advice-taking and giving are discussed in McCarthy and in Krieger (1970).

There is a literature on intelligence in organizations which Wilensky covers. He also discusses models of truth finding.

The Delphi method is covered in Helmer. Raiffa presents the basic ideas of decision analysis in an easily understood form. Schelling and Goffman, from rather different perspectives, come to rather similar conclusions about risk.

Casteneda's anthropological study of a guru provided the inspiration for my exposition of the Yaqui way. Burke gives a concise summary of dramatism.

Although Ayer really does not deal with the meat of social knowing, his discussion of the distinctions that can be made is valuable. Lichtman's Marxist critique of the sociology of knowledge, as propounded by Mead and followers, is worth reading.

The third section of this chapter has similar references as the second. Newell should be consulted for a discussion of problems and heuristics. Webber also discusses problems in social and political contexts.

Denzin gives a good methodological summary of symbolic interactionism. Cohen reviews the literature on gambling. Churchman discusses strategic knowing. Simon gives a useful description of design.

Like Laing, Boulding's influence on this draft has only been indirect through current culture and my past reading of him in a different context.

Buckley makes the useful distinction between economic and dramaturgic modes.

(4) Polya offers an extended discussion of "having a problem" and the use of heuristics in mathematics.

Newell discusses ill-structured problems. Reitman is an earlier source for this question. The volume edited by Kleinmuntz on problem solving gives a synoptic review of the field. Taylor's article is similarly useful. Rittel and Webber point out the essential peculiarities of social and political problems.

Within the artificial intelligence field, Amarel has been forceful in emphasizing the importance of representations. Simon's small

volume gives a good overview. Minsky's article makes an interesting point when he calls the simplification I refer to on p. 7-11 "planning." Others have called it "design."

(5) Rittel and Webber have defined the nature of public policy problems that make them difficult and perhaps "wicked." Robinson is useful on the Freudian left.

Burns and Stalker, Wilensky, and Argyris talk of the organization of systems for producing and distributing intelligence.

Maslow, in discussing the psychology of science and the problems of these special experts (Theory Z), provides part of a new model for the expert.

(6) Lifton, as a psychohistorian, always has to face up to the difficulties of psychoanalysis as an approach to understanding social and political phenomena. As such, his discussion of personal change is especially valuable.

Gouldner's book is a Marxist version of engagé social science. Berger's review is powerful just because it is at the right level of sympathy.

Jack Seeley's writings have been quite influential in forming what I am trying to say here. Benjamin DeMott says some good things about sex and culture. There is just not enough about "sex" in most discussions of social science.

(7) Fuchs has done a comprehensive survey of the importance of services to our economy. Ilchman and Uphoff give a generalized discussion of resources in the political world.



## BIBLIOGRAPHY\*

- \_\_\_\_\_, "The Medium is the Competition in Mental Health," Psychology Today, June 1970, p. 22.
- \_\_\_\_\_, "Hazards of Encounter Groups," San Francisco Chronicle.
- \_\_\_\_\_, "When the Young Teach and the Old Learn," Time, August 17, 1970, p. 35.
- Ackoff, R. L., and Sasien, M. W., Fundamentals of Operations Research, New York: Wiley, 1968, Chapter 2.
- Allison, G. T., "Conceptual Models and the Cuban Missile Crisis," American Political Science Review, 63, September 1969, p. 689.
- Ayer, A. J., The Problem of Knowledge, London: Macmillan, 1958.
- Barnhart, C. L., The American College Dictionary, New York: Random House, 1960.
- Bennis, W., "Post-Bureaucratic Leadership," Transaction, July, 1969, p. 44.
- Benveniste, G., and Ilchman, W. F., eds., Agents of Change: Professionals in Developing Countries, New York: Praeger, 1969.
- Berger, P. L., and Luckman, T., The Social Construction of Reality, Garden City: Doubleday, 1966.
- Blum, A. F., "Theorizing," in J. D. Douglas, ed., Understanding Everyday Life, Chicago: Aldine, 1970, p. 305.
- Boulding, K. E., The Image, Ann Arbor, Mich.: U. of Mich. Press, 1961.
- Braybrooke, D., and Lindblom, C., A Strategy of Decision, New York: Free Press, 1963.
- Brown, N. O., Life Against Death, New York: Vintage, 1959.
- Buckley, W., Sociology and Modern Systems Theory, Englewood Cliffs: Prentice-Hall, 1967.
- Burck, Gilbert, "There'll Be Less Leisure Than You Think," Fortune, March, 1970, p. 86.
- Burke, K., "Interaction: Dramatism," in D. Sills, International Encyclopedia of the Social Sciences, New York: Macmillan, 1968, v.7, p. 445.

\* Additional references are to be found in WP-144B.

- Burns, T., and Stalker, G. M., The Management of Innovation, London: Tavistock, 1966.
- Cairncross, A. K., "On Being an Economic Advisor," in Factors in Economic Development, London: G. Allen and Unwin, 1962.
- Casteneda, C., The Techings of Don Juan: A Yaqui Way of Knowledge, New York: Ballantine, 1968.
- Chisholm, R. M., Theory of Knowledge, Englewood Cliffs, N. J.: Prentice-Hall, 1966.
- Chomsky, N., Language and Mind, New York: Harcourt, Brace & World, 1968.
- Churchman, C. W., Policy for Policy Sciences, mimeo, n.d.
- Churchman, C. W., The Design of Inquiring Systems, Internal Working Paper 107, Berkeley, California: Space Sciences Laboratory, U. of Calif., 1969.
- Churchman, C. W., "The Role of Weltanschauung in Problem Solving and Inquiry," in R. B. Banerji and M. D. Mesarovic, eds., Theoretical Approaches to Non-Numerical Problem Solving, New York: Springer-Verlag, 1970.
- Clowes, M. B., "On Seeing Things," Artificial Intelligence, 2, 1, Spring 1971, p. 79.
- Cohen, J., Behavior in Uncertainty, London: G. Allen and Unwin, 1964.
- Colby, K. M., and Smith, D. C., "Dialogues Between Humans and an Artificial Belief System," in Walker, D. E. and Norton, L. M., eds., Proceedings of the International Joint Conference on Artificial Intelligence, Washington, D. C., May 7-9, 1969, p. 319.
- Conway, J., "Styles of Academic Culture," Daedalus, Winter, 1970, p. 43.
- Cooper, Clare, The House As Symbol of Self, Working Paper 120, Berkeley, Calif.: Institute of Urban and Regional Development, May, 1971.
- Dalton, M., Men Who Manage, New York: Wiley, 1961.
- DeCharms, R., Personal Causation, New York: Academic Press, 1968.
- Dreyfus, H., "Why Computers Must Have Bodies in Order to be Intelligent," Review of Metaphysics, 21, 1967, p. 13.
- Dror, Y., "Prolegomena to Policy Sciences," Policy Sciences, 1, #1, Spring 1970, p. 135.

- Dyckman, J. W., "What Makes Planners Plan," Journal of the American Institute of Planners, 27, May 196, p. 164.
- Etzioni, A., The Active Society, New York: Free Press, 1968.
- Fagen, R. R., "Calculation and Emotion in Foreign Policy: The Cuban Case," Journal of Conflict Resolution, 6, September 1962, p. 214.
- Feyerabend, P., "Problems of Empiricism," in R. Colodny, ed., Beyond the Edge of Certainty, Pittsburgh, Pa.: 1965.
- Firey, W., Man, Mind and Land, Glencoe, Ill.: Free Press, 1960.
- Fishlock, D., "Cairncross urges 'more technology, less science'", Financial Times, London, September 2, 1971.
- Freeman, H. E., and Sherwood, C. C., "Research in Large Scale Intervention Programs," Journal of Social Issues, 21, January 1965, p. 11.
- Freidson, Eliot, Profession of Medicine, New York: Dodd, Mead, 1970.
- Freud, S., Civilization and Its Discontents, New York: W. W. Norton, 1961.
- Friedenberg, E. Z., "The University Community in an Open Society," Daedalus, Winter, 1970, p. 56.
- Friedenberg, E. Z., The Vanishing Adolescent, New York: Dell, 1959, 1962.
- Friedmann, J., "Notes on Societal Action," Journal of the American Institute of Planners, 35, September, 1969, p. 311.
- Friedmann, J., "Planning as Vocation, Parts I and II," PLAN, 6, #3, 1966, p. 99, and 7, #1, 1966, p. 6.
- Friedmann, J., "A Conceptual Model for the Analysis of Planning Behavior," Administrative Science Quarterly, 12, 1967, p. 227.
- Gergen, K. J., The Concept of Self, New York: Holt, Rinehart and Winston, 1971.
- Glaser, B. G. and Strauss, A. L., The Discovery of Grounded Theory, Chicago: Aldine, 1967.
- Goffman, E., "Where the Action Is," in Interaction Ritual, Chicago: Aldine, 1967.
- Goffman, E., Strategic Interaction, Philadelphia: U. of Pa. Press, 1969.
- Gorham, W., "Getting Into the Action," Policy Sciences, 1, 1970, pp. 169-176.

- Gouldner, A., Enter Plato, New York: Basic Books, 1965.
- Gove, P. B., Webster's Third New International Dictionary, Springfield, Mass.: G. & C. Merriam, 1966.
- Group for the Advancement of Psychiatry, Psychotherapy and the Dual Research Tradition, New York: GAP, 1969.
- Hamilton, E., and Cairns, H., eds., The Collected Dialogues of Plato, New York: Pantheon, 1961.
- Harman, G. H., "Psychological Aspects of the Theory of Syntax," Journal of Philosophy, 64, February 2, 1967, p. 75.
- Hirsch, Jr., E. D., Validity in Interpretation, New Haven: Yale, 1967.
- Holbrook, D., "The destruction of the erotic," The Times, London, August 26, 1971.
- Hook, S., ed., Language and Philosophy, New York: New York U. Press, 1968.
- Horowitz, I. L., "Social Science Mandarins: Policy-making as a Political Formula," Policy Sciences, 1, Fall 1970, p.
- Kantor, R. E., "Alternative Perceptions of Macro-Problems," manuscript, 1970.
- Kaplan, A., "On the Strategy of Social Planning," Report Submitted to the Social Planning Group, Planning Board of Puerto Rico, Sept. 10, 1958, mimeo.
- Kaplan, A., The Conduct of Inquiry, San Francisco: Chandler, 1964, pp. 259-262.
- Kaufman, S., and Friedmann, J., Bibliography for a course on the Theory and Art of Advice, Los Angeles, Calif.: UCLA, School of Architecture and Urban Planning, 1970, mimeograph.
- Kelly, G. A., "The Expert as Historical Actor," in Bennis, Benne, and Chin, p. 14.
- Kleinmuntz, B., ed., Problem Solving: Research, Method, and Theory, New York: John Wiley, 1966.
- Koestler, A., The Act of Creation, New York: Dell, 1967.
- Krieger, M. H., Enviro-space, Urbospace: Thoughts on Thinkeries, Berkeley: Center for Planning and Development Research, 1970, mimeograph.
- Kuhn, T. S., The Structure of Scientific Revolutions, 2d edition, Chicago: University of Chicago Press, 1970.

- Laing, R. D., The Politics of Experience, New York: Ballantine Books, 1967.
- Lakatos, I., and Musgrave, A., eds., Criticism and the Growth of Knowledge, Cambridge: Cambridge University Press, 1970.
- La Porte, T. R., Organizational Response to Complexity: Research and Development as Organized Inquiry and Action, Berkeley: Institute of Urban and Regional Development, January 1971.
- Lasswell, H. D., "The Emerging Conception of Policy Science," Policy Sciences, 1, 1970, p. 3.
- Lichtman, R., "Symbolic Interactionism and Social Reality: Some Marxist Queries," Berkeley Journal of Sociology, 15, 1970, p. 75.
- Lifton, Robert Jay, Thought Reform and the Psychology of Totalism, New York: W. W. Norton, 1961.
- Machiavelli, N., The Prince and the Discourses, New York: Modern Library, 1950.
- Manuel, F. E., "Newton as Autocrat of Science," Daedalus, 97, #3, Summer 1968, p. 969.
- Marcuse, H., One Dimensional Man, Boston: Beacon, 1964.
- Marcuse, H., Eros and Civilization, New York: Vintage, 1955.
- Marris, P., and Rein, M., Dilemmas of Social Reform, New York: Atherton, 1967.
- McCarthy, J., "Programs With Common Sense," in Minsky, 1968, p. 403.
- Meehl, P. E., Clinical vs. Statistical Prediction, Minneapolis: U. of Minn. Press, 1954.
- Merleau-Ponty, M., Phenomenology of Perception, (tr. Colin Smith), London: Routledge and Kegan Paul, 1962.
- Miller, G. A., Galanter, E., and Pribram, K., Plans and the Structure of Behavior, New York: Holt, 1960.
- Miller, H., "Specialists," Listener, 86, #2214, September 2, 1971, p. 308.
- Minsky, M., "Form and Content in Computer Science," Journal of the Association for Computing Machinery, 17, #2, April 1970, p. 197.
- Minsky, M., ed., Semantic Information Processing, Cambridge, Mass.: MIT Press, 1968.
- Minsky, M., and Papert, S., Perceptrons, Cambridge, Mass.: MIT Press, 1969.

- Nagel, T., "Sexual Perversion," Journal of Philosophy, 66, January 16, 1969, p. 5.
- Newell, A., "Heuristic Programming: Ill-Structured Problems," in J. Aronfsky, ed., Progress in Operations Research, III, New York: J. Wiley, 1969, p. 361.
- Polanyi, M., Personal Knowledge, New York: Harper Torchbooks, 1964.
- Polya, G., How to Solve It, Garden City: Doubleday, 1957.
- Polya, G., Mathematical Discovery, v. 1 and 2, New York: Wiley, 1962, 1965.
- Polya, G., Induction and Analysis in Mathematics, Princeton: Princeton, 1954.
- Polya, G., Patterns of Plausible Inference, Princeton: Princeton, 1954.
- Rabinovitz, F., City Politics and Planning, New York: Atherton, 1969.
- Rabkin, R., "Shall We Burn Thomas Szasz at the Stake," Psychiatry and Social Science Review, 4, #8, June 23, 1970, p. 6.
- Raiffa, H., Decision Analysis, Reading, Mass.: Addison Wesley, 1968.
- Rapoport, A., Strategy and Conscience, New York: Harper and Row, 1964.
- Rein, M., "Social Planning: The Search for Legitimacy," Journal of the American Institute of Planners, 35, July 1969, p. 233.
- Reitman, W. R., Cognition and Thought, New York: John Wiley, 1965.
- Rittel, H., and Webber, M. M., "Some Problems in a General Theory of Planning," to appear in Policy Sciences.
- Robinson, P. A., The Freudian Left, New York: Harper, 1969.
- Schelling, T. C., The Strategy of Conflict, New York: Oxford U. Press, 1963.
- Schutz, A., Collected Papers, v. 1,2, and 3, The Hague: Martinus Nijhoff, 1962, 1964, 1966. See, especially, the introduction by M. Natanson in v. 1.
- Scriven, M., Primary Philosophy, New York: McGraw-Hill, 1966.
- Scriven, M., "The Complete Robot: A Prolegomena to Androidology," in S. Hook, ed., Dimensions of Mind, New York: Collier Books, 1961, p. 113.

- Seeley, J. R., "Crestwood Heights: Intellectual and Libidinal Dimensions of Research," in Vidich, A. J., and Stein, M. R., Reflections on Community Studies, New York: Wiley, 1964.
- Seeley, J. R., "What is Planning? Definition and Strategy," Journal of the American Institute of Planners, 28, 1962, p. 91.
- Sennett, R., The Uses of Disorder: Personal Identity and City Life, New York: Alfred A. Knopf, 1970.
- Simon, H. A., "Style in Design," in Archea, J., and Eastman, C., eds., edra two, Proceedings of the 2nd Annual Environmental Design Research Association Conference, Pittsburgh: Carnegie Mellon University, 1970, p. 1.
- Smith, B. L. R., "Strategic Expertise and National Security Policy: A Case Study," in Montgomery, J. D., and Smithies, A., eds., Public Policy, Cambridge: Harvard, 1964, p. 69.
- Steiner, G., "Profile of Noam Chomsky," New Yorker, 45, November 15, 1969.
- Toffler, A., "New York Faces Future Shock," New Yorker, 3, July 27, 1970, p. 20.
- Vickers, G., The Art of Judgment, New York: Basic Books, 1965.
- Waskow, A. I., "The Next Thirty Years of American History," The Futurist, 4, February, 1970, p. 14.
- Webber, M. M., "The Roles of Intelligence Systems in Urban-Systems Planning," Journal American Institute of Planners, 31, November 1965, p. 289.
- Weiss, Robert S., and Feldman, C. S., Issues in Primary Prevention, Mimeograph, Cambridge, Mass.: Laboratory of Community Psychiatry, Harvard Medical School, 1969 (?), and private communication.
- Westcott, M. R., Toward a Contemporary Psychology of Intuition, New York: Holt, Rinehart, and Winston, 1968.
- Wilensky, H., Organizational Intelligence, New York: Basic Books, 1967.
- Wilson, I. H., "How Our Values Are Changing," Futurist, February 1970, p. 5.
- Zetterburg, H. L., Social Theory and Social Practice, New York: Bedminster, 1962.
- Ziman, J., Public Knowledge, Cambridge, England: Cambridge U. Press, 1968.
- Znaniecki, F., The Social Role of the Man of Knowledge, New York: Octagon Books, 1965.