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STUDIES OF INFORMATION AND KNOWLEDGE SOCIETY

Reflections from the Point of View of the Theory of Science

by

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This series of reports consists of compendiums, reports of research in progress including work relating to academic theses from the Department of Theory of Science at the University of Göteborg. The series includes pilot studies and partial reports as well as final productions (accepted theses etc).

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CONTENTS

PREFACE

The legitimation crisis of ~~the~~ modern societies has cast doubts on the received notions of society as industrialist and capitalist. The proliferation of computer and information technologies has resulted in attempts to reformulate our understanding of the material basis of social change. The rise of cognitive science and artificial intelligence has been followed by a new conception of social action.

The notion of the information- and knowledge society is an attempt to give theoretical coherence to these and similar phenomena.

This booklet presents three essays on the notion of the information- and knowledge society, from the vantage point of theory of science and sociology of knowledge.

The essays were written for three different occasions:

Chapter 1 was originally presented in May 1987 in two lectures at the Department of Social Systems Science, The Wharton School, University of Pennsylvania, Philadelphia.

Chapter 2 has been accepted by Culture, Media and Society, but publication has been delayed until 1989 for technical reasons.

Chapter 3 was first presented in November 1987 at the conference "Knowledge and Communication in the Computer Age" arranged by the University of Linköping, Sweden.

The original papers have been revised and rearranged in order to minimize redundancy. Accordingly all references have been collected in a separate bibliography.

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Chapter 1

THE STUDY OF THE INFORMATION- AND KNOWLEDGE SOCIETY
TWO RESEARCH STRATEGIES

This essay presents, almost telegrammatically, a possible basis for a research program on the information- and knowledge society.

The first eight paragraphs, constituting the first section of the essay, outline the elements of a "positive" (following the terminology of the Frankfurt School) theory of the information- and knowledge society. These paragraphs are developed further in the two following chapters ("The Conflict Structure of the Information- and Knowledge Society" (Ch 2), and "Knowledge-power and Resistance in the Information- and Knowledge Society" (Ch 3).

The second section continues with six paragraphs on a corresponding "critical" account of the problem of power and emancipation in the knowledge society.

1.1 A Positive Approach to the Information- and Knowledge Society

i

My point of departure is that for the last decade the idea of the rise of a new information society has been a central issue in futurist literature. If this is true, it implies new challenges for social planning. But the discussion (see e.g. Toffler 1980, Nora and Minc 1980, Masuda 1983; see also the journal The Information Society, vol 1, 1980 and onwards) is seriously flawed. Thus, the first point to be made here is that any

further discussion of the information society is in dire need of a theoretical foundation.

ii

But on what kind of social theory should the discussion of planning and future studies of the information society be based? Until now most studies of the information- and knowledge society have mainly been cast in terms of economy and technology. Neither a technological approach, nor a reformulation of sciences such as sociology or economics, being developed to cope with the problems of industrial society, can serve as a theoretical foundation, however. E.g. I argue against different attempts to discuss the information society in terms of information economy (Machlup 1980, Porat 1977, etc.). Instead -- and this is my second point -- I argue for the legitimacy of a pure information and knowledge process approach, i.e., an infonomical level of analysis (cf. Wiener 1954).

iii

Since knowledge, i.e., systematical, theoretical knowledge, has logical priority over information (cf. Popper 1972, Kuhn 1962), discussions of the information society should be made from the vantage point of an exclusively knowledge, or cognitive, approach, to social phenomena. Hence, and this is my third point, I prefer the notion of knowledge society (cf. Böhme and Stehr 1986).

iv

A common flaw in most cognitive approaches to the knowledge society is the lack of any notion of conflict, dominance or power. This is particularly true with regard to different brands of cybernetics and systems theory. Thus, my fourth point is to learn one of the

lessons from marxism, **viz.**, that a conflict perspective should be worked into a notion of the knowledge society.

v

What would a macro conflict theory of the knowledge society look like? In fact, there exist different attempts to depict the stratification pattern of the knowledge society. My fifth point is to focus specifically on theories of the intelligentsia as a new knowledge class (Schelsky 1975, Konrád and Szelényi 1979, Gouldner 1979) as promising candidates for a macro cognitive conflict theory of the knowledge society.

vi

Most discussions of the information society are a-historical or at best historically naive. There exists a well established political history, a social history, a economic history, etc., but no serious attempts to write history from the vantage point of the emergence of the knowledge society. My sixth point is that such a historical account is long overdue. By the emergence of the knowledge society I mean the progressive institutionalization of systematical, theoretical knowledge, which incorporates even larger segments of society. The notion should be understood in connection with notions such as scientization, professionalization, science as a productive force, rationalization, formalization, etc.

This view of the history of the knowledge society would overcome two extremes in historical perspective, **viz.**, either to view the information society as the era of electronic computers, or, conversely, to consider it as an equivalent to the whole of human cultural evolution.

vii

Generally, macroapproaches to the knowledge society lack microfoundation, i.e., reference to intentional social actors. This is particularly true with regard to cybernetics and general systems theory. Following the recent discussion of the relation between macro- and microtheories of society, my seventh point is to apply the notion of microtranslation, as developed by Collins (1981), Elster (1985), Hechter (1983) and others, as a general research strategy.

viii

An ultimate microtranslational strategy should, from the vantage point of the recent crusade of the new cognitive sciences, include a theory of mind. After all, mind is generally considered to be the smallest knowledge processing unit of society. That is, my argument during the first half of the manuscript ends with an eighth point, viz., advocating cognitive science, the new "microeconomics" of the mind-system, to stand out as the candidate for a microtheoretical basis of the knowledge society.

1.2 A Critical Approach to the Knowledge Society

Ending with cognitive science would be a decent result of a "positive" approach to the so-called information society. Cognitive science (particularly its "hard programme" (cf. Searle 1981) has some very weak spots, however, which, on a second thought, makes it less attractive.

First, cognitive science is based on a representational theory of mind; second, it does not consider the emotional and embodied character of social relations;

and third, it is not overwhelmingly self-reflecting. In this second section I will elaborate these weak points.

ix

My "positive" argument so far has been based on a tacit realist understanding of society. The first attack on the "positive" approach implies introducing a constructivist approach. Only a decade ago that meant to go to classical social constructivism, e.g., to the social phenomenology of Schütz, or to ethnomethodology.

Classical constructivism is not directly compatible with cognitive science. Recently, however, the two traditions have drawn more closely together by means of contributions from a Trojan Horse within the cognitive sciences. I am thinking of the constructivism of von Foerster (1981) and Maturana and Varela (1980), who have developed sophisticated arguments for the view that the (social) world is brought forth by a thinking and interpreting autopoietic mind. (I would like to call attention to the fact that Maturana's autopoietic conception of mind implies methodological individualism. I think his is a forceful argument against a holistic view of the information- and knowledge society.)

x

Constructivism remedies the naive representational view of mind implicit in cognitive science. But constructivism does not solve the other basic flaw in a pure cognitive approach to the knowledge society, viz., the neglect of emotionality and the embodied character of social relations. Recent developments in clinical psychology and psychiatry, and therapeutic experiences, have reinforced the old Freudian insight that we are basically emotional beings.

I think it is appropriate to say that we are right now witnessing the come-back of emotionality and the

embodied character of cognition after two decades of very one-sided cognitive reductionism in the social sciences (e.g., Scherer and Ekman 1984; Johnson 1987). My tenth point is that we should try to rework the constructivist assumption from the point of view of emotionality, for example, by looking closer at the concept of "bodily intentionality" of Merleau-Ponty (1962).

xi

Having come so far you may have noted a certain ambiguity in my argument. On the one hand I have tried to found a theory of the information society in pure knowledge relations. On the other hand I right now have pled for bringing the emotions and the body back in. In the first section I argued for a realist, methodological individualist methodology, i.e., to reduce everything to individual minds in interaction. In this section I advocate constructivism. ~~Probably it looks like a mess!~~

What resolvs these ambiguities, to my mind, is the notion of power. Firstly, and this is my eleventh point, the relation between pure knowledge relations, on the one hand, and emotional relations, on the other, should be interpreted in terms of power relations.

xii

Secondly, and this is my twelwth point, the relation between the symbolic construction of the world, on the one hand, and the living body as the real foundation, on the other, should also be interpreted in terms of power relations.

Power then / to me / means differential ability cognitively to construct the embodied life-world of the Other. In other words, non-linguistic bodily interaction and personal conceptual constructs (i.e., emotions), is the substrate from which the social network of linguis-

tically coupled minds construct an inter-subjectively organized world.

xiii

Now we come to the eternal problem of emancipation, a problem which has been stated in different varieties by the classical Frankfurt School and recently by Habermas (1981), and by the post-modernist philosophers in France (e.g., Lyotard 1984). My way of stating the problem of emancipation is made from the position of Roberto Mangabeira Unger (1984), and, my thirteenth point, runs as follows:

"Knowledgification" results in an intensification of a basic human dilemma, i.e., our need for the Other, and, at the same time, our fear of being engulfed. Realist "knowledgefication" offers a shared conceptual world, while at the same time it snares us. Constructivism offers self-independence, while at the same time it makes us lonely.

In Unger's version the basic human dilemma can only be overcome by developing the positive passions of faith, hope and love. By opening up to the Other in mutual vulnerability, we can develop the self-empowerment and self-assertion that makes it possible for us to accept a "multiverse", i.e., to let us accept the existence of many constructed realities without risking being left alone.

xiv

Finally a word on the problem of self-reflexivity. The emancipatory programme outlined here has certain ethical implications for whomever suggests it. It implies that I, as a constructor of this theory, enter into upper echelons of the knowledge-power hierarchy. Consequently, and this is my fourteenth and last point, when proposing

an emancipatory strategy like the one outlined above, I should live up to the same emancipatory standards.

Chapter 2

THE CONFLICT STRUCTURE OF THE INFORMATION- AND KNOWLEDGE SOCIETY

2.1 A New Stage in Cultural Evolution?

For more than a decade the question of a major change in the received notion of industrial, capitalist societies has been under debate. A number of conceptual innovations have tried to catch the essence of the problem. The emerging structure of contemporary Western societies has been referred to as "knowledgeable" (Lane 1966), "technetronic" (Brzezinski 1968), "programmé" (Touraine 1969), "post-industrial" (Bell 1976), "post-modern" (Holzner and Marx 1979; Lyotard 1984), etc.

Two characteristics stand out as more fundamental than others. One is the rapid development and spread of the means for processing and communicating data and information, captured in the notion of an "information society". The other is the adjunct role of information and knowledge, particularly theoretical, abstract and formal knowledge in social affairs, conceptualized as the "knowledge society".

The recent conspicuous rise in the availability and utilization of information and communication technologies, including computer hardware, software, information and knowledge systems, and telecommunications, has been the main argument for conceptualizing contemporary Western societies as information societies. Porat (1977) argues that changes in GNP and in work force allocations call for a new interpretation of the US economy, substituting the indices of an industrial economy with indices for an "information economy". Nora and Minc (1980) take the convergence of computing and telecommunications as their point of departure when advocating

"L'informatisation de la société" as a French national policy for the 1980's.

The list can be continued: The construction of a 5th generation computer has been announced as the threshold event that would eventually put Japan at the leading edge of the "information age" (Simmons 1983; Feigenbaum and McCurdock 1983). The introduction of world-wide satellite-mediated communication networks, the silent incorporation of microprocessors into work routines, the ever increasing use of personal computers, computer networks and high-level 4th generation languages, the relative successes of expert system simulations of professional information and knowledge management (Hayes-Roth et al. 1983), and the rise of a whole computer and information processing culture (Turkle 1984) -- all these are but a few indicators that the concept of an "information society" is empirically justified.

While the concept of "information society" has been largely an issue for popular, political and corporate debate, the concept of "knowledge society" has been more or less restricted to the domain of scholarly debate. Daniel Bell, one of the first spokesmen for the new social order, suggested that the distinctive character of the "post-industrial society" is "the centrality of **theoretical** knowledge, i.e., the primacy of theory over empiricism and the codification of knowledge into abstract systems of symbols" (Bell 1976, p.20). In the post-industrial society so defined, universities and research institutes, codifying theoretical knowledge, become the "axial structure" of the "knowledge society".

This emphasis on the increasing application of theoretical knowledge in all spheres of human life, i.e., the scientification of society ("Verwissenschaftligung") has been parallelled by a growing concern with societal rationalization by rules of human conduct, i.e., systematization, generalization, routinization and

formalization (Parsons 1966, Weber 1968, Habermas 1981); a concern for the central role of the educational system in contemporary societies, epitomized in the concept of "credential society" (Collins 1979); an interest in the role played by professional experts (Freidson 1986), in the substitution of corporate owners by managerial experts, and in the fusion of scientific knowledge and practical action in all aspects of modern planning (Friedmann and Hudson 1974).

The concern shown with the phenomenon of scientification of society is further reflected in the upsurge of a variety of fields of scholarly studies of science and technology in the social context, and the activities unfolded by governmental agencies to cope with the evaluation of scientific and technological development. Altogether, the steadily increasing role of secularized, scientific knowledge for the management of societal affairs seems to warrant the concept of a "knowledge society".

2.2 A Challenge to Marxist Historical Materialism

The notion of an "information and knowledge society" is certainly a challenge to Marxist historical materialism. It is so in two respects, one historical and one analytical. Firstly, the growing impact of knowledge and information processes is often considered to imply a change of society that is as profound as the industrial revolution and the emergence of the modern society. Several authors depict the emergence of the "information and knowledge society" as a new stage in the cultural evolution of mankind. Thus, the "information and knowledge society" is often interpreted as displacing the industrial, capitalist society. The best known spokesman of this view is Toffler (1980), who, from a quasi-histo-

rical materialist standpoint (cf. Toffler 1984), advocates the metaphor of a "third wave" of cultural evolution.

Several critics have found this claim unconvincing. Schiller (1981) argues that the spread of information technologies is "understandable best in terms of long-established and familiar market-based criteria" (p.xii). Webster and Robins (1986) attempt to reduce the advent of information technology to phenomena that "facilitate the institution of the rule of capital across ever wider spheres of social existence" (p.267). Lyon (1986) finds it "hard to justify the claim that information society takes us beyond industrial capitalism" (p.584).

Another point of criticism against the notion of an emerging "information and knowledge society" is that, although both information processing and knowledge application have undergone a qualitative change in the course of the 20th century, it is nothing specific to contemporary societies. The creation, distribution and application of knowledge and the adjunct processing and storage of information are necessary preconditions for all social orders.

In this chapter I will not argue for or against the "information and knowledge society" as a new historical stage. Although the processes referred to are indeed impressive, it is nevertheless premature to conclude that the social changes associated with the notion of an "information and knowledge society" should signify a new historical stage, comparable to the breakthrough of the modern, capitalist, industrial society. Stages of human evolution can only be reconstructed in retrospect. "The owl of Minerva spreads its wings only with the falling of the dusk", as Hegel pointed out his Philosophy of Right.

The challenge of the notion of an "information and knowledge society" to historical materialism lies else-

where. The impact of information processing and knowledge application has raised our sensitivity to the importance of knowledge and information processes for the maintenance of social structure, alongside economic and political processes. The notion of an "information and knowledge society" calls for a reconsideration of the basic premises of historical materialism, viz., that human work and social production plays the determinant role, "in the final analysis", for the structure and function of society.

Poster (1984) points out that this premise made sense in 19th century Europe, where physical labor and the production of material goods were the obvious basis for survival, prosperity, and social change. Today it has to give way for another premise:

> "A new logic is called for that conceptualizes the social field on a different basis" (Poster 1984, p.53),

and he claims that Foucault's category of discourse/-practice meets the criteria for a new premise of historical materialism.

Poster gives a lengthy argument for this Foucauldian premise. But one should remember that the choice between a work/production premise and a discourse/practice premise for historical materialism cannot be settled by reference to rational criteria. As Rorty (1980) has pointed out, one of the lasting results of the Kuhnian seize upon epistemology is that the ultimate choice between basic vocabularies cannot be justified by rational argument. We are free to enfold new vocabularies, and to establish criteria for empirical verification (or falsification) within the confines of these. The only criterion for the viability of a new vocabulary is its success as a generator of new hypotheses, new explanations and new sets of data.

Thus, I will consider the independence of the knowledge- and information dimension of society, along with economic and political dimensions, to be a basic premise for the following discussion. This **sui generis** approach is akin to Nowak's (1983, 1986a) attempt to formulate a non-Marxian historial materialism, which distinguishes three material momenta in society: An economic, a political and a spiritual momentum, each irreducible **vis-à-vis** the other. Poster (1984) likewise introduces the concept of "mode of information".

2.3 The Logical Priority of the "Knowledge Society"

In what follows I shall use the notion of "information and knowledge society" in its analytical, and not historical, sense. Furthermore, I shall prefer the concept of "knowledge society" to "information society". In the information and "knowledge society" literature the concepts of knowledge and information are usually used interchangeably. Consequently the concepts of "knowledge society" and "information society" are also used interchangeably. But there are arguments for preferring the concept of "knowledge society". One type of argument is political. For example, the Swedish Social Democratic Government claims that the difference between the two concepts is essential: While the "information society" implies a society where an elite informs the un-informed, the concept of "knowledge society" is used by those who

> "want to strengthen the individual's possibilities to try out and evaluate various alternatives" (Proposition...,p.6-7).

But apart from political arguments, there is an epistemological reason for preferring the concept of

"knowledge society". The concept of an "information society" implicitly refers to the notion of objective, physical information, used in the context of telecommunication technology and computer science. This is the information concept advocated by e.g., Dretske (1981). Against this stands the idea of subjective information which presupposes a knowledgeable, intentional subject, that has the capacity to interpret data and information on the basis of cognitive schemes. The concept of a "knowledge society" thus refers to social relations between knowledgeable subjects.

The hermeneutical argument for preferring the concept of "knowledge society" as an analytical category comparable to the Marxian category of "mode of production" is substantiated by common epistemological wisdom. According to Kuhn (1962), Popper (1972) and others, data are theory-laden. There are no representations of data outside an observation language, and no observation language is void of cognitive schemes, be it common-sense schemes or scientific theory. Knowledge is underdetermined by data, and knowledge cannot be logically deduced from data. Thus knowledge has logical priority over data and information.

2.4 The Conflict Structure of the "Knowledge Society"

What are the basic features of a macrosocial theory of the "knowledge society"? A fundamental dividing line in the history of macrosocial theory goes between functionalist theories and conflict theories. In accordance with the conflict-theoretical (but not necessarily Marxist) tradition, I propose that the "knowledge society" should be analyzed in terms of conflict and domination.

Marx built his class theory on the basis of his view of the economic mechanisms of society. Indeed, the lasting contribution of Marxist historical materialism is its insistence on the class character of social relations. Marxist historical materialism is, first and foremost, a theory of class conflict. A rejuvenated historical materialism for the "knowledge society" should therefore, if it is to be considered a historical materialist theory at all, be able to outline a view of conflicts based upon knowledge and information processes.

Only a few proponents of the notion of an "information and knowledge society" have taken this position, however. Most analysts have (tacitly) assumed that traditional class conflict is diminishing in contemporary Western societies (e.g., Masuda 1983). A leading representative of the information industry has suggested a differentiation of the population into, on the one hand, a global elite of "wise" and "knowledgeable" persons being able to restructure their knowledge apparatus from the steady flow of social information, and, on the other hand, a mass of un-knowledgeable people busy with information processing and only able to process information within existing models (Bauer 1982). Likewise, Toffler predicts that some will succeed in synthesizing their own world view and meaning of life and

> "develop into continually growing, competent individuals, able to act at higher levels", while others will "break down under the new pressure and withdraw in apathy or anger" (Toffler 1980, p.81).

In order to find inspiration for a concept of conflict in the "knowledge society" one has to go to other theoretical traditions. During the past century a growing number of authors have identified new kinds of

macrosocial conflicts more or less based on knowledge monopoly, i.e., the exclusive ability to set the means of orientation for members of society (Elias 1982), replacing, or at least adding to, property monopolies. Among the classical contributors to this line of thought are Bakunin (Dolgoff 1972), Machajski (1979) and Burnham (1941).

In the 1970's a new wave of thinkers have renewed the issue, among them Touraine (1981), who talks about the conflict between a "technocracy" and "social movements", Bourdieu (1975), who distinguishes between "dominating" and "dominated" positions in symbolic fields, Konrád and Szelényi (1979), who envisages the rise of the intelligentsia to class power, and Gouldner (1979), who, likewise, considers the intellectuals a new ruling class. For a review, see Eyerman et al. (1987).

A major problem in evaluating this literature is whether the proposed conflict models support the **sui generis** assumption stipulated above. The main problem facing a macroanalysis of "the knowledge structure of society" (Böhme 1984) lies in depicting symbolic and knowledge-based conflicts and power relations without lapsing into economic reduction.

For example, Konrád and Szelényi in their (1979) revision of a historical materialist theory of the intellectuals, claim that the social position of the intelligentsia can be derived from its function in the rational economic redistribution. Other variants of the New Class thesis, although emphasizing symbolic conflicts, are still economic in "the final analysis". Although focussing on the New Class as a speech community sharing a "culture of critical discourse", Gouldner (1979) nevertheless flirts with economic reductionism when he considers the concept of "cultural capital" to be analogous to "moneyed capital". A more recent example of an "economistic" interpretation of the New Class

thesis is Hodges's (1981) suggestion that organization is a fourth factor of production, along with land, capital and work, and his proposal of a new mechanism of bureaucratic/expertise exploitation substituting for Marxian surplus value exploitation.

Even Bourdieu, who has consistently focussed on the dynamics of linguistic and symbolic "fields", considers the "sphere of cultural production" as only "relatively autonomous" from "material production". Hence, his use of the concept "symbolic capital" is only metaphorical:

> "The linguistic exchange is not only a communicative relation between sender and receiver... but also an economic exchange which.. can deliver a certain material or symbolic profit" (Bourdieu 1982).

This standpoint is probably a consequence of Bourdieu's all-encompassing view of economy, viz.,

> "to extend economic calculation to <u>all</u> goods, material and symbolic, without distinction" (Bourdieu 1977, p.177-78).

Others have (implicitly) kept more closely to the **sui generis** assumption. Anarchist and syndicalist thinkers have repeatedly pointed to the generation of class distinctions in the educational system. Already Bakunin envisaged the division of society into "the state engineers" as "the new privileged political-scientific class" and "the mass of the people" (in Dolgoff 1972, pp.332-33). Nomad (1939) refers to the antagonism of interests between "the educated, leading `knows', and the rank-and-file, the uneducated, horny-handed `know-nots'" (p.10).

Further variations of this antagonism have been forwarded repeatedly. Schelsky (1975) discusses the conflict between "die Intellektuellen" and "die Anderen", while Nowak (1983, 1986b) discerns a conflict between

"the priests", who have recourse to the "spiritual forces" of society and make decisions concerning the social goals, and "the faithful". In later works Szelényi (Martin and Szelényi 1987) has grown more uneasy about using economical analogies and advocates a "general theory of symbolic domination".

Finally, it should be noted that most discussions of this issue take a dichotomous (class or quasi-class) conflict model as their point of departure. It should be noticed, however, that there are no a priori reasons for assuming a dichotomous conflict model. There are in principle many possible structural conflict topologies. For example, Rudolf Bahro has suggested a hierarchical five-stage stratification conflict model ("Hierarchie des Wissens"), stretching from strata making "analysis and synthesis of the natural and societal wholeness" to "simple schematic part and service work" (Bahro 1977, p.193).

2.5 The Microtranslation of Cognitive Conflicts

The present level of analysis of the "knowledge society" parallells the pre-Marx level of analysis of modern societies. The Utopian Socialists were aware of the existence of new population strata, the "new rich" and the "new poor", standing in opposition to each other. Marx's most important contribution to the analysis of industrial capitalism was to suggest a basic conflict mechanism, viz., the surplus value relation.

Without advocating a hidden economic analogy to the surplus relation, I nevertheless suggest that the problem of structural conflicts in the "knowledge society" can be approached in a manner analogous to Marx's. What is needed is to explicate the fundamental mechanism whereby a knowledge elite emerges **vis-à-vis** a

knowledge non-elite. To this end we need to formulate models of the basic types of social bonds involved in the relation between "knows" and "know-nots".

According to Elster's (1985) critique of historical materialism and his advocacy of methodological individualism, such models should dismiss functional explanations. Instead we should explain as much as possible by appeal to individualist considerations. The first step towards the formulation of a mechanism of symbolic dominance is to embark upon what Collins (1981) has called a "micro-translation strategy", whereby macrosocial concepts, such as "knowledge society", are reduced to the level of inter-individual relations.

This does not necessarily imply recourse to rational-choice theory or to game theory, as Elster has suggested. We might refer to these mechanisms as "socio--logical" relations, i.e., social relations in which the defining trait is the logical relation between cognitive elements (Callon 1980). Callin's point is that it is impossible to differentiate between logical relations between cognitive elements and social relations. To state a problem is a combined social and logical operation: "Identifying a problematization postulates the existence of an actor" (Callon 1980, p.207).

A number of existing conceptualizations of logical relations between cognitive elements might be interpreted as socio-logical relations. Thus, we should try to "pragmatize" distinctions such as that of Polanyi (1958) between "scientific knowledge" and "tacit knowledge", that of Lyotard (1984) between "science" and "narrative", and that of Popper (1972) between a "World III" of objective knowledge and a "World II" of personal knowledge. These and similar dichotomies indicate possible models of conflict patterns in the "knowledge society".

To exemplify my argument I will discuss a "power-through-explanation" mechanism to account for the domination relation between "knows" and "know-nots". This mechanism is modelled on a very specific, but crucially important kind of socio-logical relation, viz., explanation (Söderqvist 1983). Philosophers of science usually consider explanation a purely logical problem, although involving semantic, syntactic, ontological, and epistemological aspects (Bunge 1967). An explanation, being an answer to a why-question, consists of three cognitive elements: A fact to be explained (explanandum), a circumstance, and a generalization (together circumstance and generalization constitute the explanans). The logical relation between the three cognitive elements is:

> "Given generalization(s) and circumstance(s), therefore the fact to be explained".

In this form the explanation is a purely logical relation between cognitive elements. But as Sintonen (1984), drawing upon speech-act theory (Searle 1969), has pointed out, there is also a pragmatic aspect to explanations. Consequently, explanations might be seen as social, communicative, socio-logical relations as well. In terms of speech-act theory the pragmatic aspect of the explanatory relation can be seen as a relation between two types of speech-act. One type is generalizing speech-acts which refer to a codified and current theoretical language and to macrosocial phenomena. The other type is factual speech-acts which refer to micro-social "you-and-I-here-and-now" situations.

Imagine two actors communicating. One actor produces an utterance about a factual event in his life-world. The other utters a generalization which serves as an explanation of the fact expressed by the first actor. The explanatory relation established between the two

actors is partly a logical relation, whereby the second explains or entails the first as a singular event. Thus the second actor establishes logical, interpretative priority over the first.

But it is also a social relation, whereby the actor uttering the first kind of speech-act defines the space of possibly conceived action for the other actor. This is akin to the notion of "the privilege of formulating the problem" (Gustafsson 1981). Hence, the two actors, being carriers of the cognitive elements of the explanatory relation, are, pragmatically seen, also involved in a domination relation.

There is a certain similarity between this "power-through-explanation" theory of socio-logical domination and the linguistic domination pattern revealed by certain family therapists. Like other similar situations, such as sermons, lectures, psychoanalytical sessions etc., family therapy sessions are probably useful micro-settings for exploring symbolic dominance at the interpersonal level.

For example, Kempler (1974) distinguishes between two kinds of discourse, viz., "merchant speech" and "personal speech". Speaking in contingent, local and first person terms (e.g. "I want...", "I prefer...", "I wish...") is "personal speech", while speaking in terms of "It is...", "As we all know...", "According to the latest reports..." is "merchant speech". Introducing "merchant speech" is a strategy of interpersonal control. The goal of the family therapy is to learn to express personal needs in terms of "personal speech", and hence to break the domination pattern.

Yet other examples of mechanisms to account for the domination relation between "knows" and "know-nots" have been proposed by Bråten (1973) and Katzman (1974). Although proposed to deal with the problem of participant democracy in corporations, Bråten's more formalized

version, based on cybernetic thinking, is nevertheless applicable to the problem of the conflict structure of the "knowledge society". The basic concepts of his "power-through-model" theory are "model-strong" and "model-weak" actors. The "model-strength" ("model-weakness") of an actor refers to the actor's capacity to handle information about a variable environment; hence a "model-strong" actor is more able to handle a variable environment than a "model-weak" actor, provided that they share a common environment.

If, in Bråten's version, a "model-strong" and a "model-weak" actor are coupled in an open information exchange system, they will behave according to the Matthew-effect. The "model-strong" actor will continually increase his strength relative to the "model-weak" actor. Data provided by the "model-weak" actor can be utilized and computed by the "model-strong" actor anytime, while data provided by the "model-strong" actor can only be computed and utilized by the "model-weak" actor according to the degree of development of his modelling resources.

Even if the "model-weak" actor enhances his capacity for processing information, the two actors will, as long as they are coupled, still develop an asymmetrical control relation. Ultimately, the "model-strong" actor will be able to adopt all the information processing models of the "model-weak" actor, and eventually he will control the latter's behavior completely.

Böhme (1986) has pointed to the relevance of analyzing the "knowledge society" in terms of knowledge demarcation as a strategy of exclusion. Socio-logical domination mechanisms, such as those discussed here, provide a criterion for distinguishing "insiders" from "outsiders" (Disco 1987), and thus constitute one important component of a universal theory of social closure (Murphy 1983). The criteria for including data provided

by a "model-weak" actor into the models of a "model-strong" actor demarcate "insiders" from "outsiders". Likewise, according to the pragmatics of explanation presented above, "insiders" are demarcated from "outsiders" by means of the epistemological criterion for allowing certain factual speech-acts to be deduced from generalizing speech-acts.

The actor network theory, originally formulated by Callon (1980), and elaborated by Callon (1986), Latour (1986) and Law (1986), to cope with the problem of scientification, could be seen as a more developed social closure theory. Actor network generation could be envisaged as yet another example of a socio-logical dominance relation. Actor network theory addresses the problem of what is involved when an author "catches" his readers, when a speaker "wins" his audience, or when an expert "persuades" his clients. According to actor network theory, actors grow by means of enrolment processes -- growth means the adding of new actors to an actor network. A growing actor identifies other actors, translates their interests, and orders them in relation to each other, i.e., the actor network is formed by actors enrolling other actors.

2.6 The Emotional Basis of the Knowledge Society

As Collins (1986) has pointed out, the emotions as a fundamental aspect of the materiality of social life have been largely neglected in 20th century social theory. The existence of emotions as a constituent element in socio-logical relations is usually noted in everyday speech. We "trust" a proposition, we consider a theory "dull", or get "excited" by a piece of information. Students of emotion have not dealt with the problem of cognitive domination, however. And, conver-

sely, the rich rhetorical tradition, which deals with cognitive-emotional relations, has only touched on the problem of domination and conflict.

Neither has the study of emotions attracted much attention from students of the "knowledge society". Exceptions include bold and unprecise statements, e.g., by Foucault (1981), who discuss "the regime of power-knowledge-pleasure", and by Gouldner, who addresses the emotional dimension in passing when he suggested that the culture of critical discourse "is productive of intellectual reflexivity and the loss of warmth and spontaneity". He depicted the Culture of Critical Discourse as

> "a lumbering machinery of argumentation that can wither imagination, discourage play, and curb expressivity" (Gouldner 1979, pp.84-85).

By invoking emotionality we might be able to account for another crucial characteristic of social closure, viz., the nature of privileges, or resources enclosed. In terms of actor network theory, the mechanisms and strategies through which actors identify others actors, impute interests, and place actors in relation to each other include the manipulation of needs, wishes, dreams, desires, etc. Thus the emotional qualities of dominance relations are invoked.

A possible, fruitful approach to the emotional component of the socio-logic of interpersonal relations is Collins's (1981) distinction between cultural resources and emotional energies, as the two ingredients in conversation rituals to determine the social bonds of temporary or permanent domination-subordinance structures. The implication of Collins's proposal is that interpersonal relations result in domination-subordination patterns if, and only if, they reinforce invested emotional energies.

However, neither Collins nor the actor network theorists have carried out any empirical studies of the cognitive-emotional relations. Thus, the proposed micro-translational program for a revised notion of a historical materialist theory of the "knowledge society" still lacks empirical grounding. Such analysis might perform the same function for a revised historical materialist theory as the study of the labor process did for Marxist historical materialism.

Chapter 3

KNOWLEDGE-POWER AND RESISTANCE IN THE INFORMATION- AND KNOWLEDGE SOCIETY

3.1 Defining the Information Society

The topic for this chapter is the relation between knowledge and power in the information society. To be sure, this is not a much discussed topic in the growing literature on the information society. One can find hints to it in the literature here and there, but it is difficult to find any serious and comprehensive treatments of it. Most people talk about the earthly paradise that could be created by means of computerized communication networks and automatized production.

When they talk about the negative aspects of the information society, they concentrate upon seemingly more substantial issues -- such as problems of personal integrity, structural unemployment, or the risk of loosing what has been called "tacit knowledge" (Polanyi 1958). So, people write a lot about "know-that" and "know-how". But very little on "know-pow".

Before going into the knowledge-power business, however, I would like to spend some space on the information society itself. What is an information society? What kind of an animal are we dealing with? What does it mean to explain that animal? What is the most fruitful scientific approach to the information society? Should we look at the structural level, or at the level of individuals?

The answers to these and related questions are not without importance for our understanding of the topic of knowledge and power.

The notion of an information society has been with us for quite a long time now, and it has been used in a number of meanings. Some have used it as synonymous with a society dominated by (whatever that means) the use of computers for processing of large amounts of data. Others have (quite rightly) pointed out that all societies, throughout all history, can be characterized as information societies on the plea that processing data about our natural and social surroundings is the **differentia specifica** of human civilization.

Talking about an information society in the first, restricted sense makes the notion of an information society a little too fashionable to my taste. After all, computers only speed up the kind of data processing which was earlier dealt with by means of pen and paper. Talking about it in the second, and more extensive sense, on the other hand, makes the notion somewhat meaningless. We might as well talk about human culture.

To solve this problem of definition I will draw attention to the old wisdom known to philosophers of science, **viz.**, that knowledge has logical priority over data. Data can neither be stored, nor retrieved without a knowledgeable human subject, who decides which data should be inputted, and how the output data should be utilized.

So knowledge is the crucial variable to consider here. To my best understanding, we should substitute the notion of a knowledge society for the notion of an information society.

3.2 The Knowledge Society as a Sui Generis Phenomenon

But having made that definition we encounter a new problem. Is the animal concrete or abstract? Should the

knowledge society be understood as a stage in the history of mankind, or is it (just) a theoretical construct?

I have a lot of respect for those authors, such as Alvin Toffler (1980, 1984), who have hazarded the vision of a new stage ("a third wave") in human evolution. I would be happy to spare some of my retirement years on re-reading history trying to re-conceptualize modern history as the rise of a knowledge society. I even have some ideas how one should proceed.

I think one should start with the emergence of the universities in the late Middle Ages, continue with the rise of printing and book distribution, and the rise of a centralized state administration, write about the emergence of population censuses and other techniques of surveillance and social control, and finally end up with the establishment of mass education and mass media during the 19th and early 20th centuries.

In that historical perspective, which I think is the only reasonable one, computers will be referred to in a concluding footnot. A large footnote, but still a footnote. So, parenthetically, I have just abandoned the notion of a computer age, the pet notion of the community of computer scientists.

To make a historical treatise of this kind (which, of course, is the task for a whole bunch of historians) would correspond to what two generations of post-war historians have been busy doing when tracking the rise of modern, capitalist, industrial society. With one important exception, however. Marxist historians have seen the key to society in they way people produced. The worker was the subject of history, either as an individual, or as a collective, i.e., as a working class. When writing the history of the knowledge society we should instead view man as a reasoner. Knowledge-produ-

cing man as the subject of history. Man as creator of knowledge institutions.

When writing history the animal is a concrete one. But the whole enterprise rests on another, implicit understanding of what we mean when talking about the knowledge society, **viz.**, an abstract, theoretical object. To continue comparing my approach with Marxism might help to illuminate this point. When Marxists write history, they think of the "mode of production" as the theoretical construct by means of which they can pinpoint the most essential features of a society. The "mode of production" has no existence in the real world. It is somewhat like the strings and balls of Newtonian physics. But the Marxists also talk about a "social formation", which is the real, existing, complex society out there, e.g., Sweden in the 1980's, somewhat like the real existing apples and planets in the Newtonian analogy.

Thus, we could distinguish between the knowledge society in the concrete, historical sense, corresponding to the Marxists' "social formation", and the knowledge society as a theoretical construct, corresponding to the "mode of production". Marc Poster has, by the way, claimed a somewhat similar concept, **viz.**, "mode of information", for the information society's correspondance to the "mode of production" (Poster 1984).

I am not very happy about the concept of information, however, mainly because it is too ambiguous. On the one hand it can refer to objective, physical information, which gives too many associations to computers. On the other hand it refers to something subjective, information is always information for a knowing subject. I do not like this ambiguity. I would prefer to use something else. "Mode of knowledge" sounds silly. Gernot Böhme (1984) has suggested "the knowledge structure of society".

When talking about the knowledge society henceforward I will talk about it in the abstract sense. Accordingly, I mean that the knowledge society is really a **knowledge** society. The notion makes sense only if we ignore all economic, political, etc. categories. This is what I call a **sui generis** (literally, in its own making, or in its own terms) analysis of the knowledge society. Of course, when talking about the knowledge society in the concrete sense, as a social formation, we must, of course, consider other variables, such as those provided by the study of economy, politics etc. But this is another problem, which does not have to bother us here. Remember the balls and strings of Newtonian physics.

3.3 Cognitive Science as an Explanatory Programme

What I have said so far (firstly, that the so called information society should be considered as a knowledge society, secondly, that it should be treated as a theoretical construct, and thirdly, that understood in its own making) is important to bear in mind when we discuss the topic of knowledge and power. The idea of knowledge class conflicts, knowledge stratification etc., which I will return to below, rests upon this. Before getting there, however, I will shortly take up yet another problem, **viz.**, that of anchoring a structural theory of the knowledge society in a theory of knowledgeable man, **Homo cogitans.**

Those of us who came to the universities in the 1960's and 1970's were socialized into an explanatory framework emphasizing functional and structural explanations. Talcott Parsons's theory of social action, with his emphasis on normative structure, is one example. Marxism in all its varieties, with its emphasis on explaining events with reference to the "need of

capital" etc. is another. If we succeed in establishing a theory of "the knowledge structure of society" that would count as a third example of functionalist and structuralist thinking.

Functionalism has been opposed by different brands of "methodological individualism" (not to be confused with ethical individualism). In its radical version methodological individualism demands that statements concerning phenomena at the level of society should be translated into statements about events concerning individual human beings and their face-to-face intentional interaction.

I think it would be fruitful to try to behave like an methodological individualist when approaching the knowledge society. I.e., the emergence of knowledge and information institutions, the educational system, the research system, the publishing world, the media etc. should not be explained with reference to their "internal structure", or "function in the knowledge society", but with reference to the intentional actions of knowledgeable human agents in face-to-face interactions.

Of course, this is not a new invention in the social sciences. This is what symbolic interactionists, social phenomenologists, and ethno-methodologists have been claiming for decades now. The reason why I make the point here is, of course, that so far we have seen no attempt towards this kind of explanatory strategy in the literature dealing with the so called information society.

Neither Mead, nor Schütz (but probably Garfinkel) knew about cognitive science. If they had known, I am sure that they would have considered the findings of cognitive science, including cognitive psychology, a most interesting attempt towards an methodological individualist understanding of the knowledge society. After all, cognitive psychology and artificial intelli-

gence research have provided us with a powerful explanatory framework for dealing with **Homo cogitans.**

I say this with some hesitation, because cognitive science has severe limitations. It makes so many simplifications (e.g., it excludes the whole area of emotionality and the embodied character of human interaction), that, like all scientific theories, it may be of limited use for a deeper understanding of what it means to be human. Nevertheless we cannot escape cognitive science. Instead we should try to see how far we can use it in formulating an explanatory programme for the study of the so called information society, alias knowledge society.

3.4 The Knowledge-Power Problem: Conversational Studies

Already Francis Bacon claimed that knowledge is power. But what do we mean by that? There are many definitions of power, and I want to stick to the one that sees power as a social relation, in which one party, willingly or unwillingly restricts the other party's ability to act. Action is a wide concept. It can mean physical action, it can mean economic action, political action etc. Correspondingly we can talk about physical power (violence), economic power, political power etc.

Is knowledge also action? Usually we think of knowledge as a store of concepts, hypotheses and theories about the world. Knowledge is stored in books and in heads. But we can also think of knowledge in a way similar to the way linguists have been thinking of language during the last two decades. After Austin and Searle it has become common wisdom among linguists to recognize speech-acts. To speak is to act.

Similarly knowledge is action. Of course, already the American pragmatists knew that. Phenomenological philo-

sophers, such as Husserl, took the existence of acts of consciousness, such as acts of perception, acts of memory, acts of phantasy etc., as the foundation for their philosophy of intentionality.

But if knowledge is action, it is also power. Let us consider two actors, A and B. For some reason, e.g., better education (formal or informal), A is better able than B to conceptualize not only his own sensations, but also the sensations of B. Stein Bråten (1973), who has tried to understand relations of this kind in cognitive psychological and cybernetic terms, starts by assuming that two actors have different model strength. When two actors exhibiting different model strength interact in an open information exchange system, the actor with the higher model strength will increase his model strength at the expense of the model-weak actor. This is the cognitive counterpart to the Matthew-effect:

> "Unto everyone that hath shall be given, and he shall have abundance: but from him that hath not shall be taken away even that which he hath" (Matthew 25:29).

Similarly, family therapists have given a lot of terrifying examples of what happens when one member of the family conceptualizes and interprets about another member of the family. The movie "Family Life" from the early 1970's, showed how the mother sets the stage and defines her daughter's reality, including the most intimate details. As a result the daughter "disappeared", so to say, as a person.

Family terror is a nasty example. But communication scientists can give ample support to the general picture. For example, in the Department of Communication at the University of Linköping they study powerful communication in courtrooms. They see power in courtroom dialogue as the control of a major part of the territory which is to be shared by the parties. This is done by

the sheer amount of speech (who dominates is the one who talks the most), or by so called topical dominance, i.e., the powerful party determines what topics should be treated. A third way of exercising control is when someone manages to direct and control the other party's actions by asking questions.

The kind of empirical work being done on this problem by Per Linell and Karin Aronsson and their students could (e.g. Adelsvärd et al. 1987), in my opinion, serve as a paradigm for future research. What seems most fruitful is the fact that they lean heavily on the ethnomethodological tradition of analyzing situated language action, ~~fruitful,~~ this is because, in my opinion, ethnomethodologists have understood that the problem of power in conversations must be analyzed according to the **sui generis** criterion discussed above. Conventional sociolingustic studies of language and power take for granted that discourse power derives from power statuses acquired outside the conversation (e.g., economic power, or political power), and later drawn into the conversation as a resource. John Heritage, in his extraordinary lucid account of ethnomethodology, points out that this is an unnecessary stipulation. Summarizing a number of conversation analyses he says:

> "It is through the specific, detailed and local design of turns and sequences Æin a conversationÅ that 'institutional' contexts Æe.g., powerÅ are observably and reportably - i.e. accountably - brought into being",

and continues:

> "Notwithstanding the panoply and power of place and role, it is within the local sequences of talk and only there, that these institutions Æe.g., the institution of powerÅ are ultimately and accountably talked into being" (s.290)

3.5 The Knowledge-Power Problem: The Rise of the "New Class"

I find the ethnomethodological view of the "bringing about" of power to be very important as a programmatic statement. But once we have embarked upon a empirical analysis of locally designed power relations, we are faced with a problem which the "ethnos" have not been able to solve so far, **viz.**, the problem of the relation between microstudies of conversations and macrodescriptions of society. It is nice to have achieved a methodology for studying knowledge-power relations in courtroom settings, in classrooms, in television broadcasts, at political meetings, in man-machine interaction, etc. But how do we come from there to the power structure of the knowledge society?

What do I mean by the power structure of the knowledge society? Let me once again make a comparison with the Marxist analysis of the "mode of production". Marx claimed that specific production relations are related to the mode of production. In the case of capitalism, he identified these production relations as the relation between the bourgeoisie (the capitalists) and the wage earners. Economic power under capitalism equals the power of the bourgeois class. Although this analysis may have been valid 50 years ago, however, I do not believe it is today.

On the other hand one may assume that the general form of his class analysis is still valid. Accordingly, can we discern a corresponding set of class relations in the knowledge society? (Based on the "mode of information" as Marc Poster would have it.)

In fact, several attempts have been made to understand the relation between knowledge classes, or, the "knows" and the "know-nots" as an American anarchist, Max Nomad, called them in the 1930's (Nomad 1961). There

exists a long tradition for viewing intellectuals and the intelligentsia as a "new knowledge class". There are many ways of conceptualizing this class relation: Helmuth Schelsky (1975) talked about the antagonism between "die Intellektuellen und die Anderen", Alvin Gouldner (1979) tried to describe the intellectual class as sharing a Culture of Critical Discourse, and modelled the class relation on Basil Bernsteins distinctions between elaborated and restricted language codes. In our recent volume titled "Intellectuals, Universities and the State in Western Modern Societies" (Eyerman et al. 1987), we have tried to give a comprehensive picture of the research done in this field.

I will not go into detail on the issue of the new class. (For example, the theory of the new class is ambiguous, because most contributors to the field confuse intellectuals as a pure knowledge class with their associated economic and political privileges.) I will only conclude that, so far we have not been able to formulate any consistent theory that can bridge the account of knowledge-power on the level of society (e.g., a theory of intellectuals) with accounts of knowledge-power on the level of face-to-face conversation, for example, courtroom conversation. I think that many of those who work in this field would agree with me that being able to bridge these two levels of description is a most pressing research problem. If we could formulate such a theoretical bridge, it would be a great step forward to a unified understanding of the knowledge society.

3.6 The Deconstruction of Knowledge-Power

I would like to make a few concluding remarks on the problem of reflexivity. Imagine that it would be pos-

sible to establish a logically consistent and empirically well-founded theory of knowledge-power. Imagine that this theory becomes as popular as Marxist theory was in the early 20th century. Would this be counted as a step towards emancipation from the knowledge-power regime? Or would the attempt to establish such a theory only strengthen the existing power pattern of the knowledge society?

Surely, several people have done some serious thinking about this problem. Michel Foucault, who invested his intellectual energy in examining, through historical case-studies, how the knowledge-power regime has colonized larger and larger spheres of human conduct (the prison system, the history of sexuality etc.) was very much concerned **not** to establish **a** theory of power, because that would, in his view, be a contribution to the objectification of man (Foucault 1980). Members of the Frankfurter School, such as Theodor Adorno and Max Horkheimer, were also aware of the dark side of the Enlightenment, although, in contrast to Foucault, they put their faith in a Self-Enlightenment of Enlightenment, i.e., a rational discourse being able to cast light upon its own dominance function.

My own position on this problem is not fully developed. As you may have realized I do not believe that institutionalized schooling, education or research can lead to an emancipation from the knowledge-power regime, since these are institutions for the maintenance of the regime. On the other hand, it is hardly tempting to endorse a Pol Pot'ian crushing of intellectuals and their knowledge centres either.

One avenue of action could be to support alternative forms of knowledge and education, modelled on, e.g., Summerhill or Montessori principles. But alternative knowledge centers will probably remain marginal. I think the strategic problem for the resistance against the

knowledge-power regime is how to expose the essence of intellectual power, **viz.**, the idea of objective knowledge.

Do not misunderstand me, the illusion of objective knowledge is a wonderful, and quite useful illusion. We can lean upon it for inventing new species by gene splicing, and for splitting the atom. I think that the idea of objective knowledge is one of the most beautiful constructs of the Western civilization. At the same time, however, it is exactly this construct, or illusion as I prefer to call it, which becomes effectual when knowledge becomes powerful action.

There are in fact communities in which all members have approximately the same capacity for dominating each other, they balance each other. These are the communities that Alvin Gouldner (1979) called Cultures of Critical Discourse", i.e., the communities of the different scientific specialists: The communities of authors, physicians, journalists, men of law, etc. What constitutes these communities is, among other things, that they all know the secret of their success, i.e., how their knowledge is produced. E.g., all molecular biologists know those small tricks one has to use for producing knowledge claims out of columns of figures and excerpts from scientific articles of their colleagues. All physicians know how tentative a medical diagnosis is, and they all know the tacit rules one must go by. All journalists know how to piece together fragments of interviews with international news agency telegrams to create a good story.

Ordinary people do not know that. They believe that men and women of science somehow "detect" molecules and stars out there, and that journalists report on "what is". Once again I want to draw on the findings of ethnomethodology. Because what the "ethnos" have shown, very convincingly I believe, in their so called "laboratory

studies" (Latour and Woolgar 1979; Knorr-Cetina 1981; Lynch 1985) is that objective, rational, formal, and impersonal knowledge, is produced and grounded in local, contingent and historical settings.

Once people understand that what is referred to as objective knowledge is nothing but human constructs, the knowledge-power regime might begin to crumble. Thus, if we were able to demonstrate, on a large scale, that knowledge has a human, subjective origin, it might be possible to dismount the power base.

REFERENCES

Adelswärd,V., K.Aronsson, L.Jönsson och P.Linell (1987): "The unequal distribution of interactional space: Dominance and control in courtroom interaction", **Text 7**,313-46.

Bahro, R. (1977): **Die Alternative**, Köln: Europäische Verlagsanstalt

Bauer, W. (1982): «Speech to the International Software Congress in Copenhagen 1982», quoted in Söderqvist 1983.

Bell, D. (1976): **The Coming of Post-industrial Society**, New York: Basic Books.

Bourdieu, P. (1975): "The specificity of the scientific field and the social conditions of the progress of reason", **Social Science Information 14**, 19-47.

--- (1977): **Outline of a Theory of Practice**, Cambridge: Cambridge University Press.

--- (1982): **Ce que parler veut dire**, Paris: Fayard.

Brzezinski, Z. (1968): "America in the technotronic age: new questions of our time", **Encounter 30** (Jan.), 16-23.

Bråten, S. (1973): "Model monopoly and communication: systems theoretical notes on democratization", **Acta Sociol. 16**, 98-107.

Burnham, J. (1941): **The Managerial Revolution**, New York: John Day

Böhme, G. (1984): "The knowledge-structure of society", **in** G.Bergendal (ed): **Knowledge Policies and the Traditions of Higher Education**, Stockholm: Almqvist and Wiksell 1984, pp.5-17.

--- (1986): "Demarcation as a strategy of exclusion: philosophers and sophists", **in** G.Böhme and N.Stehr (eds): **The Knowledge Society**, Dordrecht: Reidel, pp.57-66.

--- and N.Stehr (eds) (1986): **The Knowledge Society**, Dordrecht: Reidel.

Callon, M. (1980): "Struggles and negotiations to define what is problematic and what is not: the sociologic of translation", **in** K.Knorr, R.Krohn and R.Whitley (eds): **The Social Process of Scientific Investigation**, Dordrecht: Reidel, pp.197-219.

--- (1986): "Some elements of a sociology of translation: domestication of the scallops and the fishermen of St Brieuc Bay", **in** J.Law (ed): **Power, Action and Belief: A New Sociology of Knowledge**, London: Routledge & Kegan Paul, pp.196-233.

Collins, R. (1979): **Credential Society: An Historical Sociology of Education and Stratification**, New York: Academic Press.

--- (1981): "On the microfoundations of macrosociology", **Amer.J.Sociol. 86**, 984-1014.

--- (1986): "Is 1980s sociology in the doldrums?", **Amer.J.Sociol. 91**, 1336-55.

Disco, N. (1987): "Intellectuals in advanced capitalism: capital, closure, and the new-class thesis", **in** R.Eyerman et al (eds), pp.50-77.

Dolgoff, S. (ed) (1972): **Bakunin on Anarchy**, New York.

Dretske, F.I. (1981): **Knowledge and the Flow of Information**, Oxford: Blackwell.

Elias, N. (1982): "Scientific establishments", **in**, N.Elias, H.Martins and R.Whitley (eds): **Scientific Establishments and Hierarchies**, Dordrecht: Reidel, pp.3-69.

Elster, J. (1985): **Making Sense of Marx**, Cambridge: Cambridge University Press.

Eyerman, R., L.Svensson and T.Söderqvist (eds) (1987): **Intellectuals, Universities and the State in Contemporary Western Societies**, Los Angeles: University of California Press.

Feigenbaum, E.A. and P.McCurdock (1983): **The Fifth Generation: Artificial Intelligence and Japan's Computer Challenge to the World**, Reading, Mass.: Addison-Wesley.

Foerster, H.von (1981): **Observing Systems**, Seaside, Ca.: Intersystems.

Foucault, M. (1981): **The History of Sexuality**, Harmondsworth: Penguin.

--- (1980): **Power-Knowledge: Selected Interviews and Other Writings**, New York: Pantheon Books.

Freidson, E. (1986): **Professional Powers: A Study of the**

Institutionalization of Formal Knowledge, Chicago: The University of Chicago Press.

Friedmann, J. and B.Hudson (1974): "Knowledge and action: a guide to planning theory", **J.Amer.Inst.Planning 40**, 2-16.

Gouldner, A. (1979): **The Future of Intellectuals and the Rise of the New Class**, London: Macmillan.

Gustafsson, L. (1981): **För liberalismen** (For Liberalism), Stockholm: Norstedts.

Habermas, J. (1981): **Theorie des kommunikativen Handelns**, 2 vols, Frankfurt a.M: Suhrkamp.

Hayes-Roth, F., D.A.Waterman and D.B.Lenat (eds) (1983): **Building Expert Systems**, Reading, Mass.: Addison-Wesley.

Hechter, M. (ed) (1983): **The Microfoundations of Macrosociology**, Philadelphia: Temple University Press.

Heritage, J. (1984): **Garfinkel and Ethnomethodology**; Cambridge, Polity Press.

Hodges, D.C. (1981): **The Bureaucratization of Socialism**, Amherst, Mass.: University of Massachusetts Press.

Holzner, B. and J.H.Marx (1979): **Knowledge Application: The Knowledge System in Society**, Boston: Allyn and Bacon.

Johnson, M. (1987): **The Body in the Mind: The Bodily Basis of Meaning, Imagination, and Reason**, Chicago: University of Chicago Press.

Katzman, N. (1974): "The impact of communication technology: promises and prospects", **J.Comm. 24**, 47-58.

Kempler, W. (1974): **Principles of Gestalt Family Therapy**, Costa Mesa, Ca.: Kempler Institute.

Knorr-Cetina, K. (1981): **The Manufacture of Knowledge**, Oxford: Pergamon Press.

Konrád, G. and I.Szelényi (1979): **The Intellectuals on the Road to Class Power**, Brighton: Harvester Press.

Kuhn, T. (1962): **The Structure of Scientific Revolutions**, Chicago: University of Chicago Press.

Lane, R.E. (1966): "The decline of politics and ideology

in a knowledgeable society", **Amer.Sociol.Rev. 31**, 649-62.

Latour, B. (1986): "The powers of association" **in** J.Law (ed): **Power, Action and Belief: A New Sociology of Knowledge**, London: Routledge & Kegan Paul, pp.264-80.

--- and S.Woolgar (1979): **Laboratory Life: The Social Construction of Scientific Facts**, London: Sage.

Law, J. (1986): "On the methods of long-distance control: vessels, navigation and the Portuguese route to India", **in** J.Law (ed): **Power, Action and Belief: A New Sociology of Knowledge**, London: Routledge & Kegan Paul, pp.234-63.

Lynch, M. (1985): **Art and Artifact in Laboratory Science: A Study of Shop Work and Shop Talk in a Research Laboratory**, London: Routledge and Kegan Paul.

Lyon, D. (1986): "From 'post-industrialism' to 'information society': A new social transformation?", **Sociology 20(4)**, 577-588.

Lyotard, J.-F. (1984): **The Postmodern Condition: A Report on Knowledge**, Manchester: Manchester University Press.

Machajski, J.W. (1979): **Le Socialisme des Intellectuels**, Paris: Seuil.

Machlup, F. (1980): **Knowledge: Its Creation, Distribution, and Economic Significance. Vol 1: Knowledge and Knowledge Production**, Princeton: Princeton University Press.

Martin, B. and I.Szelényi (1987): "Beyond cultural capital: toward a theory of symbolic domination", **in** Eyerman et al. (eds), pp.16-49.

Masuda, Y. (1983): **The Information Society as Post-industrial Society**, Washington, D.C.:World Future Studies.

Maturana, H. and F.Varela (1980): **Autopoiesis and Cognition: The Realization of the Living**, Dordrecht: Reidel.

Merleau-Ponty, M. (1962): **Phenomenology of Perception**, New YOrk: Humanities Press.

Murphy, R. (1983): "The struggle for scholarly recognition: the development of the closure problematic in sociology", **Theory and Society 12**,631-58.

Nomad, M. (1939): **Apostles of Revolution**, Boston: Little, Brown.

Nora, S. and A.Minc (1980): **The Computerization of Society**, Cambridge, Mass.: MIT Press.

Nowak, L. (1983): **Property and Power: Towards a Non-Marxian Historical Materialism**, Dordrecht: Reidel.

--- (1986a): "Ideology versus utopia; a contribution to the analysis of the role of social consciousness in the movement of socio-economic formation", in P.Buczkowski and A.Klawiter (eds), **Theories of Ideology and Ideology of Theories**, Amsterdam: Rodopi, pp.24-52.

--- (1986b): "Science, that is, domination through truth", in P.Buczkowski and A.Klawiter (eds), **Theories of Ideology and Ideology of Theories**, Amsterdam: Rodopi, pp.106-122.

Parsons, T. (1966): **Societies: Evolutionary and Comparative Perspectives**, Englewood Cliffs, N.J.: Prentice-Hall.

Polanyi, M. (1958): **Personal Knowledge**, London: Routledge and Kegan Paul.

Popper, K. (1972): **Objective Knowledge: An evolutionary Approach**, Oxford: Oxford University Press.

Porat, M.U. (1977): **The Information Economy: Definition and Measurement**, 9 volumes, Washington D.C.: U.S. Goverment Printing Office.

Poster, M. (1984): **Foucault, Marxism and History: Mode of Production versus Mode of Information**, Cambridge: Polity Press.

Proposition 1986/87:100, bil. 10 (Swedish Government Bill 1986/87, nr 100, appendix 10).

Rorty, R. (1980): **Philosophy and the Mirror of Nature**, Princeton: Princeton University Press.

Schelsky, H. (1975): **Die Arbeit tun die Anderen: Klassenkampf und Prietserherrschaft der Intellektuellen**, Opladen (FRG): Westdeutscher Verlag.

Scherer, K. and P.Ekman (eds) (1984): **Approaches to Emotion**, Hillsdale, N.J.: Lawrence Hillsbaum.

Schiller, H. (1981): **Who Knows: Information in the Age of the Fortune 500**, Norwood,N.J.: Ablex.

Searle, J. (1969): **Speech Acts: An Essay in the Philosophy of Language**, Cambridge: Cambridge University Press.

--- (1981): "Minds, brains and programs", in D.R. Hofstadter and D.C. Dennett (eds), **The Mind's I: Fantasies and Reflections on Self and Soul**, Harmondsworth: Penguin Books, pp.353-73.

Simmons, G.L. (1983): **Towards Fifth-Generation Computers**, Manchester: NCC Publications.

Sintonen, M. (1984): "The pragmatics of scientific explanation", **Acta Phil.Fenn. 37**, 1-262.

Söderqvist, T. (1983): "Kunskap är makt: intelligentsian och statskulturen" ("Knowledge is Power: The Intelligentsia and the State Culture"), **Fenix** (Stockholm) **1** (3/4), 9-31.

Toffler, A. (1980): **The Third Wave**, London: Collins.

--- (1984): **Previews and Premises: An Interview**, London: Pan.

Touraine, A. (1969): **La Société post-industrielle**, Paris: Denoël.

--- (1981): **The Voice and the Eye: An Analysis of Social Movements**, Cambridge: Cambridge University Press.

Turkle, S. (1984): **The Second Self: Computers and the Human Spirit**, New York: Simon and Schuster.

Unger, R.M. (1984): **Passion: An Essay on Personality**, New York: Free Press.

Weber, M. (1968): **Economy and Society**, New York: Bedminster Press.

Webster, F. and K.Robins (1986): **Information Technology: A Luddite Analysis**, Norwood,N.J.: Ablex.

Wiener, N. (1954): **The Human Use of Human Beings: Cybernetics and Society**, Boston: Houghton Mifflin.