

GENERALIZED METHODOLOGY FOR SOCIAL RESEARCH

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### 1. Introduction

The problem to be discussed in this chapter can be formulated in one sentence. Given the epistemological crisis rocking the social sciences at the end of the 1960s - closely related to the general crisis of Western societies accompanying the Vietnam war<sup>(1)</sup> - what would be some of the modifications that should be made in standard social science methodology of the early 1960s? Or, choosing a formulation more adapted to the present author: what kind of modifications would one make in Theories and Methods of Social Research, building on the debate, trying to contribute to a richer, more meaningful social science? "Modifications", then, being taken to mean both alternative approaches and additional approaches?

The present is not an effort to rewrite all parts of social science methodology, including all of data collection, data processing, data analysis and theory-formation. Rather, it is a question of focussing the attention on some strategic parts of the methodology edifice, particularly on the very foundation of that edifice: the paradigms, the units and variables that form the basis for data-collecting, - processing and -analysis, and also for theory construction. These "units", however, are often human beings. To assess their position on any kind of variable, hence, is a form of social interaction. This in turn, is the material out of which politics is made, which means that there is a politics of data-collection, -processing and -analysis. There is no way around this dilemma; it becomes a question of what kind of politics, which policy to pursue. And that problem is not limited to data-collection alone: it has to be confronted in all phases of the methodological process.

So far we have defined two strategic problems in any methodology: the choice, or range of choice of units and variables; and social science as social, and hence political, interaction. The approaches taken to these problems will be different to broaden the range of choice of units and variables, but to limit the range of social interaction to that which is politically acceptable. More particularly, where the first problem would call for imagination, new approaches, the second problem calls for explicitly

ideological answers. And the ideology that will be used as a guide here is the particular value-combination referred to as Model IV society, a social order that is characterized by horizontality and diversity.<sup>(2)</sup> This may sound vague, flat, trivial, but has deep methodological implications as we shall attempt to show.

The two problems are related. If the politics of social science in general, and social science methodology in particular, is to promote social orders that are more equitable and less uniform, then the choice of units and variables has to take this into account. Both content and form, both the subject matter and the way the whole process is carried out can be inspired by the choice of policy to pursue. To some this will sound as a totally impermissible mixture of science and politics, at least at this general level of formulation. However, only few of those who might protest against the idea of letting values like "horizontality" and "diversity" have a steering impact on methodology would themselves actively work for a more vertical, and a more uniform social order. Or more precisely, they would not include these as steering principles, but rather claim that any impact in that direction of the methods of data-collection, -processing and -analysis is unintended. But that only begs the question "do you generally accept non-responsibility for unintended, negative effects?" - to which the answer may be "No, but the value of absolutely free, unimpeded scientific pursuit takes even higher priority". To which the question might be "Why - what should be higher on a scale of values than more equity and more freedom for the highest possible number?" - and so on. Clearly, the present essay cuts the discussion at that point and tries to build two explicit values into the premisses for choosing methodologies.<sup>(3)</sup>

## 2. The units and the variables

We see no reason to abandon the idea that the basic building stones are  $m$  units and  $n$  variables, but immediately add two considerations:

- we also add  $o$  time points explicitly so that instead of the  $mxn$  data-matrix the point of departure can be an  $mxnxo$  data box;
- we want to enrich the concept of "unit" and "variable" considerably.

The first and significant idea has already been analyzed in some detail in chapter 4,<sup>(4)</sup> suffice it here only to do a minimum of combinatorics. Thus, the set U of units may have 1 or m units, the set V of variables may have 1 or n variables, and the set of T of time-points may have 1 or o time-points, giving rise to a total of eight possible combinations; each one of them a "methodology" in its own right:

Table 1. Eight possible methodologies

	<u>U</u>	<u>V</u>	<u>T</u>	<u>Methodological type</u>
(1)	1	1	1	Data element
(2)	m	1	1	Distribution
(3)	1	n	1	Pattern
(4)	1	1	o	Trajectory
(5)	1	n	o	Case study
(6)	m	1	o	Trend study
(7)	m	n	1	Data matrix
(8)	m	n	o	Data box

At the top of the table is the isolated data element, one unit observed on one variable at one time point; at the bottom the complete data box with m units observed on n variables and at o time-points. Of the former nothing can be made since there is no contrast effect available; of the latter anything can be made, but it is also the most demanding methodology. Of the six in the middle the first three are poor methodologies: there is variation only in the units, or in the variables, or in the time points, yielding distributions, patterns and trajectories respectively. It is only the next three that give sufficient basis for real exploration. In the first of them there is concentration on one unit, but several aspects, and for several points in time - in other words, a (dynamic) case study. In the second case there is only one variable, but several units are studies over time along that variable, yielding the multiplicity of trajectories one might refer to as a trend.<sup>(5)</sup> And the last case is the (old) static data matrix which can be analyzed vertically in terms of its distributions, and horizontally in terms of its patterns.

A little more specificity can be worked into the typology by stipulating

- m = m (several units)
- n = 1, 2 or n (Uni-, Bi- or Multi-variate)
- o = 1 or o (Synchronic or Diachronic)

and we get the following typology:

Table 2 Six types of analysis

	Univariate	Bivariate	Multivariate
Synchronic	USA	BSA	MSA
Diachronic	UDA	BDA	MDA

BDA, bivariate diachronic analysis has been discussed in some detail in 4.5, and MSA is the same as MVA, the multivariate analysis on which all classical methodologies would have something to say. USA is the same as a distribution, and UDA the same as a trend. BSA is what most social science analysis is about - as indicated and explored in 7.4 - and MDA, multivariate diachronic analysis presents the analyst with problems that are far from solved in any intuitively easily grasped manner. We let that do as an indication of the possibilities when time is brought into the picture.

More significant is the conceptualization of the units. No doubt there has been a tendency to identify the "unit" with something countable and to stop counting already at 1 - the unit being one person, one district/association/organization, one country, one region etc. In so doing the stage is set for selecting variables that are attributes of units, using them to compare units. Relations between actors, for instance, like "A explicits B" are attributes neither of A nor of B but of the (A,B) dyad. Hence, the concept of units has to be enriched so as to include units that are dyads, triads, in general m-tuples. One could also go in the other direction and include units that have some kind of internal differentiation, consisting of sub-units, for instance, but that brings in nothing new. (6) The importance of including m-tuples as units of analysis has a clear illustration in the methodologies of the studies to the Club of Rome: always in terms of "rich" and "poor", not in terms of relations, for the unit of analysis is always a country or a region. (7)

Most significant, however, is the conceptualization of the variables, and here there are two aspects that merit attention: the content, and the trajectories traced by a unit along the variable, over time. The two aspects are related: by expanding the concept of variables one also opens for other trajectories.

As to content of variables: consider the following typology used in connection with a study of world order models, later used as a basis for the "World Indicators Program". (8)

Table 9.3. A typology of variables according to content.





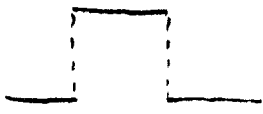


	<u>Differential variables</u> ( <u>"actor-oriented"</u> )		<u>Relation variables</u> ( <u>"structure-oriented"</u> )	
	Level	Dispersion	Bilateral	Multilateral
Having	<b>Material needs satisfaction</b>	Equality	Equity	Solidarity
Being	<b>Immaterial needs satisfaction</b>	Diversity	Autonomy	Participation
	Social Justice			

To the left are variables that apply to actors, in casu to human beings. The basic distinction is between having and being variables, depending on whether there is an element of material security involved or not. Most important would be the level of satisfaction of basic needs, material or immaterial. But there is also a dispersion aspect indicated by the notion of "equality of material needs" and "diversity for immaterial needs".<sup>(9)</sup> (Of course, if one dislikes these value-loaded notions, the variables can also be turned around and interpreted as lack of need-satisfaction, inequality, uniformity). Finally, there is social justice, interpreted as a relation between being and having variables, essentially as low correlation (what one has shall not depend on who one is). Again, the variable may be turned around to read "social injustice".

To the right are variables that apply to dyads (first column) and m-tuples (second column) of actors. This is not the place to define the variables (or their inverses, the antonyms exploitation, dependence, fragmentation and marginalization).<sup>(10)</sup> Suffice it only to say that they are meaningless as attributes of one single actor. But that also applies to such variables as equality, diversity and social justice: they are based on distributions and comparisons between actors, just as the four variables to the right are based on relations between actors.

The typology of Table 9.3 is only meant as an example, obviously geared to the present author's research interests. The example serves as an illustration of two principles: how values can be translated into analytical variables, and the introduction of variables that can be used to characterize structures, not only distributions - thereby referring to <sup>the</sup> higher order units introduced above (m-tuples). The following typology, however, is more than an example:

Table 4. A typology of variables according to trajectories.

<u>Continuous variables</u>		<u>Discontinuous variables</u>	
<u>Permanents</u>	<u>Quasi-permanents</u>	<u>Quasi-events</u>	<u>Events</u>
			*
			
			
			

Variables are divided into continuous and discontinuous. The extreme among the continuous variables is the constant, or permanent. We shall prefer the latter term for physicists have to some extent destroyed the meaning of the former in the direction of coefficient. Much more important as an example in social analysis would be a structure whereby a unit, an m-tuple in that case, is internally connected through a web of relations giving to the whole a high level of permanence - meaning that the structure of the unit remains even if the sub-units change.

On the other extreme is the event, symbolized with an asterisk. However, like the permanent it is an abstraction in search of a context. The permanent is only a permanent in a context of change, and is usually left out of any analysis because it is more difficult to detect. And yet it is through the possibility that what appears constant may nevertheless vary, and through its variation change the relations among other variables, that a major possibility is opened up for basic social change, as has been argued in chapter 3. And the event is only an event in context of something more permanent; in a world of no permanence (if such a thing can be imagined) the event would not stand out - the permanent would. And if we now assume that in the world there are

more permanents than events, not bothering about how we would substantiate a contention to that effect, we are left with the conclusion that the pure event is an abstraction, it has to be seen in a context.

The quasi-events do that for us: in the first the event is seen as a jump, in the second as a burst, short or long, and in the third as a series of bursts. In all cases the event is a discontinuity whereby something is brought into being that was not there before - something that may last or may disappear even bringing us back to the original state of affairs. In general, however, we shall refer also to these as "events", focussing on the jumps and bursts, not on the context of permanence.

The quasi-permanents are similar to permanents in being continuous, which means that the unit is "essentially" the same, only changing value. But they can also be made as similar to the events as we want by changing the shape of the trajectories, making for steeper turning points. In doing so a continuum is established conceptually between the permanent and the event. However, we shall regard the quasi-permanents as being closer to the side of constancy since so much is, in fact, constant (at least when the variations during a reasonable period of social time are not too large), and refer also to those as "permanents" since they exclude events.

That, then, leaves us with two big classes of variables: permanents and events, background and happenings, routine and ad hoc, and so on. The structure-oriented perspective in social analysis (right hand column of Table 9.3 being one example) would be strong on the former, even on "true" permanents; the actor-oriented perspective could be stronger on the latter since actors emit the special type of events referred to as acts. And this leads us directly to the question of how these types of variables relate to each other.

The first case, the relation between permanents and permanents is the simplest one. That continuous change one place is accompanied by continuous change elsewhere is an old thought form. Depending on the relative rate of change of the two variables all kinds of BDA trajectories can be produced; but the two-dimensional trajectory will always be continuous as long as the rate of change are.



The second case, the relation between permanents and events, is more interesting. The idea that continuous change is one variable can lead to discontinuous change in an **other** to jumps and bursts, is basic in dialectics, and can also be seen as an extreme case of a BDA trajectory with a very steep turning point.

But what about the third case, the relation between events and permanents? Obviously, an event can set a permanent into motion, a transition from quality to quantity, so to speak, particularly when the event is a transition from one permanent to the other. Think of an earthquake: prior to the earthquake an accumulation of tension, of stresses and strains between layers of different kinds has taken place; after the quake a new state of affairs has been created, geologically and sociologically - for instance in the form of a high level of readiness to believe that new earthquakes will take place, or a high level of readiness to share with others, among the victims. Or, simply this: a particular important act starts an institution, ie. something permanent. Or: a revolution sets a new structure into operation.

The fourth case, the relation between events and events is easily handled by actor-oriented, diachronic social science - which is what most of history is about. This is actio-reactio, an action dialogue, even a verbal dialogue with one event serving as an input for the other; in other words a well-known thought model. Like the first case it has the advantage of being within the same universe of discourse, with only continuous, or only discontinuous variables. It is the second and third cases that create difficulties because different types of variables are combined in more complex thought forms.

Let us now try to combine the points made about time, about units and about variables into some remarks about the methodology of historical research. There has always been a discontinuity between sociological and historical research, and not only because the former is more nomothetic/synchronic and the latter more ideographic/diachronic, but because the former is permanent/permanent oriented and the latter more event/event oriented. Sociology loses hold of the concrete social acts and reduces them to "patterns of behavior" by calculating rates, whether synchronic (how frequent is the person's act - eg. voting - relative to others at the same time) or diachronic (how does the person's action propensity vary over time). International sociology

would do the same for international actors, territorial (countries) and non-territorial (governmental and non-governmental, profit and non-profit). Correspondingly, history, at least micro-history that deals with very limited regions in space and time, may lose hold of permanents and quasi-permanents, in other words of structures and processes, because the structures are so obviously permanent in a limited space-time region, and the processes are so slow relative to the human life span that they would seem not to have an impact on concrete action. To grasp the totality acts emitted by the elites would be attractive as indicators of what is happening, whereas the more mass-oriented sociology has to reduce the unlimited set of concrete acts to something manageable by turning them into continuous variables for aggregates of people.

One way in which everything said above, particularly Table 4, can be useful in historical studies would be as a checking-list to see whether the possibilities where units and variables are concerned have been made adequately use of. Thus, in the "Trends in Western Civilization Program" one scheme of analysis looks as follows: (11)

Table 5. A survey of variable-types for historical analysis.

ANCIENT TIMES:	MIDDLE AGES	MODERN PERIOD
(1) _____	_____	_____
(2) _____	_____	_____
(3) _____	~~~~~	_____
(4) _____	_____	_____
(5) _____	_____	_____

The reader is asked to take the present formulation not as a statement in history but in methodology. Historical time (say the last 2.500 years) has been divided into three sub-periods with familiar names, and attention is drawn to five variable-types:

(1) Variables that are constant throughout the period. An example might be (a hypothetical) Western social cosmology consisting of a dialectic between expansive/outer-oriented/aggressive outlooks and contracting/inner-oriented/defensive perspectives, sometimes with one dominant, sometimes the other - but always with both present.

(2) Variables that are monotone throughout the period. A cluster of examples would be variables associated with growth as this is conceived of in capitalist, industrialized countries (production output, urbanization, growth of secondary and tertiary sectors, population growth, depletion and pollution growth etc.) turning upwards in the period after the industrial revolution.

(3) Variables that are constant in a sub-period, then change. An example would be (a hypothetical) underlying structure used to characterize a historical period, and its rapid transformation into another structure (thus, one hypothesis might be that the first sub-period was more of a Model II structure, the second Model I, the third Model II again - the rediscovery of which is called the Renaissance).

(4) Variables that are monotone in a sub-period. An example might be the idea that during the Middle Ages the surplus the upper classes were able to get out of the rest of society was decreasing, whereas in modern times it has been increasing, on a world scale. <sup>(12)</sup> From the point of view of the total period this variable is non-monotone.

(5) Variables that are non-monotone in a sub-period. An example would be all the variables used to describe how a society/system is born, reaches maturity, decays and dies (organismic analogies); the latter due to inability to cope with internal contradictions (Marx), external challenges (Toynbee) or the problem inherent in this-worldliness (Sorokin).

The diagram can be used to read off the situation now by reading vertically at the right hand end of the Table: increasing depletion/pollution associated with growth, increasing exploitation, fatigue phenomena inside the dominant structure itself. The virtue of assembling different types of variables for simultaneous inspection would consist precisely in the possibility of holding against each other the changing and the constant, asking how long the constant can remain constant before it undergoes fundamental transformations; playing on the whole gamut of units and variables. And the crucial problem, as indicated in chapter 6, would be how to combine structures as units with discontinuous variables: the whole problem of structural transformation. <sup>(13)</sup>

### 3. The Empirical and the Potential

How, then, can this generalized approach be used to go beyond history, into the future, to do simultaneously research on empirical and potential social worlds, and on the strategies leading from one to the other?

Fundamentally this is a question of choice of units and variables, but not only in the sense discussed in the preceding section. More important in this connection is to bridge the gap between the empirical world expressed in data, and the potential world expressed in values. To do this a set of units has to be well chosen: it has to include the units to which the values are assigned or attached, possibly in a context of other units, sub-units and super-units that come into play in connection with the value realization. And the variables have to be equally well chosen: ideally they should span the gap between the empirical and the potential, simply having different values in the empirical world and the potential worlds. The reader is referred to Table 9.3 for an example of the type of variables that can be used. All the nine terms used in the Table can be more clearly conceptualized as variables if their negations are added: to satisfaction insatisfaction; to equality inequality; to diversity uniformity; to social justice social injustice; to equity inequity or exploitation; to autonomy dependence; to solidarity fragmentation; and to participation marginalization. Obviously, the first two concern levels of satisfaction and are essentially variables applying to individual human beings as units, the next three have to do with distribution in society, and the next four have to do with the structure of social relations.

It may now be objected that the same variable cannot span the empirical and the potential without imposing on the two a certain continuity. But this objection is hardly warranted for there is no assumption to the effect that the variable is a continuous function of time: rather, it would probably very often be a discontinuous one, exhibiting an abrupt transition from one state to the other. Autonomy, for instance, is hardly something that comes about continuously, for instance by a sudden conversion, an awakening, even a decision

to be autonomous whereupon concrete actions are initiated. Both subjectively and objectively there is a transition from quantity to quality here, the new is substantially different from the old - which does not mean that they cannot be tied together conceptually in the same variable.

This is important because it is one way of overcoming the schizophrenia of contemporary social science, with one language of discourse for the exploration of the empirical world and another language of discourse, usually more ideological, more political, for the exploration of potential worlds. This is not necessarily a schizophrenia to be overcome since emotional attachment to the two worlds may be very different, and should be given free play. But at the same time there should also be a language within which one can reason about both in a more symmetric manner. This implies not only the necessity of narrowing the conceptual gap, but also the style of exploration and analysis. Thus, the exploration of values should be subject to much of the same intellectual discipline as the exploration of data. Take a concept like "equity": not only should one be forced to lay down precisely the conditions under which a "certificate" of equity would be issued; one should also explore such aspects as reliability, intersubjectivity and constancy.<sup>(14)</sup> And just as values could be handled more like data, data could also be treated more like values by exploring their value implications. The question: what does it mean to collect data relating to "economic growth" in the sense of "growth in gross national product per capita"? will receive a more clear answer today than 10-15 years ago, which does not mean that the question was not also meaningful at that time - only that the scientific tradition tended to filter away precisely questions of that kind.

In chapter 2, fig. 2.4 with comments a paradigm has been given for social research, with six phases. It can be simplified to three phases: explorations of empirical reality, explorations of potential possibility, and explorations of strategy, meaning transitions from the empirical to the potential. As our position is that full fledged social science should cover all three phases and not undergo voluntary self-castration by limiting

itself to the first phase only, one is invariably led to the problem of praxis. This goes beyond paper-and pencil-exercises stipulating trajectories from empirical to potential realities, and into concrete social action. The issue is not whether one only learns from praxis or also from praxis; the issue is that the scientific goal of consonance between various ways of conceiving of the world cannot be obtained except through action the moment values are not only introduced, but given, in many cases, primacy over data.

But this points to a complete model of social science activity, not to be permitted to become the enemy of a more limited model. If in addition to studying, say, prisons or mental hospitals, or credit systems the social scientist makes it a habit to take upon himself or herself the task of indicating, in some detail, what an alternative system would look like, with transition steps, the result is not only possible political gains, but also a great theoretical gain. For this form of presentation builds thesis-antithesis into the vertical analysis from the very beginning, understanding the empirical better in its contradiction with the potential, thereby opening for a more dynamic analysis of such contradictions, may one <sup>(15)</sup> day translate themselves into very concrete social forces. The Social scientists at the end of the Middle Ages capable of conceiving the alternative social reality of the Renaissance <sup>would</sup> have opened for an understanding of social forces just about to emerge. For this type of analysis the kind of "generalized marxism" Table 9.3 is an example of may serve: it points to basic social goals and mechanism of structural strain that constitute some of the material out of which historical dynamism is made.

Thus, it is our contention that for any social analysis as a very minimum some notion of verticality has to be reflected in the choice of variables, preferably also some notion of dissimilarity/diversity so that both key dimensions of conflict are present. <sup>(16)</sup> And the units have to be chosen in such a way that contradictions are located within them, and they have to be traced through time in order to explore how the contradictions unfold themselves; the entire dialectical process. <sup>(17)</sup>

#### 4. The Researcher and the Researched

One concrete application of that analytical scheme would be to explore how the relation between the researchers and the researched could be less exploitative, less dependence-forming, less fragmenting and marginalizing. The following are some suggestions in that connection.<sup>(18)</sup>

##### (1) As to exploitation:

It is quite clear what the general rule would be here: not to research on people, but together with people; not to act as a stimulus and registrar of responses, but to enter dialectically in a dialogue with the "researched". In that case they would, in fact, no longer be researched people but be part of a team, of an effort to explore some aspect of the social condition of humankind together.

Concretely, this would mean an abolition of vertical division of labor. If there is a social problem to be explored those who are personally involved in it would be taken into the research team from the very beginning, or would explore the problem together, formulate its dimensions and analyze their relation, and there would be no such thing as regarding others as the source of data and oneself as a source of insight in understanding these data. The finished product, the article or the book would be more of a joint affair, and would above all be available to those who are concerned, rather than to the power structure on top. Or at least: it would be equally available to all.

The basic point in this would be an understanding of research as one way in which consciousness formation takes place, and an understanding of equity (the opposite of exploitation) as a structure whereby such an important benefit as consciousness formation is not too asymmetrically distributed. Moreover, there would be the idea that the surplus from scientific production, the product itself, would be decided over by those concerned, by those who have really contributed to it - and here the researched and the researchers would enter more equally.

This is very far from the situation today, even so far as to sound utopian. To clothe it with more meaning let us look at the other three aspects.

(2) As to penetration:

The basic point here is to avoid any situation whereby researchers penetrate into the researched and are able to manipulate them simply because they possess more knowledge about the researched than the researched do about themselves, leaving alone than the researched do about the researchers. The key to this penetration lies in differential insight about each other, and this again is predicated on the assumption that the researched shall be willing to open themselves, lay themselves bare so to speak, whereas the researcher shall remain closed, unapproachable, secretive, even mysterious.

Hence, horizontality would not only involve more equality when it comes to what the two parties actually do in a research process, it would also imply a different attitude on the side of the researcher: a willingness to see oneself as a participant in the research process, not merely an observer registering it from the outside. In practice this would mean moving into concrete situations, experiencing the dynamism of social reality together with those formally regarded as researched upon, internalizing it in oneself and joining together reporting about what took place.

(3) As to fragmentation:

At this point it is quite clear that certain techniques very much favored by social science researchers would have to be used much less frequently. Random sampling that fragments individuals and presents an atomized image of reality that not <sup>only</sup> introduces a bias, but also increases the power of the researchers over the researched, should be seen not only as methodologically invalid, but also as morally illegitimate unless the researched have been properly informed and have agreed to it. The same applies to sequential testing of people in social psychological experiments, one other way of handling them one by one, but in time, since the hardware used in experiments is more expensive than the software used in an interviewing study where the fragmentation takes place in space.



Talking about experiments: the one-way screen is a good illustration of the vertical division of labor involved. A material factor, the one-way mirror, is used to amplify further the consciousness differential between the researcher and the researched: the researcher sees both parties, the researched only themselves. Combine this with sequential testing, and the verticality and fragmentation of liberal societies are almost perfectly reproduced (we say "almost" because reality is not that bad) in the laboratory.

(4) As to marginalization:

A key factor here is the way in which the researchers define themselves as first class citizens in the sense of constituting fixed points in the social universe from which changes in the second class, the researched, can be observed. A fundamental aspect of nonviolent social science, hence, would be to give up this type of asymmetry and have social scientists regard themselves as live and dynamic partners in social reality together with others, not as observers and commentators standing above it. For in so doing they are only, consciously or unconsciously, acting out a role which is some kind of peculiar mixture of teacher and judge, regarding the researched as incumbents of some type of pupil/defendant role. The social science investigation is a process whereby the latter, not the former is tested - characteristically enough, even the word "test" is made use of, particularly in psychological research.

In short, the alternative would consist of researchers who immerse themselves in social reality and together with others act out their hypotheses. To take an example: imagine the power structure is interested in having people live in X rather than Y, and buy product A rather than B - and engage a social science team to identify the conditions that facilitate and impede this desired change. Typically, social scientists might design "instruments" for this purpose, approach the researched with more or less realistically simulated experiments, and hand back to the power structure a report with the major findings. In so doing they would be instruments of the power structure, regardless of whether they define themselves as politically left or right.

The alternative would be, with or without power structure participation, to present the problem squarely to the population concerned and have it openly and freely discussed. Having done this one might decide together to create some experimental conditions and see what that would imply; one might simply start living in X and buying A to understand what this involves. The social scientists would themselves be parts of the experiment, and together with others make a report. In so doing not only would the spin-off effects from the research process be more evenly distributed; one would also avoid the use of social science for manipulative purposes.

But would this at all be science, or would it only be some type of political action, perhaps dignified by the term "action research"? But then, what is the difference? All human activities are politics one way or the other - we have tried in the preceding section to analyze in what way conventional social science is politics in the sense of reproducing and reinforcing structure violence. No doubt, by means of that method one is able to obtain a snapshot of static, individualized social reality - but not very able to obtain a live image of dynamic, more collectively experienced social reality. Neither of these two can claim to be "real" reality - which world is more real is for us to decide. But in doing so one at least has to be conscious about the relationship between social science methodology chosen and the image of reality rendered, not to mention about the non-scientific social functions of a given methodology. Even if one would not be willing to change completely to the alternative indicated here one should at least be willing to see how scientifically biased and politically loaded conventional methodology is.

## 5 Towards a Model IV social science

A Model IV society has been defined in the first chapter of this book as a society characterized by horizontality and diversity. Clearly, it is incompatible with its own negation, the Model I society characterized by verticality and uniformity - and the basic thesis running through this book is that this is the structure found not only in the organization of science, including social science, but also in the science product itself. Scientifically speaking we live in a Model I world with the center of the scientific pyramid located in the West, and more particularly in the center of the West as that center is defined in economic and geopolitical terms. The structure produces propositions and theorems linked together in hierarchical structures where it is taken for granted that the most fundamental work, in the very core of the scientific constructs, at the very top of the pyramid will take place in the center of the science structure, which again is the center of the present world system. Moreover, the science structure continues producing, and there is the idea of progress in science as much as there is an idea of progress in general: a convergence towards truth tempered with the idea that as the difference becomes smaller, the scientific gains relative to time, money, and energy invested will also be smaller and hence - possibly - the motivation also lower.

Thus, the total science system is easily seen as compatible with the present world system and compatible with basic tenets of Western civilization. <sup>(19)</sup> As that world system is currently threatened and Western civilization challenged, the organization of science structure and the structure of the scientific product will also be challenged, if not directly at least indirectly - because the social context in which they evolve will be different. <sup>(20)</sup> As there are many trends in the world today indicating efforts towards a more equitable and a more horizontal world, it makes sense exploring possible futures of scientific activity in the same light. In so doing philosophy of science is not very helpful: it has to a large extent been dominated by people who are either natural scientists or best acquainted with natural science and hence more likely to reflect a perspective science where

laws are seen as immutable, only hard to get at - certainly not as transcendable.

In a Model IV world which is not merely a polycentric world in the trivial strategic sense of that term, but a world "where each part is a center"<sup>(21)</sup>, and the parts not only are different from each other but are sufficiently identified with their difference to maintain it, perhaps even increase it, the present science structure will hardly survive. In a world which in addition to a Western center (with capitalist and socialist varieties) would have not only China, but also a distinct South-Asian center, an Islamic one, a black African one, perhaps an indigenous Latin-American one there would be less talk of science and more talk of sciences. Instead of a search for unified science, there might be a search for diversified science; hilarity at dissent rather than consensus. The diversity would, however, not be over details but over paradigms, may be also over even more basic aspects of the effort to explore reality. There would be less concern with convincing others, more concern with understanding them. What has been said in the preceding sections of this chapter would be one such model, a Model III model of how social science could be organized together with some guiding principles as to choice of paradigms. But there could be many, many others, in "peaceful co-existence". In short, where in chapter 1 we made use of sociological ideas to try to come to grips with the organization of science structure and the structure of the scientific product, here we would tend to turn to international relations in order to gain some insight in possible, perhaps even probable, future trends.

In such a world, what would happen to the idea of progress? Obviously, the question would be meaningless although it might be asked in plural: instead of one progress, possibly multiple progresses. In this diversity there would also be ecological strength: it is worth to remember that a person who is eagerly and energetically proceeding through a maze towards its dead endcenter, flawlessly without ever crossing his own path, will register his efforts as progress until he has reached the dead end.

What will happen to science as a meeting place, as a forum for real discourse because there is so much common ground? Again the question is probably wrongly put and could be rephrased in plural. But there is also room for a dialogue of civilizations, much more exhilarating because it spans much larger gaps in understanding than two mirrors reflecting each other because of the uniformity in a heavily asymmetric world.

In short: a more self-reliant world, not only economically and politically, but also culturally and scientifically. Self-reliance is the negation of dependence, and as such stands for not only independence (autonomy) in the sense of developing one's own paradigms and procedures, but also interdependence (equity) in the sense of being open to exchanges with those who are also willing to receive, not only to send. Self-reliance is not only self-confidence, it is also sufficient self-confidence not to be afraid of a dialogue. It is - to stick to the image <sup>(22)</sup> given in Matthew 28; 18-20 - not only to teach all nations "to observe all things whatsoever I have commanded you", but also to learn from all nations; and we shall be rewarded with a much richer image of the human conditions, and a much better basis on which to act.

N O T E S

1. No doubt if that war had been "won" the same way as the Soviet Union "won" the "war" in Czechoslovakia 1968 there would have been no "agonizing reappraisal". But precisely what were the problems that led to a basic critique of the way social science had been carried out? Here is one short list:

- the way the doctrine of value-neutrality served as an alibi not to question the political use of social science - handing over the insights in findings for any political implementation or even participating in genocidal and ecocidal practices;
- the inability to explain what the US was doing in Indo-China in terms of any one simple variable; the need for a more complex approach like the effort to maintain a total world structure (imperialism);
- the inability to explain the strength of the other side in terms of their resources; the need for a more complex approach including consciousness-formation and mobilization created by the struggle.

Thus, there was the critique of the ideology implicit in the "value-neutral" methodology of those who directly or indirectly contributed to the US war effort; there was the critique of the failure to grasp the totality of the confrontation and the critique of the failure to understand the dialectics of the struggle - how it created force in the "weak" adversary and weakness in oneself. On the other hand, it is not our argument that there is anything mystical, mysterious in this that cannot be captured, for instance, by means of the ideas expressed in the present book.

2. See chapter 1 and the references given there for more details.

3. Which does not mean that these are the only values, nor that they cannot be questioned; only that we want to explore the implications of having that choice as a basis.

4. See particularly 4.2 - also see chapter 1 of TMSR for a general introduction to the idea. There the distinction was made between "one", "few" and "many". But that would lead to 27 cases when time is also considered, so we prefer to combine "few" and "many" into "some".

5. Thus, the trend is based on  $m$  trajectories, and some averaging process is used to reduce the variety. That process may also be the selection of one unit held to be typical in that case the trend is based on one trajectory only.

6. In all of this there is something corresponding to the old atomic hypothesis in the sense of a temnein, not to be further divided. The somatic indivisibility of the human being may have impeded fruitful thinking about internal differentiation into sub-personal units, although there is no scarcity of indications in that direction (the struggle between Good and Evil; Id, Ego and Super-ego; role-conflicts, etc.) However that may be, the hierarchy of types of units, in the sense of a unit being an m-tuple of units one level lower down, is the same whether one works upwards or downwards in the hierarchy.
7. See, for instance, "Ecology and Class Politics", Essays, V.11. It does not help any to do as was done in the second report to the Club of Rome, to divide the world into ten regions. That only leads to more differentiated data, not to the type of units that can be characterized in terms of internal relations in addition to internal differentiations .
8. See The True Worlds: A Transnational Perspective, chapter 2; and also the Appendix where these variables are made more precise in an effort to operationalize them.
9. See Measuring World Development, Chair in Conflict and Peace Research, 1974. This is the basic ideology both of that paper, that research program and the present book: equality of having, but diversity in being, which would be another way of saying Model IV society except for one point: the "horizontalness" of Model IV society is based more on the idea of equity than equality; in other words equity in the production (division of labor) rather than merely on the consumption (having) side.
10. These are also the variables used to define structural violence and, in a particular combination, to define imperialism. See The True Worlds, section 2.4 and 4.2. Equity and autonomy can also be applied to m-tuples.
11. The reader is referred to papers in the series Trends in Western Civilization from the Chair in Conflict and Peace Research, University of Oslo.
12. This is a basic thesis in the important work of Immanuel Wallerstein.
13. Work on this is among the basic methodological problems of the Trends in Western Civilization Program. It goes without saying that the work of René Thom who more than anybody else has contributed to a mathematics of discontinuity becomes important here. See, for instance, his Stabilité structurelle et morphogénèse, essai d'une théorie générale des modèles, New York, Benjamin, 1971 (English translation by D.H. Fowler) - and special issue of the journal Synthese (vol. 31, no. 2 - August 1975) dedicated to "Mathematical Methods in the Social Sciences", with an article "Catastrophe Theory" by H. J. Sussmann.
14. For a distinction between these concepts, see "An Inquiry Into the Concepts of "Reliability", "Intersubjectivity" and "Constancy" ", Papers on Methodology, chapter 3.

15. A contradiction may be latent, a "social force" is manifest - the standard "liberal" mistake being to assume that there are no contradictions when no "forces" are observed.

16. It is then assumed that conflicts have vertical and horizontal components working on each other, such as class and ethnicity.

17. Thus, in "generalized marxism" of the kind advocated or indicated here there is no argument against the dialectical basis, but the concept of "verticality" has to become broader so as to comprise any kind of vertical division of labor - e.g. between professionals and clients, the basic contradiction attempted resolved in the Chinese cultural revolution (see, eg., Learning From the Chinese People by Johan Galtung and Fumiko Nishimura, chapter 8).

18. This section is also found in "Is Peaceful Research Possible? On the Methodology of Peace Research", Essays, I, 12. That the topic is important is a consequence of the entire reasoning in this book: there is an intimate connection between social structure and science structure.

19. Explored in the Trends in Western Civilization program under the heading of "social cosmology".

20. For an other exploration of the same theme see "Social Structure, Religious Structure and the Fight for Peace", Essays, I.17 where some guesses are made about possible future trends not only in the organization, but also in the content of Christianity.

21. From the Cocoyoc Declaration.

22. See above, chapter 2.4.