SOCIOLOGY OF DISASTERS

CONTRIBUTION OF SOCIOLOGY TO DISASTER RESEARCH

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CRITICAL THEORY IN SOC10LOG1CAL DISASTER RESEARCH

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1 - Introduction

The subject is subtle, so some preliminary discussion is necessary. Links between Critical Theory and sociology of disaster are not necessarily obvious or self-evident. The existing prejudice and ideology notwithstanding, societal idiosyncrasies in perception and interpretation have overshadowed an understanding of both. We should not expect that sociologists are immune. But this should not be upsetting (Gouldner 1970) even though in this particular case some cross-cultural complications further obscure the subject. Most of my German colleagues are definitely unfamiliar with sociology of disaster and many of my foreign colleagues might not be very familiär with Critical Theory and its current development (Friedeburg and Habermas 1983). A transverse introduction to both would have been indispensable but is not yet at our disposal. Biased by predominant characteristics of West-German culture and unfamiliar with foreign peculiarities, such an introductory attempt would exceed my capability. However, some remarks are necessary to reveal my own interpretation of Critical Theory, of disaster research, and of my "knowldege constitutive interests" (Habermas 1971).

2 - Theory of criticism and Critical Theory

Overstressing an expression by Adorno who declared sociology and criticism inseparable, in a first and naive attempt one might conclude that sociology of disaster, as a

part of the art, contains a critical potential too. In fact, many findings of disaster research have involved an element of constructive criticism but that is the intention of every applied science, irrespective of an underlying paradigmatic orientation. As defined by Matthew Arnold (1888), criticism is "a disinterested endeavor to learn and propagate the best that is known and thought in the world". Seen that way, only few sociologists would refuse to do the best to remedy harmful grievances caused by disasters, but many would argue about what "the best" is and, moreover, most of them would refuse to be tied by paradigmatic dogmatism defining specifically what "criticism", "grievance", or "remedy" mean or how these terms could be handled in practice.

Taking exception to Adorno's Statement, not every sociology is critical by intention, much less so "per se", nor is Critical Theory as developed by the "Frankfurt School" (Held 1980). Therefore, a distinction should be made between Critical Theory as the paradigm of "Frankfurthian sociology" and its followers, critical theory as a category for different paradigms critical by intention (Lakatos and Musgrave 1970), and sociology of disaster as a critical theory "per se". The latter might provoke sudden disagreement because of its sounding like an unfoundable exaggeration or as false generalization unaware of the broad variety of different approaches within the sociology of disaster. However, the definition of sociology of disaster as critical theory "per se" marks exactly the central point of this article.

To develop my thesis conclusively, an approach from different angles seems to be helpful. In a first step, guided by concepts of the sociology of knowledge (Speier 1952; Stark 1958), l should like to give the reader an idea of the historical background and of favorable adapatations of critical theories in West-Germany sociology of disaster whereas in the United States and other countries that apply disaster research, critical theories including sociology of the Frankfurt School have remained a minor paradigmatic orientation among many. In a second step l should like to draw attention to the development of sociological disaster research in post-war Germany and to its results which are

very similar to the anticipations of critical theories. In a third step, reconsidering a coal-mine disaster in 1908 in Germany, I should like to retrace the course of criticism leading to enlightenment but also into new myth (Horkheimer and Adorno 1972). In the fourth and final step, the dialectics of enlightenment will be examined in terms of the critical potential of sociological disaster research proving the fact that every disaster is a critic of reality, is a "real-criticism", or a factual falsification of human action and therefore gives evidence of the thesis that sociology of disaster is a critical theory "per se".

3 - Idiosyncratic background-assumptions

Reflecting on the relation between Critical Theory and sociological disaster research, we have to be aware of differences of national development that inhere in both components. In the Federal Republic of Germany, sociology of disaster is an embryonic specialization yet, hardly institutionalized and, up to the present day, clearly behind the vast empirical findings of the US-American original and its world-wide adaptations. Therefore, my knowledge of sociology of disaster is basically influenced by American approaches, nevertheless modulated by national characteristics. Hence, talking about the original is like carrying owls to Athens but talking about the national influence the intention of this first step in argumentation will become apparent.

In my point of view, the most important difference in development and application of sociological disaster research and critical theory in West Germany and abroad was caused by Fascism. Fascism and the effects of World War II gave rise to a systematic sociological disaster research in the United States (Williams 1954; Dombrowsky 1983a), which was supported by strong patriotic feelings against Nazism that most scientists had developed. Later, facing the threat of nuclear attacks causing "mega-deaths" and America's vulnerability at home, no one could have refused to enter into an alliance with the armed forces. The sociological part in this national effort was the investigation of mass

behavior under the extreme conditions of bombing in pärticular and of total war in general. Sociologists, as loyal as others, took the challenge as a Chance to conquer another field of application. Starting with Civil Defense Research in the first place, the useful counselling gave way to spread all over into the kindred fields of disaster relief and protection and business (Gallagher 1964) as a second step of institutionalization. After the experience of Korea, the Cold War, Vietnam, and Cambodia, the unreservedness of the early days gave way to a more critical reflection. However, the usefulness of sociological disaster research was never doubted fundamentally.

Turning to the whole of American sociology, analogous considerations are applicable. In the United States, sociology had already had a Status of high institutionalization and consolidation for a long time when sociologists started to reflect their relationship with political and economical power (ßecker 1970). The relative success of American sociology, hardly ever seriously curbed by political objections l believe with David E. Sutherland (1978), mostly depends on a close co-operation with those who expect practical advantages when applying sociological know-how. Contrary to the prejudice of many German sociologists, this applied approach is not necessarily dependent upon the development of a superficial empiricism that allöws American sociologists to joint even "dirty" business opportunistically (see Baritz 1970; Orlans 1967; Sjoberg 1967). No doubt that the latter does occur, but in contrast to German sociology, which tends to fear practical applications and to feel guilty when this occur, a collective feeling of guilt or fear is rarely found in American sociology.

The above considerations allude to an old prejudice difficult to do away with in post-war Germany. The idea of an empiristic, at best pragmatic, but theoretically undeveloped sociology in the USA (Feyerabend 1966; Hartmann 1967) and a highly advanced Standard of theory leading to empirically concerned research in West-Germany constitutes the predominant myth. Looking closer, even this myth throws a light onto the inconvenient bit of truth contained in it: the lack of institutionalization and application, the

hereditary disposition by philosophical traditions, and the moral and political failure of the social sciences during the Third Reich have led to a complex mixture of resignation, retreat, and cynicism but also of moralization and radicalization, all together inclined to close-system theories.

But without a clear understanding of this mixture which can only be indicated here, and of the political and moral significance of German sociology in exile, the conceptual differences in sociology of disaster and its reception in West Germany and other countries engaged in disaster research will remain incomprehensible. To make the point clearer, the causes of the lack of institutionalization of German sociology should be analyzed. Again, Fascism and war have to be seen as "prima causa". The cruel anti-Semitism of Nazi-Germany had enforced an intellectual blood-letting from which the academic life has suffered to the present day. Without an understanding of this historical context, an understanding of post-war sociology and especially of sociology of disaster in Germany would be impossible. The rebuilding of a sociology of good reputation, that is my assertion, has been indebted almost exclusively to the efforts and the influence of German scientists in exile and/or in resistance. Almost all of them tried to help conquer Hitler-Germany in one way or another. In the field of sociology, the most prominent attempts have been made by the "University in Exile" at the New School for Social Research, New York, the "Extension Division" at the Columbia University, New York, and the "Institute of Social Research", the former "Institut für Sozialforschung" in Frankfurt, originally founded by. Felix J. Weil, Friedrich Pollock, and Max Horkheimer. All of them had at first focused on anti-fascist studies but only the latter had conceptualized a complete theoretical analysis of Fascism (Jay 1973: 143 ff.). Herbert Marcuse made a further step when co-operating with the Office of Strategie Services and the State Department. To put it very briefly into another context, all these activities were the starting-point for the development of a good conscience of German sociology.

Later, Critical Theory, or "Frankfurt School" as it was

named after the resettlement in West-Germany, began to lose the positive image of anti-fascist science because of the indigestible harsh criticism of capitalism. Under the political pressure of the Cold War and the remilitarization of Germany, the good conscience of sociology was overwhelmed very rapidly and substituted by a German tradition keeping a firm hold of life: the condemnation of the art as being socialistic.

Tracing the history of condemnation back to the beginning of sociology in Germany, the mechanism of preventing this science from being institutionalized becomes obvious. Caused by inner-academic rivalry and little acceptance in the ruling class, the discipline remained without influence in the highest circles, though nevertheless influential at the level of public opinion. Even this early sociology had been regarded as too critical because of its being non-useful for the most powerful interests in the society of the Empire and, later, of the Weimar Republic. Max Weber's analysis of East-German farm laborers, for example, or of social betterment, or Ferdinand Tönnies' analysis of the strike of Hamburgian dockers (see Oberschall 1965) had been judged as too one-sided in favor of the underprivileged and poor. The so-called "value-free" science (Weber 1956; Israel 1972; Kelman 1968) may be seen as an intellectual reflex on this reproach. (And it is interesting enough that this reproach was reconsidered in the debate between Critical Theory and Critical Rationalism (Adorno 1969).

Moreover, the moderate sympathy of many sociologists with socialistic ideals had promoted an intellectual climate rendering possible and supporting the public. discussion on a broader basis but also underpinning the political Propaganda against sociology during that time. Except from those who made accomodations to the Third Reich, most sociologists were "freed" into retirement, imprisoned or sent into exile. After the war, supported by the Allies' objective of Denazification, the critical, anti-fascist lineage of sociology began to influence German thinking again. But contrary to capitalist reconstruction and the reactionary practice of Cold War, the decline of critical sociology to the verdict of being communistic accelerated with the help

of those who had more or less cooperated with Fascism.

Furthermore, the first large-scale application of sociological knowledge in society reinforced the defamatory identification with socialism: the political and social changes during the late 60s and early 70s, prominently supported by the students' movement, have been theoretically armored by Critical Theory. Far from mere accident, Critical Theory was not only anti-fascistic but also unorthodox and anti-authoritarian. The openmindedness to psycho-analysis, aesthetics, and new social movements, as well as its appropriate elucidations of new phenomena of post-capitalistic super-structure magnetically attracted the youth. Scared by anti-authoritarian rebellion and political revolt, the eider generation's conclusion next at hand was to label sociology as well as every kind of criticism "revolutionary". In an ideological misstatement, the Frankfurthian idea to declare sociology and criticism inseparable, was misused to identify criticism with Critical Theory, Critical Theory with sociology and sociology with "revolutionary science". Thus, the gate was opened for repudiation of every kind of criticism – even the necessary and constructive – which was regarded as leftist or communist.

Far from false romantization, the mechanism of defamation worked rather similarly in the United States. Due to its connotations of "students' movement", of "revolt" and "revolution" (Marcuse 1972; Adorno 1967), of so called "radical sociology" (Colfax and Roach 1971) tending towards political change (Habermas 1970; Schroyer 1973), or, less radical but somehow suspect, of "dialectical imagination" (Jay 1973), or, on the whole, of "Philosophy of History" (Schmidt 1976), Critical Theory was repudiated as well. As a political, value laden approach, scientifically unserious and therefore unrecommendable for an upcoming science, sociology of disaster should be cautious in adapting theory while desiring to be appliable and funded. Consequently, Critical Theory was repelled or at least handled carefully although sociology on the whole remained acceptable.

All this considered, in the United States sociology in general and sociology of disaster in particular had not been substantially encroached upon by the political shockwaves of

radicalized thinking based on Critical Theory. The advanced degree of institutionalization, the high degree of application, the continuity of historical development, and, above all, the plurality of tolerated theoretical orientations gave way for a broad body of disaster research serving as a model all over the world (Baker and Chapman 1962; Quarantelli 1982a).

In comparison with the development in West Germany, another effect of Fascism has to be taken in account. Contrary to most other countries, the discontinuity of our history afflicted the establishment of a sociology of disaster very effectively. Due to the allies' war aim of Demilitarization, Civil Defense as well as direct weaponry was forbidden. Therefore, disaster protection and disaster relief have kept a ring of militarism because of their total integration into the armed forces during World War 11. In the course of the Cold War when West Germany was integrated into NATO and therefore rearmed, the reconstruction of Civil Defense was speeded up again. Initiated by the Federal Civil Defense Agency, disaster research started as Civil Defense Research, identifying war with disaster (Ploog 1975). Similar to the American Situation it was hoped that trouble could be avoided by transferring the results won by analyzing "normal" civil disasters on the possible events of war. But contrary to the Situation in the USA, no legitimization was available in Germany to allow critical sociologists such a co-operation. Especially the strong political Opposition of that time against the rearmament of Germany supported the establishment of a new taboo in science: Don't get yourself into deep water, leave politics and the military alone! So it took almost 25 years and the foundation of a independent research committee on Civil Defense and large-scale disasters, the "Schutzkommission beim Bundesminister des Innern, Ausschuss VIII" (Advisory Board of the Federal Minister of the Interior, sub-division Vlll), was needed to motivate sociologists to establish some co-operation in this area.

This brief outline of the development makes it clear that the German approach of sociological disaster research was and is still much more complicated when compared to other

countries. The likelihood of selecting a critical theoretical framework was and is much higher as well because of the political and moral responsability due to the German past. Thus, it is plain that co-operation with federal agencies or with the armed forces would necessitate complete theoretical clarification. No sociologist would take the risk of being blamed for doing research into war or for "shady" policies. Consequently, one should not be astonished at the attractiveness critical theories in general and Critical Theory in particular exerted on the early German sociology of disaster.

4 - Sociological disaster research in West Germany

Germany does not belong to the disaster prone areas of the world (World Map 1978; Neumann and Voss 1979), and even man-made disasters are very rare. So there has not been a direct need for sociological disaster research analyzing the behavior patterns of afflicted masses. In fact, new types of disasters have changed the proneness in Germany, too, inducing needs for sociological research (Clausen and Dombrowsky 1983). Tracing back the development to its beginnings, it must be said that disaster research has not been of academic interest. The starting-point, as shown above, was set by the Schutzkommission. Lars Clausen, elected member of that commission, and Wieland Jäger have been the first who did sociological disaster research in the Federal Republic of Germany on behalf of the commission's purposes.

So being the first in that delicate field, the most important and first step has to be the political clarification of one's own position and scientific orientation. Influenced by dogmatic Marxism and the preferred paradigms of his cohorts, Jäger tried to integrate Conflict Theory and some concepts of Critical Theory like culture industry and manipulation with general Political Economy and the concept of class-struggle. Dedicated, to closed-system theories, Jäger (1977) conceptualized a theoretical framework that examined the connections between the social System

and its disasters, i.e. he did not conceive of disasters as external events striking society but as results of conflict between social classes and their antagonistic interests. Perhaps Jäger goes too far asserting the end of disasters simultaneously with the end of conflict and class-struggle. But analyzing some real disasters, his approach proved the fact that in most cases individual economic advantages caused dangerous situations which lead to disasters afflicting people collectively.

Jäger, looking for orientation marks and available research material, analyzed in a second step a selection of works of American disaster sociologists. His approach in mind, he criticized the predominant functionalism only because he and Paul Conlon (1976, 1978) judged it to be ideological and reactionary. Underlying their German experience and tradition, they argued that American studies are based on wrong assumptions. In their point of view there is no classless, conflictless society, no consensus about the basic societal values, no well functioning "normality" only externally disturbed by accidents and disasters, and there is no nonviolent idyllic community life with happy families sticking together in solidarity when disaster strikes.

Summarizing his and Conlon's arguments, Jäger (1977: 164) found six basic factors of the "scientific failure of the American sociology of disaster". He calls the starting point "idealistic" because a non-antagonistic social System is assumed; a homogeneous character of normative values is postulated; a functional integration of all societal Subsystems is affirmed; the mechanisms of capitalistic Systems are described as the only rational ones; the reduction of the causes of disaster to nature, technology, and the individual prevents a scientific, sociological discussion of disaster, and it frees scientists from the responsability and necessity to explain disasters by human action; and the use of concepts of masses and mass behavior is anti-working-class and ideological.

Based on the same selective material but on other traditions and cohorts and influenced by different theoretical orientations like Exchange Theory and Sociology of Figurations (see Elias 1956, 1978), Clausen (1978; Clausen

et al. 1978) argued in the same vein when he and his co-authors denied that disasters have to be interpreted as sudden events occuring independently and isolated from the social processes evolving in. This "analytical dead-end" (Clausen et al. 1978: 61) according to the authors, is an obsolete viewpoint necessary to prevail over. Again, Clausen et al. (1978: 62) criticized the structural-functionalist approach and concluded: "The predominant conditions, the political, economic, and cultural spheres are not questioned but rather declared as a not-to-be-disturbed order of things" including the consequence that the preferred normative goal should be to protect society from disturbance and return it to normality as soon as possible. 1t is worth mentioning that very similar concepts have been developed in Italy by Pelanda (1982b).

On the one hand, l admit, one might argue now that what one sees here is nothing but the reappearence of the conflict theorists vs. the functionalists battle which has raged so hotly in most sub-specialties of sociology. But obviously, the debate has tended to abate in recent years, although it has nevertheless widened the awareness of our basic assumptions as well as of our conduct by Weltanschauungen. Seen that way, the choice of a paradigmatic orientation affords a glimpse of one's Weltanschauung behind. Interpreted as a general framework, Weltanschauung and paradigm allow to organize the empirical data in terms of causality (see, for example, Mills 1959) as well as to identify one's understanding of what causality should mean. So, on the other hand, the central problem of our discussion is less a controversy between different paradigms but rather the paradigmatic capability to explain the causal coherence of empirical phenomena in dependence to one's Weltanschauung. Thus, tracing back the course of criticism in terms of philosophy of science, the way critical theories influenced sociology, Critical Theory, and disaster research likewise might become obvious.

1t is basically owing to Jäger (1977: 66-74) that attention was drawn to the conception of disasters being social events which are "produced and consumed like other negative goods in society" such as pollution or malnutrition.

Contrary to other authors, he explained their origins foremost with view to class-conflict, ideology, and manipulation but his approach was criticized for political reasons, and hardly any critic was aware of the fact that this kind of criticism furthered the ignorance of the important objective of elucidating causality. In its last consequehce, the shift of primary cause towards class-struggle does not allow to identify causal combinations and their importance during the modes of origin of and coping with disasters. Deducing sub-causalities from the primary cause "class conflict" is, of course, not impossible but no empirical evidence is given that proves class conflict to be the top-algorithm in the control set of societal change (Terwey 1984).

Clausen (1978) tried to solve this problem by expanding the set of algorithms by introducing a scientifically more accepted model. Also denying the distinction between "natural" and "man-made", he explained the origin of disasters exclusively with view to cultural interdependencies. But instead of the mono-causal impulse of class struggle, Clausen's center-piece in the hierarchy of causes is the exchange of positive and negative social sanctions within the fields of societal differentiation.

In his macro-theoretical model of long-term origins of disasters, Clausen (1983) demonstrates the effects of exchange of sanctions within the Professional disaster relief. As an unintended drawback of the division of labor, the professionalization of disaster relief renders the laity more and more unable to cope appropriate with disasters. As an intended drawback, professionalization provokes the rise of expertocracy developing strategies of absolute necessity, domination, and superiority, monopolizing the capability and distribution of help. In the end, general helplessness is the unintended consequence making every disaster worse because of the unpreparedness and the decline of disaster culture of the potentially afflicted population.

Compared to L.J. Carr (1932) who defined a disaster as a failure of the cultural protection measurements, some advantage can be found in Clausen's approach. In the first place, Clausen analyzed the processes of social interaction

instead of the hardiness of cultural measurements against dangerous challenges. Therefore, no artifacts will be metamorphosed into an active actor but the planned and intended effects as well as their failures will be seen as human activities. Contrary to Carr, only the social decisions and interactions leading to an unfit measurement can fail but not the measurement itself.

Due to this approach, Clausen's distinction between action and effects of action leads to another theoretical improvement. In most cases the anthropomorphisms we use mislead our analytical lucidity. The idea that measurements, tools, or materials fail hides the fact that human deeisions and interactions have produced them. Thus, our explanation that measurements fail frees us from investigating the underlying processes of decision and interaction. Moreover, the anthropomorphistic phraseology shifts causality into measurements (like: the ship rides out the storm) and hides the human interests behind too. That way, terms like "success" or "failure" are only labels for states of events covering the processes that have lead to them. The term "disaster" also describes a state of event by an "ex post facto" viewpoint that includes a valuation. In some cases the valuation only depends on the specific interests of disaster relief agencies that define disaster either in terms of their own capabilities (Westgate and O'Keefe 1976), or, more generalized, in terms of a demand-resources ratio (Smith 1957). Nevertheless, disaster is defined by political or economical interests only after an event whereas the social processes leading to the event are neglected as well as the interests behind them. The sociology of disaster should now analyze not only what happens after the occurance of a disaster or what is done before in terms of disaster management (Wallace and Karwan 1984) but also the processes of decision and interaction leading to events that are defined as disaster after occurance.

Another aspect of so-called "cultural measurements" has to be considered. As Norbert Elias (1956, 1978) and T. Burns (1958) demonstrated, control and conduct seem to be the most important objectives of human action. To avoid dangerous surprises and uncertainties, social action is preferably

transformed into reliable repetition and certitude. Thus, perpetual action is often transformed into ritual, norm, institution, or Organisation which react upon human action like the "silent force of circumstances" (Marx). Accordingly, human action appears in process and in manifestation; both forms will influence interaction as counterparts.

Volker von Borries (1979), for instance, argued that every technical apparatus is the instrumental manifestation of a social relationship between a human being and the material he wants to manipulate. Every measurement, every tool, every technique is only the objectivation of this relation, mediated by an instrument. A hammer, for example, incorporates a silent cultural user's manual that instructs us not to pick flowers with it but to use it like a steely fist. Otto Ullrich (1979) even more radically argued that technology generally incorporates the predominant algorithms of the era it was invented in. He tries to exemplify his assertion by the factory System and the conveyor belt that incorporate a specific System of discipline, co-operation, Organisation of labor and capital, and human alienation. Thus, exploitation and power are the constituent parts of industry used in all existing economies. Those who are exposed to this mode of production neither can escape this conduct nor win insight into its side-effects.

Again, the final conclusions are political valuations that lead to an interpretation of our material culture as a "Gehäuse der Hörigkeit" (Max Weber) although other interpretations are as plausible. But apart from political valuations, the above criticism contributes a noteworthy theoretical improvement: the objectivations of human action, the cultural manifestations, generate similar effects as the existence of expertocracy does. Interacting with both, people only know that they function but not how, why, and what the possible side-effects are alike. Contrary to the process of social action, its manifested form is no longer reflexive and reversible during action. Moreover, additional action will become necessary to modify or change these manifestations. Therefore, the manifestations of social action do not act themselves but influence the process of action by more or less visible conduct. In emergency or

crisis situations this conduct may become counterproductive because of its tendency to suppress more appropriate solutions or modes of action (or production). Interpreted this way, cultural manifestations cause a moment of inertia that is comparable to some sort of cultural autodynamics that may also cause failures and losses.

Summarizing the above considerations, a theory of disaster as social action is initially conceptualized (Dombrowsky 1980) that allows to distinguish between different causes leading to disaster without using different approaches for explanation. Moreover, the problem of defining disaster is solved by dynamization of the events into processes of interaction. Disaster no longer is an entity of itself acting like a God, or a living thing ("disaster strikes"), or something else supernatural and unexplicable. Easily the whole discussion of physical and/or social impact (see also the criticism by E.L. Quarantelli 1981a) will become obsolete as well as any retreat to unsociological concepts such as Barry Turner (1978) used when defining disaster as wrong amount of energy in the wrong place at the wrong time.

But apart from the advantages of a homogeneous sociological conceptualization of a disaster theory, the explication of disaster as an unplanned and unintended result of human activities, above a certain degree of tolerable disturbance (Dombrowsky 1981a, 1981b) gives way for a misleading sociologism. 1t is not only human interaction itself or interaction with material culture and its autodynamics that may generate failures but also the interaction with nature and its own autodynamic and self-organizing processes (Prigogine 1978; Riedl 1980). Most authors in the field extensively reflect on human interaction with nature -- especially since the ecological debate has focused on these Problems – but only few have analyzed the autodynamic, self-organizing aspects of nature while developing theories of new disaster phenomena. Discovering resistant germs, mutated species, unknown synergetics and chemical compounds, or unknown diseases and epidemics side-effects of third order became manifest. If we are to analyze the processes leading to this manifestations (which are the real "dose

encounter of the third kind") the unforeseen response of the autodynamics of nature of the effects of first and second order (the planned/intended and unplanned/unintended) of human action should be the object of our science.

For good reasons, Critical Theory declined the use of a concept of nature for describing an autonomous sphere beyond human action and history (Breuer 1984), because it should be demonstrated that nature has always been exploited by mankind. So finding pesticides in the antarctic ice or modifying climates by Clearing the tropical forests we realize that we have never lived in a virgin nature but only in a successively cultivated transformation called "Second Nature". In my point of view, Critical Theory argued against a false romantication and idealization of nature (Schmidt 1971), whereas only little attempt was made to explore the hidden side-effects of praxis. But it is the side-effect that undermines the importance of praxis as a lever with which knowledge becomes possible.

Nevertheless, the early Bourgeois Weltanschauung that believed in the domination of nature more and more crumbled with every new "man-made" disaster (see the controversy on "mental disturbance" and "demoralization" in the aftermath of TM1 and other modern disasters, described by Dynes (1983a), Dombrowsky (1984)). The increasing counterstrikes of effects of human action that was neither planned nor intended but which collided with the planned and intended actions (Dombrowsky 1981c) brought to mind that the human interference in the metabolism with nature are neither fully understood nor carefully. accomplished with respect to the misrelation between little knowledge and severe interference (Clausen and Dombrowsky 1984; Rifkin 1980). Due to the fact that the increase in number of "man-made" and ecological disasters expand the global losses of reproductive substance as well as of our capability to cope with the total of effects of second and third order, i.e. the outcome of interaction between the unplanned and unintended effects with the planned and intended and with the autodynamics of nature, we can draw and exciting picture of disaster research now.

According to my definition that every disaster indicates

a collision between planned and intended actions with unplanned and unintended side-effects (see Bloch's concept of economical crisis (1972: 433 ff.)), disaster research, in my point of view, should analyse the total of interactions leading towards this collision rather than the actions enforced by the collision, i.e. the relief work, and its ideological definitions. The former would be an assessment of disaster causes leading to very effective disaster prevention measurements and a very broad clarification of our consciousness. Apart from all actual restrictions that hinder such a large-scale, perhaps even global assessment-process, the central problem is how to conceptualize an appropriate theoretical framework that will allow to deduce a hierarchy of algorithms that will in fact avoid disastrous collisions as well as political plain-sided valuations. Right here we have to discuss the mode of human knowledge-production and the contribution of critical theory and of German disaster research.

As described earlier, the German understanding of critical sociology suggests that Critical Theory is only one —although an important— part of the process of criticism that tries to "learn and propagate the best that is known and thought in the world". Therefore, my first sketch of an utopian sociological disaster research is drawn as an eclectic picture that uses all those particles of theories that will help to make a heuristic contribution of criticism to sociology of disaster. Standing on the shoulders of giants even a dwarf is enabled to look over barriers. Many giants I haven't quoted explicitly nevertheless their findings are used. The highest ranking problem of many critical works is how to conceptualize a framework that allows to identify the causes leading to disaster before its occurrence. Especially in the social sciences, this problem is of importance because in contrast to the physical sciences no laboratory tests are possible with human action.

An appropriate technique to achieve this was described by Max Weber (1956: 188) who discussed the problem of unanticipated effects, social costs, instrumental reason, and means-end rationality much earlier than Merton (1968) or Forrester (1971), Kapp (1963), Marcuse (1941), or Habermas

(1970) did. In his analysis "The objectivity of knowledge", Weber's argumentation consists of four Steps: First, science is able to judge the appropriatness of means for given ends. Second, comparing the available means with given ends the likelihood to reach the ends becomes decidable. Consequently, the ends themselves become decidable because it is pointless to seek ends without appropriate means. Third, science is able to assess the possible side-effects of means during application and their consequences for reaching the ends. Fourth, setting the costs of possible side-effects against the advantages of reached ends, rational decisions can be made.

As a result of such an expanded process of assessment science, Weber adds, automatically pulls the fact to consciousness that every action as well as every omission mean a partisanship for specific values and – necessarily – against others. Thus, the criteria for a rational decision can be based on scientific assessment although they would still depend on individual value preferences. In Weber's point of view, science is not allowed to give advice to a person as to how he should decide (principle of "Wertfreiheit" = value-free science) but science is allowed to assess the decision-leading values as well as other social facts.

To a certain degree, Weber's approach resembles Habermas' (1974: 22 ff.) idea of self-reflection that would lead to insight in the conception of the world. The rational assessment of one's actions and values, Habermas hoped, would coincide with the interest in autonomy and responsability or, in other words, with "emancipatory cognitive interest, which aims at the pursuit of reflection" (1971: 197 ff).

However, the assumption that a societal climate will rise that leads to permanent discourses without domination does not make sense unless we presume the existence of an emancipatory cognitive interest. Undistorted communication will than make possible an intersubjective assessment of all means and ends finally negotiated and harmonized in the framework of public insight. Conducted by a semi-anthropological cognitive interest (the old utilitarianism may be the

other half of Habermas' "knowledge for the sake of knowledge"), the coherence between individual and common interests will become visible and decidable and the conflict of public affairs and individual advantages can be terminated.

Weber (1956: 283), who did not believe in harmony of public and individual affairs, was more concerned with the individual's application of rationalized assessments. Interpreting society as competition and fight, he argued that human interests tend towards domination rather than emancipation. In order to dominate others, it is essential to hide ends, means, and value preferences because it makes most decisions easier. Consensual decisions on means and ends would bear the risk to compromise in action and advantages because of the collective levelling down to average acceptance. Consequently, in competing societies the most profitable way of reaching one's ends is to be the first in action and the first in shifting risks on to other shoulders. Gerda Zellentin (1979, 1980) described these "shift-off"-strategies with view to ecological disasters.

According to Turner (1978: 1) it becomes more and more likely that human intervention in environmental processes upsets the balance of the natural metabolism we depend on. If we continue to Step up our interfering with natural and social processes qualitatively as well as quantitatively, the risk of counterproductive effects that collide with intended and planned action will increase, too. But instead of applying the highly advanced techniques of assessment and Simulation on a commonly helpful level, the advantages of operations research, cybernetics, Computer Simulation, and global surveillance data are monopolized by multi-national companies and the armed forces all over the world. Thus, all sorts of failures will indicate the ideology of progress and welfare behind the promises of those who prefer to shift-off risks instead of managing them. This discrepancy in action reminds us of the distinction made by Critical Theory between that what really happens and that what is pretended to happen. Thus, reality should be judged according to what remains behind its own pretence. The gap between pretence and reality will indicate where the truth lies. Johan

Galtung (1971) argued in this context that truth is kept from consciousness by force. According to his definition, power is the cause of the distinction between the factual and the possible. In principle it *is* possible to assess all processes leading to disaster but in fact the power of disposition that allows to use the total of available data defeats insight in truth. Therefore, the segmentation of competition even puts the consciousness of the powerful in the shade because of the lack of a picture of totality. Totality will be understandable only by analyzing the interplay of particular and universal, intended and unintended. As far as this analysis of totality will remain impossible, disasters are the price mankind has to pay for the anarchical interferences of planned and intended vs. unplanned and unintended effects of human activities.

1t is to be hoped that the imagination of what l have outlined in the preceeding paragraphs will lead to a conception of disaster theory that allows the deduction of analytical truth from a totality of intervening factors. This hope may be called naive and scientifically immature because we all know factual restrictions that will hinder global assessment and planning. On the other hand we also know that large-scale failures have made obvious the necessity of global solutions. In terms of technical capability assessments are possible on a certain level, or in other words, the means of assessment are available by now although political interests seem to refute its application (Dörner 1976; Hoffmann 1984; Lindner et al. 1984; Vester 1980).

Of course, we do not yet know the right top-algorithms that would keep the unplanned and unintended effects under control and avoid their future production. On the other hand we know as well that traditional disaster research is no longer appropriate because of its inductive method. In the presence of disasters like Bophal, Love Canal or Swerdlowsk (see Medvedev 1979), and in the presence of impending disasters (Cousteau 1984; Rose 1984), the objective of disaster research formulated by Leighton (1949: 37) must be regarded as inappropriate. To let the people "know in advance what the survivors would know afterwards" must

become cynical when our knowledge of what will happen is based on millions of victims. Therefore, disaster research needs a sociological framework for detecting disastrous developments in advance. The proverb "once bitten, twice shy" may represent the common-sense echo on learning-processes that after an error made a new trial possible but today it is more appropriate to learn without deadly trials.

5 - Disasters and the dialectics of enlightenment

Viewed from a very high level of abstraction, the investigation of disasters starting after its occurence resembles the inductive method: From a unique and single event, a universe of possible causes has to be concluded. But without the imagination of this universe the ränge and scope of possible causes cannot be anticipated. Mere description or vertigo in the circles of hermeneutics will be the alternative. Nevertheless, inductive disaster research has another quality. Reanalyzing the mining disaster of Radbrod, Germany, in 1980, Wolfgang Pabst (1982) who is not a disaster sociologist demonstrates conditions and possibilities of induction that cumulates knowledge and finally leads to deduction.

The increasing need for coal of that time (which was a pre-war era) produced two major side-effects. Intensive mining made security measures a matter of only secondary importance, and the chance of making money by doubling shifts totaly exhausted the miners. Within the limits of "normal" technological risks that were taken into account at that time (Perrow 1984), the likelihood of the occurence of äccidents or disasters was considerable. Despite all kinds of shortcomings and forseeable dangers, the miners participated in the advantages they gained from an enforced production. However, having lost comrades, health, or jobs in the disaster, the survivors became aware of the relation between safety costs and profit rates which simultaneously led to political awareness. Consequently the miners of Radbod joined with those of other mines and, once organized, claimed better working conditions and initiated the estab-

lishment of unions. Moreover, the nation-wide shockwaves of emotion and compassion strengthened the pressure on the inadequate System of social welfare, health care, and education so that first Steps were made towards improvement. Taking all this into account, it can be said that the disaster had a positive side-effect. Like a catharsis, it brought about considerable social and political change which would not have been the case without the occurence of disaster.

Seen that way disasters (as manifest onset of cpllisions between planned/intended vs. unplanned/unintended) will react specifically with both forms of human action. The processes of action return to reflexivity and changeableness, the objectivations of action, the cultural measurments, loose their ability to order and conformity. This change (which is often called "Interruption") presents itself as opportunity to transform an open situation into new order. Thus, disasters may become a key to open the "Gehäuse der Hörigkeit" and invent future insights.

Examining the function of disaster research in the aftermath of the Radbod mining disaster, the dialectics of enlightenment will become obvious. On the one hand, disaster research helped discover the correlations described above. These findings instantly became a political issue because they could be used in the interest of the miners. The entrepreneurs, however, accused these findings as being socialistic and initiated their own research program concluding that human failure are to be blamed for causing the disaster. Enlightenment was turned into a new myth when political arguments neglected the sum of findings. As to the official explanation,. the miners agreed to a political deal accepting the vi.ew that the disaster was caused by human failure. As a result, they received better payment, better training, and a special payment for the families of the killed comrades. The early concepts of improvement developed by the miners were lost in that arrangement. They had asked for participation in site-planning, security surveillance, and an independent factory inspection. Without these improvements, combined with the official Propaganda of human error, the first insight in disaster production was

immediately lost.

Speaking more generally, the insight induced by every disaster expands our knowledge and leads to a concept of totality that enables us to predict disasters more and more precisely. Ultimately, this concept will also include the complex case that anticipating and reflecting subjects will turn predictions into self-destroying or self-fulfilling prophecies, i.e. observe warnings or silence them (see Clausen and Dombrowsky 1984). The so-called snow-disasters in Northern Germany in 1978/79 demonstrated the fact that it was not the snow that caused the disaster but the interdependency of some important cultural algorithms. In other words, in order to cause the breakdown of a society it is important to interrupt its central supply/systems, not to get wet by snow or rain. To put it without irony: 1t takes almost thirty years to make a society dependent of only one energy supply System like electricity; it takes the same time to let small shops die and substitute them by mobile shops that will stop supplying when roads have to be closed and it takes more than thirty years to change the whole infrastructure in a way that makes self-help almost impossible. Seen that way, disasters are continously pending but nobody knows when and how they will occur. Only a complete assessment program will detect the long-term effects on an individual, group, socio-structural, or global level.

6 - Disasters: Factual falsifications of human progress

Exaggerating again, l assume that disasters are the only phenomena in the world that have to be explained. Whatever mankind does is self-evident in a certain respect, the successful transformation of findings into techniques, tools, instruments, or commodities is a quasi-explanation, or, in terms of philosophy of science, a verification of one's knowledge. To put it simply, successful praxis is an explanation "per se". Seen that way ,the whole bourgeois Weltanschauung is a theory of verification. The modern man produces his own world; to do this better every day is

called progress and rational insight. But, as explained earlier (Dombrowsky 1981c), every failure becomes a criticism of human capability and knowledge. During the process of Bourgeois emancipation from Feudalism and clericalism fäilures in the demiurgian attempt of mankind were perilous. Condemned as a sacrilege, the new order of enlightenment could only succeed in doing things better. Doing things better meant to be productive in labor and technology. Every failure in both fields was interpreted as a sign of God, as falsification of the new order. Therefore it was essential for the survival of Bourgeois order to avoid fäilures, and to hide them from public awareness if they should nevertheless occur.

On the background of our present knowledge, the process of enlightenment could have been completed by now if rational insight would be complete. In other words: As long as fäilures are stowed away, human rationality is split in half, and enlightenment is only a political pretense among others. As in philosophy of science which does not accept verifications as final proof, human praxis should not accept success as final proof as long as fäilures are a definite falsification.

Therefore, in my point of view, correct praxis is the keyword in human action, but this cannot completely be defined in terms of technological success or of correctness of the planned and intended action. As Max Horkheimer (1935: 345) puts it:

> Truth is a moment in correct praxis: he who identifies it with success leaps over history and becomes an apologist for the dominant reality.

As long as the unplanned and unintended effects of human action are not added to our concept of reality we only believe in a phantasy instead of understanding the factual reality or, to use another word, totality. Separated from a definite theory of the entire effects of action, every epistemology remains pseudo-concrete. Thus, the idea of positivism that reality is expressed by empirical facts is only half of the truth. Georg Lukäcs (1971: 162) anticipated this problem theoretically:

> To leave empirical reality behind can only mean that the objects of the empirical world are to be understood as objects of a totality, i.e., as the aspects of a total social Situation caught up in the process of historical change. Thus the category of mediation is a lever with which to overcome the mere immediacy of the empirical worid, and as such it is not something (subjective) foisted onto the objects *from* outside, it is no *value-judgement* or "ought" opposed to their "is". 1t is rather the manifestation of their authentic objective structure.

But whereas most critical theories define the category of mediation in terms of political praxis which is unaware of its own side effects, too, it is necessary now to focus on the structural mistake in these attempts. To Marx and Engels the working class was to be the sole catalyst of the new order that should conquer the bourgeois antagonisms. But in the late capitalist societies, Horkheimer argued, material conditions like culture industry and mass media were such that the working classes were no longer suited for this role. Critical Theory then focused on another category of mediation between superstructure and substructure. The missing link was psychology that was to enlighten the hinderences of insight in totality to overcome the mere immediacy of an empirical worid that cannot realize its authentic objective structure.

On the basis of my considerations l should like to criticize this shift in focus. The idea that insight in totality is hindered by psychological structures confuses appearance with essence. Thus, l should like to shift the focus again defining disasters as a category of mediation. Disasters are the only falsification we can find in reality that will prove the truth, the empirical correctness of our practical knowledge as well as our epistemologies. As "factual falsifications", disasters are the missing link between theory and praxis, appearence and essence. The knowledge of totality is established as soon as we know what the empirical relation between planned/intended and unplanned/unintended effects of all Orders really is. Then we shall understand the authentic objective structure of our worid,

then disasters can be prevented.

When new disasters will happen we will possess a factual --not a theoretical-- indicator, a real test of praxis, that points at a new lack of knowledge in our investigations into the coherence of our planned and unplanned effects. Seen that way, the challenge of enlightenment is to have courage to focus on failures rather than on success. Our whole Weltanschauung (as well as our scientific paradigms) would change if we took failures as a starting point and if we tried to avoid them. Sociological disaster research has started to do so already, which is why l call it critical "per se".