

## *Science and Social Responsibility in Neo-Marxist and Christian Perspective*

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In ancient Greece, science was the theoretical contemplation of God and the divine order of being. Science was 'theory', literally 'God-seeing'. Scarcely any serious attention was paid to the social responsibility of science and of the scientist.

In the Middle Ages, science was a study in the schools of what the classical writers and the Church fathers had written. Science was 'scholasticism', the abstract approach to science in the monastic and cathedral schools of the Church. Here also the practical and social responsibility of science was hardly in question.

Only with the start of modern times did something begin to dawn. Francis Bacon expressed this with the enchanting formula: 'knowledge is power'. The practical dimension of science came within reach. Since then, science became empirical and experimental, endlessly rich in possibilities of practical application.

Applied science and scientific technology emerged from this newer experimental science. The possibility had arisen of ordering physical reality through reason and to reconstruct it in the scientific mould. With the invention of the compass, steam engine etc., man increasingly imagined himself to be the Lord and Master of nature. He robbed the physical world of its natural riches and started the industrial production of goods in an ever increasing stream. Science as applied science, as technology and machinery, had found its way into practice.

The next step was taken in the 18th and especially the 19th century. The idea arose that not only physical but also human and social reality should be ordered in a

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reasonable and scientific way. Society may not be left behind in the smothering morass of historical traditions nor may it be left to the uncontrolled growth of economic production and class differences. It ought to be re-organized on a rational basis. The positivist Ernest Renan formulated the aim of science as ‘organizing humanity in a scientific way’ (*organiser scientifiquement l’humanité*). In short, the [76] practical dimension of science should also be a social dimension. Science must result in social responsibility.

It was only one more step from this view to what is now called ‘social criticism’ which means taking critical responsibility for society in terms of a plea for social change or even social revolution. We already find such a social criticism in the middle of the 19th century, in Karl Marx. In this context, the famous words of Marx come to mind: ‘The philosophers have only *interpreted* the world, in various ways; the point, however, is to *change* it’.<sup>1</sup> According to Marx, science arises out of social practice and must also return to it again in a critical way. In Marxist jargon this is expressed by the words ‘theory and praxis are one’.

This inter-relatedness of theory and praxis is characteristic of the entire Marxist view of science. It can be found in Marxist-Leninist theory, which functions as the official party ideology of the communist world, a party ideology that is inspired by Marx’s *Capital* and Lenin’s revolutionary writings. It is also found in neo-Marxism, the views of Marxist dissidents and non-conformists in western countries who are also inspired by Marx, but then primarily by the Marx of the *Economic and Philosophic Manuscripts of 1844* and other early writings.

The inter-relatedness of theory and social praxis is also taught by the Frankfurt School, a centre of neo-Marxist thought that was established in Frankfurt am Main already before the Second World War. During the rise of Hitler in Germany, these neo-Marxists, many of whom were Jews, began developing their view of science and society at Columbia University. Since 1949 the school was re-established in Frankfurt. The so-called ‘critical theory’ of the Frankfurt School is the point of departure for this paper. Since the 1960’s, it has been primarily this theory that has influenced the ideas of radical students, both in Europe and in the United States, on ‘critical science’ and a ‘critical university’. This theory is also the starting point for a younger generation of neo-Marxists, including Jürgen Habermas, who made

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<sup>1</sup> ‘Die Philosophen haben die Welt nur verschieden *interpretiert*; es kommt darauf an, sie zu *verändern*’, *Theses on Feuerbach* XI.

important contributions to the contemporary discussion on social criticism.

### ***Horkheimer and Critical Theory***

I will begin by discussing Max Horkheimer, the spiritual father of the Frankfurt School. In an important article, ‘Traditionelle and kritische Theorie’ (‘Traditional and Critical Theory’) in 1937, Horkheimer put forth critical theory’s view of science.<sup>2</sup>

Critical theory goes against the accepted traditional view of science, a view that neo-Marxists often crudely classify as ‘positivistic’. According to Horkheimer, science in the traditional view is a general system of theoretical propositions directed to a certain field. Such scientific pro-[77]positions should, according to the traditional view, be tested in practice, but in themselves they are of a strictly theoretical nature. Scientific propositions and scientific theories merely strive for increased logical unification and integration. This tendency towards integration must, if possible, lead to one closed theory, one abstract universal system of science that would then be ultimately valid for, and applicable to, all possible areas and could be the key to explaining all possible processes in reality (KT 137, CT 188).

According to Horkheimer, this traditional ideal of science described here is primarily applicable to the natural sciences. However, the sciences of man and society also strive for such an abstract, ideal theory. They do not have any practical intent. They strive for the most general theory of social life, an abstract systematic overall view of the phenomenon of social life in which the explanatory description of more specific social phenomena is subsumed and included (KT 142, CT 193).

Science in the traditional view seems to be neutral, independent, objective and a-historical. That is to say, its validity seems to be independent of person, place and time. This is a fatal mistake! The reverse is true — science, in the aims and results of its research, is motivated by concrete-historical, social, technical, economic, industrial and military interests. On the traditional side, the so-called positivists and pragmatists are often willing to acknowledge such motivation, but only as a personal

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<sup>2</sup> In: M. Horkheimer, *Kritische Theorie: Eine Dokumentation* (= KT) (Hg. A. Schmidt), Frankfurt a/ M: S. Fischer Verlag, 1968, Band II, pp. 137-200 (‘Traditional and Critical Theory’, in: M. Horkheimer, *Critical Theory* (= CT): *Selected Essays*, translated by M. J. O’Connell and others, New York: The Seabury Press, 1972, pp. 188-252).

matter. In their view, this motivation could explain the personal commitment or practical involvement of all sorts of people, but it would not influence the independent structure of science as such (KT 145, CT 196). Science itself is still viewed as a purely theoretical enterprise of which the practical possibilities of application should be considered afterwards.

In Horkheimer’s view this is a serious, albeit explicable, mistake. In reality, the presumed autonomy and independence of traditional science over against the concrete social situation can be explained from out of the extensively developed division of labour in the capitalistic production system in which everyone carries out his own specific task and scarcely reflects on the possible meaning of it for the whole of society. The scientist is also a specialist who only thinks about his own area. Thus, from out of the division of labour and the specialization in modern society, the illusion of a neutral, unprejudiced science arises.

According to Horkheimer, social facts do not exist independently of each other and science itself has to be considered as a social fact. Thus, science is not in a detached, neutral position over against the rest of society. Science does not simply render an objective view of the social situation, it acts on it continuously and vice-versa. Human knowledge and social situations both have a historical character, they are both [78] results of a life praxis, that is to say, of human action. Even given the fact that traditional science unconditionally accepts the given world just as it is (although it is often unacceptable as being unreasonable and inhuman) and reproduces it in thought, it nevertheless does something with it: it supports the given order by stating: ‘these are the facts’ (KT 149 ff, CT 200).

Horkheimer’s starting point is clear. It is the fundamental Marxist idea concerning the unbroken unity of theory and praxis, ‘die Einheit von Theorie and Praxis’ (KT 179, CT 231). It is his conviction that theory always has a practical intent and that this practical point must be acknowledged and taken hold of. That is the practical concern of critical theory.

Critical theory deliberately does not accept society as it is. It wants to do something with it. It realizes that society is not something given, but that it is the (often unconscious or undesired) result of human action, for which man also carries responsibility. Exploitation and repression are of concern to him, not only as a private person or as citizen, but also as a man of science. If a society is irrational and

unjust, then it is the scientist's task not only to observe the facts, but also to reveal their irrationality and to fight against this with all his might. He should not simply systematize or explain facts, but protest against them! In short, critical theory sees itself as belonging to a praxis, a revolutionary process, a historical movement that strives for the liberation of society.

### *Questions Concerning a Critical Science*

Is true science not always empirical science? In the article under discussion Horkheimer argues that indeed, this is true. But just as science is not neutral, neither is experience. Experience too is rooted in a particular concern, a specific interest. A specific interest is needed in order to become aware of the social trends towards repression and economic exploitation, just as there is also a certain interest at stake when these trends are ignored by certain groups (KT 160, CT 211, 212).

So the question arises as to the nature of the true interest. Contrary to Marx, the neo-Marxists, including Horkheimer, are convinced that it is not necessarily correct that the true interest is that of the proletarian class, which by now has become totally integrated into the existing social order. The critical intellectual has his own responsibility to work in the service of social liberation. Nevertheless it will be necessary for critical theory to form a dynamic alliance with the class or classes that need such liberation.

To what is the true interest directed, the interest that most deeply concerns all people and that is also the interest of critical theory? In [79] answering this question Horkheimer takes up the ideal of the positivist Renan, 'organizing humanity in a scientific way'. Critical theory is directed to a society of free people, who organize society on the basis of rationality, with, as a basic given, the present state of technology and production forces. Science is always being led by a political or social interest, but critical science is not concerned with the established society, which only furthers the freedom of those who are economically strong. The interest of the true, critical science is directed towards a different, more just, form of society (KT 171, CT 222).

Consequently, the logical structure of this critical science differs from that of traditional science. Traditional science uses general, abstract categories (of physical

energy, e.g.) in order to subsume more concrete concepts under them (for example, of thermal energy). It tries to grasp the individual and concrete from out of the more general and abstract. Everything is ultimately oriented to the general system, as we saw before. It is true that critical theory also speaks in general concepts (for example, of exchange relations or commodities), however, it only uses these categories as instruments for grasping one individual, concrete and fundamental socio-historical phenomenon. Critical theory in fact merely wants to grasp the basic form and necessary development of contemporary Western consumer society. In such an existential judgment, society is not reproduced as just one of many social systems which follows universal laws and in which processes continually repeat themselves, but as a very special individual case. The major question becomes that of the fate and future of this Western society: what tendencies are going on in the modern industrialized world in which we live? Only from out of this particular point of view can the general givens or processes be placed in perspective (KT 177, CT 229).

The struggle of critical theory has as its purpose the transformation of modern industrial society from a chaotic to a meaningful whole, to a necessary unity that the free people themselves demand on rational grounds. Critical theory does not want to submit itself fatalistically to the necessity of the given societal structure that has grown historically or has been forcibly imposed. It sees the unconscious expansion of modern consumer society as an interaction of primarily blind forces: an irrational necessity. This irrational necessity is expressed in enslaving work, alienated people, lack of freedom. However, it can and must be changed into a rational necessity, that is to say, into a societal structure that is so rational that it provides for human freedom: necessity is then no longer identical to force, but to freedom (KT 179, CT 231).

In its attempt to reach this goal, critical theory does not have a definite point of departure or blueprint of the ideal society. It just participates in the process of emancipation, using as its only guiding [80] principle the interest in freedom and liberation, the elimination of social injustice (KT 190, CT 242).

For the sake of clarity, it is important to emphasize that for Horkheimer traditional science and critical theory are not absolutely opposed to each other. Horkheimer himself points out that traditional insights can be taken up into, and be

interpreted from out of, a more comprehensive and more dynamic view of society (KT 165, CT 216). Under the influence of neo-Marxism, scientists working in a specific field need not begin entirely anew, but they must keep in mind what the social function of their science is. They must consider whether their scientific activities curb human freedom or whether they further the process of emancipation.

### ***Habermas' Theory of Interests***

One of the later representatives of the Frankfurt School, Jürgen Habermas, took up the ideas of Horkheimer's 'Traditionelle und kritische Theorie' ('Traditional and Critical Theory') in his inaugural address in Frankfurt am Main in 1965, called 'Erkenntnis und Interesse' ('Knowledge and Human Interests').<sup>3</sup> He further developed these ideas in his major work of the same title that appeared in 1968.<sup>4</sup>

Habermas retains Horkheimer's main views on critical theory. He however distinguishes three types of sciences and three kinds of interests involved in them.

Firstly he distinguishes the 'empirical-analytical sciences', which for him means the natural sciences. Their interest is that of the technological control over objectified processes (TW 157, KHI 309). The natural scientist wants to gain objective systematic knowledge of the world in order to be able to control it. Secondly he distinguishes the 'historical-hermeneutical sciences'. They arise from out of a practical interest in mutual understanding and communication (TW 158, KHI 310). The aim of the human sciences is to arrive at an intersubjective insight, to personal knowledge, to understanding of the reality of man and fellow man. Finally, he distinguishes the 'systematic sciences of action', such as economics, sociology and political science. These sciences operate to some extent in the same systematic way as the natural sciences. However, as social sciences they have a fundamentally different task. They must, together with philosophy, be critical towards the object of their study. These critical social sciences are guided by a third, emancipatory, knowledge interest, an interest in liberation and freedom (TW 159, KHI

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<sup>3</sup> In: J. Habermas, *Technik und Wissenschaft als Ideologie* (= TW), Frankfurt a/M: Suhrkamp Verlag (1968), 1978<sup>9</sup>, pp. 146-169 ('Knowledge and Human Interests', in: J. Habermas, *Knowledge and Human Interests* (= KHI), translated by J. J. Shapiro, Boston: Beacon Press (1971), 1972<sup>2</sup>, pp. 301-317).

<sup>4</sup> *Erkenntnis und Interesse* (= EI), Frankfurt a/M: Suhrkamp Verlag, Mit einem Nachwort, 1973 (*Knowledge and Human Interests* (= KHI), translated by J. J. Shapiro, Boston: Beacon Press (1971, 1972<sup>2</sup>).

310, 311), the same interest that Horkheimer had emphasized, as we saw previously.

Over against the commonly accepted ‘positivistic’ view of science that [81] still assumes that scientific thought is objective and impersonal, Habermas wants the sciences to reflect critically on the above-mentioned interests that guide knowledge (the ‘*erkenntnisleitende Interessen*’). It need hardly be said that for Habermas the third one, the emancipatory knowledge interest, is the most vital one. Critical reflection on the emancipatory interest must therefore stimulate the scientist’s critical reflection on the other interests as well. It must provoke him to ask why and to what end he is doing his research and how these interests relate to the ultimate concern for human freedom. Habermas believes that the other sciences must subordinate themselves and their interests (of technical control and practical understanding, respectively) to this interest (EI 244, KHI 198). In this way, just as Horkheimer, Habermas wants to integrate the traditional insights of science into an all-encompassing social-critical view. This comprehensive critical view must show that the drives towards technical control of nature or towards practical communication in society are ultimately motivated by the drive towards freedom: man wants to rid himself of the yoke of the encrusted natural or social order. Whenever in social history this drive to freedom is no longer operative in technology and/or in practical life, society becomes deformed and must be broken open through criticism.

How can critical theory actually build a bridge towards praxis? How can theory break through the coercion of society and achieve freedom? Habermas has presented two models for this. He found the first model in Freudian psychoanalysis. In the process of analysis, the psychiatrist attempts to make the patient conscious of the way in which he has repressed his problems and frustrations. Precisely by making the patient conscious of this repression mechanism can he be cured, because the repression as repression is taken away as soon as the patient becomes aware of it and recognizes it as such. So theory can become therapy. What happens here on an individual scale is for Habermas a model for what must happen on the social level by means of critical science (EI 348, KHI 287). People must become aware of the sickness of a repressive society.

The second model that Habermas uses is that of ideology critique. An ideology can be defined as a rationalization, a reasoned justification of social circumstances that are actually unjustifiable. Ideology critique shows how all kinds of theories (for

example, the economic idea of the just exchange) and beliefs (for example, the theological idea of God’s providence) can have an ideological aspect: the theory of the free market mechanism and the dogma of divine providence can be used to maintain injustice. But whenever someone critically discovers such an ideological excuse in himself, he is at the same time freed from it. That is why critical thinking is explosive, liberating thought. As soon as science [82] reflects critically on the usual tendencies of modern science and especially exposes its drive for control, it simultaneously evokes the need for and the power of liberation (EI 83, KHI 61).

### *From Optimism to Pessimism*

Thus far neo-Marxist theory demonstrates a certain amount of optimistic rationalism. It is as if the good, that is, critical, insight would necessarily lead to the good deed, that is, to the elimination of injustice and to emancipation. Is this true? Let me give one example! At the beginning of modern times the political philosopher, Machiavelli, exposed the deceptions and manipulations of the rulers of his time. There is, however, no evidence that this has ever brought a statesman to repentance or has prevented misrule. Machiavelli himself never expected this or meant this to happen by means of his theory! That critical theory just by exposing evils can bring about the good is an unfounded assumption.

However, it is to the credit of critical theory that it itself has become critical about its own theoretical capacities. In order to clarify this development, some other thinkers of the Frankfurt School must be looked at. First I will consider Herbert Marcuse, the second architect of critical theory. Just as Horkheimer, Marcuse already at an early stage, in 1937, made a fundamental contribution to the critical view of science. I am here referring to his essay ‘Philosophie and kritische Theorie’ (Philosophy and Critical Theory’).<sup>5</sup> Here Marcuse also distantiates himself from the accepted way of doing science. On the one hand, he emphasizes that critical theory is more than a specific science (for example, economics) because it is not only directed towards an aspect, but to the totality of society. On the other hand, he stresses that critical theory is more than a philosophical system because it is not purely

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<sup>5</sup> In: H. Marcuse, *Kultur und Gesellschaft* (= KG), Frankfurt a/M: Suhrkamp Verlag, 1965, Band I, pp. 102-127 (Philosophy and Critical Theory’, in: H. Marcuse, *Negations: Essays in Critical Theory* (= NG), translated by J. J. Shapiro, Boston: Beacon Press (1968), 1969<sup>2</sup>, pp. 134-158).

theoretical and reflective, but is directed to concrete material change (KG 103, NG 135).

The fundamental idea of Karl Marx of the relationship between theory and praxis is also found in Marcuse. Marcuse says that critical theory is not concerned with theory as such. Critical theory aims for the practical realization of reason in concrete social relationships, in the rational organization of mankind (KG 140, NG 136), in the transformation of the economic structure, in the realization of freedom and happiness (KG 112, NG 144).

In this context, Marcuse places a strong emphasis on phantasy and imagination. Later he continually comes back to this theme, among others, when, in *Eros and Civilization*, he deals with 'phantasy and utopia' and with 'the aesthetic dimension'.<sup>6</sup> [83]

Only imaginative phantasy, not conceptual thought, can distantiate itself from what exists, and, as it were, anticipate the society of the future, the realm of rationality and freedom. 'The abyss between rational and present reality cannot be bridged by conceptual thought' (KG 122, NG 154). Conceptual thought is far too much bound to the existing order. Imagination however spreads its wings. As anticipation of the future, it has a great degree of freedom, greater freedom than philosophy which is bound to the problems and structures of the past and present. Inasmuch as the human imagination does not ignore the present state of technological development, it points to possibilities for actually surpassing the established order (KG 123, NG 155).

The increased emphasis that Marcuse has subsequently placed on cognitive phantasy is striking. It can be compared to the interest of another leader of the Frankfurt School, Theodor Adorno, in art, literature, and music. It also reminds us of Horkheimer's later appreciation of religion. This pronounced interest in such non-conceptual forms of human expression as phantasy, art and religion colours the more recent development of the Frankfurt School. This is related to a growing mistrust in this circle for traditional science and its entire conceptual apparatus. Since World War II, the Frankfurt School has tried to explain and to justify this growing mistrust

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<sup>6</sup> *Eros and Civilization: A Philosophical Inquiry into Freud*, Boston: Beacon Press (1956), 1966<sup>2</sup>, Ch. VII, IX.

by means of the theme of ‘dialectic of enlightenment.’<sup>7</sup>

Using this theme, Horkheimer and his followers have stated that at the beginning of history reason and its enlightenment freed man from his subjection to nature, but only in the first instance. Since then, the development of science and technology has gone through a dialectical reversal in history and has had the opposite effect. Liberation turned into mastery and subjection. For knowledge not only led to liberation from, and mastery over, physical nature, but it also led to knowledge of, and mastery over, human nature and human society. Is not the urgent problem of today that man is increasingly dominated precisely by science and technology?

The ideal future that the Frankfurt School initially hoped for, that is, the rational organization of humanity, might be a dangerous ideal, perhaps even a threatening reality. Must our society really be rationally organized? Is our society not already programmed and automated to a high degree, and is man himself not objectified, an object of rational control? Society is not just a blind, irrational mechanism, as Horkheimer stated previously, it is rather permeated by a wrong rationality, it is a victim of exploitative reason and aggressive technology. In the seemingly white robes of science, technology and economics, technocratic reason rules with an iron hand. Its only motto is ‘knowledge is power’. Its only point of departure is ‘the principle of domination’ [84] *Prinzip Herrschaft*, Adorno). Given this principle of domination and repression, the first crucial question for neo-Marxist theory becomes that of how to find liberators in a society without any liberty.

### ***Unredeemed Reason***

The central issue in critical theory after the Second World War does not only concern the quality of our rationalized society, but it also concerns the quality of reason itself. It has been reason, that is to say, Western science and technology, that has formed the power structure of modern society. Modern society does not only consist of economic power structure (Marx still spoke about a capitalistic system). It does not only consist of a combination of economic and political-military power (Lenin still

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<sup>7</sup> M. Horkheimer und Th. W. Adorno, *Dialektik der Aufklärung: Philosophische Fragmente* (1947), Frankfurt a/M: Fischer Taschenbuch Verlag, 1971 (*Dialectic of Enlightenment*, translated by J. Cumming, London: Allen Lane, 1973). See also J. Klapwijk, *Dialektiek der verlichting: Een verkenning in het neomarxisme van de Frankfurter Schule*, Assen/Amsterdam: Van Gorcum, 1977<sup>2</sup>.

spoke about the capitalistic-imperialistic system). Reason has imposed on us a society that is in fact a gigantic conglomeration of economic and political and bureaucratic and military and technical-scientific power that Marcuse calls ‘the System’ (with a capital S!). The established order is called in short form ‘the System’ because it controls man and society in an unrestricted and systematic manner. In the established order, producers, planners and politicians try to keep the power among themselves. They control the entire field of human interaction by means of the modern mass media. At the same time, these modern rulers are no more than servants of the System. The System takes every chance it gets to control people in all sectors of society and in all the recesses of the heart.

Seen from out of its own interest in the control and maintenance of the established order, the System is completely rational.

What is more rational than trying to cultivate new, albeit artificial needs when the market has been glutted? That is the reason for the flood of advertisements and throw-away products! What is more rational than an injection of money into the weapons industry when the economy is going badly? That is the reason for cold war propaganda or the stimulation of local conflicts! What is more rational than diverting the attention of people and indoctrinating them when they grow increasingly dissatisfied? That is the reason for a huge entertainment industry and for centrally controlled communication media.

Critical theory now has two fronts to fight on. It must not only question the quality of society, but also question the quality of reason. It must struggle against the dominant manipulative thought patterns and show that the accepted rationality of the ‘affluent society’ (Marcuse) that binds everyone to itself by means of sophisticated goods and advertising techniques is to be rejected in the light of a higher rationality.

But here a second crucial question arises. Given that the System is so [85] all-powerful that it even penetrates human consciousness, then how is critical theory itself possible? How can true humanity, true rationality, the true human interest still be rationally specified? Critical theory wants to criticize society from within society itself. But how can it do this if the control and repression in society is as totalitarian as critical theory claims?

Nowhere has critical theory reached as great an impasse as in the thought of

Theodor Adorno, the closest associate of Horkheimer. I am here referring to Adorno’s major work, *Negative Dialectics*.<sup>8</sup> In this book, Adorno argues that critical theory, just as much as any other theory, is a form of conceptual thought. Every concept contains an element of force because it does an amount of violence to reality. Thinking is actually nothing more than ‘identi-fying’, i.e., making individual things identical to each other, subsuming them under general concepts, ignoring their qualitative differences (ND 15, NDcs 5). This is standard procedure first in science, then also in the practice of technology and mass production. Unique characteristics are wiped away. This levelling way of thinking ends up ironing out all the individual differences among homogeneous things. Through this levelling by thought, living people in society are made into numbers and anonymous work forces; they are included in the general abstract contexts of concept, system and organization (ND 29, NDcs 20).

What Adorno wants to emphasize in his *Negative Dialectics* is that critical theory itself cannot avoid thinking in conceptual identifying terms. Therefore critical theory itself has a deceptive and alienating effect. Its eye is infected by technical reason’s blinding drive for control. It continuously runs the danger of becoming the handmaid of the present repressive system.

For this reason, Adorno once said that true knowledge of reality is actually only possible from out of ‘the standpoint of redemption’. The present world, full of deficiencies and malformations, should be delineated in such a way as it will once ‘appear in the Messianic light’. But he subsequently calls such a position of salvation impossible, even unthinkable, because ‘it presupposes a standpoint removed, even though by a hair’s breadth, from the scope of existence’.<sup>9</sup>

At this final point we are able to see the deepest motives for the later pessimism on culture and reason of these neo-Marxists. Their point of departure is still the practical and political function that critical theory has in and for society. If critical theory is correct in stating that society is completely controlled, then critical theory is absolutely necessary. But then it is at the same time absolutely impossible. Criticism as a vague

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<sup>8</sup> *Negative Dialektik* (= ND), Frankfurt a/M: Suhrkamp Verlag (1966), 1975<sup>5</sup> (*Negative Dialectics* (= NDcs), translated by E. B. Ashton, London: Routledge Kegan Paul, 1973).

<sup>9</sup> *Minima Moralia: Reflexionen aus dem beschädigten Leben*, Frankfurt a/M: Suhrkamp Verlag (1951), 1970, § 153 (*Minima Moralia: Reflections from Damaged Life*, translated by E. F. N. Jephcott, London: NLB, 1974, § 153).

feeling of dissatisfaction can still be expressed in art, phantasy or religion. It can however no longer conceptually articulate a clear protest [86] against the deficiencies in and of society. Neo-Marxism wants to place itself critically and dynamically over against social praxis, but once it starts working within this praxis it does not have a leg to stand on. Some day — as Horkheimer said in one of his last conversations — critical theory will be seen as only an incomprehensible triviality, a 'Kinderangelegenheit der Menschen', a childish phase of man.<sup>10</sup>

### *Critical Science*

At this point, I would like to present some personal considerations and conclusions. First, it must be stated that 'critical theory' has correctly pointed to the creeping dangers of a totalitarian technological society. Constitutional and spiritual freedoms that are the pride of the Western world are at present being seriously threatened from the inside! Society has become complicated and untransparent. Only insiders still know their way through the maze of rules and regulations. The system of parliamentary control has failed in important respects; in the literature on the subject, 'the decline of parliament' is a common phrase. The development towards a technological scientific culture is speeding along. In such a culture, the expert plays trumps and everything sooner or later comes into the grip of statistics and cybernetics. The scientists are becoming the new elite, the mandarins of the society of the future. Behind the gables of democratic law and order the planners and social engineers have seated themselves in the building of our political system.

The Frankfurt School has increasingly sketched this technocratic development as an inevitable fate that has come to pass over and above the heads of the people. But that is not true. The idea of fate is modern paganism. Something else plays a role: modern man's desire for power and his own instinctive drive for control. Man wanted to assert himself by means of science, technology and economic growth and now pushes the world forward to the age of the computer and the robot. He did not want to serve, but to rule and, by using science, to adapt life to his own advantage. Until this self-same science got out of hand!

As we saw, centuries ago science used to be an activity of personal contemplation or

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<sup>10</sup> M. Horkheimer, *Die Sehnsucht nach dem ganz Anderen: Eine Interview mit Kommentar von H. Gumnior*, Hamburg: Furche Verlag, 1970, p. 89.

scholastic training, far away from everyday life. That time is long gone. Technology is no longer a game. Science lost its political innocence.

Its influence on society, modern business, social services, bureaucracy and the military machine can no longer be thought away. The interwovenness of science and society is perhaps not given with science as such, as the Marxists say, but it is now an irrevocable fact. Not only the results of applied science, but also those of the theoretical sciences, even [87] of pure mathematics and symbolic logic, find their way to the software industry and to space agencies.

With this in mind, the Frankfurt School has correctly brought out the social implications of the pursuit of science and has justifiably concluded that scientists have a social responsibility. Scientists may not simply pass the buck on the question of what must be done with the methods and results of science and pass it on to planners and politicians to act on it in any way they see fit. Scientists are themselves responsible, or at least co-responsible, for the use of science in society. For they are often in a situation of being more capable of evaluating the possible practical applications and of predicting the possible misuses or dangerous side effects than anyone else. So my conclusion in general is that all science must be socio-critical, critically aware of the social effect of theory and technology on, the basis of the scientist's co-responsibility for its use in society.

### *Natural Science and Social Science*

This critical responsibility for possible social results must first be taken up by the practitioners of natural science. The sense of social responsibility must increasingly influence the program and method of the natural sciences, even though the natural scientific method seems to be firmly embedded. The natural sciences will — even in the research institutions of industry — have to be careful, thoughtful and selective in their physico-chemical, biogenetic and medical research. There must be an overriding consciousness that science exists to serve man, and not man for the greater glory of science. It is certainly not the case that everything that can be done should be done or that the interest of the natural scientist is necessarily the interest to control. This goes especially for the natural scientist who has learned to see that the service to his fellow-man, nature, and the disclosure of culture is a Christian vocation.

This responsibility will have to cut even more deeply into the activities of the humanities and social sciences. The acceptance of social responsibility in this case means more than having a perspective on the social relevance of social research. The social scientist must not only be aware of the possible effects and side effects of his theory, but also of the nature of his theory.

This means — to limit myself to one particular point — that research in the social field may not be blinded by the domination of the social-empirical facts and their causal connections, as if these facts were the last word on the subject. The positivist says, facts are facts. But he discounts the fact that man does not simply register facts, but interacts and digests them. It is man who, as a social subject, interacts with the [88] social facts, relates these facts and gives meaning to them.

Facts do not only function within the framework of human interpretation but also of human action. Especially the social facts are more than facts, they are factors, one can also say they are realizations of some possibilities out of a greater variety of possibilities amongst which man has made or will make a choice. In structuring society, man constantly stands, freely and responsibly, on the intersection of different ways and possibilities. He shall, for reasons he feels are important, realize some of these possibilities, that is, turn them into facts. Out of similar motives, other possibilities will remain unrealized. To put it in a more general way, social facts are preceded by and followed by the choice of human actions and interpretations.

Social facts thus presuppose freedom of human interpretation and human action. The hard facts and causal regularities that are indeed present in the social field are not opposed to human freedom and responsibility, but they rather make it possible. How could man act meaningfully and responsibly in a social universe that would be fully contingent, irregular and chaotic?

It is true that the study of society demands paying attention to facts. But it also demands paying attention to the possibilities that have not been realized and to the reasons for this. Max Weber was perfectly right when he posited that a ‘causal explanation’ of facts is not enough. In a human world an analysis of reasons and motives is essential. The social theory that does not want to do this undermines man’s social responsibility as well as the social responsibility of science. Such a theory degrades people and groups to social atoms and social molecules and so contributes to the objectification of man into a thing. It also contributes to the unhindered

deformation of culture by technology.

I do not want to suggest that the causal explanation and atomistic approach that is characteristic of many social and behavioural theories has to be given up completely. First of all, if we closely consider human behaviour on an individual and on a common level, it seems to be indeed partially 'natural' in the sense of unconscious or instinctive. This manifests itself especially in the case where the conditions for life are minimal, e.g. in primitive societies, in concentration camps, etc. Such extreme circumstances clearly show that human behaviour to a certain extent allows for causal explanation. Moreover, such a method of 'explanation' is also applicable when intentional human acts in culture and society lead to habit formation and thus become 'second nature' to him. School life, education, military discipline, moral codes, etc. greatly contribute to the forming of such a 'second nature'. Finally, the explanatory method can also be used when the societal system itself begins to show the lawlike features of a 'second nature' as is happening in [89] modern industrial society when culture is automated and manipulated, when mass man is manageable only in a fixed role pattern and readily accepts the role ascribed to him by the societal sciences.

This last case makes clear how legitimate and how dubious the nomological (explanatory, predictive) method is when it is applied to a culture on the decline. It is possible to predict fairly well the annual number of suicide attempts in a city like New York or Amsterdam, but this predictability does not prove the health of the explanatory theory, but rather the illness of a large city culture. In this perspective one might say that the possibility of 'positivistic' thought shows the necessity of 'critical' thought. Positivism is like a custom made fish net. It only catches regulation size fish: it only acknowledges custom fitted facts. If this approach is accepted, then 'undersized' or 'oversized' possibilities will never be discovered: such things as duty, responsibility, freedom, accountability, leadership, conversion, stewardship; elements that might 'exist' but certainly cannot be factually 'explained'.

The Christian scientist must be especially aware of the fact that individual reasons and personal motives cannot be accounted for by pointing to general causes or regularities. He must realize that human freedom is at stake and that it must not be offered up to a certain methodological bias. This holds all the more so, because man is much too eager to view himself in the mirror that science holds up to him,

especially when it seems that it will allow him to flee from his responsibility towards God, man and society.

I would only like to point out that when the social sciences resist doing research into motives and thus reject the interpretative method of 'Verstehen' (understanding) that is required for such research, they become co-responsible for the coming of the 'technische Zeitalter', the technological age (Heidegger). In other words, in their propensity for causal explanation, scientists themselves appear to be driven by the motive (!) that propels the technological age, the motive of power and control. It is precisely this technological interest (Habermas) that makes man into a thing, and wants to deny him every deeper motivation.

At this point I cannot go more deeply into the important question of an 'erklärende', explanatory, versus a 'verstehende', understanding, method. It is also not my intention to give a detailed account of the methodology of the social sciences. I only want to bring out the general point that with respect to the social sciences taking up the responsibility for society, this must not only lead to a reflection on their possible effects and applications — as in physics — but also to a reflection on their nature and methods. [90]

### ***'Politicizing' Science***

It should by now be apparent that I would give a wholehearted yes in answer to the question of whether or not science must be social-critical. But I would want to argue that different implications are involved in the case of the natural sciences and the social sciences. The question that now comes up, however, is that of how far the critical responsibility of science goes.

As we have seen, the idea of the unity of theory and praxis is the point of departure of Marxism, including the Frankfurt School. That is to say, there is a tendency to graft critical theory and the political-social reality into each other. It is said that theory must be at the service of the general human and societal interest, the concern for liberation. The emancipatory interest demands political involvement on the part of the scientist. It places science within a political perspective. What to think of this?

It must be noted beforehand that the Frankfurt School did not want to identify the political interest of science with that of a specific social group nor with the interests

involved in the struggle of the proletarian class. According to the neo-Marxists, critical theory is not by definition an instrument of the proletarian movement. With the exception of Marcuse, the Frankfurt School has even distanced itself from the radical student movement of the 1960's. The general view became more and more that the practitioner of critical theory has his own freedom and personal responsibility and thus must be critical towards (what were seen as) revolts that are merely utterances of a vague discontent and blind aggression without insight and a perspective on the future. In view of the fact that modern society is a completely manipulated society, Adorno later even pleaded for a 'winter sleep' for critical theory. Nevertheless, the neo-Marxists at least hold on to the ideal of linking critical reflection to political action. Especially Marcuse insisted on this.

The idea of making science political must be approached with some nuance. I repeat that the scientist not only as a private person but also as a scientist has a fundamental responsibility towards society. Because science functions within a society, it can be used but it can also be misused, sometimes even for criminal and demonic ends. A scientist may not withdraw himself from the political problems and moral issues that are brought about by the rapid progress of scientific and technological research in which he participates.

For this reason I propose to distinguish between science in a strict, restrictive sense of the word and science in a full, deepened sense of the word. An adequate idea of science does not only include the restrictive sense, that is to say, it does not simply contain theoretical and practical knowledge of the internal scientific problems and the internal [91] scientific methods that are involved in a certain discipline. If we take science in a fuller sense of the word, the idea of science also includes a critical reflection on the general scientific effects and interests that are involved, that is to say, it includes an awareness of the possible contributions of such a discipline to the progress of scientific knowledge as a whole. And above all — this is the central theme we keep coming back to — the idea of science must entail a critical consciousness of the possible social effects and interests that are in question, that is to say, its positive and/or negative contributions to human life and culture. There is not one good reason for eliminating this social dimension from the idea of science, however much it has up to now been ignored in university education and in practical research.

We must therefore try to come to a clearer and more complete understanding of science, which goes beyond what is commonly understood by it. To put it differently, we must see science, even pure science, in a normative and critical sense. We must therefore not give in to the temptation to shift all normative and social-critical questions to the applied sciences. We must reject ‘science for the sake of science’ just as much as ‘l’art pour l’art’. We must do this not only for practical reasons, but also for theoretical reasons because a science that makes itself into an end in itself is isolating its own significance and thus becomes perverted.

This perversion of science is apparent especially in modern times, now that with the help of science man, environment and world-community are being ominously threatened. In these circumstances, no scientist is justified in minimizing or aborting the social implications of his work. What is needed is the ‘conscientization’ of the scientist. The scientist must be brought to a full awareness of his responsibility. This ‘conscientization’ is needed because the responsibility of the scientist is for the most part indirect and collective and for this reason is veiled. Sometimes it is even deliberately repressed.

The idea of a social-critical science should especially gain support in Christian circles because the doctrine of sin forms an integral part of Biblical revelation. A Christian scientist must, perhaps even more than other people, have knowledge of sin, misuse and mismanagement, also as they manifest themselves in science. He must therefore, in doing science, develop a normative sensitivity.

But something must be added to this. A social-critical science is as such not yet a politicized science in the Marxist or neo-Marxist sense of the word. It may also not become that. Why not? Because politicizing science — this is my first point — means eliminating the qualitative difference between science and society and, more specifically, between science and the body politic. Science and politics are two distinctive [92] spheres in human reality, each of them having its own standards, authority and responsibility. To put it in a different way, they have their own relative autonomy. My previous remarks have made it clear that I am in principle and in practice opposed to a total separation of these two institutions as if they were completely independent and autocratic. Politics and science are different from each other; they reveal, nevertheless, (apart from their practical involvement with each other in terms of state subsidies to research programs or of scientific advice to

political bodies etc.) a structure coherence. In the defence of social-critical science that has been given in this paper, this principled coherence of science with other social structures has been emphasized. With the politicizing of science, I however believe that all boundaries flow away and that the relative autonomy of science is endangered.

Science, when it organizes and directs its research, should certainly open itself to all sorts of social issues. But its primary legitimacy lies in the performance of its proper task, that is, to do research according to generally accepted standards of logical validity and scientific truth. In all its activities (here I have to leave aside the problems raised by the philosophy of science concerning observation and experimentation, induction and deduction, verification and falsification procedures etc.), the central question is: are the statements being made correct or incorrect from a logical and/or empirical point of view? Summarizing I could say, with respect to its primary task science falls under theoretical norms, which are different from, and distinguishable from, political, ethical or other norms. It is, for instance, possible to present moral, political or social objections against certain forms of biochemical, micro-physical or mass psychological research (that is, where misuse can easily occur or is clearly intended) and yet the scientific quality of such research in the strict sense of the word, might be indisputable. The opposite can also occur. Sometimes it must be admitted that the pretended insights of the natural or historical sciences could contribute or have contributed greatly to what many people would experience as a particular social or political good and yet these insights might be questionable from a scientific point of view. To mention just one famous historical example: Lorenzo Valla's discovery of the falsehood of the Donation of Constantine — the charter by which the Roman emperor was presumed to have granted secular powers to the papacy — in 1440 was contrary to the apparent interests of the late mediaeval Catholic world and nevertheless compelling. From this it can be seen that science has its own normative status beside and opposed to, other non-scientific institutions.

Once again, science must, on pain of being unscientific, orient itself to its own standards of logical and scientific truth. It can (and must!) open [93] itself at the same time to other non-scientific points of view including the view of politics: this is however an indirect orientation. Politics in itself is oriented to other standards than

those of science, more concretely, it is oriented to the norm of public justice. That is to say, the political system is ultimately a system to be defined in terms not of truth and untruth, but of justice and injustice. For this reason science cannot and may not be unquestioningly involved in political action. The results of the scientific activity could conflict with political planning, but this may not prevent the scientist from doing his work.

The responsibility of the scientist as scientist for society and politics, that I emphasized before, is therefore not to be seen, in my view, as a direct responsibility. By accepting such a direct responsibility the politicized ideal of science looks suspiciously like its counterpart: the technocratic ideal. The technocratic ideal of science is to predetermine the strategy of politics scientifically. The politicized ideal of science is to predetermine the strategy of science politically. I reject both ideals. The different spheres in human society, including science and politics, should always be carefully distinguished. The responsibility of science towards the social and political sphere is a vital one, yet it is secondary and indirect. The scientist must inform those who make political decisions as to the means that could be used, the ends that could be reached and the consequences that may be implied in the chosen means or ends. Of course, he may from out of this develop his own political convictions, but he must not push them as scientific conceptions.

On the other hand, the responsibility of political government for science is also only an indirect one. It is expressed, among others, in its care for the quality and financing of education. The state may, however, not dictate results to science. Science has its own responsibility in the field of acquiring knowledge and in theory formation. Thus it cannot in itself be a weapon for a political end, even if it were to be a case of a good, justified and universal human goal. The results of the elimination of the boundaries between science and politics can be seen in totalitarian states. The story of Lysenko, the Russian biologist, is well known. His research results could not stand up to scientific criticism, but they were very attractive to the Marxist party ideology. Lysenko got the consecutive backing of Stalin, Khrushchev and Brezhnev. Meanwhile, genetics in the U.S.S.R. has to this day not yet recovered from the setback caused by this.

### ***Internal Nature and External Aims***

I would like to argue for a distinction between the internal nature and the external aims of science. I believe that the internal nature of science [94] lies in the theoretical explication of empirical reality according to the aforementioned standards of logical validity and theoretical truth. Seen in this way, science seeks valid and true insights. The external aims of science are of a societal nature (political, social, economic, moral). Seen in this way, science, being a societal phenomenon, *while retaining its own nature*, reflects on its possible or present contributions to the wellbeing in other societal spheres, in terms of more liveability, greater justice, morality, freedom, etc.

In order to avoid misunderstanding, I must add something to this. There is very little agreement in our pluralistic society on how the basic values such as liveability, justice, morality, freedom, etc. should be given concrete content. What is more freedom? What is greater justice? On these questions, swords are constantly being crossed. Therefore, let us be social-critical, but with the needed soberness and vigilance. The idea of a social-critical science cannot prevent the struggle of differing opinions, it rather increases it. The expression 'emancipatory' science, used by the Frankfurt School and others, indeed suggests a common point of view, but does not provide it. Emancipatory science is a term just as ambivalent as the word 'emancipation' itself. Taken in itself it cannot make clear in what direction emancipation, that is, the road to freedom, must be sought. Is it the Kingdom of God that comes at the end of our earthly suffering? Or is it the perfect order of the technocratic society or the Marxist realm of freedom or perhaps the Marcusean paradise of Orpheus and Narcissus? It is always the ultimate aim that determines the direction in which emancipation is pursued.

In this struggle of differing opinions Christians must not be allowed to stand at the sidelines, but must clearly chose the direction they want to take. Fortunately, this does happen sometimes, even though it may have little impact, and is done by trial and error. The Free University of Amsterdam is, as a Christian university, an example of such an effort. In the past it bound the pursuit of science, in accordance with its constitutions, to the 'reformed principles', it strove towards an inner reformation or Christianization of science. Today the official statement of its purpose is 'to direct all its work in obedience to the Gospel of Jesus Christ to the service of God and His

world'. That is a noteworthy shift, in which, I think, there are gains as well as losses. A loss occurs in that in letting go of the (in themselves vague and even debatable) 'reformed principles' in fact there is also a loss of the reference to the reforming power of Christian faith for science as far as its inner nature is concerned. Surely, science is not simply a neutral means to a Christian end? But something is gained because in the 'service of God and His world in obedience to the Gospel of Jesus Christ' the external goals of science are [95] not deceptively covered over but clearly confessed and summarized in Christian perspective.

### ***The Light of Reason and Revelation***

Against this background, it will be clear that I reject the radical demand for the politicizing of science. Marcuse writes: 'At the moment, the organized refusal of scientists . . . can bring about the same thing that a massive strike once could, but now no longer can, that is, initiate a transformation, laying the groundwork for political action'.<sup>11</sup> Granted, that is possible! A massive strike of scientists could bring our scientized world to the brink of the precipice and would thus put on an enormous amount of pressure. But may something like this happen? The politicizing of science is not only to be seen as a crude erasure of boundaries among qualitatively different areas of life, confounding the standard procedures of scholarly research with those of political decision making, but it can also be seen as a grandiose overestimation of what some scientists imagine themselves to be: the intellectual elite of the population. Those intellectuals have taken upon themselves the critical task of showing society in all its sectors what freedom, justice and happiness really are and to reorganize it accordingly.

The unique nature of science is denied in such a view and the distinction between internal and external falls away. Reason must then be measured by the general societal (political) concern that Horkheimer calls the 'true interest'. But what is meant by the true interest is once again determined by critical reason. Society drifts aimlessly if it must navigate with the compass of critical reason.

As suggested before, the critical theory of the Frankfurt School is a curious bed

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<sup>11</sup> *Eros and Civilization*, Political Preface, 1966, p. XXV.

mate of the technocratic theory against which it strives. Technocratic thought, starting from the traditional idea of science, is rationalistic in the sense that it wants to consider society as the object and outcome of applied social science, transforming it into a collective, rational system in accordance with the old positivistic ideal of Ernest Renan. The Frankfurt School has correctly warned against this. Its critical theory is, however, just as much a form of rationalism. Certainly, critical reason does not live in the traditional ivory tower. When it pleads for transformation or revolution, it calls from out of the depths of material need and social pressure. But it is equally its task to determine, for all of society, what is reasonable and worthy of humanity. There is no higher authority, no other light, than the light of reason.

According to critical theory, what is reasonable cannot be planned in the abstract nor be projected as a blueprint. It can only be discovered in a process of continuing criticism of the existing order, that is to say, in [96] the dialectical process of history. If history at present conjures up before our eyes a 'rational' world of questionable alloy, because it is accompanied by dictatorship and destruction, then the need for criticism arises as well as the need for a higher, an alternative, rationality. This however does not have a chance of succeeding within the given totalitarian structures. That is why the neo-Marxists totter between hope and despair.

Adorno was perfectly right when, for a short moment, he looked for the standpoint of redemption, although he called it at the same time unthinkable and thus (!) impossible. Adorno, the Jew, was referring to the Biblical message, but he did not want to accept the traditional Judaeo-Christian view that the Messianic light and enlightenment comes from God. I am thinking of the messianic vision of Isaiah: 'Arise, shine; for your light has come, and the glory of the Lord has risen upon you' (Is. 60:1). Such an enlightenment and redemption cannot be reconciled with critical reason, that only deals with the inner light and immanent possibilities of man, not with something so unthinkable as a liberation prepared by God.

But despite himself, Adorno was right to this extent, that with man, human rationality must also be redeemed and liberated. Reason must especially be liberated from the illusion that it itself is a source of light, that it itself can straighten out a society that has run aground through reorganization according to reason's own insights. Confronted with the 'misery of man' (Pascal), even as an intellectual

being, man indeed cannot make it without the Messianic light, that is to say, he cannot make it without the light that unmask everything and yet is merciful, that of God's revelation in Jesus the Messiah, who called himself 'the light of the world'. As long as he is present with us incognito, everyone can withdraw himself from this light, can deny it. However, as soon as a person places himself in this light, the spell of our corrupted existence is already broken. Man learns to understand something of the true nature and origin of the evil that penetrates our world and all social relationships, including even the Christian church. In this light he makes a diagnosis of our time. He becomes truly critical, expressing the need and suffering of this afflicted world. Man becomes critical, not cynical or pessimistic, because he has not only diagnosed the world, but also recognized its King incognito and his program of liberation.

In this light, the problems of the social responsibility of science are not suddenly solved, nor is the solution easily postponed to the last day. But the Messianic program does have the effect among those who feel themselves addressed by it of coming to a new awareness of the evils in the world and of a society in distress. For the Christian who is sensitive to this call it creates a feeling of liberation and propensity to move in the [97] direction in which the redemption and emancipation of life may be expected.

This also has a very real meaning for the Christian scholar. He must come to terms, in the style of the Messiah, with how he can in his field and in the relationships in which he works or has academic influence, go against the evils, contribute to a more human world and thus create signs of the Messianic kingdom, the 'City of God' (Augustine).

I admit that it is also possible to create a social criticism from out of other religious or ideological perspectives, from out of the expectation of the 'City of Man' (H. Cox) or the 'Kingdom without God' ('Reich ohne Gott', A. Jaeger). In such cases as well the spiritual perspective will direct the resulting social criticism. In short, social criticism is never strictly rational, despite all contemporary rationalistic theories. Nor is it the opposite of this, it is not 'decisionistic', that is capricious or irrational, despite all contemporary irrationalistic ideologies. To put it more positively, social criticism is a rational activity, but it goes deeper than this. It is carried along as well by political opinions, economic options, moral considerations, and ultimately by (open or hidden) religious convictions and

expectations. In the spiritual struggle of our time all those acts and attitudes find their final normativity in the commandments of God, which become visible in the contours of the Messianic kingdom. The ultimate norm does not lie in human reason itself.

I am glad to say that I share this personal expectation and conviction with my retiring colleague, professor Van Riessen, to whom this article is gratefully dedicated.

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