

Rethinking - Not Unthinking – the Enlightenment

It is trivially true that we live in a globalized world. It is less trivial that globalization means much more than the global spread of market economy and modern communication technologies. What must be remembered is that the imponderable aspects of culture like images of knowledge, attitudes to religion and the modern phenomenon of fundamentalism(s), styles of modernity(ies) and political regimes have also become globalized. Never mind that some or even most of these views, concepts, images, etc. have originated in the West; by now, due to globalization and to hundreds of years of shared and entangled histories of colonizers and colonized, imperialist rulers and downtrodden, exploited underdogs, this heritage has been partially transformed, absorbed, and also partially rejected, by the whole world. This is of fundamental importance, not less than the global spread of markets and of the Internet. Furthermore, we live in a world with one fifth of its population suffering from hunger and deprivation, one third is infected by tuberculosis, hundreds of local wars are being waged, and nationalisms pop up with unprecedented violence almost daily. Yet, due to globalization in that broad sense which is here emphasized, our starting point is commitment to the oneness of humanity, and a realization that all the above-mentioned crisis foci are a concern to all, not only on easy-to defend moral grounds, but also on easy-to-show political-economic grounds. All this is self-evident and nonetheless important to be mentioned at the outset.

On the positive side of the balance, democracy as a universally accepted value (even where it is not so practiced as desired) has also been globalized. One of the most convincing documents stating this thesis is a recent paper written by Amartya Sen (1999). Elso, and not less importantly, Wole Soyinka has emphasized that the recognition that »humans have rights« has been universally accepted (again, even in countries that do not abide by this principle). The subtitle of the article reads: »The message, whether from Yoruban elders or the Founding Fathers, the Bible or the Koran, is the same: humans have rights ...« (Soyinka 1999). It is also important to mention that unlike the idea of the universal human rights as conceived by the Founding Fathers and the ideologues of the French Revolution, in their Enlightenment mode, we are not now talking of West-imposed, God-given (which was always a pseudonym for Western-dictated) rights or value of democracy, but rather of truths agreed upon by the overwhelming majority of nations, in a mode which could be termed »negotiated universalism«.

In this globalized world, more and more people grow up in a culture of shared histories, more and more people have multiple identities, multiple loyalties, multiple and often clashing value systems. Avoiding conflict between people is not the same as avoiding conflict within oneself. While it is usually a valid and important aim to minimize conflicts between groups of people, it is not at all self-evident that it is a worthwhile cause to try and eliminate or smooth over differences within oneself in order to avoid conflict: rather one has to come to grips with conflictual situations and develop dialectical thinking on most aspects of our lives. This is so difficult because the last few hundred years of our enormous success in developing science, technology, and medicine has educated us not to think dialectically; modern science and technology are anti-dialectical. Indeed to relearn our lost ability to think dialectically is one of the major new tasks where we have to rethink the tradition of the Enlightenment. A necessary caveat at the very beginning of my argument: I am not talking of the great thinkers of the Enlightenment, who were all well-versed in dialectical thinking, and were neither

dogmatic nor simple-minded. I am talking of the way the Enlightenment was received and internalized into daily life including politics and the educational system.

I have mentioned above the fact that political regimes have also become globalized: much the same ideologies and practice reign everywhere, formulated in terms inherited and modified from common Enlightenment sources. I also fully agree with those political-sociological thinkers who consider the different types of fundamentalism as actually being different forms of modernities (see especially Eisenstadt 1999). What is of greatest importance is the way dogmatic rationalism, dogmatic objectivity, dogmatic methodological individualism, dogmatic belief in value-free, non-political social science, dogmatic belief in the advantages of a quest for universal (theories with the accompanying rejection of context-dependent partial theories, has turned into what the late Ernest Gellner called, rather approvingly, »Enlightenment fundamentalism« (Gellner 1992a). It is my central claim that in rethinking the heritage of the Enlightenment, and abhorring all kinds of fundamentalism, we must get rid of Enlightenment fundamentalism as well.

What is Enlightenment fundamentalism? It is that religion-like dogmatic belief that the principles on which we believe the unprecedented success in understanding, explaining, predicting, and utilizing the world for our human purposes was achieved, must be continuously and universally abided by. It is the belief that the cluster of values which consensually is at the basis of our science, technology, medicine, social science, and even some of the humanities is an absolute prerequisite for our continued success; it is a belief that the cluster of values is everywhere and always valid - or, in other words: that the world is manageable for our benefit if we only stick to those values. In one other formulation: it is the belief that if we do what we have been doing so far (or think that we have been doing) and only do it better, everything will turn out to our satisfaction. That cluster of values consists of: universalism, rationalism, objectivity, value-freedom, context-independence, unquestioned experimental and mathematical methodology, freedom from all political considerations, etc.

On a somewhat different level is the additional dimension of all thinking in and about science, namely that it is anti-dialectical; that is why I mentioned this aspect above with such emphasis. The opposite of anti-dialectical thinking (in addition to the obvious dialectical thinking) is what the Greeks, and following them Jean-Pierre Vernant called »metic thinking«: cunning reason. It is the deeply - or again, dogmatically - held belief that every question has a clear, unambiguous answer: either a »yes« or a »no«. The way the question is formulated could not possibly influence the answer. That neither politics, nor jurisprudence, nor rhetoric, nor history is in this sense anti-dialectical is obvious. That actually neither is science so, is much more difficult to show, and it goes against the grain of the education that most of us received. My insistence that we might have only thought that we were doing research rigidly on these principles follows from all we have learned in the last decades from the ever-expanding volume of science studies. We know how widely the practice of science differs from what would follow from the above cluster of values. Yet, it is true, that many of these values influence our science-making (to use a phrase of James Clerk Maxwell). Usually, when we have only several partial theories, which on top of it are conceptually inconsistent, and thus our »complete« theory is incoherent, we are under enormous intellectual pressure to abandon one or the other of the partial, mutually contradictory theories. Thus my programmatic thesis that we must rethink - not unthink - the Enlightenment. But before we enlarge upon that I would like to give yet another formulation to the topic that we are discussing: are we conceptually equipped to deal with the world?

First of all, this question itself already presupposes an Enlightenment approach. Indeed, we need concepts to deal with the world. This is not an attempt to revive the old dichotomy of idealism versus materialism. It is not »concept« in this idealist sense, but rather a realization that even if we

take into account political, economic, technological, and any other »material influences« on our lives, in the final account we act and we deal with the world through concepts. This is an Enlightenment view, and I would like to stick to it whatever else I may criticize about the Enlightenment. Conceptual preoccupation is not only rooted in the Enlightenment, it is also very European, and even more Continental. Anglo-Saxon philosophy in the 20th century moved away from an emphasis on concepts. It is not an accident that one of the most important books by Ernst Cassirer, *Substanzbegriff und Funktionsbegriff*, was translated into English under the title *Substance and Function* (the »Begriff« has been eliminated). This is a philosophically-based crass mistranslation. In the same vein it is not an accident, that one of the important analytic philosophers of our time, Donald Davidson, has written an influential paper with the claim that there is no such thing as »conceptual framework«. My thesis here is the opposite: there are such things as conceptual frameworks, we need them, and we use them, and we can - if at all - cope with the world only through them. So far an explanation of this alternative formulation of the title.

I wish to call »Enlightenment« the overall world-view which developed first in Europe and then in America in the last 400 years, which in the final account came to dominate the whole world. It became globalized in our terms. This world-view emerged with the new capitalism that took shape in Germany in the 16th century and was followed by the so-called »Scientific Revolution«, the Industrial Revolution, the proper Enlightenment of the »philosophes« in the 18th century as it is represented by famous French, German, and Scottish thinkers. Then came Victorian scientism with its accompanying religious-political certainty that the world is in good shape, that we know where we are going, that we are on the verge of understanding fully and ruling totally nature, man, and human society at large.

Importantly, in the late 18th and 19th centuries the social sciences developed and with them modern political theory; at the same time nation state and modern democracy spread in the Western world. Western imperialism and the colonial expansion of the 19th century followed which was considered the crowning achievement of the European success story; thus began the two hundred-years long shared history - or entangled history - of colonized and colonizers. The »capitalist spirit« and the emergence of full-blown capitalism, the so-called scientific revolution, the Industrial Revolution, the Enlightenment proper, the American War of Independence and the French Revolution with the first daring formulations of the principles of human rights, the emergence of the social sciences with the accompanying political theories, and the Victorian, science-based Western conquest of the world, all these constituted a frame of mind which as it was *received* (not conceived) is what I call the Enlightenment of the Age of Modernity(ies).

Two caveats here: The first is epistemological. I am not claiming that the »Enlightenment« proper, as conceived by its founders-conceptualizers was a monolithic structure. We very well know how many-sided, sophisticated, and often skeptical and self-doubting the »philosophes« were. Indeed they were dialectical thinkers who very clearly understood that the way one formulates a question will influence the acceptable answer, and for almost every claim one can find in the voluminous scattered writings of a Diderot, Voltaire, Hume, or even Kant a counterclaim. What I claim is that what was received and integrated sociopolitically into the emergent world-view was that half of the story which was rational, objective, essentialistic, universalistic, context-independent, truth-oriented, success-minded, globalizing, and dualistic in the Cartesian mode; and that these views were rather dogmatically held.

The second caveat is historical-moral: We should remember that in spite of the political exploitation of the success story of the West with its science, technology, and medicine for the sake of imperialist conquest of the whole world, this was not a purely cynical, premeditated plan for the West to govern the world and to subdue 85 percent of its population. In addition to the crude

exploitation, much of the 19th century wish to occupy the world was also *bona fide*, naively believing that the colonizing Western powers were doing wonderful things to populaces all around the world, bringing the light to them, making people happier, and in the final account richer; it was a prevailing view that making the world civilized and modern (including making them technologically advanced) will also make them, *horribile dictu*, as happy as we are.

Having given the necessary warnings, I am now back to the worldview which became the received, dominant one, which I call the Enlightenment world-view. It is formulated in terms of concepts, and thus, here I am again at concepts. As I mentioned before, and I feel that I should reiterate once more, in spite of the fact that for each claim staked by one of the »philosophes« in his time we can read in the philosophical works also a counter-claim, I do claim that accompanying the economic, political, colonial success story of the West, a received world-view of the above-listed, dogmatically held »isms« has emerged.

We can expand that list of broadly held Enlightenment principles and explain them in different terms. The received view was obsessed by *clarity*. Its politics as well as its education was in a constant quest for *certainty*; their belief was strong that *probability was almost as good as certainty*, on the way towards certainty. This was one of the most interesting new developments in which the 17th century revolted against the classical and originally Greek tradition. Their demand for *objectivity*, with a polite courtesy toward pluralism, which still aimed at objectivity, and their *abhorrence of contradictions* was central to that world-view.

It is a deep Enlightenment commitment that whenever you come upon contradictions, your primary moral-intellectual task is to eliminate them whatever the cost. If you discover contradictions in your theory, you give up the theory; if there is lack of coherence between two or more partial theories, one or more have to be eliminated; if you meet contradictions in your political view or situation then, whatever the human cost, you have to get rid of them. In the sciences, if one insisted on saving a theory, contradictions were eliminated by constructing models which succeeded in eliminating the problem. Thus, whether in economics, in physics, or in biology models were then brought in when the number of parameters was so large that there was no way of handling them. The introduction of ideal types has much to do with the same urgent wish to eliminate contradictions. At the same time introducing models and ideal types automatically involves humanly constructed elements in the body of science in question, thus making it clear that there is no genuine distinction between constructivism and realism: there is no theory purely of one kind. The model covers whatever fits that part of the theory which is free from contradictions and »brackets« the rest is irrelevant, uninteresting, unimportant or not to be dealt with for the time being. There is a very strong belief that rationality and logicity are identical. Now, rationality and logicity being identical was also behind the development which started in the late 18th century, creating the social sciences and actually »aping« the method that was thought to be the secret of the success of the natural sciences. Identification of rationality and logicity is behind it, and it is one of the conceptual frameworks in terms of which the Enlightenment's world-view was constructed.

There is also a whole series of political concepts which emerged in this general conceptual framework: the universalistic concepts of natural rights, the idea of the nation state, the idea of freedom, the idea of the individual, and the accompanying emergence of Western individualism, and methodological individualism in the social sciences following in its wake; even the idea of universal peace. The phenomena of religion, tribal solidarity, narrow nationalism, in short any form of »irrationality«, were the great enemy of this world-view. Thus it is understandable how in political terms many quite different and mutually contradictory ideologies can be seen as Enlightenment views. Not only capitalism and Western democracy, but also Marxist ideology, planned socialist economy, and

various anti-colonial, anti-imperialistic, anti-Western freedom movements are Enlightenment phenomena. The West and most of its opponents all went to political school in the conceptual world of the Enlightenment. Indeed, as we see in the work of Edward Said and his followers, whether in Islamic, Indian, or African studies, the anti-fundamentalist, non-Western scholars and politicians are more Enlightenment-minded than some Western intellectuals. Not, however, more than most of the Western governments and politicians themselves. In this sense it should be clear that what has become globalized in our world are not only technologies of communication and the market economy, but also political concepts and styles in which the various, often totalitarian, regimes couch their guiding principles. All these approaches are characterized by limited reflexivity, by strong non-dialectical thinking, abhorrence of contradictions, a deep commitment to absolutist generalizations, a deep commitment to linear progress, and a naive belief that modernity and modern technology follow from a given conceptual framework, and that on top of it, all these are transferable painlessly from culture to culture. Ironically, this belief in context-independent truth, and thus history - and ideas - independent technology is itself a basic Enlightenment view.

This, indeed, looked to us in the West like a great success story at the end of the 19th century. We really believed that the world was going to be universally and globally better; we really believed that science, technology, medicine, economy, the colonial expansion, etc. would make the whole world become part of our success story. This optimistic world view collapsed more or less around 1900. Today, we have very severe problems to face which we cannot ignore anymore: we are indeed facing semi-stable political systems in the world, all based on global Western political-conceptual hegemony. We seem to face a world economy which we are at a loss to understand, let alone interfere with in terms of our classical economic grand theory; we are facing a major ecological crisis; whether we are hysterical and expect a catastrophe tomorrow, or we are moderately rational, science-educated optimists, and believe that unless something drastically changes, the catastrophe will come in fifty or eighty years. We face rapidly spreading diseases like AIDS with its enormous human, economic, social, and cultural price. Indeed, the behavior of thousands of young intelligent people who are AIDS-stricken in the West makes us even question the Darwinian principle of a biologically determined universal wish for survival. Young men and women who fully realize that to save their lives they simply have to use condoms and refuse to do so. This may be better nowadays, but for more than ten years, especially among creative young people, and especially in America, this forced us to question our cherished belief that our societies can rely on a universal biological wish for survival. Politically we live in a world torn by nationalistically motivated acts of terrorism, and by fundamentalisms: Islamic, Jewish, Protestant, Sikh, or Catholic. And above all and most importantly, we are facing a world where a large percentage of the world population is deeply dissatisfied politically, culturally, economically or worse, just by being confronted with destitution and famine.

That this world is so complex and full of dangerous crises is *a result of the success story* outlined above. If this is indeed so, if there is a causal relationship between this and our present woes, then we face the greatest moral dilemma that we had to ever face. When I say »we« I mean not necessarily academics or intellectuals, but all carriers of knowledge of all kinds in all societies. Those who govern the world are also its carriers of knowledge and these are the people who translate the conceptual frameworks in which they (and we all) think into daily reality.

There will be some, perhaps many, who will argue that there is no such causal link. That, on the other contrary, the present woes are with us in spite of, and not because of, our great success. Those thinkers presume that if we only organized our world even more according to the cluster of values that characterize what I call the Enlightenment, the bulk of our problems would disappear. That

argument is tedious and almost impossible to carry to an agreed upon conclusion. It is an important view, held by many serious scholars, and I can only say that we should agree to disagree deeply. Therefore this view will not be dealt with here, and in what follows, I shall assume the correctness of the causal relationship.

To recapitulate: The growing poverty and hunger in much of the world, the pending ecological crisis, the growing menace of AIDS, the spreading fundamentalisms in many of the societies of the world, all seem to many to have been caused by past Western expansion, imperialism, colonialism, but also by its greatest achievements: its science, technology, medicine, and sociopolitical theory. This indeed leaves us with a very great moral dilemma: if so, what to do with our glorious tradition, and what to do with the Enlightenment, which not only has been a Western development, but by now has also spread globally, so that there is no meaning anymore to talk about a Western achievement or Western phenomenon. One alternative seems to be to scuttle the Enlightenment. This is neither morally acceptable nor can it actually be done; yet various anti-rational and anti-science movements tried and are trying to do just that, as did the nihilists of the early 20th century; that is what the hippies of the sixties tried, and much of the revolt in '68 was about that.¹¹

The other alternative seems to be the one which in one form or another is being followed by most of the governance of the world today: » let us do more of the same, only let us be more careful, more thoughtful, more pluralist, and we might succeed; let us do even better chemistry, biology, and physics, more restricting regulations on industry, etc. and the ecological crisis will disappear; let us do more rational agricultural planning and genetic engineering of crops and cattle and famine will disappear; let us be even more tolerantly rational and fundamentalisms will disappear.« This second view is one which I described above and said that it cannot be fruitfully discussed, and therefore I will not consider it anymore. Yet, while not arguing about it, I have to characterize it in more detail.

This approach characterizes the governance of the world today. It is behind most of the democratic and egalitarian social reforms in typical welfare states but also in many mildly totalitarian regimes; it is what motivates those who demand in the name of basic values broad accountability of the way public money is being spent: more money for culture, for research, for education, and for good administration. The recent mania which Michael Power called »Audit Explosion« is also an expression of that (Power 1994). The way society organizes this »do more of the same, only better« can be seen in politics as much as in the world of knowledge.

So what shall we do with the Enlightenment? And thus to my central thesis: we should rethink - not unthink - the fundamentals of our Enlightenment world-view. There is no, nor can there be, preconceived, well-formulated thesis on the direction that this rethinking should go. But there seem to be some very broad and general pointers to those presuppositions or ideological claims that are typical of Enlightenment thinking and which probably will have to be given up, such as the quest for universal theories of man, of society, and very probably even of nature. In other words: there is no »man as such«, »culture as such«, »nature as such«. Similarly, the separation between accepted bodies of knowledge (truth) and their history will have to be given up, one of the fundamentals of Enlightenment thinking is that truth is independent of its genesis, and thus once arrived at, any truth must be universally valid. This is a belief that probably must go. The pre-supposition of the post-Cartesian era, which indeed led to so much success, especially in the bio-medical domain, namely

¹ Many of the facile post-modernisms and radical social-constructivist views can be seen to be of the same kind. But in addition to the moral imperative not to unthink the Enlightenment, we also are incapable of doing so either epistemologically or practically, because we are so deeply imbedded in our conceptual world-views and so strongly context-dependent, that no such unthinking exercise can succeed.

the separation between body and soul (or matter and spirit) must go too. The concept of »objectivity« applies to the purely impersonal. And thus, if the social and human sciences are to be treated scientifically, they must be treated impersonally, independent of context, seen non-dialectically. This concept must also be given up, and not even nature can be studied rigorously in such terms.

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Let us cast a tentative look at some of the social sciences. In most of them, some work on lines proposed here, even if formulated in different terms than the ones I use, has already begun. Yet in most cases such beginnings are up against the organized opposition of the vested interests of combined academe and the political-economic governance. Some of the greatest minds of our time, when beginning to talk of fundamental rethinking of their domains, are considered senile or as having gone soft in their judgment.

Cognitive psychology: the basic question behind this whole domain is: How does man as such, universally, behave in a given situation, or rather, what universal skills does man have which enable him to cope with the world? The very formulation of the question prevents any attempt to integrate the clashing images of man like the psychoanalytic, the psycho-social, and the cognitive. On the other hand, there is the emerging tradition started by Lew Vygotsky, Aleksandr Lurija, Aleksej Leontjew and taken up in the United States by Jerome Bruner and some of his followers like Michael Cole and Michael Tomasello, which points to quite a different question: under given circumstances - or in a given context - what skills are being triggered? This formulation presumes a deep interaction between the cognitive self and the context (even here, the very distinction is made tentatively and temporarily for the sake of analytically enabling the study at all). Indeed one of the great achievements of Enlightenment thinking which is here to stay with us, is, that in order to achieve analytically meaningful results we must use analytical methods. These can be applied only if sharp distinctions are made. The issue is that such sharp distinctions should be made on a temporary, tentative, and conditional basis, and that this must be kept in mind constantly. So there is no way back to pre-analytic lumping. What is new, as already said but now somewhat differently formulated, is the demand for an ability to make these distinctions consciously temporary and conditional, and to consider the truths arrived at dependent on the context in which they were reached. Yet another formulation which is pregnant with meaning is Jerome Bruner's (see especially Bruner 1990). He explained, that after many years of great and partially successful efforts to develop cognitive science (he was one of the central figures in the development), by now psychology has neglected the study of meaning, which should be its main task. Moreover, meaning is socially constructed.

Linguistics: The domain is intimately linked to cognitive psychology, and therefore what is said above applies here too. More specifically, rethinking it would probably mean that building on the achievements of the Chomskyan revolution, a way has to be found to reconnect theoretical linguistics with historical linguistics and to reaffirm the need for in-depth knowledge of many different languages in order to make a comparative study possible which would contextualize and thus accordingly temper with the universal claims of Chomskyan Linguistics. Here too another formulation of the claim may help clarity: having developed a very powerful syntax, the time has come that on those foundations also a semantics and even pragmatics have to be developed which can make some more general claims than just saying while syntax is universal, these other two are merely local and contextual. Or, differently: the time has come to try to combine transformational grammar with historical linguistics. In both of these it is important to recall Bruner's demand for studying a socially constituted self and to study the semantics of socially constructed meaning.

Economic Theory: Classical economic theory is rich in universal claims; its greatest achievements are formulated in terms of highly developed mathematical techniques leading to sophisticated (linear) models. The very ideal of a model, whether in biology, physics, or economy is that if there is an unwieldy amount of parameters to be taken into account, such that we are incapable of grappling with technically or grasping conceptually, then we decide at will what to exclude and what to include, and that what is kept is the model. The theoretical tools being used are indeed universal and this often leads to the erroneous conception that the truths arrived at are also universal. Instead of considering the truths arrived at as context-dependent, the »universal« results are then seen as approximations to reality, and in the process of approximation another new element of willful, again contextual, decision is made, as to how to extrapolate or rather lead back from the universal generalities to the locally relevant truths. Actually, uncertainty and contextual ad hocery is introduced twice, without any possibility of correlating the two quite independently made contextual approximations.

Naturally, the usual argument that it is better to do that than not to be able to say anything is valid. However, just in the so-called »hard« sciences the theory included contextually constructed parts, as well as algorithmically framed universal, time- and place-dependent »truths«. The task, much too neglected so far, is a systematic, in-depth study of the way the context-dependent and local presuppositions are chosen, argued, defended, instead of just played out in a trial-and-error method, where the arguments are at best tacit. Spelling out tacit or partially formulated arguments is the new, complementary task I am pleading for. Much the same applies to the much discussed universal rational man (bounded or not) which supposedly necessarily must underlie the economic model. Enormous effort must be spent in trying to vary the type of man that is presupposed in a context-dependent way to underlie the locally relevant theoretical model.

More specifically, it seems that it must give the two basic truths of economic thinking; the first one is the *homo oeconomicus*, even in its modern liberal guise, namely the one who says that »man as such, the rational being, tends to maximize what is good for him, and to minimize what is bad for him«. Dicta, in this universalistic form, like »man as such ... « cannot be upheld. There is recent critique from many directions of the concept of *homo oeconomicus*. But most likely, as in Raymond Boudon's recent work, these criticisms find the concepts of rationality involved too restricted and they try to broaden it (that is make the rationality bounded). But they seem not to find much difficulty with a universal image of man.² Or again, Boudon widens even more Herbert Simon's idea of a » bounded rationality«, but does not tamper with the image of man.

The other guiding idea behind much of economic theory is the claim that here, like in most cognitive domains, truths are independent of their genesis. For economic theory this would mean that if »laws« of the market are discovered, these are the same in any society, in any historical setting and independent of the past developments of that society.³ Naturally, my point is not as if all

² When listening to leading economic experts who advise the Russians on how to bring market economy into their political system, we usually hear them saying that they are at a loss to understand the behavior of people in Russia, and in general in the whole ex-Soviet area. They face hundreds of millions of people who act irrationally: they are incapable (or unwilling?) of thinking in mini-max terms. They do not argue saying »I aim at having maximum of that or minimum of that« but rather try to secure some basic security. They do not fit the model at the basis of which is the universal rational man *from whom* one can count on rational behavior in game theoretical exercises. So either the people have to change - what most economists expect - or economics have to be rethought - what I would expect.

³ Thus a market economy which developed historically, replacing the medieval German feudal system, is expected to be identical to a market economy which comes to replace 70 years of forced planned economy under a totalitarian, but egalitarian regime. As we have learned by bitter experience neo-classical economic theory cannot be applied to countries in South-East Asia, neither while those economies are flourishing nor, even less, when

economists primitively ignore the context in which they are working; they do not; the problem is rather that their correction is related to the way general truths are applied to reality and not in considering the »truths« themselves as conditioned by the context in which they were conceived. Here too, the work done by quite a different ilk of economic theorists like Albert O. Hirschman has to be integrated with the results of the mathematical modelizers and their results have to be historically reconsidered at their roots. Amartya Sen and Partha S. Dasgupta have started pointing in this direction, and so are many economists living and working in the developing countries which suffer from heavy economic strain. The problem is not to make these scholars aware of context - they are well aware of that - but the locus of rethinking: it is not good enough to accept the classical theory leading to universal results first, and then to seek their point of contact with reality, manipulating and extrapolating from general, not applicable results towards reality; rather, the question has to be raised how to change the theory so as to yield experience-close results which fit the reality.⁴

Area studies: This is a broad category, lately of much debated validity. Islamic studies, Oriental studies, Indology, have to be rethought on a par with Western studies and to be contextualized through bringing them much more into the thinking of sociology and anthropology. Here the universal truths that must be tampered with contextually are the great philological achievements of most of these disciplines. Much of what is wrong in the eyes of the ideologically motivated critics of Oriental studies or Indology is traceable to the universalistic philological tradition developed first and foremost for Western history and Greek and Latin studies. It works both ways however; those critics who, wrongly, refused to see the general point in the »Orientalism« attack of Edward Said, rightly accused him of treating the West monolithically, thus committing the same mistake that in their eyes the orientalist did. The solution is to rethink all our general terms like Islam, modernity, colonizers, colonized, etc., in terms of Islams, modernities, shared histories, etc. Even two great African scholars like Wole Soyinka and Anthony Appiah disagree on this point: Appiah criticizes Soyinka for treating Africa as one big unit, not taking into account how different post-colonial Ghana is from, let us say, post-colonial Nigeria.

Biological-social studies: This expression is used in order to avoid the potentially misleading term of sociobiology. It is an immense area of study which seeks to combine the quite different and conceptually often contradictory universal results of molecular biology and evolutionary biology, then extrapolated to sociocultural developments. Epigenetic evolution and the advances in developmental biology all point to the need for contextualizing the results and seeking for history-dependent truths, especially when attempting an integration between cultural and »merely« biological evolution. Also, here it is important to mention the above referred to distinction between the physical and the psycho-social, a distinction that in medicine for example, a Galenus would not understand. The way is not to go back but rather to see how the best results of modern medical research will attune themselves to our new approach, if we now again abandon the body-soul distinction; or at least, for every research question to make the distinction tentatively and conditionally formulated so that it fits the question. The emerging area of psycho-neuro-immunology may be pointing the way, but

they have collapsed. Weberian views on the Protestant ethic combined with Enlightenment rationalism presume the existence of a universal »man as such«, a view which must be modified if not abandoned.

⁴ There are some brilliantly conceived, highly technical economic treatises, often involving non-linear models, strongly context-dependent, which confront us with relevant analyses of economic situations, analyses that do not follow from the grand theory. Such are the works of Amartya Sen, or Partha S. Dasgupta's major work: *Welfare and Destitution*. Such works incorporate thinking from sociology, anthropology, advanced comparative contextual political theory and rely on a different cognitive psychology than the one that teaches the omnipresence of the universal rational man. Nor do such works follow the sacrosanct methodological individualism of most Enlightenment-rooted social science.

it is not yet really and significantly part of »hard-core« research; rather, it takes place in the framework of a much softer, more »forgiving« applied type of medical research undertaken out of sheer helplessness.

Then again, there is the host of interesting and not-to-be-ignored alternative medical »schools« which, however, many have very impressive results but use as some kind of scaffolding, very shaky theories, and are therefore not really accessible to analytical understanding, nor are they in any real sense teachable. Two interesting developments could be envisaged here: Firstly. As a systematic spelling-out exercise in the form of teaching courses in the philosophy of diagnostics in medical schools, different types of diagnosticians and an alternative medicine practitioner would be confronted, discussing the same patients, in front of the students, thus compelling them to make their tacit knowledge as explicit as possible and allowing them to face critical questions that stem from a different and often hostile medical world. Secondly. It is necessary to integrate the findings of medical anthropologists into medical research and teaching, for they often pursue lines of diagnosis and intervention quite different from the individualistic and reductionist bio-medical practice. Seemingly there is mounting evidence that there is strong correlation between income-inequality, social inequality, and high mortality or low reaction to administered medicines. This seems to apply to chronic diseases like diabetes, tuberculosis, or AIDS. I say »seemingly« because much of the reported work suffers from reliance on too weak statistics and often there is no real consultation with basic researchers, who, even if reductionistically skeptical, might point to questions with which the medical anthropologists will have to grapple. What strengthens the claims of medical anthropology is that there seems to be a parallel strong correlation between high income- and social inequality and low social capital. While many of the leading economists stress that »social capital« is not measurable, nevertheless they admit its importance for economics and in understanding sociopolitical contexts and their economic meaning.

Political theory: Democracy-oriented, individualistic, freedom-stressing political theories rooted in Enlightenment thinking, all having »rational man« at their core have no legitimate place for religion in the social fabric. Mostly, all forms of religions are considered irrational phenomena, the arch-enemy of egalitarian, rational, democratic, liberal political systems, and it is believed that they will disappear if only man is rational enough! Since there are no signs of such a development anywhere - rather the contrary - this must be rethought. John Keane's work is a pointer in this direction. Any serious rethinking of Enlightenment-rooted political theories - in addition to rethinking the desired democracy, liberalism, political economy, a(1 fitting our globalized world - must also discuss the burgeoning fundamentalisms which, according to some leading scholars, are actually modern phenomena. In the very lively debate on the form of the desired liberal democracy with its emphasis on welfare state, communitarianism, and human rights, John Rawls, John Gray, Cass Sunstein, Michael Sandel, and many others should free themselves from that remnant of Enlightenment times which either ignores religion or considers it simplistically as just an irrational phenomenon and try to do the rethinking with a new approach to religion at its center.

3

What has been claimed here also applies to the *physical sciences*. Since we tend so much to view physics as a monolithic or paradigmatic structure, let us take a closer look at one of physics' most controversial aims: to reduce the world to one fundamental set of coherent laws, in short to a »final theory«.

What is typical of modern physical theory is that while we use an abstract, mathematical language, we speak also of new types of entities but are actually prevented from saying in plain visualizable words how we think about the world. Thus Steven Weinberg:

»The century now coming to a close has seen in physics a dazzling expansion of the frontiers of scientific knowledge. Einstein's special and general theories of relativity have permanently changed our view of space and time and gravitation. In an even more radical break with the past, quantum mechanics has transformed the very language we use to describe nature: in place of particles with definite positions and velocities, we have learned to speak of wave functions and probabilities. Out of the fusion of relativity with quantum mechanics there has evolved a new view of the world, one in which matter has lost its central role. This role has been usurped by principles of symmetry, some of them hidden from view in the present state of the universe. On this foundation we have built a successful theory of electromagnetism and the weak and strong nuclear interactions of elementary particles« (Weinberg 1992, p. 3).⁵

Weinberg has no difficulty and sees no problem following the above quotation by saying simply »But now we are stuck«; here he means nothing conceptual: we are stuck because in order to continue our march toward a final theory, we need higher energies, thus a much bigger accelerator and thus much more money! We need the Superconducting Supercollider, planned to cost thirteen billion dollars. The finally unsuccessful political fight to get this sum approved by the American Congress was led by Steven Weinberg. The campaign almost succeeded. But the United States is seemingly turning to problems of society and relinquishing the universe. Not less significantly, for the first time leading experts disagreed on the validity of the claim behind the request for the allocation. So we are at a point now where »our present theories are only of limited validity, still tentative and incomplete. But behind them now and then we watch glimpses of a final theory, one that would be of unlimited validity and entirely satisfying in its completeness and consistency« (Weinberg 1992, pp. 5-6).

Strong words by a leading, or even perhaps the leading, physicist of our time, one who is often described as wearing Einstein's mantle. What about the »Basic Conflict Between the Concepts of General Relativity and of Quantum Mechanics«, the title given to a lecture by another Nobel laureate, Eugene P. Wigner, one of the great contributors to quantum mechanics. He says in 1979 at the Einstein centenary celebrations:

»General relativity's basic observable quantities are space-time distances between events, the events being, at least in principle, crossing points of the world-lines of two objects, one of which is, usually, a light signal. It is assumed, therefore, that such crossing points, that is the positions and times of collisions are accurately localized in space-time. This is denied by quantum mechanical theory in which the location and time of the collision, the momenta and average positions of the colliding particles are uncertain after the collision has taken place. It is true, on the other hand, that the description of the observation of these disregards the gravitational effects of the instruments used for the observation of the colliding particles. This is, of course, in practice negligible for the collisions of

⁵ Elsewhere he says: »every one agrees on how to use quantum mechanics, but there is serious disagreement about how to think about what we are doing when we use it« (Weinberg 1992, p. 77). Then again: »Most physicists use quantum mechanics every day in their working lives without needing to worry about the fundamental problem of interpretation« (p. 84). But: »I admit to some discomfort in working all my life in a theoretical framework that no one fully understands. And we really do need to understand quantum mechanics better in quantum cosmology, the application of quantum mechanics to the whole universe where no outside observer is ever imaginable« (p. 85). Significantly, all these quotations are taken from a chapter entitled »Quantum Mechanics and its Discontents«.

interest in quantum mechanics, yet present in principle. The basic events of two theories, of general relativity and quantum mechanics, are truly different - in fact quantum mechanics denies the observability of general relativity theory's basic event.

Wigner is naturally not alone in that view. Weinberg knows it only too well. In a rhetorically masterful passage he both claims that this difficulty has been actually overcome, and also that it has not, but, being on the verge of a final theory, it will be overcome very soon.

»Why? Why are the quantum-mechanical equations that govern the particles in atoms what they are? Why does matter consist of these particles, the electrons and the atomic nuclei? For that matter, why is there such a thing as light? Most of these things were rather mysterious in the 1920s and 1930s when quantum mechanics was first applied to atoms and light and have only become reasonably well understood in the last fifteen years or so, with the success of what is called the standard model of elementary particles and forces. A key precondition of this new understanding was the reconciliation in the 1940s of quantum mechanics with the other great revolution in twentieth-century physics, Einstein's theory of relativity. The principles of relativity and quantum mechanics are almost incompatible with each other and can coexist only in a limited class of theories. In the non-relativistic quantum mechanics of the 1920s we could imagine almost any kind of force among electrons and nuclei, but as we shall see, this is not so in a relativistic theory: forces between particles can arise only from the exchange of other particles.« (Weinberg 1992, pp. 24-25)

The other problem is the source of certainty that Weinberg and others have that once the final theory is achieved, it will explain ultimately and in principle everything, even if - admittedly - it will neither explain life nor »simple« everyday phenomena like turbulence:

»When we say that one truth explains another, as for instance that the physical principles (the rules of quantum mechanics) governing electrons in electric fields explain the laws of chemistry, we do not necessarily mean that we can actually deduce the truths we claim have been explained. Sometimes we can complete the deduction, as for the chemistry of the simple hydrogen molecule. But sometimes the problem is just too complicated for us. In speaking in this way of scientific explanations, we have in mind not what scientists actually deduce but instead a necessity built into nature itself« (Weinberg 1992 p. 9). »Wonderful phenomena, from turbulence to thought, will still need explanation whatever final theory is discovered. The discovery of a final theory in physics will not necessarily even help very much in making progress in understanding these phenomena (though it may with some). A final theory will be final only in one sense - it will bring to an end a certain sort of science, the ancient search for those principles that cannot be explained in terms of deeper principles« (Weinberg 1992, p. 18).⁶

Weinberg's explanation is, I am afraid, more heat than light, i.e., the deep inner conviction of a very great scientist. That is a lot: the status of this belief is not less than that, but unfortunately not more either:

»I think that we have to talk this way because this is what our science is about: the discovery of explanations built into the logical structure of nature. Of course we become much more confident that we have the correct explanations when we are able to actually carry out some calculations and

⁶ »Right now in physics alone there are phenomena like turbulence and superconductivity that are *expected* to have profound and beautiful explanations. No one knows how galaxies formed or how the genetic mechanism got started or how memories are stored in the brain. None of these problems is likely to be affected by the discovery of a final theory« (Weinberg 1992, p. 239).

compare the results with observation: if not of the chemistry of proteins, then at least of the chemistry of hydrogen« (Weinberg 1992, p, 10).

These are the problematic aspects of the belief that we are in the midst of an unstoppable progressive march towards the final theory, which, however, is still a dream. On the other hand, Weinberg's brilliant book supplies a great number of daring hunches and insights which are in themselves beyond an Enlightenment approach, to which the dream of the final theory belongs. Such, for example, is the following entertaining, anti-Newtonian, anti-quantum-mechanics and thus anti-Enlightenment idea:

»It is not clear whether the universal and the historical elements in our sciences will remain forever distinct. In modern quantum mechanics as well as in Newtonian mechanics there is a clear separation between the conditions that tell us the initial state of a system (whether the system is the whole universe, or just part of it), and the laws that govern its subsequent evolution. But it is possible that eventually the initial conditions will appear as part of the laws of nature« (Weinberg 1992, p. 34).

And if we do take into account »the intention of historical accidents and the complexity that prevents our actually being able to explain everything even when we consider only universals, free of the elements of history« (Weinberg 1992, p. 39), then we have to have recourse to the possibility that the constructs of nature are not everywhere the same, or that they may not have been always the same.

»Recently a number of theoretical physicists have been playing with the idea that what we usually call the universe, the expanding cloud of galaxies that extends in all directions for at least tens of billions of light years, is merely a subuniverse, a small part of a much larger megauniverse consisting of many such parts, in each of which what we call the constants of nature (the electric charge of the electron, the ratios of elementary particle masses, and so on) may take different values. Perhaps even what we now call the laws of nature will be found to vary from one subuniverse to another. In that case the explanation for the constants and laws that we have discovered may involve an irreducible historical element: the accident that we are in the particular subuniverse we inhabit. But, even if there turns out to be something in these ideas, I do not think that we will have to give up our dreams of discovering the final laws of nature; the final laws would be megalaws that determine the probabilities of being in different types of subuniverse« (Weinberg 1992, p. 38).⁷

There is another interesting conclusion that follows: namely, according to another great physicist, Brian Pippard:

»What is surely impossible is that a theoretical physicist, given unlimited computing power, should deduce from the laws of physics that a certain complex structure is aware of its own existence« (cited in Weinberg 1992, p. 44).

So consciousness is not to be explained by the coming dream. This might look anti-positivistic, or anti-scientific, and thus in some sense anti-Enlightenment (although it befits Cartesian dualism which is at the basis of an Enlightenment world-view), but one can look at it also as an exemplification of Gödel's theorems (or as a counterargument to that of Baron Münchhausen), showing that in the final account philosophy and logic are more all-embracing than physics - which again is very much Enlightenment.

⁷ Another of these daring counterfactual speculations: »The gravitational force might in Newton's theory have depended on the shape or chemical composition of the body without upsetting the underlying conceptual basis of the theory« (Weinberg 1992, pp. 105-106).

Finally Weinberg raises the deepest epistemological and thus very Enlightenment issue: »whether quantum mechanics is necessarily true« (Weinberg 1992, p. 85). Since it had »phenomenal successes in explaining the prospects of particles and atoms and molecules, so we know that it is a very good approximation of the truth« (Weinberg 1992, p. 8 S). There is no clear-cut answer to this. One way to answer it would be if it could be shown that there is another logically possible theory with close but not quite identical predictions to those of quantum mechanics. Weinberg and others have tried to create such theories but with no success. And thus:

»This theoretical failure to find a plausible alternative to quantum mechanics suggests to me that quantum mechanics is the way it is because any small change in quantum mechanics would lead to logical absurdities. If this is true, quantum mechanics may be a permanent part of physics. Indeed quantum mechanics may survive [...] as a precisely valid feature of the final theory« (Weinberg 1992, pp. 88-89).

So, on what does Weinberg base his inner certainty about the truth of these theories? On considerations of symmetry and beauty. Let us see a few of his statements: »... the demand for a completely finite theory is similar to a host of the aesthetic judgements that theoretical physicists always need to make« (Weinberg 1992, p. 116). And: »I believe that the general acceptance of general relativity was due in large part to the attractions of the theory itself - in short, to its beauty« (Weinberg 1992, p. z8).

Internal consistency and rigidity of a theory, including its fixity with regard to all its constituent parts - any change in any of these would lead to logical absurdities - »made it reasonable for physicists to believe they would make more progress in their own scientific work by believing the theory to be true than by waiting for it to go away« (Weinberg 1992, p. 123). This means in short: its beauty. An even better explanation is:

»A physicist who says that a theory is beautiful does not mean quite the same thing that would be meant in saying that a particular painting or a piece of music or poetry is beautiful. It is not merely a personal expression of aesthetic pleasure; it is much closer to what a horse trainer means when he looks at a racehorse and says that it is a beautiful horse. The horse trainer is of course expressing a personal opinion, but it is an opinion about an objective fact: that, on the basis of judgments that the trainer could not easily put into words, this is the kind of horse that wins races« (Weinberg 1992, p. 133).

»Simplicity is part of what I mean by beauty, but it is a simplicity of ideas, not simplicity of a mechanical sort that can be measured by counting equations or symbols. Both Einstein's and Newton's theories of gravitation involve equations that tell us the gravitational forces produced by any given amount of matter. In Newton's theory there are three of these equations (corresponding to the three dimensions of space) - in Einstein's theory there are fourteen. In itself, this cannot be counted as an aesthetic advantage of Newton's over Einstein's. And in fact it is Einstein's theory that is more beautiful, in part because of the simplicity of his central idea about the equivalence of gravitation and inertia. That is a judgment on which scientists have generally agreed and ... it was largely responsible for the early acceptance of Einstein's theory.

There is another quality besides simplicity that can make a physical theory beautiful - it is the sense of inevitability that the theory may give us. In listening to a piece of music or hearing a sonnet one sometimes feels an intense aesthetic pleasure at the sense that nothing in the work could be changed, that there is not one note or one word that you would want to have different. In Raphael's Holy Family the placement of every figure on the canvas is perfect. This may not be of all paintings in the world your favorite, but as you look at that painting, there is nothing that you would want Raphael

to have done differently. The same is partly true (it is never more than partly true) of general relativity. Once you know the general physical principles adopted by Einstein, you understand there is no other significantly different theory of gravitation to which Einstein could have been led. As Einstein said of general relativity, >The chief attraction of the theory lies in its logical completeness. If a single one of the conclusions drawn from it proves wrong, it must be given up; to modify it without destroying the whole structure seems impossible« (Weinberg 1992, p. T35; see also Elkana 1982, pp.205-252).

Having dedicated a thorough discussion to the beauty of simplicity and of symmetry principles that add to or even constitute the rigidity, and thus the beauty of theories, Weinberg, fully unaware that these criteria are social constructs, returns to the issue of truth and is deeply puzzled about the criticism of objectivity in science. As self-evident he claims:

»It is simply a logical fallacy to go from the observation that science is a social process to the conclusion that the final product, our scientific theories, is what it is because of social and historical forces acting in this process. A party of mountain climbers may argue over the best path to the peak, and these arguments may be conditioned by the history and social structure of the expedition, but in the end either they find a good path to the peak or they do not, and when they get there they know it. (No one would give a book about mountain climbing the title *Constructing Everest*.) I cannot prove that science is like this, but everything in my experience as a scientist convinces me that it is« (Weinberg 1992, p. 182).

How ironic it is that an otherwise admiring review of this admirable book by another great physicist, Roger Penrose, who shares so many of Weinberg's Enlightenment views about science, the moment he wishes to criticize has to revert to social-cultural argument. Penrose disagrees with Weinberg that symmetries are so fundamental:

» Why then do particle physicists seem almost universally to take the view that symmetry is indeed fundamental? I believe that the reason is largely historical and perhaps also cultural, The historical point is that by taking symmetry as fundamental, Weinberg, Glashow, Salam, and others have followed a valuable route to an electro-weak theory with all the required consistency (finiteness) properties. However, it is now known that there are other routes which would have led to effectively the same theory but where the symmetry is taken as superficial, not fundamental. The cultural point is that theories with symmetry are regarded as simple and beautiful, and therefore more likely to lead to the secrets of nature's ways« (Penrose 1993)

Penrose then goes on to relativize the concepts of beauty and the aesthetics of symmetry:

»One of the strengths of Weinberg's *Dreams* is that he is honest and explicit about the important role of aesthetic considerations in the judgment of physical theories. He argues, with special reference to Einstein's general theory of relativity (the theory that explains gravitation in terms of curved space-time), that beauty is an indispensable ingredient of a successful physical theory - and I agree with him. The ways that we might differ, in certain respects, would be in relation to which particular features of a theory we regard as beautiful. To Weinberg the symmetry aspects of the standard model of particle physics are important ingredients of its beauty. I have to confess that I do not feel the same way about symmetry as such. In certain respects, symmetry can represent an ugly complication in a theory rather than a simple and elegant feature. To me, the fact that there are at least seventeen undetermined parameters in this standard model outweighs whatever beauty may be imparted by its own particular collection of symmetries! « (Penrose 1993)

We remain deeply puzzled how the claim to truth could possibly be upheld confronted with such a degree of relativism! We believe, with Penrose, that the considerations are »largely historical and perhaps also cultural«.

So far the fact remains that we do not have a complete, coherent physical theory of the world, just as we do not have a complete theory of life: its history, evolution, structure. We have no one image of man and we do not have a comprehensive, coherent social theory. What to do? Shall we invest our resources - human and material - into the Enlightenment-driven dream of a final theory? Or should we go along with the alternative program of another great solid state physicist, Philip W Anderson? He says:

»The reductionist hypothesis does not by any means imply a >constructionist< one: The ability to reduce everything to simple fundamental laws does not imply the ability to start from those laws and reconstruct the universe. In fact, the more the elementary-particle physicists tell us about the nature of the fundamental laws, the less relevance they seem to have in the very real problems of the rest of science, much less to those of society. The constructionist hypothesis breaks down when confronted with the twin difficulties of scale and complexity« (Anderson 1972).

To which Sam Schweber comments:

»Anderson believes in emergent laws. He holds the view that each level has its own >fundamental< laws and its own ontology. Translated into the language of particle physicists, Anderson would say each level has its own effective Lagrangian and its set of quasi-stable particles. In each level the effective Lagrangian - the >fundamental< description at that level - is the best we can do. But it is not enough to know the >fundamental< laws at a given level. It is the solutions to the equations, not the equations themselves, that provide a mathematical description of the physical phenomena. >Emergence< refers to properties of the solutions - in particular the properties that are not readily apparent from the equations« (Schweber 1993)

If we take Anderson's view very seriously - and it is being taken very seriously by many physicists - then the Enlightenment *Dreams of a Final Theory* is being seriously challenged with a »post-modern« sounding dream: no more putting all our brains and money into chasing the final, one, universal set of laws; rather accept »local« theory; contradictions, which, while not desired, one learns to live with; the abandonment of a simplistic notion of »nature as such«.

Recent developments in the physical theory of chaos and in the mathematics of fractal geometry point both ways, as usual, open to wish-determined interpretation. Some detect in Benoit Mandelbrot's approach a newly discovered universal, mathematically formulatable harmony-beauty in nature. Beyond reminding ourselves that harmony and beauty are themselves socially constructed images of knowledge, there is in »chaos« another message: when encountering complexity of a degree that would previously force the researcher to abandon the quest, or, at best to try and construct a model of lesser complexity, now the researcher is encouraged to continue and amass more parameters, and even further complexity, because it might lead to partial or even completely new insights. That this has become possible is to a great extent due to recent developments in computers, so that we can follow on the screen what happens when we multiply the number of parameters. In biology, in the case of some previously intractable physical problems, in economics, and indeed in psychology, chaos theory is promoting previously unimaginable developments.

We discussed the example in the physical sciences in such detail because they are considered usually as the »hardest« of all, withstanding the anti-Enlightenment, relativizing, contextualizing approach. I have tried to show at great length that the physical sciences are in the same boat as the rest and that they need rethinking as much as the other disciplines.

I would now like to discuss some more Enlightenment views: the late Ernest Gellner's views are extremely interesting because he was an anthropologist, a philosopher, a sociologist, and an expert on Islam(s), and he thus knew what he was talking about both in theory and in the field. He was also a deeply committed Enlightenment thinker, and he asked the big questions. Among many other books in the last years, two are especially fascinating for our purposes here. A short one, a violent attack on postmodernism (Gellner 1992a) is an impatient critique of whatever he calls »post-modern« and thus irrational. The other one I refer to is entitled *Reason and Culture* (Gellner 1992b). Here he surveys the rational dream of the Enlightenment; he starts with Descartes, and Descartes' basic idea: that reason's greatest enemy is culture. Culture is customs and examples, i. e., tradition and habit, the opposite of reason. He goes quickly through the main works of Hume, Kant, Durkheim, Weber, Wittgenstein, and Chomsky, and ends up by showing that if their rationality is taken seriously in their intended sharpness, then Descartes is irrational, Chomsky is irrational and Wittgenstein is irrational; all the rest are irrational. The paradox: if you are deeply committed to the Enlightenment, and that is what you come up with finally, why do you still believe that rational-irrational is a fruitful dichotomy? And with this rhetorical question goes another cherished belief of the Enlightenment. It is not a fruitful dichotomy because it does not lead to any kind of deeper understanding. It has to be replaced by *local realisms*. Those local theories stick to our critical method of trying to be both experimental and rational and applying criteria, limited to the areas where they are relevant and which we finally choose or are led to, relativistically. That is what I have called elsewhere two-tier thinking (Elkana 1978).⁸

Gellner further claims, and this is his solution to the woes of the modern world, that there are three trends acting simultaneously. There are what he calls the »relativists« who are very bad; then there are the »fundamentalists« who are also fairly bad, but not that bad because the fundamentalists at least accept something which the Enlightenment understands: they believe in some kind of absolute truth. And then the people whom he calls the »Enlightenment fundamentalists« or »Enlightenment Puritans« where he belongs.

Gellner knows that the problems in our world are becoming of catastrophic dimension. He certainly rejects the anti-rational model (what I have called »scuttling« the Enlightenment) but is also aware that just doing more of the same will not do. Therefore, instead of claiming »rethinking« as I do, he »wisely« resigns himself to an overall compromise, a quasi-practical »muddling through«:

»The society in the milieu in which I am speaking has made its own peace with the dilemmas which I have tried to sketch. ... Its manner of handling these problems have included shrouding them in a kind of decent obscurity which liberates the individual from any obligation to clarify his own position with a greater sharpness of finality or commitment than he may have in mind to do. He is not obliged to declare himself to others or to himself. Morally and politically there may be a good deal to be said for such an ambiguity. Just the touch of fundamentalism may ensure that the mix is not so thin. It is embodied so as to lose all moral suggestiveness, the elements of the Enlightenment prevent the rigidity of dogmatism. And the relativism helps tolerance and the avoidance of unnecessary disputation. The cocktail is generally adjustable to taste. It has striking parallels with the well matured political system in which absolute symbols shown of power coexist amicably with pragmatic-effective powers shown of too much symbolic potency. We know that a political system of

⁸ Two-tier thinking« means that we are, whatever we are doing, perforce realists; in different areas we are realists applying different partial theories. These partial theories may be contradictory, and we decide relativistically what to apply where. Our choice can be conscious or not, but in any case we do our best to hide this process even from ourselves because of our abhorrence of contradictions. This goes deep in the sciences and it certainly goes very deep in the social sciences; in some areas it is more readily admitted than in others.

this kind works well and can only wish that less fortunate lands only recently liberated from a secular absolutism can also attain a version of it» (Gellner 1992b).

In other words, if we look at the world and we look at the trends, and we look at all the horror that is surrounding us, in the final account, we will be doing well. As I made it clear so far, this, for me, is unacceptable.

The other point about the Enlightenment is the following. Behind the success story, and it was a success in science, technology, medicine, conquering nature and the world, was the Enlightenment conceptual framework of following our quest for universal all-embracing theories based on the essence of nature, man and society. Or so it seemed. Seemingly, because, *de facto*, science never abhorred contradictions and never worked really believing that rationality is logicity. Science was never really anti-dialectical, for the simple reason that so *far* we never had a complete theory of anything. We never had a complete physics; we never had a complete biology; we never had one overruling image of man which dealt with all aspects of our life; we never had a complete sociological theory of society or history. Actually we did live in a two-tier thinking mode, realistically endorsing local theories and doing our best to hide this fact.

Indeed, I am claiming that our enormous success till the beginning of the 20th century had to do with the great »make-believe« that was received as truth by society at large and by the political sector. It became also the guideline on how to approach knowledge and even more, how to transmit it from generation to generation, i. e., in the educational system. This huge »make-believe« motivated the carriers of knowledge and governance of the Western world for four hundred years leading to unprecedented success until it collapsed.

What remains to us? To admit that we do not have, and never had, all embracing theories of anything and to look realistically for the best and broadest local theories that are practically useful, even if among them, for the time being or forever, contradictions prevail. For that we need new concepts and a basic reeducation of our thinking to a dialectical ability to live with contradictions in our *theories*; to live with contradictions in practice we are used to and this constitutes no difficulty, but to tolerate them in our theoretical frameworks is a radically new ballgame.

5

Before coming to a short programmatic, normative proposal on how to do this, I want to remind ourselves that we live in an age where we lack the necessary concepts. Not that we have the wrong concepts. Actually, what has slowly dawned on us over the last hundred years was the realization that we lack concepts or words to cope with the world. (I do not want to go into the complex distinction between »words« and »concepts« which is not relevant here.) We do not have the words; we do not have the concepts.

The »Secession«, *fin de siècle*, started by saying that we had to find new ways of expressing ourselves because we had lost the conceptual means to do so. Literary examples do not prove anything, but literary examples can be rich, symbolic reminders: The famous *Chandos Letter* by Hugo von Hofmannsthal, published in 1902, is a fictive letter, written by the young Philip, Lord Chandos, to his teacher and mentor Francis Bacon apologizing that for two years he had not produced any real work of knowledge; his world has collapsed; he is incapable of finding words to describe reality. Clearly Hofmannsthal is talking about his own time, not about that of Francis Bacon. This was not a personal crisis. He pointed to a fundamental issue which he saw before many other did and which has accompanied us ever since.

Let me illustrate this further. I do not know of a single serious study of the First World War which does not mention sooner or later that in spite of all our theories, we do not know how to

conceptualize the senseless murder of millions of young people. Somehow we do not know how to speak about it. The same is true for the Holocaust: whatever theories we read about the Holocaust, we finally have to admit that conceptually it is beyond us; in some way we do not understand it; we do not have the concepts to think or talk about it. It is part of our reality which we do not know how to cope with.

This is, in a somewhat different way, what is happening in the sciences. For thirty or forty years we were playing around trying to give *names* to objects in quantum mechanics in order to be able to cope with the situation. Finally, we gave up the discussion of wavelicles, etc. and decided that we do not have the concepts, but that we do not need them either. We use mathematics, and we use predictability, and as long as it works, the theory is fine. We do not have a better theory and it is a wonderful theory. Yet, once more the words of Steven Weinberg: »I admit to some discomfort in working all my life in a theoretical framework that no one fully understands« (Weinberg 1992, p. 85). There is a similar situation in biology. Biologists who think on the different levels - society, whole organisms, cells, chromosomes, genes, or molecules - have great difficulty in finding a common language to speak about all these levels of organization, let alone to formulate in words the theoretical differences in dealing with the different levels.

Law is a very important area for rethinking the Enlightenment. Legal thinking was always one of the areas which had to face the problem that it had to deal with contextual situations as clearly as possible and to apply to local situations, as rigidly as possible, general principles which could be seen as universal theories. In spite of this realization, rarely has legal theory admitted that it is actually working with *Incompletely Realized Arguments*, as is done by Cass Sunstein. This very important book is dedicated to the ways law can and should grapple with mutually contradictory partial theories, with piecemeal rationality, analogical (as against digital) reasoning, actually supporting classical casuistry. This is one other formulation of the need to think dialectically, relying on »metic reason«, allowing the right answer to depend on the way the question has been formulated.

Another important topic for rethinking and new research: the more we abandon absolute dichotomies and anti-dialectical yes-and-no approaches, the more we begin to think analogically. At the same time, in pure Enlightenment tradition, our IT develops purely digitally. Now this has a fascinating political aspect: digital, algorithmic, absolutist approaches relying on rigid principles are by definition democratic, open to all, equal for all. Analogical, dialectical thinking presupposes the exercise of judgment. That is by definition elitist, and therefore unacceptable in most areas of our daily life, but also in our research/academic-educational life. The one way to democratize situations where judgment has to be exercised is by introducing procedural rules, which actually means »legalizing« the process.

6

Examples for other research areas which have to be rethought could be multiplied. The shared characteristic of all these partially documented and not-yet-fully worked out examples is that they all point to the conclusion that we must continue with the search and the research, abandoning some main guidelines we have inherited from our Enlightenment tradition. The candidates for abandonment are:

- the quest for universal theories;
- the quest for context-free absolute truth; - fierce anti-relativism;
- non-dialectical approach to *episteme*;
- non-admittance of metic thinking into the world of knowledge;

- sharp distinctions between private - public, mind - body, religious secular, masculine - feminine, Western - non-Western (»other«), theory - praxis, local - universal;
- »man as such«, »culture as such«, »nature as such«, i. e., all essentialisms.

The list is open-ended.

Finally, a need for serious consideration of Michel Foucault's »technology of the self«, i.e., the role of *cura sui* (in the neo-Platonic sense »following« Pierre Hadot), in the world of knowledge, replacing the Delphi-Plato-Descartes-Freud static, essentialistic *gnothi seauton*.

There is much nonsense being written about postmodernism. Some of the post-modern views indeed are of the anti-rational kind, fitting what I called the »scuttle the Enlightenment« mode of thought. Yet other postmodernism analyses are very close to the critical half of my claims: naively, they call for the abandonment of the universalist presumption, the search for context-independent truth and all embracing causal explanations. Two literary illustrations: The last play by Bernard-Marie Koltés, *Roberto Zucco*, tells the story of a young man who murders his father, goes to jail, escapes, murders his mother, then a policeman, if finally caught again, succeeds in getting on the roof of the prison, gives an inciting speech, strips naked, jumps off the roof, and dies. The point is that the text does not allow us to give a causal, rational theory of the psychology involved, however obsessively we wish to find such causal explanations. It forces the audience to accept the idea of uncaused evil. Good family, good education, being loved and not even spoiled - he had everything. No explanation works.

Another, opposite example: *Schindler's List*. This man, a German Catholic, lives in Poland under Nazi occupation, no better than a simple war-profiteer. He wants to earn more money and establishes factories, in which Jews from the camps are »employed«, because Jews cost even less than Polish workers. And somehow in an unexplainable way, he does uncaused good. He saves the lives of thousands of Jews.

And now to two last literary illustrations for the realization that we cannot cope with the world as it is with our conceptual equipment: Sigismund, the hero of *Der Turm*, the last play by Hugo von Hoffmansthal, written in 1926, is a young man, who, like in the ancient Greek myths, is born to a king who is confronted with a prophecy, that the child will grow up to kill him. The king, instead of killing him, puts him out of the house. The child grows up like an animal in a cage, yet he gets from his keeper-tutor a full education and immersion in the culture. He gets his Enlightenment. And when the other son dies, and Sigismund is recalled to court, the prophecy is fulfilled. The king is deposed, Sigismund is made king, all the courtiers flock to him, trying to influence him and dictate his course, among them his savior and beloved tutor. They are all eliminated, until finally only Julian, the tutor, remains, who tells him: »I made you and you have the whole Enlightenment in you; you learned everything, and you know everything, therefore you understand what we now have to do«. To which the answer of Sigismund just simply is: »Icb will nicht.«

But there is another hero who does not die. That is Steven Daedalus, the hero of James Joyce's *Portrait of the Artist as a Young Man*. Steven Daedalus who has the best Catholic education in Ireland, the best Enlightenment education, ends up by saying: »>I will not serve.< >I will not serve that in which I no longer believe, whether it call itself my home, my fatherland, or my church.«< This needs a type of daring, to say »no« to a huge part of our heritage, but not to scuttle it.

What follows? The need to rethink, reconceptualize - not to unthink the fundamentals of the Enlightenment.

Who can do that? The short answer to that is: those few thousand intellectuals, from all places of this globalized world who are capable, dissatisfied, and daring enough to do so. History for once teaches us something: that this is neither megalomania nor utopia; it can be done; it has been done again and again in the past. The whole tradition, which I called Enlightenment, conflating under this term three hundred year of rich, pluralistic, creative, astonishingly successful as well as occasionally cruel and immoral history was conceived by a few hundred individual thinkers in Europe. We know their motivations, ideologies, backgrounds, knowledge-traditions, philosophical training, social status, and economic conditions, the institutions they created and what they demolished. They created a new science, based on Newtonian physics, a new biology and medicine based on Newtonian reductionism and on Cartesian mind-body dualism, a new social science and political theory rooted in the French Revolution, but also in the Industrial Revolution, not following from, but based on the new science. Finally, Western democracy, the idea of the nation state, Western imperialism and colonialism emerged on the foundation of these conceptual frameworks. Not all their ideas were received and many disappeared; yet what remained became the Enlightenment world-view, and it was created by a few hundred scholars.

One could give many more examples of »rethinking the world« by groups, individuals or, sometimes, by thought-collectives. The Greek philosophers of the fifth century introduced epistemic, context-free thinking, replacing the political-legal-rhetorical metic thinking of the polis democracies. The various thought-communities of the late antiquity reintegrated *episteme* with religion. Augustine also, single-handed, rethought his world. The Thomistic synthesis was actually performed by Thomas of Aquinas, relying on the work of many mathematically trained Aristotelian monks. The Counter-Reformation actually agreeing with the agenda set by the Reformation but giving different answers to all questions is another example. And so on.

It is important that in a world of globalized technology, markets, and politics, the »Denkkollektive«, or in the words of Wolf Lepenies, the »learning communities«, must be interdisciplinary and genuinely international, in the multi-cultural sense, when getting organized for the rethinking.

A final paradox. We face the following problem: our science, technology, medicine, governance, and economy in our global world have become so advanced and so complex, that we need all the energy to produce carriers of knowledge on the highest level who not only are technically equipped to cope with what is there, but who can also find the appropriate measures for dealing with crisis-like emergencies in ecology, epidemics, famine, and destitution, and with the fact that even in so-called successful societies, we face only semi-stable economies and tottering democracies. In other words we need many »experts« who do more of the same, instead of rethinking the foundations. Yet it is indispensable to find the few thousands of intellectuals all around the globe who will rethink the world, discipline by discipline and problem area by problem area. Two major contradictory tasks are to be performed parallel and simultaneously. The readiness to do so is in itself part of the rethinking because it involves living with contradictions and engaging in parallel, opposite activities. And not less paradoxical is the need to educate these rethinkers in the very same institutions which are a main subject of the projected and necessary rethinking of the Enlightenment.

Literature

Anderson, P. W (1972), »More is Different«, in: *Science* 177, p. 393

- Bruner, J. (1990), *Acts of Meaning*, Cambridge: Harvard University Press. Eisenstadt, S. N. 1999), *Fundamentalism, Sectarianism and Revolution: The Jacobin Dimension of modernism*, Cambridge, UK: Cambridge University Press.
- Elkana, Y. (1978), »Two-Tier Thinking«, in: *Soc. Studies of Science* 8, pp. 309-326.
- (1982), »The Myth of Simplicity«, in: G. Holton and Y. Elkana (eds.), *Albert Einstein. Historical & Cultural Perspectives*, Princeton, N.J.: Princeton University Press, pp. 205-252.
- Gellner, E. (1992a), *Post-Modernism, Reason and Religion*, London: Routledge.
- (1992b), *Reason and Culture*, London: Blackwell.
- Penrose, R. (1993), »Nature's Biggest Secret«, review of Weinberg's *Dreams of a Final Theory*, in: *The New York Review of Books*, 21 October.
- Power, M. (1994), *The Audit Explosion*, London: Demos.
- Schweber, S. S. 1993), "Community and the Crisis in Physical Theory, in: *Physics Today*, November, p. 34.
- Sen, A. (1999), »Democracy as a Universal Value«, keynote address held in New Delhi, 14 February 1999, at the Global Conference on Democracy (preprint).
- Soyinka, W 1999), "Every Dictator's Nightmare«, in: *The New York Times*, 18 April.
- Weinberg, S. (1992), *Dreams of a Final Theory*, New York.