

The New Universal Church

Alexander Grothendieck

(Editorial from *Survivre et Vivre* no. 9, pp. 1-8, translated by John Bell)

Science and Scientism

The experimental-deductive method, spectacularly successful for four hundred years, has had a continually increasing impact on social and daily life and a corresponding increase (until recently) in its prestige.

At the same time, through a process of “imperialist expansion”, which needs precise analysis, science has generated an ideology of its own. We may call this *scientism*. This ideology has many of the features of what amounts to a *new religion*. The influence this new religion of scientism exercises over the public derives from the authority of science, through science’s successes. Scientism is now firmly implanted in all countries of the world, both in capitalist and so-called socialist countries (with important exceptions in the case of China¹). It has far outstripped all traditional religions. It has pervaded education at all levels, from elementary school to university, as well as post-scholastic professional life. In varying forms and intensities, it is dominant in all social classes; it is strongest in the more developed countries, within the intellectual professions, and the more esoteric fields of study².

Although the general public is taught some of the older and cruder results of science, it has never had any real understanding of what the scientific method is really about. This lack of understanding is perpetuated throughout primary and secondary education and even extends as far as the undergraduate level in universities. Science is taught dogmatically, as revealed truth. Accordingly the power that the term “science” exercises over the minds of the general public has a quasi-mystical and irrational nature. For the general public, and many scientists as well, science is like a kind of black magic, and its authority is at once indisputable and incomprehensible. This accounts for the religious characteristics of scientism. In this respect it is just as irrational and emotional in its

¹ All the signs seem to indicate strongly that the myth of the expert is systematically discouraged in China.

² Esoteric = inaccessible to the layman.

motivations, and intolerant in its concrete practice, as any of the traditional religions it has superseded³. Moreover, it does not (as the others do) restrict itself merely to the claim that its own myths are true. On the contrary, it is the only religion which has the arrogance to assert that it is based not on myth, but on Reason alone, and to present as “tolerance” the particular blend of intolerance and amorality that it fosters.

In the eyes of the general public the priests and high priests of this religion are the scientists in the broad sense, and, more generally, the technologists, the technocrats, the experts. But the very language of this religion will be for ever incomprehensible to the people; indeed, it is not even a single language, but thousands of different ones, each just the particular technical jargon of a given field of expertise.

The overwhelming majority of scientists are quite willing to accept their role as priests and high priests of the dominant religion of today. They are steeped in it to a greater extent than anybody else, the more so the higher their position in the scientific hierarchy. To any attack on this religion or any of its dogmas or by-products they will react with all the emotional violence of a ruling elite whose privileges are being threatened⁴. They form an integral part of the ruling powers with which they are intimately identified, and which are all heavily dependent on their technological and technocratic skills.

There is no explicit written dogma of scientism to which we can refer⁵. Nevertheless, although it is not explicitly formulated, such a dogma does exist implicitly; it assumes quite a precise form, especially among the scientists themselves. We shall attempt to draw up what may be called a “credo” of scientism, formulated as a collection of principal myths. We do not mean to claim that all scientists, even those with clear leanings towards scientism, will be in complete agreement with all, or indeed, any of them. For the sake of clarity, the myths have been deliberately formulated in their most extreme form, which most scientists would hesitate to endorse explicitly, even when they act as if they accept them without reservation. Nevertheless we contend that the credo as a whole

³ Among the innumerable examples of this intolerance we mention official medicine’s excommunication of all unorthodox medical techniques and theories (including, in their time, those of Pasteur himself!). For a typically intolerant attitude shamelessly identified with “tolerance” see Rabinovitch’s article referred to in footnote 4.

⁴ See, for example, the article by Eugene Rabinovitch, *The mounting tide of unreason* in the Bulletin of the Atomic Scientists, May 1971.

⁵ The book *La Hasard et la Nécessité* (“Chance and Necessity”) by Jacques Monod, if not a complete gospel of scientism, is certainly a particularly striking illustration.

does effectively express those principal tendencies, or their final states at least, which are to be found in greater or less strength or purity amongst almost all scientists.

The Credo of Scientism

Myth 1: Only *scientific* knowledge is true or real knowledge; that is, only knowledge which can be expressed quantitatively, or formalized, or repeated at will under laboratory conditions, can be the content of true knowledge. “True” or “real” knowledge, sometimes called “objective” knowledge, may be defined as universal knowledge, which holds at all times, places, and for all people, independently of societies and particular forms of culture.

Comments. Feelings and experiences such as love, emotion, beauty, or even the basic experiences of pleasure and pain are banished from the realm of true knowledge, at least insofar as they are not subsumed under a scientific theory. Neither Jesus nor Sappho knew anything about love!

This confines “true knowledge” to the few million scientists on the planet. Babies and children have no knowledge worth speaking of, nor does any person without scientific training. True knowledge begins with the last terms of a university education.

Another consequence of this myth is that, insofar as ethics is an object of knowledge, it can be investigated by scientific methods: it follows that science becomes the *foundation of ethics*.

Next, we have a converse to myth 1, namely

Myth 2: Whatever can be expressed in quantitative terms, or can be repeated under laboratory conditions, is an object of scientific knowledge and *ipso facto* valid and acceptable. In other words, truth (with its traditional value content) is *identical* with knowledge, that is, with scientific knowledge.

Comments. War and many of its aspects can be accommodated within various scientific theories, for example economics, strategy (as a chapter in probability theory or optimization theory), psychiatry, medicine, sociology. A new science, “polemology, or the science of war, has even been created by well-intentioned pacifists. War thus becomes

acceptable, as an object of scientific observation. Moreover, it acts as an important *regulating factor* for demographic and economic processes, as well as a stimulating element for science and technology. The subjective meaning of war for those who endure it or wage it is ignored, except as an object of “scientific” investigations whose aims are often manipulative, and whose final objective is the reduction of the life process to statistics.

Myth 3: *The “mechanistic” or “formalistic” or “analytic” view of nature: Science’s dream.* Atoms and molecules and their combinations can be completely described in terms of the mathematical laws of particle physics; cellular life in terms of molecules; higher organisms in terms of their constituent cells; thought and mind (including all types of psychic experience) in terms of neuron circuits⁶; human or animal societies, and human cultures, in terms of their constituent members.

In the final analysis, the sum total of reality, including human experience and relationships, social and political forces and events, is mathematically expressible in terms of systems of elementary particles. This reduction will actually be carried through once science is sufficiently advanced. Ultimately, the world will become nothing more than a particular structure within mathematics.

Comments. Clearly the notion of *purpose* can have no place in such a world view. Any hint at an explanation of natural phenomena in terms of final causes is contemptuously dismissed, at least within natural science.

The fact that the basic physical laws can now be expressed in statistical form enables the mechanist viewpoint to transcend the strictly determinist conception of nature, and in principle to reincorporate the idea of free will⁷.

Myth 4: *The role of the expert.* Knowledge, both for its development and its dissemination through teaching must be split into many fragments or special fields: first the broad fields such as mathematics, physics, chemistry, biology, sociology, psychology, etc., which are then subdivided *ad libitum* as science advances. Only the opinion of the experts in a given field has any bearing on any question in this field. If several fields are involved, only the collective opinion of experts in these fields is to be considered.

⁶ Neuron = nerve cell.

⁷ This is the “chance” of Jacques Monod.

Comments. Occasionally a single person may be an expert in more than one field, but nobody can be an expert in many fields. Nevertheless, a genuine understanding of any question about concrete reality requires the analysis of a great number of interconnected aspects, belonging to many different scientific fields. Reducing such analysis to a few or just one of these aspects would mutilate reality⁸. Accordingly, in a complex situation, no single person can be regarded as competent to understand the question, nor held responsible for any understanding or lack thereof.

Myth 4 furnishes the foundation for the *power of the expert* deriving from the incapacity of any person outside his speciality to understand him. It also justifies the following (rarely formulated) consequence, namely, that nobody whatsoever can claim to have valid knowledge about any complex part of reality. To compensate for this, the collective power of the technocracy is laid down in the following seemingly innocuous myth within the credo of scientism.

Myth 5: Science and the technology derived from science, and they alone, will solve mankind's problems. This applies equally to purely *human* problems, notably to psychological, moral, social, and political problems.

This leads us logically to

Myth 6: The experts alone are qualified to make decisions, as only the experts "know".

Comments. Within the sphere of social and political decisions, reality is too complex for a single expert to be truly competent. This difficulty is resolved in practice by introducing another sort of expert, the "decision-making" expert, who may be a public servant, a corporation manager, or a military officer. His function is to listen behind closed doors to the advice of the experts in the different specialities which are relevant to the decisions being made, and to make these decisions.

⁸ We recall in this connection *France-Soir's* 1962 inquiry into the Frenchman's idea of the perfect woman. The persons interrogated had to specify a forehead, a chin, a hairstyle, a facial appearance, etc. – the journalists then constructed the paragon of beauty for the majority of Frenchmen ... which turned out to be an icy ugliness. Beauty is not amenable to analytic treatment!

Fighting Scientism

In themselves, on a purely intellectual level, the principal myths of scientism exert a certain powerful attraction which partly explains their extraordinary success. They introduce far-reaching simplifications into the fluctuating complexities of natural phenomena and human experience. In deed, is there a single scientist who, when learning Newton's law of universal attraction as a child, was not overwhelmed by the exciting challenge of realizing Pythagoras's bold intuition that "all is number" and of constructing an entirely mechanistic description of the world⁹?

Moreover, like all myths, those of scientism contain concrete elements of truth. Their claim to be founded on reason alone lends them extra power. In fact, during the last few centuries there has been an increasingly intransigent affirmation of the superiority of reason and intellect over all other aspects of human experience and capacities, in particular, sensual, emotional and ethical aspects. And, worse still, a single particular use of the human intellect, namely, the experimental-deductive method of science, which has only developed during the last few centuries, stimulated by its great success in certain restricted fields of human investigation and activity, has been allowed to assume an increasingly dictatorial role, and has finally come to be identified with Reason itself, rejecting everything that it cannot embrace as "irrational", "emotional", "instinctual", "inhuman", etc¹⁰.

We regard all the principal myths of scientism as fallacies. On the expert, who feels himself to be among the chief beneficiaries of these myths designed to strengthen his collective power, they have a crippling effect, both spiritually and intellectually, as they carry him ever farther away from the harmony of living things, turning him into an ever more specialized servomechanism. They have a paralyzing effect on layman and expert alike – paralyzing with respect to the inborn desire to understand more about nature, life and ourselves than is expressible by a single specialized jargon, and consequently, paralyzing with respect to moral commitment and personal responsibility in all fields involving society as a whole, because they contribute to widening the ever-increasing gap between the three poles of human experience: thought, emotion and action. In socio-political terms, scientism justifies the existing rigid social hierarchy and indeed tends to

⁹ We point out that Newton himself was too acute to believe in the truth of such a description.

¹⁰ Again see the unfailing article of Rabinowitz cited in footnote 4.

strengthen it even more, placing at its summit a strongly hierarchical technocracy which can now vitally affect the future of all life on earth for millions of years to come.

In different forms scientism has established itself as the dominant ideology among most, if not all, of the world's countries. As such, it provides the chief justification for the mindless race of so-called "progress", viewed exclusively as scientific and technological progress (in accordance with the dogma of scientism). This, in turn, is one of the driving forces behind the religion of production and growth for their own sakes. This mindless race and reckless growth have resulted in the present ecological crisis, whose early stages we are only beginning to witness, and have led us to a major crisis in our civilization. Scientism, which has been a decisive force in causing both of these crises, is totally incapable of overcoming either of them. It is even incapable of *recognizing* the existence of a crisis in our civilization since this would mean questioning the ideology of scientism itself.

For these reasons, we maintain that scientism is the most powerful and dangerous ideology today, although it has not been generally recognized as an ideology in its own right. It may be regarded as a common foundation for both the capitalist ideology and the communist ideology in force within most of the so-called "socialist" countries. We believe that, in the coming years, the chief political dividing line will fall less and less within the traditional division between "right" and "left", but increasingly among the adherents of scientism, who advocate "technological progress at any price", and their opponents, i.e., roughly speaking, those who regard the enhancement of life, in all its richness and variety, as being the supreme value.

The dizzying rise to power of the ideology of scientism over the minds of the general public seems to have reached its apogee about a year ago with the first American manned landing on the moon, which resulted in nothing less than global hysteria. Since then, clear signs of a "backlash" have emerged, in which increasing disillusionment and scepticism are expressed about the "miracles" of science and technology, their claim to be the key to human happiness, and their ability to solve the problems that they themselves have created. The road for this backlash has been paved by the global rise of a marginal *Counter-Culture*, which can itself be regarded as, in large part, a reaction against the ideology of scientism¹¹.

¹¹ This reaction often leads to an emphasis on the mystical, magical, or religious aspects of human experience. Thus, paradoxically, science, which was supposed to eliminate these aspects, has, on the contrary, through the very excesses of the ideology of scientism, contributed to their rebirth.

This backlash is manifested equally in the much more reserved way in which the mass media now react to new scientific and technological exploits, occasionally even openly criticizing them¹². Opposition of a harder type, although mostly still restricted by respect for science and its experts, comes from the increasing number of environmental defense groups which are springing up everywhere, more radicalized by the day as their militants become more aware of the problems to be faced and of the passivity, even the complicity, of the “scientific community” with the forces that threaten us. All these signs seem to us to presage the decline of scientism.

The time is now ripe to hasten this decline in open combat.

A fight from within

One of the most effective ways of combating scientism would seem to be a fight from within, by those scientists who have become aware of its fallacies and dangers. This struggle began a few years ago, from the most varied quarters. Some of the opposition (although of a somewhat restricted kind) comes from certain leftist minded scientists. More radical questioning comes from the hippie movement, which has a few members or sympathizers among the “scientific community”. These are generally young scientists, of relatively modest academic standing. Only more recently, it seems, have a few senior scientists joined the struggle.

During the past few years there have appeared a number of groups of scientists who have engaged in more or less radical criticism of scientism. There are now more than a hundred such groups distributed over various countries, and new groups are constantly appearing. *Survival* is just one of these groups; others include *Science for the People* (mainly American), *Lasitoc* (with members from various countries, including England and Sweden), *British Society for Social Responsibility in Science* (BSSRS), etc.

The motivation for much of this “internal” revolt against scientism seems to be an intellectual or moral detestation of its internal limitations or external implications. In any event, a considerably larger number of opponents seems likely to emerge in the coming years, in the West at least, because of the increase in the ranks of trained scientists and technicians who are going to be unemployed, or employed in a profession for which they were not trained, or with a status and salary considerably below that which they feel their

¹² The abandonment of the American supersonic aircraft is suggestive here.

scientific competence entitles them. We see emerging here what Marxists would probably call an “inner class contradiction” within the scientific caste, splitting off what might be called a scientific proletariat. No longer having any powerful class interests at stake, these new proletarians are likely to contribute to the downfall of the ideology of scientism.