Discussion
A reconsideration of the idealistic vision of science for peace

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Abstract

This article is a provocative tour of the intellectual landscape surrounding the role of science and scientists in international relations. It argues that scientists are not uniquely qualified by training or the culture of science to prevent or resolve conflicts between nations and that whatever influence they do have for peace is outweighed by their role as developers of new weapons. Ethnic strife and the process of globalization change the nature of conflicts between nations to the point that scientists cannot be distinguished from other actors in the international marketplace. © 2001 Elsevier Science Ltd. All rights reserved.

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1. Introduction

The question of the role that scientific cooperation plays in preventing or resolving conflicts, in Europe or elsewhere, is subject to two criticisms. The first is that the question is rooted in an idealistic vision of science and scientists, a vision that attributes to them a special status that is misleading. The vision tends to portray science as a factor for peace, to view democracy and peace as an automatic consequence of increased scientific cooperation, and to distort the perception of the impact of scientific cooperation by over-emphasizing the positive and under-emphasizing the negative influence of scientists in military conflicts.

A second criticism of asking how scientific cooperation mitigates national conflict is that the question ignores contemporary issues of globalization and the changing
nature of conflicts. In particular, it rests on a conception of conflicts exclusively between states at a time when war itself is changing fundamentally. Not only are contemporary wars no longer necessarily made by states, but many of the conflicts shaping political decisions are now waged in the economy.

2. A distorted perception of science and scientists

The first criticism bears on the concept of the special position of scientists and on the tendency to give it too much attention, leading to exaggerated claims about the success and efficiency of scientific actions. The nefarious role that scientists played during the wars that devastated the twentieth century is well known. Were they equally important in ‘helping peace efforts between states’? In some instances, the answer is ‘Probably’, despite the obvious imbalance between the two roles: the scientists’ mobilization in favor of war constantly outweighed their active goodwill in favor of peace. This is hardly surprising, except for those who assume, wrongly, that scientists are special in ways that make them more willing or capable than others of promoting — inside as well as outside their laboratories — community and peace rather than war and conflict.

It is true that in the classical vision of science and scientists, which is still dominant in lecture theatres and laboratories, there is the prevalent myth of science as both apolitical and benevolent. According to this view, scientists are less likely to succumb to nationalistic passions than others, even though they may have to cope with a conflict of loyalty between their country on the one hand and the internationalist values of science on the other because of the double obligation in which they find themselves. Their first obligation is to cooperate closely with their foreign colleagues (because scientific activities are by nature international in character and they belong to a network that transcends national boundaries). Their second obligation is to respect the ethical norms of science as defined by sociologist of science Robert K. Merton — communism, universalism, disinterestedness, and organized skepticism [1]. The Mertonian view is that scientists are guarantors of rationality, rigor, objectivity, intellectual honesty, impartiality, integrity, and attachment to truth. Therefore scientists are a priori better qualified than others to serve as intermediaries to prevent or soften conflicts between countries or to normalize relationships and maintain stability after conflicts arise.

This angelic vision of science and scientists has been severely undermined both by the history of the last century and by studies made by historians and sociologists of science in the last quarter century. With regard to scientific ethics, empirical sociopolitical research reveals a banal reality that contrasts with the ideal that scientists present of themselves. What it shows is not so much that those engaged in scientific research may be jealous lovers, selfish husbands, violent mothers, crazy drivers, or nationalistic activists outside their professional activities — that was already known — but that their professional behavior does not match their self-image of intellectual integrity.

Needless to say, in this process of demystifying science, social history made an
important contribution. It would be tedious to list here the innumerable compromises made by the scientific community (and not only by individual scientists) with war and fascism during the last century. Writing on Nazi science, Olff-Nathan recalls that Germany was the homeland of science in 1933, and that neither the preeminence of German science nor its collection of Nobel Prizes conveyed any resistance to Nazism [2]. On the contrary, the contribution of the scientific community was decisive. Olff-Nathan wonders at the extent to which the influence of science was excluded from research into the causes of Nazism, as if the only scientists involved had been mad or corrupt. She concludes that aside from individual cowardice and the compromises of daily life, in which scientists resemble other citizens, it was science as a whole system that was deeply discredited by the Nazi episode. Did they not come from all over the world, those scientists who took part in the 1939 International Congress of Genetics in Germany — while sterilization of mentally ill people was at its peak?

Hitler was indeed neither the first nor the last political leader to enroll scientists in the service of his bellicose views or to prepare war with their eager collaboration. During as well as after the Second World War, scientists contributed massively to the arms race without having uncertainties, whatever the nature of the wars that were successively prepared and waged (Cold War, Vietnam War, war in Afghanistan, star wars, etc.). The history of the second half of the century is that of a permanent and spontaneous contribution of science — including its ‘purest’ components — to all fields of military relevance. Furthermore, as Keynan has stressed, “scientists are not passive players in their implication with governments” [3]. Their voluntary supply often anticipated this military demand. In the United States, for instance, scientists were almost systematically among the originators of initiatives and propositions for new weapons systems, not without being somewhat condescending toward their military colleagues. American weapons scientist Edward Teller is reported to have said, “It is better not to bother about military needs but to push scientific progress up to its limit: military needs will necessarily follow. Military people often do not see the potentialities opened up by new scientific developments” [4]. Most often, military bureaucracy became active only at a later stage when it tried to persuade political leaders to adopt some of the projects that had initially been pushed by scientists.

What were the motivations of scientists, and what was the justification for their eagerness? In the first place came, of course, ‘patriotic loyalty’. However, this noble reason became difficult to defend when the Cold War replaced loyalty to the nation-state with loyalty to the official ideology. A less openly admitted though no less important motivation was the search for power and prestige, in which the concerns of both scientists and military people met. No wonder, for instance, if among the thirty or so members of the prestigious JASON group who advised the Pentagon during the Vietnam War on the evaluation of weapons systems, technical aspects of counter-insurgency, military applications of lasers, etc. many were physicists who came from theoretical physics, which is not obviously the most useful field for military purposes. Prestige considerations were just as important for military people who were delighted to benefit from the prestige and the elitism of that discipline, as
for scientists who were proud to be part of a prestigious intellectual guarantee for the Pentagon.

The most influential motivation was, of course, generous financial support which justified all kinds of more or less cynical attitudes. The sums involved were far from trivial: at the end of the Cold War, military R&D represented one-quarter of total world R&D expenditures ($100 billion in 1986) and employed more than 750,000 scientists and engineers out of four million. No wonder the Strategic Defense Initiative (SDI) led many to ‘take the money and run’. In 1987, estimates by the Department of Defense of the initial cost of the SDI were $250 billion, with a final cost varying from $500 billion (General Abrahamson, head of the Strategic Defense Initiative Organization) to $2000 billion (according to Johns Hopkins University) [5]. Calculated in the same constant (1986) dollars, the cost of the Manhattan Project would have been $10 billion, and the cost of the Vietnam War (between 1965 and 1972) $300 billion.

A last but not insignificant explanation for the willingness of scientists to work for the military is to be found in the way they are trained. When they begin their studies, science students are plunged into purely scientific and technical problems, without any historical, sociological, economic, or philosophical perspective. Not only are scientific and technical subjects systematically presented independently of any socioeconomic considerations—apart, perhaps, from those related to the prestige and status of researchers — but when students begin to specialize, the only criterion of their value is expressed in terms of the productivity of their research. No critical approach to the use of science is provided during the whole training, the basic principle of which is to introduce the sharpest possible distinction between facts and values. The result is that a scientist’s training eliminates ethical competence and leaves the problem of responsibility entirely to opinions and beliefs. Even before that, the general training system tends to persuade students that scientists are an intellectual super-elite. In the selection process, priority is given from the beginning to scientific disciplines according to an extremely compelling system. No wonder if the product of this selective apprenticeship is a specialist trained to pursue scientific exploits without worrying about their consequences or questioning their political implications. No wonder that this specialist often inclines to attribute social problems to incompetence and lack of rationality or — which comes to the same thing but is even more dangerous — to consider that all problems can be solved if they are approached in a scientific way.

A typical scientific behavior thus consists of “separating problems”, which is often conducive to schizophrenia. For instance, some scientists may simultaneously work on the bomb and join the Pugwash Movement; as citizens they work for peace, while as scientists they are working for the Apocalypse. Another form of schizophrenia is observed when scientists refuse to take a position with regard to their peers who participate in actions that are contrary to the rules of international law, on the pretense that scientists are not experts in ethics or politics. This schizophrenic behavior could be observed during the Vietnam War when some European scientists called into question the participation of American scientists in the war. In 1972, for instance, Murray Gell-Mann, professor at the California Institute of Technology, winner of
the 1969 Nobel Prize for physics, and a member of the JASON group, was prevented from giving a lecture at the Collège de France by some French scientists, while Sidney Drell, professor at Stanford University and another theoretical physicist belonging to JASON, was prevented from participating in a conference in Rome. To justify their actions, French and Italian scientists referred to, among other things, a statement by Telford Taylor, an American who had been a judge at the Nürnberg trials, who said that General Westmoreland, the American commander in chief, could be condemned and hanged if the standards established after the Second World War were applied to his way of conducting the war in Vietnam [6]. European scientists explicitly accused Professors Gell-Mann and Drell as well as Princeton University’s John Wheeler (another physicist in the same situation) of complicity in war crimes. In August 1972, sixty scientists from different countries who attended a conference in Paris on the history of physics in the twentieth century issued a statement denouncing the professional participation of some scientists in the war against the Vietnamese people.

Interestingly enough, these initiatives were immediately condemned in scientific milieus. The editors of Nature refused to publish the statement on the pretext that “Nature and some of its correspondents have not the required qualification to follow ramifications of these complex problems” [7]. The message was that a scientist, especially when he was a Nobel Prize winner, should not be questioned on political or human rights grounds. This could destroy the fiction of a neutral science. Most scientists shared the reaction of Alfred Kastler, the French Nobel Prize winner in physics, who is reported to have said, “I don’t approve your initiative. Where would it lead us if one were to generalize such an attitude?” Professor H.B.G. Casimir, chairman of the European Society of Physics, went even further in comparing these “persecutions of scientists by the crowd”(sic) to those of Galileo and of Jewish scientists by the Nazis [8]. This last reference is deeply revealing of the distress felt by scientists when they are confronted with a political challenge to their actions, even though their actions are political.

Another interesting example of professional schizophrenia is that of Freeman, who was simultaneously a consultant in the American Department of Defense, a peace activist, and the author of the famous book Weapons and Hope, in which he confronts the opposite and irreconcilable points of view of the ‘victims’ and the ‘warriors’. In a letter to the Italian physicists after the actions of 1972, he wrote: “I was for ten years an active member of JASON and a vehement opponent of the American policy in Vietnam... If you sincerely wanted to stop the Vietnam war, you would not lose your time in disturbing scientific meetings. Such troubles may be satisfying for your ego, but have no effect on war” [9]. Whether he was correct in this last point is highly debatable, given the crucial importance of public opinion in the final outcome of that kind of conflict. His reaction was, however, interesting as a further desperate attempt to maintain the separation between science and politics and the concept of neutrality of science.

Yet links between science and politics are particularly close in the field of international relations. Among scientific actions that cross international borders, many are formalized and institutionalized. They occur in a legal framework of explicit
agreements. They are maintained by international councils or congresses, developed in transnational organizations, and take place in accordance, in compliance, or in collusion with the foreign policy of the state where the scientists work. They can hardly be in contradiction to it. The political nature of scientific intervention is still more obvious when scientists are used as ‘experts’ by governments, in which case their intervention takes an immediate political turn. Whether scientists like it or not, science has become a new technique of statecraft, along with military forces and diplomacy. The consequence, however, of science being diluted in politics is that the crucial ethical values are no longer those of science but those of politics.

Of course, not all scientific actions that cross political borders are formalized, regulated through international agreements, or integrated in transnational institutions. Most are spontaneous and informal. They are part of the ‘normal’ scientific enterprise, emerge from individual actions, and are enforced by mutual self-interest and gentlemen’s agreements. They create personal links and networks that transcend international borders. These characteristics, however, make scientific networks hard to distinguish from any other informal nongovernmental transnational networks that deal with such areas as culture, sport, human rights, or ecology. In particular, it makes them difficult to differentiate from international trade, which liberal thinkers have systematically presented since the 18th century as contributing to a better international understanding and as having a preeminently peaceful role. All these activities might, by developing mutual interest and substituting interest for passions, thwart the spirit of domination and conquest and have a civilizing effect on individuals and societies. Few advocates of free trade, however, would share the idyllic vision of a ‘harmony of interests’ that would be created spontaneously by the market.

While it is difficult to point out differences between scientists and all these other practical, cosmopolitan internationalists, it is easy to underline what they have in common: a horizontal culture based on, among other things, the use of the English language, participation in international networks, communication through the Internet, e-mail, fax, telephone, and television, free air travel, and access to international currencies and credit cards. Those characteristics define them more as active agents of the process known as globalization than as well-qualified ambassadors for peace.

3. An obsolete vision of scientists and wars?

The idea that scientists may intervene favorably in interstate relations is nice and optimistic but might rest on the persistence of inherited ways of thinking about organized violence and a misperception of the character and logic of warfare today. The traditional figures of both science and war are becoming outdated in the general movement toward a world of complex interdependence, as they are thoroughly transformed by: (1) the process of globalization and (2) their progressive absorption by the economy.

Wars are usually defined as violence between countries or states for political motives. Yet a growing number of actual wars are internal or civil wars, motivated more by ‘identity politics’ [10] than by territorial or ideological motives. Many of
these conflicts are linked to the process known as globalization which designates the opening, standardization, and internationalization of markets and also the deregulation that goes with it. Globalization is nothing new as a historical process, but its acceleration and qualitative changes have made it the central feature of contemporary international relations.

The process of globalization is indeed a contradictory process that involves, on one side, integration, homogenization, and globality, but on the other side fragmentation, diversification, and locality. As far as the integrative aspect is concerned, globalization is associated with the intensification of global political, economic, military, scientific, and cultural interconnectedness. By creating inclusive transnational networks of people, it might convey a more tolerant, multicultural, and universalistic approach to international relations. As regards the fragmentation aspect of globalization, it frustrates, excludes, and atomizes large numbers of people whose lives are more and more controlled by organizations or individuals, often located far away. It contributes to a decomposition of economies and societies and to the weakening and loss in value of state structures. Globalization thus contributes to increased partnership and mediation, but also to social destruction and chaos, which tend to accentuate social divisions and exacerbate fundamentalism, nationalism, and transnational criminality.

The impact of globalization is visible in many actual conflicts whose origin should be sought more in the decomposition of states than in their rivalries. These conflicts resulting from the destabilization of states are made worse by brutal exposure to global forces which lead to a retreat to the ‘closest’, that is, the extended family or immediate community. When political communities break up, assertions of identity relay failing political modes of integration. These nationalistic symptoms, which result from the crisis of the traditional mediating institutions, absolutely do not spare scientists. This could be seen in recent ethnic conflicts from Burundi to Kosovo, where few scientists rose up against an ethnic vision of the world or even refused to enter into it. In many cases, they were active participants in these identity politics, both locally and as members of diaspora communities in advanced industrial countries, where they supported identity politics with ideas, propaganda, money, and techniques.

For Kaldor, one of the foremost specialists on new wars

the upsurge in the politics of particularist identities cannot be understood in traditional terms. It has to be explained in the context of a growing cultural dissonance between those who participate in transnational networks, and those who are excluded from global processes and are tied to localities even if their lives may be profoundly shaped by those same processes. [11]

One cannot assume, however, that those who support particularistic views of identity are losers in the process of globalization, while those who favor a more tolerant, multicultural, universalistic approach are part of the global elites working in science, technology, finance, higher education, and transnational organizations.

Most people belonging to these global elites, including scientists, pursue their
individual and material interests. They see knowledge as something that is produced just like any other commodity to be stocked in data banks and sold in the most profitable way. The transformation of science into a pure commodity has to do with the progressive absorption by the market of various spheres that originally had nothing to do with the economy. Science and war in particular are subjected to an unavoidable and irrepressible process of privatization and commercialization as anticipated by Marx, who predicted the coming “unchallenged reign of the merchandise”. Scientists need increasing amounts of money, while multinational corporations need increasing numbers of scientists. This evolution does not, however, predispose scientists to take on the role of peacemakers. In the ‘economic war zone’ where many conflicts increasingly take place, scientists, on the contrary, play a major role.

The same process of liberalization and privatization takes place in the military sphere, largely as a result of reduced military expenditures, which leads to the transfer of military resources (soldiers, weapons, engineers, scientists working for defense) from the public sector to a new informal paramilitary sector. The new economy of war is very rewarding and fits wonderfully in the logic of transnationality. This is why disarmament and the conversion of the military sector are such ticklish issues. The process of liberalization and internationalization of war, and the privatization of the means of violence, are especially dangerous when they put on the market scientists who sell their knowledge to the highest bidder.

As a result of these developments, the scientist’s conflict of loyalty is no longer between his or her country and the alleged values of science (supposing it ever was) but between these values and the imperatives of the market. In his book *Economy and Society*, Weber explained that in the market, “social actions are not determined by orientation to any sort of norm which is held to be valid, nor do they rest on custom, but entirely on the fact that the corresponding type of social action is in the nature of the case best adapted to the normal interests of the actors as they themselves are aware of” [12].

What are the implications of these developments in Europe? An important difference between the present state of affairs and the Cold War is the striking contrast between countries where war seems obsolete and countries where it has come back after decades of peace. Europe, from that point of view, does not appear as a unified continent but rather as a fragmented world where some countries have eliminated war from their horizon while other countries are experiencing chaos and anarchy. In the peaceful part of Europe, after centuries of fratricidal fights between European states, their economic and partial political integration made war between them inconceivable. However, the disappearance of interstate conflicts with their western neighbors is accompanied by the surge in, or the return of, other types of uncontrolled violence, particularly in underprivileged areas (inner cities, housing estates).

In contrast, old national, ethnic, and religious conflicts are flourishing in the eastern part of Europe. These nationalistic conflicts based on the reconstruction of a heroic past and the memory of injustices have several sources. The most important ones are economic collapse and the fierce competition for resources on the one hand, and the loss of legitimacy of the ruling classes on the other.
4. Conclusions

There are severe limits on the extent to which scientific cooperation can be used to influence short-range or even long-range political developments. In the first place, it is impossible to place ‘scientists’ in a unique category, or even to define a ‘scientific community’ given the multiplicity of disciplines and hierarchical categories and the division of labor between them. During the twentieth century, physics was by definition the science of war, while medicine or agronomy probably contributed much more to peace.

Scientists, whose main partners are in the economic and the military worlds, are not dedicated to conflict resolution or mitigation. If they intervene in such actions, it is either as politically dedicated citizens, or as agents or channels used by governments to pursue political goals. The building up of a ‘Europe of research’, for instance, was one of the many instruments used to create political irreversibilities.

European scientists, by and large, have probably been less compromised in the preparation of war during the Cold War than their Soviet and American colleagues. Maybe because of the direct, terrible experience they had of war during the twentieth century, European scientists devoted considerable effort to the realization of the political project of European integration which has succeeded in making war obsolete and inconceivable between Western European countries. This is probably where lessons must be sought.

References

[1] Merton was quite aware of these problems when he exhorted scientists to avoid “prostitution of scientific effort to war purposes” (in Science and the social order) and to reject ethnocentrism and nationalistic claims (in Defense of democracy and the Ethos of science).
[10] The term “identity politics” refers to movements that mobilize around ethnic, racial, linguistic, or religious identity for the purpose of claiming state power.

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