

an answer to the challenges of our time and that instead of „intelligent“ weapons intelligent politics and politicians are in desperate need.

## References

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## Science and Secrecy in Germany

My statement is concerned primarily with the effects of science policy devoted to military purposes on the German science system especially with regard to the problems of secrecy in science.

### Military R&D in Germany

The German circumstances are often said to be similar to the Japanese situation, where only a very small share of scientific resources is committed to military efforts. In the most important and official presentations of our government and in the self-perception of the scientific community in the FRG, the military R&D also plays an astonishingly insignificant role. The portray of military research given in the federal state's central documents of research and military policies in the FRG – that means the nine Federal Research Reports („Bundesforschungsberichte“) of the Federal Ministry of Research and Technology (BMFT) and Defense White Books („Verteidigungsweißbücher“) of the German Defense Ministry (BMVg) published between 1965 and 1990 – in no way corresponds to the actual importance of that field of funding. All together these documents devote not half as many lines as pages to the most important sector of the German science system – the military sector. This seems to be the result of a mode of portrayal which is based upon what one might call a „Technique of Marginalization“. The use of this technique is obviously selective. In no other field of research funding it is to be found in an approximately similar order of magnitude. If we look at the latest government documents, there is absolutely no change in this practice of playing down the importance of military research within the entire science potential. I think, there are historic and contemporary reasons as well for this situation.

After the end of the Second World War, the conduct of military research was prohibited for a number of years in the Federal Republic of Germany. Likewise, the remilitarization, effected nearly four decades ago, could only be enforced by the renouncing of research, development and production of weapons of mass destruction and by the renouncing of the production of a series of important conventional weapons. These restrictions had the effect that up until recently, armaments research in the Federal Republic of Germany, for instance compared to the research in France and England (and, particularly so with the research in the United States and the Soviet Union) was and still is of minor significance. Meanwhile though, those restrictions or bans were either lifted or they were circum-

vented. Only the lack of a strategic nuclear force prevented that the West-German armaments research draws level with the French and British budgets.

Primarily, the armaments research in the FRG has been installed in the private industry and as an element of the so-called „free“ research institutions, that means relatively small state laboratories. In contrast to France or the U.S.A., neither large intramural state laboratories nor a prominent sector of the military R&D at the universities, which display a high social visibility, belong to the national-peculiar development pattern of the Federal Republic's military research. Talking about the effects of military policy on the German science system, we have to keep in mind this national policy style and the institutional pattern it has generated. It explains the lack of discussion in the country on the problem of secrecy in science.

I'll try to give you a very short overview on the funding flows, the military R & D budget and its development in the last years. A rough as well as conservative estimate of the total public budget of military research has to assume the amount of approximately 3.8 billion DM in this year. This would mean that presently more than 18% of the state and 26 % of the federal R&D expenditures is spent on military research. Compared to the basic year 1982 (= 100), the total public funds have grown to 133.7 % (1991), while the civil share has grown only to 124.64 %; the equivalent military share was 169.74 % in 1991. As a consequence, the military share of total federal R&D expenditure has increased remarkably between 1982 and 1991 from 20.16 % to 25.78 % (1990).

Still more apparent are the changes when scrutinizing the distribution of the newly added funds which are most easily to be influenced by the Government. During the period of 1982 to 1990, nearly 60 % of the federal funds additionally made available by the German government for research programs went to military research. The Ministry of defence has become the most important state funding source for industrial research. It's share of the federal research funds flowing into industry has doubled since 1982 from 24.5 % to 49 % (1990). At least in the armament sector, there is no retreating of the state from industrial research. On the contrary: military research is predominantly arms industry research – that means: the industries share of the military R&D budget hasn't changed since 1983 (about 78 %). This is the moment, when the extraordinary position of Daimler-Benz must be mentioned: out of three military R&D-projects, this company has obtained two. In 1989, 45 % of all federal funds flowing into industry has gone to just one company – to Daimler-Benz<sup>1</sup>.

Since 1990, the global pattern has been modified. The continuous growth of military R&D funds has been interrupted. Increasingly, the German national research budget is suffering from the new fiscal burdens having

come up with the German unification on the one hand and the ambitious and costly space projects on the other hand. The military research budget is stagnating. In 1992, there will be a small decline. But up till now there is no cancelling of one important military R&D project; just the opposite: since 1989, more than twenty large-scale projects have been initiated. The German Ministry of Defence played an important role in inventing and implementing the European EUCLID-Program (‘‘European Cooperation for the Long Term in Defence’’).

### Military R&D and Industrial Policy in Germany

Since the mid-sixties, discussions and conflicts in this field concentrate on problems of military effectiveness, industrial competitiveness and academic freedom. Since that time, the issue of ‘‘secrecy in science’’ is back on the political agenda. I shall not discuss at this point the first problem of military effectiveness. In the past, the discussion on this topic in Germany has dealt with a couple of large-scale projects of the air force and the marine forces. The second issue – industrial competitiveness, spin-off-problem and so on – has been discussed in the United States over and over again.

In Germany, there is a certain military control of industrial innovation, but its scope and importance does not correspond with the American situation. In the second half of the sixties, the Ministry of Defence lost what one might justifiably call its scientific-political leadership function. Its capability to influence the science system – especially the computer sciences and information technologies – is limited. To be sure, there is still a powerful industrial policy of the military with regard to the armaments industries such as aerospace industry, shipyard industry, ammunition and so on. This kind of industrial policy is pursuing the specific goal of branch advancement. But the Ministry of Defence is not in a position to implement a national, a nation-wide industrial policy, thus competing with civil ministries like the Ministry for Research and Technology or the Ministry of Economic Affairs. Industrial policy in Germany has important military aspects, but on the whole it follows the imperative of the civil market.

This is a very important difference to the American economic policy. As far as I can see, in the United States there is still a fierce conflict between the attempts to subjugate explicitly non-classified, civil research to military governmental control and to limit its national and international circulation on the one hand and the purpose of making unlimited use of these research results or technologies for private, commercial ends<sup>2</sup>.

In Germany, this conflict exists by all means and it is fought out moderately by the economic and military elites. The conceptual basis of this conflict is the same as in the USA: research and technology, up to now



utilized only civilly, is said to be effective militarily too and hence become militarily relevant – hence ought to be under the control of military institutions. According to the inner logic of this concept, military science policy must attempt to subjugate explicitly non-classified, civil research to governmental control and limits its circulation. The actions taken or attempted by the government include: barring foreigners from attendance at unclassified conferences; pressuring authors to withdraw unclassified papers from open meetings; pressuring researchers in certain fields to submit their unclassified research papers to government agencies for prepublication review; including clauses in unclassified university research contracts that prohibit participation by foreigners; barring foreigners from unclassified research and computing facilities.

We must put it in this way: there is a revitalization of censorship as instrument of military science policy. In the last decade, a broad scale of instruments has been elaborated in the United States. It exists. And if you adopt the conceptual basis guiding this instruments, military elites shall always be tempted to implement these instruments.

Altogether the development in the United States has indeed direct or indirect effects on the science system in the Federal Republic of Germany. As early as in the first half of the last decade individual cases of access restriction to data processing systems became known. To what extent participants from the FRG were subjected to such frequently implemented access restrictions to international congresses held in the United States is not known – although may be safely assumed. On the whole, the debates in the FRG concentrate on questions of export control regimes, starting with SDI and, for the time being, ending with the „Libya“, „Pakistan“ and „Iraq“ affairs on illegal transfer of secreted scientific-technical know-how. These „affairs“ hardly touched universities and major state research organizations. At this time, governmental control of scientific-technical knowledge involves almost exclusively industrial research.

### Secrecy in Science

The gulf war – not overburdening restraints or censorship – caused a discussion within the German academic community on the relationship between military and university. On this basis, among other topics, secrecy in science became an issue.

More than twenty years ago, the student's movement already had put this problem on the political agenda. I think you will enjoy the full quote of a short press release of the Ministry of Defence, reacting on student's publications blaming the German and American military for constraining the academic freedom by placing military research contracts at the universities. It reads: „It is public knowledge that the Federal Ministry for

Defense has concluded contracts with universities and institutes. Those research contracts are not subject to any classification arrangements as they serve humanitarian interest, exclusively. Any obligation to inform the public which contracts have been commissioned to which institute must, however, again be answered in the negative.“<sup>3</sup>

This nice differentiation – there is no secrecy, but no openness either – fits the present situation as well as the one twenty years ago. It is the guideline of the governmental rhetoric on the issue of secrecy in science. Indeed those individual research contracts commissioned to the respective university contractors are not secret since results are published in the research reports of the Ministry of the Defense. However, they cannot be combined to make up one entire image and the practice of compartmentalization prevents any insights into the complexity of the scientific process. And there is every indication to believe that only a tiny part of the military research contracts is terminated with an open research report. Only a couple of months ago, the State government of Baden-Württemberg had to concede in a parliamentary debate that only one not specified part of the research reports is open; the other part usually is classified on a low level („confidential – for official use only“).

In general, in our country research contracts themselves are not published: „The Federal Government cannot publish the text of research contracts or of application texts which will then be the subject of endowments.“<sup>4</sup>

Last year for example, the government emphasized not to publish any details on SDI-contracts in Germany. International agreements – for example on biological weapons research between the USA and the Federal Republic – are kept secret too.

In the words of the Inspector General of the German Armed Forces, the central „R&D-concept“, which since 1986 has been structuring the science policy of the German Ministry of Defense and administrates close to a third of the allocated means, must be – „rated very much at the top with regard to secrecy aspects“. The rating is „VS-confidential“, with various sections for a few interested „VS-for official use only.“

This issue is in fact aggravated by the considerable deficits in the science statistics of the Federal Republic of Germany which supplies far less data to the military R&D than for instance the science statistics of the United States.

In contrast to the American science statistics – the West-German science statistics will not disclose

- the distribution of military R&D among different types of performers (intramural, industry, university, other),
- contract sizes for every institution,
- breakdown of military R&D by fields of study and discipline,

- distribution by services,
- geographic distribution of R&D funding,
- distribution by budget categories (basic research, development, testing).

There is no accessible list of contracts. The open R&D-budget of the defense ministry covers only a small quantity of programs, including a large number of single R&D projects. It is not possible to break down these program elements – some kind of a white black budget.

One might put it into the following terms: it is less the problem of security classification of military research than its social invisibility and hidden or masked structure. For the scientific community as well as a single scientist it is impossible to conduct something like a „Military Technology Assessment“. They cannot figure out the political, civil or military – may be even the scientific – role and importance of their research<sup>5</sup>.

### Conclusion

I'd like to come to the end with four points.

- 1) Military university research in the FRG is to a far extent no basic research, for the future possible military use of which members of that university should not bear the responsibility. This research is potentially applicable and scientists are fully familiar with the potential military utilization of their work.
- 2) The military university research is different in view of the problems posed and the implementation of, frequently, civilian, non-military projects. Its usefulness for civilian exploitation or utilization is low, with applicability increasing, all the more limited.
- 3) In the FRG, military university science is by no means always frontier research or sweet science which is particularly productive and said not possible to be financed any other way. Quite in contrast to England, France and the United States there are, in these parts, numerous civilian (non-military) alternatives for financing and research.
- 4) Military university research is protected by the freedom of research standardised in article 5, GG (constitution). However, the individual scientists as well as the institution „university“ is at liberty to prohibit the secrecy clause when drafting the contract and to insist upon implementation regulations which exclude implementation for military purposes of any scientific achievement yielded. If we look at the political discussions on this problem in 1991, this is the most important result. For the first time in the science history of this country, there is a discussion on this issue not only in the academic field, but in the heights of political decision-makers too, supporting the idea of introducing so-called „civil-clauses“ in the

research contracts. I think this is a very interesting and positive development.

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- 4) „Die Bundesregierung kann den Wortlaut von Forschungsverträgen oder von Antragstexten, die dann Gegenstand von Zuwendungsbescheiden werden, nicht veröffentlichen. Dies ergibt sich aus § 30 VwVfG (Verwaltungsverfahrensgesetz -R.R.) und den Nebenbestimmungen zur Projektförderung auf Ausgabenbasis des Bundesministeriums für Forschung und Technologie“ (BtDr 11/7713 p.1
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