

# DISSIDENT SCIENTISTS: HARD VERSUS SOFT SCIENCE

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*Physics Bulletin* (July 1977 pp307–9) provides some suggestions concerning scientists who are persecuted for political reasons. Three of the writers are physicists (Sir Brian Pippard, Professor E H S Burhop and Professor J M Ziman) and the fourth is a plant physiologist and university administrator (Lord Ashby). Such a group of four distinguished scientists is in a position to influence policy on dissidents. However, there is a necessity to view the problem from the eyes of the less eminent and from the eyes of those who are not physicists nor university administrators. I argue that the situation is different between 'hard' and 'soft' sciences, that political suppression is often complicated by personal victimisation *within* the scientific community and that unless this subject is examined in terms of the social structure of science the tactics adopted are at best ineffective and at worst counter productive.

For example, Lord Ashby's suggestion of providing scholarships, laboratory space and library facilities for dissidents who are allowed to emigrate seems an excellent one, but it conflicts with his first principle: 'It is unwise to indict one specific political system . . .' Different countries vary greatly in the extent to which emigration is manipulated as a means for disciplining deviants. Furthermore, what of the dissidents within one's own country?

The *Physics Bulletin* discussion neglects that political repression is often confounded with personality conflict – one of many major points first developed in J D Bernal's *Social Function of Science*. Even for what is often assumed to be a paradigm of political persecution, the suppression of genetics by Lysenkoism, a first hand account reveals extensive personal intrigue and careerist opportunism by Trofim D Lysenko and his followers (see Zhores Medvedev *The Rise and Fall of T D Lysenko*). I fail to find anything in Marxist political philosophy that justifies such a rigid belief in the inheritance of acquired characters.

Professor Burhop's contribution provides a few examples of where victimisa-

tion of dissidents has occurred in the USA, UK or West Germany. It is surprising how frequently the examples in *Nature*, *Science* or *New Scientist* are from the USSR – rarely is there comment on examples closer to home.

This failure to be equally candid undermines the basic objective which motivated the discussion in *Physics Bulletin*: any protest made to authorities in the Soviet Union can be evaded as more 'cold war' propaganda, however inaccurate such a rationalisation really is. Were action on political suppression of scientists performed as even-handedly as possible, along the lines of Amnesty International, then such excuses would be removed. We in the 'West' must learn enough Russian history to realise the extent of English and American intervention following the 1917 revolution and how this intervention bred suspicion and victimisation, later intensified by the cold war.

Furthermore, both in the West and in the East it is easy for bureaucrats to discredit and otherwise harass critics within their own country. Even for a nation with as fine a reputation for civil liberties as Sweden, there is the example of a distinguished astrophysicist who felt forced to emigrate as a result of his criticisms – later proven correct – of a government sponsored nuclear power plant.

#### Physicists suffer less

Physicists have suffered *less* from political victimisation than many other scientists:

(i) Physics is a 'hard' science. The variables are few, easily controlled and accurately measured. Relationships are linear, at least as second order differential equations. There is a general consensus on experimental design, criteria for proof or disproof and the objectives of discovery. Theory itself is free of politics and value judgments, although these factors can intrude at the levels of applications or of career development. Uniformity in outlook automatically brings the physicists of different countries together.

For the 'soft' sciences there are conflicting schools of methodology, complex nonlinear interactions between a host of variables often only partially recognised and inaccurately measured. In general there is less rigour and less elegance. Divisions within disciplines contest bitterly the validity of objectives, techniques and

interpretations. The conflicts within the 'soft' sciences are sometimes pursued, to quote Arthur Koestler in *The Case of the Midwife Toad*, 'with a remarkable degree of bitchiness'.

For the politician, bureaucrat or industrialist who wishes to find scientific justification for a particular action, he need only choose that school within a 'soft' science which appears most useful. This 'principle of unnatural selection' is more than a public relations exercise, an effort to blind the public with science or an example of the use of research as a substitute for proper action. It exploits the conflicts within the 'soft' sciences to suppress evidence or ideas which are perceived as a threat. Such external influences can be quite subtle, often working through the control of funds for research, for publication or for jobs.

Because of the fragmentation and internal conflict within the 'soft' sciences, the suppression of a dissident in one group is less likely to be countered by cooperation from scientists in competing groups. The uncertainties of career development, the existence of personal rivalries, and the necessity for research funding, all interact to provide reasons to ignore the plight of the dissident. For an example of where paradigm conflict in a 'soft' science interacted with politics and resulted in victimisation, an example from London not Moscow, see David Triesman's article on the Institute of Psychiatry sackings in *Radical Science Journal* (No 5 pp9–36).

Nor are such external influences always rare or subtle. US Senate investigations have revealed that the American CIA has financed hundreds of academics, controlled most of the private foundations in the USA which support scholarly activity and effected the dismissal of a number of academics. In at least two cases deaths occurred as a result of the CIA to scientists involved in project MKULTRA. As most of these examples came to light by accident, and as the CIA has ample opportunity to enforce secrecy and cover-up, it is not unreasonable to consider this as the tip of the iceberg.

The 'hard' sciences enjoy another advantage over the 'soft' sciences. Politicians are more inclined to meddle with the 'soft' sciences because they think they understand

the subject or can see opportunities for personal gain. Choosing agricultural science as an example, the results are a series of Concorde-style financial disasters: virgin land plans, the ground nut scheme, the Gambia hens, the Queensland-British Food Corporation, and the abuse of pesticides and food additives. Some of the scientists who participated in these debacles and stayed silent have advanced to high governmental or academic positions. God help those who made effective criticisms, for they generally received scant support from their colleagues.

(ii) Physics is isolated from many types of application and yet has become essential for the development of modern weapons. Theories of quark structure have no consequence for political systems but theories on the population dynamics of fisheries interact with the politics of the 'common market'. The biological sciences interface with many aspects of human behaviour. The physicist is more isolated from such potential pressures.

The development of the atomic bomb, radar and rocketry in the second world war brought great respect for physics from politicians and the military, and brought a largesse of research funding which is envied by many other scientists. Physicists and other 'hard' scientists are regarded as too valuable to be harassed for ideological deviation unless it is utterly blatant.

#### **The case of J Robert Oppenheimer**

The way Professor Burhop uses the example of 'the public crucifixion of J Robert Oppenheimer' is not satisfactory. Firstly, there is evidence in the literature on this case that there was considerable personality conflict and that there were motives of professional advancement for those who would build 'the super'. Secondly, Oppenheimer never suffered any threat of unemployment nor of any interference in his research and teaching beyond denial of access to certain 'classified' documents. True, the trial was distressing but Oppenheimer emerged as a hero in the eyes of most intellectuals. After a few years he was considered sufficiently 'rehabilitated' by American politicians to receive the Fermi award. Contrast this with the fate of the former academic colleague that Oppenheimer named as a communist contact.

To see the importance of the case of J Robert Oppenheimer it must be viewed in the wider perspective of the sociology of science. Eminent scientists enjoy a relative immunity from the really disabling victimisation that is occasionally meted out to the younger and to the less well known: loss of job, loss of research grants and isolation from most of one's colleagues who fear that association with the victim will damage their own careers. The relative protection conveyed by eminent status is another example of Robert K Merton's 'The Matthew effect' (*Science* 1968 **159** 56-63). My examination of over a hundred cases of suppression, all within the English-speaking free world, suggests that the point of discontinuity for such protection is very high: status as a Nobel prize winner

or member of a prestigious academy. Hence, for the rank-and-file scientist the consequences are much more serious than the examples of mistreatment of Western scientists described in the discussion in *Physics Bulletin*. Eminent scientists are by their very success unlikely to have suffered such problems.

#### **Research and action needed**

Both research and action are needed. In abbreviated form some questions and some suggestions are presented which I hope will help.

What are the kinds of suppression? How often do they occur? Internal versus external pressures? Interactions? The recent, otherwise excellent American Association for the Advancement of Science report on *Scientific Freedom and Responsibility*, five years in the preparation, neither reviewed the available literature nor attempted a random survey.

Can changes in the social structure of science reduce the vulnerability of scientists to inside and to outside pressures? Studies from the sociology and psychology of scientists reveal the insecurity of the scientific profession: the personal conflicts over priority, the resistance to discovery, the striving for status and (especially serious now) the scarcity of good jobs.

Open refereeing, already successful for a few journals, should be expanded to research granting agencies. Referees perform a valuable function in science but the gate-keepers will be more vigilant if they cannot rest behind anonymity. Science has long had a tradition of open criticism at seminars and in publication. In the words of Professor Ziman, science is public knowledge.

Theodore Caplow and Bryce McGee in *The Academic Marketplace* describe the subtlety of hiring and firing, how a few well-placed whispers ruin the careers of many, banished to that archipelago the Americans call 'the academic Siberia', or driven out of science completely. Allegations on politics, life style or the quality of research or teaching need not correspond closely to reality for the victim seldom has a chance to confront his accuser. *Science Citation Index* is a new innovation which can provide a useful counter to some erroneous criticisms of competence.

By what means can the facts of a case of alleged suppression be established? See that your institution has the proper safeguards to ensure a fair trial in its dismissal statutes. It is disturbing to note that, judging from contested dismissal cases, an academic is more likely to be sacked in an atmosphere of political suppression than for consistent and flagrant incompetence - even though some attempt must be made to phrase the charges in terms of unsatisfactory teaching, research or administration. One of the best procedures to evaluate the facts of a case is that used by the Council for Academic Freedom and Democracy: an *ad hoc* committee interviews individuals, listens to all sides and prepares a report.

What are suitable sanctions to be applied against victimising institutions or

individuals? Opinions differ sharply and it is urgent that the efficacy of different suggestions be compared. I wonder if the cancellation of conferences or the withdrawal of delegates is desirable. Isolation favours a dislike of new ideas and leads to a lower tolerance threshold for dissent. Despite the risk of possible censure, certain provincial institutions have a history of recidivism in suppression of dissidents. The most backward institutions may be relatively immune from protests by prestigious individuals but in many cases private letters indicating disapproval do help and the more famous the signature the better.

Initially this should be private but the threat of publicity needs to be in the background to serve as an effective deterrent. Holding an open discussion of the particular case of suppression at an appropriate scientific conference, ensuring adequate press coverage, is another possibility. Where human rights are being blatantly violated, economic boycotts or other sanctions involving cooperation of scientists with civil liberties organisations are necessary, if very difficult to effect.

What can be done for the victim? Lord Ashby's suggestion of scholarships for dissenters is a step in the right direction but such scholarships must be available to individuals other than emigrants only and should be awarded on the basis of both need and competence. They will require financing, perhaps by a tithe on research grants to help the less fortunate, the unemployed scientists and the victimised dissenters, or by an appeal to the public - who benefit greatly from 'whistle-blowing', to use the American expression.

#### **Look at the social structure of science**

In conclusion, we are dealing not with a discrete distribution, a few isolated cases, but with a continuum. Discrimination for political reasons grades into discrimination for personal reasons, into positive discrimination (jobs for the boys, the old school tie, plural livings, etc) and into negative discrimination (women). Victimisation of dissidents often harms the victimising institution out of all proportion to the real or imagined damage done by the dissidents' words.

Many of the conflicts within science were relieved by the growth of science in the 1950s and 1960s, for example the various brain drains. Such options are now rarely available. Growing crises of population, resources and environment are intensifying the political pressures on science and the search for scapegoats.

We must look at the social structure of science, as J D Bernal suggested. We find science tremendously exciting and also hard work. Cases of suppression can be too easily regarded as someone else's problem, indeed as a disturbance to our quiet life or, as several analyses of the chain reaction against a victim reveal, a threat to sources of research funding. It will be necessary for the scientific community to build a more universal ethic on human rights ■

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