

Carl-Axel Gemzell

The social function of science and the foundations of the welfare state in Britain

To Bernal the full development and use of science is incompatible with the continued existence of capitalism. However, paradoxically enough, Bernal and his generation of British scientists contributed to the stabilization of capitalism by helping to prepare the ground for the welfare state in Britain. They played an active role in an ideological rupture, in the development and diffusion of new dominating ideas about "social engineering," about the rationalization of society with the help of science (Gemzell, 1987). The 50th anniversary of Bernal's book on *The Social Function of Science* reminds us of this effort.

The welfare state is usually connected with altruism, capitalism with egotistical search for profits. The question is: how can we more precisely understand this integration, this union of contrasts? And what was the function of science in this connection?

Here, Weber's rationalization concept can be of help. Weber has contributed much to our understanding of the role of rationality and science in modern society but he is mostly concerned with how rationalization processes lead to extremes and to conflicts between them, not with how they can fit together so that

a new social order can be created, and not with how compromises are made as in the case of the modern welfare state. However, Weber's studies of the origins of modern western civilization (Weber, 1934:1—236) show how fundamentally contrary and antagonistic processes can unite and how a new economic and social order can develop out of this union. The pervasive penetration of various spheres of human activity by the Protestant ethos (asceticism) created a common orientation towards life and an intellectual basis that was able to bridge the gap between different rationalization processes (Gemzell, 1989a).

In our own time science seems to be playing a similar role. Thus, the integration of capitalism and the welfare state could be understood as an expression of the union between contrasts or between rationalization processes that are taking place in society and confronting each other, but which are united and integrated under the impression of a general scientification, or in other words the diffusion of a scientific rationality, which is penetrating different rationalization processes and which is pushing and channeling them in a similar direction — is making them more similar (cf.

Foucault who holds that communication between discursive formations is possible only when the discursive formations in question are similar, see Kusch 1989:22).

When different rationalization processes penetrate each other the result can be a balance or it can be a situation where one process dominates the other. This can lead to continued contradictions and frictions.

Scientification means the transmission of strongly means-ends oriented rationality concepts connected with natural science to other areas (Thelander, 1990). The question is, however: to what purposes and interests did the scientification in question correspond? What aspirations and what kind of a program for scientification developed? To what extent did science set the standard for the planning, or to what extent was it only exploited on a rhetorical level?

Weber does not evaluate different types of rationalization. However, one of Weber's important contributions is that he has made clear that rationality can have various meanings, that, in other words, there exist different types of rationalization. Weber (1922:12—13, 1934:536—73) speaks of two main types or categories of rationality, namely value rationality and means-ends rationality. As Wolfgang J. Mommsen (1986) has emphasized the transformation of society depends on the composition of this constellation. To a certain extent value rationality and means-ends rationality are always and must always be linked to each other, but they are conceptionally separable and antagonistic. Therefore, it is important to find out which of these types of rationality or which "Bauprinzipien" a societal development is based upon.

The term rationalization is often used as a slogan. It is meaningless if it is used too broadly and in order to describe all possible kinds of processes. Weber is not entirely immune to this danger. Thus, it is important to identify the different types of societal rationalization that develop during a certain time period and the specific patterns of influence that make them converge so that a functioning entity can develop.

In Britain the 1930s are a particularly interesting period. How was the economic crisis met? How did the crisis function in a longer time perspective?

I have studied the development of rationalization processes in Britain in five different societal or problem spheres and their relationship to each other and to scientification. These spheres, which are all important fields of scientific implementation, are the professional sphere, the market, the public administration, the political ideology, and the social question (Gemzell, 1989b). I shall here try to sum up and discuss some results of this study with an emphasis on the public administration, the political ideology and the social question.

The public administration

In his critique of existing society Bernal particularly attacked "stupid bureaucracy" and emphasized the importance of "adequate administration and control." (Bernal, 1939:32, 378). In order to achieve this "the executive function of administration has also to be scientific. Somehow the executive and the scientist have to be combined in one person or in a closely acting group." (Bernal, 1941).

We see in this statement Bernal expressing the aspirations of many British scientists and professionals. Traditionally, public administration is a central battle field for the struggle between social groups and classes. From the middle of the 19th century the bureaucratized gentry held a dominating position in the recruitment for the higher administrative positions in the Civil Service. The typical Civil Servant in the leading, administrative posts belonged to the gentry and had studied arts and humanities at Oxbridge. This system came under heavy attack from another, emancipatory part of the middle class, namely the urban and intellectual aristocracy, active particularly within education and the new professions. (Gowan, 1987).

Here, the access of scientists to the leading administrative posts became a crucial demand. A number of different Royal Commissions —

the Ridley Commission in the 1880s, the MacDonal Commission in the years of 1912—14, the Tomlin Commission from 1929 onwards scrutinized the problem but without suggesting a change. The pressure in this direction came from outside the administration and could be resisted as long as the Civil Service, and behind it the Treasury, had a central and leading power position.

However, the bitter conflict during more than a century over this question reminds us of the social dimension of scientification. Scientification can be related, among other things, to an expansion of the professional middle class. The growth of the universities soon created an increasing risk for over-production in the old, free professions and a pressure towards specialization. This specialization meant at first the production and the integration into the universities not only of candidates within applied science, particularly chemistry, but in the British case also of engineers. Under the impact of the crises of the 1930's this specialization became increasingly pronounced and began more and more to encompass also the pure and applied social sciences: economics, political science, sociology, industrial psychology, business administration, etc.

Increasing expenditure made the universities - particularly the new "civic" universities founded since the middle of the 19th century and with an emphasis on applied science and engineering — more and more dependent on the market and on the state. It favoured a further development in the direction of a more utilitarian, means-ends oriented specialization of education and research. This meant that the barriers between science, on the one hand, and economics and politics, on the other, began to dissolve.

The political ideology

Bernal is typical for many British scientists and professionals of his generation also in his attitude to the need for political change. However, whereas Bernal and a minority among British scientists and professionals saw

the key to scientification in the dynamic force of revolutionary socialism, most of his colleagues linked their aspirations to new non-revolutionary political-ideological trends in the direction of corporatism and reformism (Gemzell, 1987).

Here, the Manchester liberal summer school of the 1920's paved the way. "In Manchester called in Cambridge to help redress the balance of society." In the liberal summer school a number of young, energetic economists from Cambridge, of which J. M. Keynes was the most prominent one, gained a platform for developing and spreading their ideas about the rationalization of society by means of science (economics). This resulted in the famous liberal reform programme "Britain's Industrial Future" (the "Yellow Book") in 1928 with its recipe for a scientifically managed economy and the subsequent liberal election manifesto (and promise) "We Can Conquer Unemployment" in the following year.

The economic crises that followed increased the liberals' efforts to use science for the solving of economic and industrial problems within the framework of a corporatistic cooperation between employers, employees and scientific experts. Among the conservatives Harold Macmillan developed similar ideas. Sir Arthur Salter, Sir Basil Blackett (Bank of England) and Sir Alfred Mond (I.C.I.) were leading representatives for these ideas in economic life.

In Labour the economic crises of the 1930's meant that the party was confronted with severe crises that also opened up the way for a new thinking about the social function of science. Hugh Dalton, G. D. H. Cole, Barbara Wootton, Evan Durbin, Hugh Gaitskell were among the economists who became influential in Labour and helped to reshape it in a strongly reformist and scientific direction.

Thus in all parties, step by step, there arose a conviction that scientific rationality should be the basis for societal rationalization. At the same time, the different political ideologies converged more and more. This went hand in hand with a pivotal shift within the electorate to the political advantage of the middle class, among them the professionals.

Here, where science was given a special role, it built upon the conviction of the objectivity and neutrality of science, of science as standing above particular interests. Thus, science was generally seen as a guarantee for democratic development. At the same time, there followed a change from value rational to means-ends rational considerations, from value questions to a level free of conflicts, where science was seen as a guarantee against conflict.

At the same time there is a conspicuous lack of precision concerning what scientific rationality stands for and how it can be applied to society and politics. In the main, it seems to be a question of using the model for the integration of capitalism and science found in scientific management or Taylorism with its emphasis on means-ends efficiency and precision. It is based upon the notion that science stands above all contradictions and thus can be used for the creation of a new kind of consensus and, moreover, that class conflicts are irrational and unnecessary. In other words, the model for the integration of capitalism and science is taken over and used not only for the economy, but for society at large.

With the exception of scientific management the integration of capitalism and science did not result in concrete suggestions as to how science could be used. Thus, in the main, integration took place on a rhetorical level. Science was used as legitimation.

The ensuing political consensus was directed especially towards the solution of a problem that long had confronted society: the social question. This question is particularly interesting, not only because it was influenced by scientification, but also because it depended on the constellation of development trends and on power conditions within the other spheres we have examined.

The social question

Bernal stated that "science and human goodwill cannot march separately; they must go together." He demanded "a full use of world resources in the service of all men" and de-

clared: "These resources... are no longer merely material goods... they are far more the internal human and social resources - the resources of ordered intelligence which is science." (Bernal, 1941).

In Britain, the New Poor Law of 1834, with its efforts to stigmatize poor relief, illuminates the contradiction between capitalism and the welfare society. However, from the end of the 19th century new attitudes began to develop. This took place initially under the impact of religious and philanthropic movements. However, since the end of the last century, and particularly in the 1930's, rationalization and scientification penetrated thinking about welfare policy or in other words welfare rationality. Charles Booth, Benjamin Seebohm Rowntree, Sidney and Beatrice Webb were among early advocates of a welfare policy based on the scientific measurement and examination of social problems and solutions. Later on William Beveridge, a scientific expert with a background in economics, achieved a central position in the social reform work. He was involved with the reforms of the liberal government of 1908—1911, the new reforms outlined after World War I as well as with the big reform plan that bore his name and that was drawn up during World War II. This plan, which was carried out immediately after the end of the war, rested on a general consensus, that grew up already in the 1930's (concerning the importance of the 1930's in this connection, cf e.g. Thane, 1982). The Beveridge plan had a broad support from different parts of society, also from groups who had been critical against a welfare state because of conflicting economic interests and ideological convictions (entrepreneurs, doctors, etc). The realization of the Beveridge Plan immediately after World War II means that this conflict seemed to have been overcome. When the welfare state came into existence, it was apparently integrated and devoid of conflicts. The question is: how was it in reality?

The British reforms meant that the welfare state trend was reinforced. The welfare system was made more effective and comprehensive. It was organized and systematized. However, the Beveridge Plan was a compromise, which

gave first priority to what was rational for the system but was less concerned with the differences of individuals. Thus the compromise rested on the dominance of a certain type of rationality. It meant a shift in momentum away from value rational and towards means-ends rational solutions.

The union of contrasts

The developments within the different spheres we have studied were often contradictory and conflicting. Typical for the 1930's, especially in Britain, is however, that they converged and that they were linked and coordinated. New relations developed between economics, politics, and the welfare society.

This took place under the impact of a scientification trend, or in other words, a natural scientific, strongly means-ends rational rationalization, which was woven into various societal processes, first noticeable in Germany and the USA, later on in Britain. In situations of need, whether bottle-necks in production, increased international competition or war and economic crises, etc., there was always a tendency to appeal to science. This led in practice to a spin-off effect of science on economics and politics and to the use of scientific experts. On the other hand, economics and politics had a reciprocal effect on science.

Ideologically, the new tendencies were linked to ideas that toned down the autonomy of politics and emphasized the economic and technical functions of society. They attacked the older classical liberal ideologies of economic self-regulation etc., the dominance of which was finally and definitively broken by the crises of the 1930's. This meant the foundation, not only of a new social order, but also of a new basis for power and control.

Carl-Axel Gemzell
Department of Contemporary History
University of Copenhagen
Njalsgade 106
DK-2300 Copenhagen S
Denmark

REFERENCES:

- Bernal, J. D.
1939 *The Social Function of Science*. London: The M.I.T. Press.
- 1941 "The Function of the Scientist in Government Policy and Administration. Report of the British Association for the Advancement of Science," *The Advancement of Science* 1942.
- Gemzell, C.-A.
1987 "Forskare möter kris. Reaktionen från engelska naturvetare 1929-1933," (*Scientists Meet the Crises. Reactions from British Natural Scientists 1929—1933*), in I. Norrlied etc.(eds), *Över gränser. Festskrift till Birgitta Odén (Across Borders. Essays inor it can be a situation where one process dominates the other Honour of Birgitta Odén)*. Lund: Department of History.
- 1989a *Om politikens förvetenskapligande och vetenskapens politisering. Kring välfärdsstatens uppkomst i England. (On the Scientification of Politics and the Politization of Science. The Origins of the Welfare State in Britain). Del I: Teoretisk inledning. (Part Theoretical Introduction)*. Copenhagen: Institut for Samtidshistorie.
- 1989b *Om politikens förvetenskapligande och vetenskapens politisering. Kring välfärdsstatens uppkomst i England. (On the Scientification of Politics and the Politization of Science. The Origins of the Welfare State in Britain). Del III: Föreningen av motsatser. (Part III: Union of Contrasts)*. Copenhagen: Institut for Samtidshistorie.
- Gowan, P.
1987 "The Origins of the Administrative Elite," *New Left Review* 1987:4—34.
- Kusch, M.
1989 "Discursive Formations and Possible Worlds — A Reconstruction of Foucault's Archeology," *Science Studies* 1/1989:17—29.
- Mommsen, W. J.
1986 "Max Webers Begriff der Universalgeschichte," in *Max Weber der Historiker*, ed. J. Kocka. Göttingen: Vandenhoeck & Ruprecht.
- Thane, P.
1982 *The Foundations of the Welfare State. Social Policy in Modern Britain*. London & New York: Longman.
- Thelander, J.
1990 "The Obscure Problems-Rationalization, Power and the Discovery of Environmental Problems," in *Anthology on Environmental History*. Berlin etc.: Springer Verlag (forthcoming).
- Weber, M.
1922 *Wirtschaft and Gesellschaft*. Tübingen: J. C. B. Mohr.
1934 *Gesammelte Aufsätze zur Religionssoziologie*. Vol. I. Tübingen: J. C. B. Mohr.