

CHAPTER 7

SCIENCE AND THE PROFESSIONS IN THE SERVICE

IN this country most people are surprised to learn that it is possible for a man or woman to be not only a scientist or a person of professional standing but a civil servant into the bargain. We have become so habituated to the knowledge that science and the technical experts are still in the main the handmaids of big business and commercial enterprise that we do not expect to find these elements within the sphere of direct state employment. In actual fact, however, it would be difficult to find a single government department without its quota. They were there in fairly large numbers before the war, but the iron necessities of the war itself have brought many more of them into state service. Modern techniques in the direction of war production and the fighting services have as usual stimulated scientific research into a thousand and one processes. The greater degree of government control over those processes which war inevitably introduces has meant that much of the research has had to be carried out in state-controlled establishments. If after the war those controls are removed, then science and the professions will again be at the beck and call of the private capitalist. But before that time is reached the expert will have learned some valuable lessons through his association with the state apparatus. It is impossible to be a lawyer in the Estate Duty Office, a surveyor in the Valuation Office, an economist in the Ministry of Agriculture, a statistician in the Home Office, a sanitary officer in the Office of Works, or a draughtsman in the Air Ministry, without discovering the sort of relationship which exists between the administration and the system which upholds it. The frustration suffered by the scientist and technician through the misuse of their training and knowledge at the hands of private industry, which takes only what it wants for its own purpose and throws the rest away, is a matter of common knowledge.

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It is only slightly mitigated, indeed it is on occasions increased, when the knowledge is placed at the disposal of a government department which has only a partial and temporary control of the ends towards which it is directed. Here again this question of loyalty crops up. At a social function not long before the war, the then chairman of a staff association which caters for the professional and technical workers in the Service expressed the view that the professional civil servant's first loyalty was to the state, the second to his profession and the third to the organization which represented his interests. To that sort of loose statement there is only one reply. If the interests of the state, profession and organization conflict, it can only be because the formula is again based upon too narrow an interpretation of the state. Widened to include every section of the community, the artificial division can no longer exist. In Soviet Russia, for instance, there can be no such thing as a scale of loyalties and a divided allegiance as between public service and scientific preoccupation. "Everything in the Soviet Union is in the hands of a state which fully recognizes the role of science in every aspect of modern life, in medicine no less than in war. . . . Scientists are an integral part of the leadership of the state. . . . Science in the Soviet Union belongs to the people."¹ In our own country the scientist and technician are not yet in that happy position, as witness their comparatively subordinate role in relation to departmental policy.

To illustrate this, let us quote from the report of a committee of enquiry into the Post Office set up in 1931. Commenting on a claim by the technical staff for a greater share in departmental administration, "the Committee thought that there should be no bar but that generally speaking the specialist tended to remain a specialist. Where, however, a member of the technical staff showed that he possessed administrative ability, he should be eligible for such a post." This report led to the appointment of a small number of technicians to administrative posts and a consequent improvement in the quality and direction of departmental policy. The Institution of Professional Civil Servants had already raised the same

¹ Roscoe Clark, "Soviet Medical Science", *Science in Soviet Russia*.

question in evidence before the Tomlin Commission in 1929, when it went somewhat further by seeking for the professional and technical officer the right of direct access to the Minister, or as an alternative the appointment of technical consultants to a departmental board or committee. Both of these proposals were rejected by the Commission as tending "to undermine the authority of the Permanent Secretary, who may take advice from anyone qualified to give it, but may not delegate his ultimate responsibility for advising the responsible Minister on matters affecting the policy of his department".

Only quite recently, during the course of the present war, the Association of Scientific Workers has put up a strong plea for the appointment of research workers and technicians to Joint Production Committees in aircraft factories and elsewhere, but the suggestion was no more sympathetically received. One is forced therefore to the conclusion that in its attitude towards the scientist and technician, the state is not very far removed from the private industrialist. It could scarcely be otherwise since "the conscious utilization of science by the state, though to a certain extent implicit in establishments such as the Department of Scientific and Industrial Research is foreign to the western democracies".¹ And yet there is an enormous amount of important research in progress throughout the different branches of the Service. We can get some idea of its extent and scope by glancing at the last pre-war report of the National Physical Laboratory issued in 1937. Here is a list of some of the principal activities undertaken during that year by scientists employed in the public service:

- Research on the effects of glare and street lighting.
- Investigation of fatigue failure of metals.
- Measurement of sound and noise.
- Architectural acoustics, radio research, lubrication, research and taximeter testing.
- Wind pressure and heat transmission.
- Production of pure iron; research on alloys.
- Stability and control of aircraft and the behaviour of ships in rough water.

¹ Prof. J. D. Bernal, "Technology in the Soviet Union", *Science in Soviet Russia*.

The list is impressive. In its range it covers a vast area of investigation into phenomena which have a direct social significance—housing, public health, civil aviation, transport and shipping, and the heavy industries are all involved, and given a system in which "everything was in the hands of the state" (defined as the whole of the people), the results of so much investigation would normally lead to some extremely desirable social results.

Let us see what in fact happens: again I quote from the Report. It refers to "the assistance which the Laboratory is in a position to give to industrial firms and research organizations by the investigations of problems which arise in the application of scientific research to practical aspects of development and manufacture". It goes on to assert that "to be of the greatest assistance in this work, the staff must have a *full realisation* [my italics] of the importance of the results obtained and that to this end it would be advantageous for members of the staff to work in the laboratories of private firms and *vice versa*". We find later on in the report that the laboratory gives advice to private concerns, and without charge, on special problems arising in industry and lends out on the same terms drawings of apparatus for research and investigation. During 1937, papers on the electrical properties of resins were read by members of the laboratory staff to representatives of the Plastics Group of the Society of the Chemicals Industry and the Oil and Colour Chemists' Association. (Plastics, recollect, is the coming industry.) The cost of calibration plant rendered necessary by the increased demands of modern engines was defrayed and the plant developed jointly by the Air Ministry, the Society of British Aircraft Constructors and the Society of Motor Manufacturers and Traders.

Research work on ebonite was carried out in conjunction with the British Rubber Manufacturers on behalf of the British Electrical and Allied Industries Research Association. Important experiments were also conducted *on behalf of* the Dry Cleaning Industry. All this represents a mass of investigation into processes the end results of which are bound to be of incalculable social significance. The research has been carried out in a government establishment by qualified civil servants

on behalf of, or in conjunction with, private interests over which in normal peace-time circumstances the state has exercised only a nominal control. Take one further example: the same laboratory engaged during the year under review in research connected with the manufacture of synthetic rubber. It has been stated recently, and so far as the writer is aware the statement has not been repudiated, that certain Anglo-American cartels had prevented the exploitation of synthetic rubber in this country. There are too many similar cases on record for this not to be near enough in accordance with the facts. But assuming only the bare possibility of its truth, it is sufficient to illustrate the effect which the irresponsible decisions of private monopolies, concerned only with profit, could have on the trend of research in government laboratories.

To push the point still further. At the thirty-third general meeting of the Bristol Aeroplane Co., Ltd., the chairman announced that "the government had invited the company to design the large transport aircraft which the company had recommended for use on the transatlantic air service—a project which would involve the company's aircraft division in extensive research and development". Now turn again to the report of the National Physical Laboratory and note that another job upon which it has been engaged has involved research into the stability and control of aircraft. It is logical to assume surely that the results of this research will be made available to the Bristol Aeroplane Company and to all the other concerns which already are making plans to exploit the commercial possibilities of post-war civil aviation, and that they will be accepted or rejected solely by reference to those possibilities. It is practically impossible in the light of so much factual evidence to escape the conclusion now becoming almost monotonous that even on its scientific side the Civil Service is very much the servant, not of the public, but of "the system". That will be a very disturbing reflection for scientists and professional men who have thought to escape the personal dilemma created by the abuse of their knowledge and experience at the hands of private enterprise, by transferring them to the service of the state. But if it persuades them to

come away from the position of scientific detachment so often taken up by them and to enlarge the scope of their research to include also the social sciences there will be a net gain arising out of their disillusionment.

Another important direction in which the state has identified itself with the interests of British industry is in the creation of a number of Research Associations with the aim of "demonstrating to industrialists the value of applied research and preventing the repetition of the state of affairs in 1914, when they were caught napping by the more scientific industry of the Germans".¹ The associations cover an enormous field of scientific research applied to a vast range of industries and are heavily subsidized by the government. And yet the total amount expended out of the public purse is ridiculously inadequate for the real needs of a highly industrialized economy. In the year to 31st March, 1931, for instance, we learn that the cost to the state of all the work undertaken by the Department of Scientific and Industrial Research amounted to no more than £600,000. For this relatively insignificant expenditure the department had engaged in fruitful research into such socially indispensable industries as coal; building and roads; foodstuffs; chemicals and timber. Much of it, as we have seen from the declared aims of the research associations, was for the direct benefit of private enterprise in its competition with other countries for pride of place in the world's markets.

If we go on to look at the amounts expended by the government during the same year on scientific research more directly related to the work of the various state departments, we arrive at some equally revealing results. Of a total amounting to £3,280,000, almost exactly one-half was devoted to the fighting services. The next biggest single item was for agriculture and forestry, which absorbed £545,000. Medical research and the Ministry of Health accounted for £200,000; the Office of Works £180,000; Post Office £88,000; Transport £70,000; Mines £2,000; the Colonial Services £56,000; and Development £121,000.

¹ Prof. J. D. Bernal, *The Social Functions of Science*.

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The figures are significant as showing in a peace-time year the disproportionate amount of state-controlled scientific research devoted to the development of war technique compared with the corresponding amount applied to purely industrial processes. Related to what has already been said as to the subordinate role adopted by the state in its association with private industry, one gets a very unattractive picture of the part played by the Civil Service in the development of science in its more socially beneficial aspects. We contrast it again with the position in the Soviet Union, where the scientist is an integral part of the state apparatus, where, in fact, research and investigation into productive processes is the central feature of government itself, since its one aim is the progressive improvement of standards of life and not the restriction of production in the interests of private profit. One instance alone will suffice to illustrate the difference between the two attitudes. The coal output in the Soviet Union was increased from 29 million tons in 1913 to 137 million in 1937. This result was due in the main to the intensive research carried on by geologists who discovered new coalfields and technicians who expanded the resources of those already in production. It could never have happened under a system in which the initiative rested in the hands of a privately controlled coal industry depending upon the scientific resources of the state department only to an extent necessary to maintain the industry at a productive level far below its maximum potential. As recently as November 1943 we read of striking developments taking place in connection with automatic systems of central heating designed for incorporation in post-war housing schemes. The experimental work is being carried out in a specially constructed establishment by scientists employed in the Office of Works. At some stage or another decisions will have to be taken as to the further development of this process. Will it be handed over as a free gift to the speculative builder or will this valuable piece of scientific research, conducted under the direct auspices of the state, be linked up with equally valuable work within the sphere of post-war planning and the whole made available to the general community?

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That as we know will depend upon the degree of control to be exercised by the state over the operations of monopoly capitalism after the war. What we now see, and it is in no way better exemplified than within the sphere of departmental scientific research, is not so much control by the state over these operations as its growing identification with them. Is it to be wondered therefore that scientists in the Civil Service are becoming increasingly angered with the restrictions imposed upon the full utilization of their services, or that they are seeking larger opportunities to influence, by administrative action, the policies of the departments in which they are employed and of the central government itself? They see in the Soviet Union the scientist imbued with a full sense of social responsibility, playing a major part in the building and protection of a planned economy, and they know of no reason why their own creative aspirations should be forced to serve the needs of a completely unscientific and unplanned productive system. In taking up this attitude they must be encouraged and supported by the rest of the Civil Service and by the general public.

Apart from the scientists there are other professional and technical elements in the Civil Service with a very close interest in this problem. In any sort of economy one would have thought it impossible to overestimate for instance the importance of accurate and complete statistics. But the Government's record in this respect is lamentable beyond words. For years before the war we learn that no records of production, raw materials, profits, etc., were available. There was not even a reliable estimate of the national income. Industries were variously classified by the Ministry of Labour, the Census of Production Office and the Registrar-General, and there was little or no attempt at co-ordination.

Statisticians, employed as they were and are still only in certain departments, remained very much in the dark as to the use to which their figures were put, and much of the social benefit of their labours was inevitably lost. The inadequacy of the statistical machinery at the service of the state was demonstrated very clearly during the hearing of a claim made to the Arbitration Court for an increase in the war bonus paid to

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civil servants. It was found impossible from official records to ascertain the true position with regard to the comparative payment of war bonus to different categories of employees outside the Civil Service, and the unions themselves were forced to make an independent investigation in order to arrive at the facts. For this they were actually complimented in open court by Treasury officials who appeared in no way abashed by the fact that the staff side were in effect doing their own work for them.

Examples of this sort could be multiplied almost to infinity to illustrate the dilemma in which the professional man in the Service is bound to find himself under the existing dispensation.

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