

NATURE

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SCIENCE AND THE WAR EFFORT

THE eighteenth report of the Select Committee on National Expenditure is concerned with a number of those questions relating to the scientific side of the war effort which were raised in the Select Committee's own eighth report on the organization of production, and which the new arrangements and appointments by the Minister of Production were designed to meet. The report is an acute analysis which, if it does not entirely dispel the anxieties of scientific workers, should assist to focus constructive criticism on the weak points of the present structure. It records the general impression that if the steps taken in recent months are properly followed up and the right men found to fill the key appointments, war efficiency should be improved in the vitally important matter of providing the Fighting Forces with the right weapons at the right time.

Considerations of public safety have limited the Committee to observations in general terms on the main principles of organization necessary and on specially important features in executive methods. In regard to the clarification of responsibilities, it is pointed out that the key questions are exactly where, under the new arrangements, the responsibility rests for formulating the Army's requirements and the manner in which the practical arrangements on the War Office side for formulating requirements link up with the arrangements on the Ministry of Supply side for converting these requirements into production of suitable weapons. On this it is observed that, while the answer to the first question is that the responsibility under the Secretary of State and the Chief of the Imperial General Staff is now centralized in the Deputy Chief of the Imperial General Staff, for practical purposes there must be a very clear understanding as to the nature of the responsibility carried by each of the officers, directorates or committees on which he relies.

In regard to the functional organization of research, design and production, the Committee points out that the conception of a unified functional organization requires application beyond the armoured fighting vehicles. Moreover, the Committee's realization of the vital importance of fully utilizing all available resources in the application of scientific research, technological skill and inventive intelligence to the production of improved new devices for fighting the enemy has led it to make a further inquiry into the organization on the Government side for handling the work of research, design and development. The observation that the success of new arrangements depends above all on the right men being chosen to fill the new posts as well as on the spirit in which Ministries and branches co-operate, for all its general applicability, should therefore not be taken as implying criticism of the three scientific advisers recently appointed to Mr. Lyttelton's staff to complete the organization for scientific research and development.

The main observations of this report deal with the relations between the Government organization and

manufacturing industry. While research, development and detailed designing will now, so far as possible, be carried out by parent firms in full co-operation with the Ministry of Supply, the Committee suggests that in the design of instruments of war the responsibility for checking the battle-worthiness of a design and for ordering production to go ahead must always remain entirely with the Government authorities, as well as the responsibility for giving drive and urgency to the creation of a good technical design for a defined purpose. The responsibility for creating such a design, which involves individual qualities of originality and imagination, must on the other hand be handled in close contact with those who have to carry out the task of production.

The measure of responsibility that can properly be delegated to a private firm must largely depend on its character and organization. Normally, the combined responsibility for working out a design and for taking the lead in production as the parent firm of a group should be restricted to firms of stability and proved capacity, with substantial resources and good organization. Moreover, in regard to experience and resources, such close and confidential relations must be reciprocal, and all the technical data and results be placed at the disposal of the Government; there is an implied obligation to work essentially as part of the machinery of Government rather than in the spirit of private concerns. Sometimes the exchange of information and Government assistance appear to be haphazard, particularly when contracts are distributed among a number of firms with no previous experience in the operation of the necessary processes. Certain groups seem to be left without definite leadership, and in other cases where an individual engaged on Government research work may have found means to make contact with manufacturers, the value and extent of his assistance could be greatly increased by strengthening his own staff. The Committee recommends a systematic review of the working of the existing groups, and that the continuance of contact with such groups should be made the responsibility of a special officer or officers.

Scientific workers, while somewhat re-assured by the present report, will undoubtedly await with great interest the result of the further inquiry now proceeding. Reverting to the remark made above that the success of the new arrangements for scientific guidance made by the Minister of Supply (see NATURE, September 12, p. 301) depends on the right men being chosen for the key posts, the question of the position of Sir Stafford Cripps naturally arises. With his appointment as Minister of Aircraft Production, he has to bear the responsibilities of the administration of a Department of crucial importance in the struggle. Hence it is scarcely likely that he will be able to devote detailed attention to the activities of the new scientific advisers, and since he is no longer a member of the War Cabinet, he cannot present their views to those who are directing the War. Yet one of the reasons for welcoming the appointment of the three full-time scientific advisers

to the Minister of Production was the further statement that they would "work under the immediate supervision of the Lord Privy Seal [Sir Stafford Cripps]" acting on behalf of the Minister. The position is not clear at present, and will be watched by scientific workers and others with keen attention.

CIVIL DEFENCE AGAINST WAR GASES

WAR has always been horrible. Axe and sword, lance and dagger gave way to gunpowder, though it did not entirely displace cold steel even in the Crimean war; to-day we depend largely on high explosives. During the War of 1914-18 there befell a new horror—chemical warfare, the use of poison gases—which shocked the world. When peace came, the nations solemnly renounced the use of gas at a Geneva conference, a pledge which has so far been kept—nor is there any reason why it should be broken. None the less, the defence against chemical warfare has to be ready. Thus everyone in Great Britain has a gas mask and knows how to use it and care for it. In addition, a highly organized and well-trained gas service has been brought into being, ready to function when required, though hopeful that enough of civilization remains to spare the world this particular horror.

The defence against gas has the advantage over the defence against high explosive or fire bombs that it can be complete. Knowledge of what to do and the ability to do it quickly can make the individual safe in the heaviest gas attack. The value and the efficiency of the general civilian and other official types of respirator cannot be too highly rated. These respirators will stop all the likely war gases and even the strongest concentrations which can be produced in the immediate vicinity of bombs out of doors. They will remain completely effective against lesser concentrations almost indefinitely. It is the duty of men of science to make clear to their lay friends that they can have complete confidence in their respirators.

The other danger to the public is that due to splashes of vesicant gases or prolonged exposure, particularly of the eyes, to vapour from these. The area splashed by any one bomb is small, and in general the number of people likely to be splashed on its bursting will not be large. Should one become a casualty, the skin must be treated without delay with the ointment which has been prescribed for the purpose. In addition, should gas be used, chemists' shops will have pails of bleach cream ready for use by persons who may not have ointment immediately available. The clothing must be shed at once so as to prevent penetration of liquid and vapour to the skin. The Ministry of Health has made ample arrangements both for personal cleansing and for decontamination of clothing. Above all, it is important to keep the eyes shielded should a gas attack be feared.