problems. All this resulted in the utilization of facilities from one end of Canada to the other in a systematic attempt to cover the tasks at hand with economy of staff and equipment.

The council's own original staff also provided a nucleus around which an increased organization could grow and function. The demands for research increased steadily until this staff increased fourfold, and the council was operating nine stations, in addition to its large central laboratory, either independently or in cooperation with the services.

The foregoing indicates briefly the means by which the peace-time organization of associate committees and grants in aid of research were modified in order to meet the conditions of hurry and stress, and how the council staff provided a nucleus for the rapid development necessary. That the scholarships of the council have also proved their worth during this period is indicated by the fact that a large proportion of the young research men engaged in these problems, either in civilian laboratories or in the services, have at one time held national research council scholarships, for post graduate training in science.

So far we have been dealing with internal coordination and cooperation. But facilities for the exchange of scientific information between Great Britain and the United States on the one hand, and Canada on the other, became very necessary. A new liaison organization was therefore developed to function as a channel for the exchange of confidential and secret information. The council maintains a chief scientific liaison officer in London, who supervises and expedites the exchanges between Great Britain and Canada; and exchanges between the United States and Canada are carried on through the Ottawa office. The liaison offices obtain and transmit scientific information not only for staff of the council but for other departments and for the armed forces.

Turning to the research work proper it might be well at the outset to indicate that while the importance of physical sciences in warfare is obvious, the country which would depend on these alone would be severely handicapped. The importance of such apparently insignificant items as insects and fungi may be overlooked by the uninitiated, but those responsible for maintaining the health of the troops and for the supply and storage of equipment in the field are acutely aware of their importance. For this reason work in many fields of applied biology has had to be speeded up.

The war-time history of the associated committee on medical research, which has already been mentioned, illustrates this fact. This committee has had to organize three specialist groups, one on aviation medical research under Dr. Duncan Graham, one on naval medical research under Surgeon Captain C. H. Best, and one on medical research for the army under Lt. Col. W. Hurst Brown.

The committee on aviation medical research has been responsible for an outstanding programme of work especially in the fields of high altitude flying, protective clothing for flyers, oxygen equipment, and personnel selection. Most of the flying clothing and auxiliary equipment developed by this committee is now in use in active combat. The committee has also been able to assist in the solution of medical and physiological problems that arose from new conditions encountered in service flying.

The committee on naval medical research works in close conjunction with the medical unit of the Royal Canadian Navy. Dietary surveys made by these groups resulted in recommendations for the correction of various dietary deficiencies. Attention has also been given to the quality of the rations and water carried on lifeboats. This committee has also concerned itself with the question of night vision, and tests which it developed for the evaluation of night vision, colour vision and visual acuity have been adopted by the navy. Special lighting techniques have been designed for use on bridge controls, bridge instruments and chart tables in order to minimize interference with night vision. In connection with the operation of anti-submarine detection devices, experimental work on the fatigue of personnel has yielded information which has been applied in determining the optimum length of watch periods. Tests designed to indicate personnel suitable for this branch of the service have been adopted by the Royal Canadian Navy, the Royal Navy and the United States navy. Investigations on such problems as "immersion foot", underwater blast injury, and eye protection for bridge and look-out personnel have produced satisfactory practical results.

At present further problems under investigation are: obtaining fresh water from sea water in life boats, protecting naval personnel from noise, combating fatigue in radio detector and wireless telegraph operators, following tracer bullets fired "into the sun", improving ventilation and lighting aboard ships, and healing and treatment of burns and shock.

The operation of large numbers of small vessels makes sea sickness a problem of special importance. In this connection groups working in Montreal and Toronto have devised techniques for sorting out those who are susceptible to motion sickness, and therapeutic measures have been devised to prevent or alleviate the condition in a large proportion of the cases tested.

Army medical research investigations are in progress on night vision, effort syndrome, evacuation of wounded from battlefields, the prevention of respiratory and other infections in barracks, the use of drugs in relation to motion sickness and gastric physiology, air ambulance transportation, fumigants, and water purification. In connection with nutrition, surveys have been made and a study of sprouted grains and legumes as sources of vitamins for troops is also under way.

In the council's division of applied biology, investigations on food problems not related to the war effort were dropped at the beginning of the war, and a pre-war staff of nine had to be increased to twenty-nine in order to cope with food problems referred to the council by various government departments.

The general programme of this division in connection with food has had to do largely with such products as pork, bacon and eggs and in addition a large refrigeration project has been carried on. At the beginning of the war there was a shortage of refrigerated space and it became necessary to devise, if possible, a method of using the uninsulated holds of cargo vessels for the transportation of perishable products. Excellent progress has been made in the development of comparatively inexpensive emergency refrigeration equipment for this purpose which is easily and quickly installed, and which has