The London Food Conference

—A Summary of Findings—

Civil defense organizations must be prepared to feed entire populations for days and perhaps weeks in the event of atomic attacks on major cities.

To be ready for any atomic emergency, mass feeding plans must be perfected, which will utilize the full resources of industry and all voluntary agencies.

Although individuals are responsible for their own survival, the feeding of stricken populations would present such immense supply, transportation, and distribution problems that large areas and even entire nations would have to assist.

Such were some of the general conclusions of the conference. Following are high lights in the three main areas of discussion—emergency feeding, administration, and scientific problems. The wording of the report from the conference to the three governments is closely followed or is paraphrased.

Emergency Feeding

Emergency feeding is designed to feed in wartime all members of the civilian population who are unable to obtain meals through normal channels. It is strictly an emergency program and must not last any longer than needed. The earliest possible return to normal is vital.

Plans for emergency feeding must not be confined to those areas which have been designated as target areas. The urgent needs of the homeless and the injured who move or are moved into other areas and the obligation of all areas to provide mutual aid require that every community develop complete feeding plans.

The steady development of new and more powerful weapons makes it essential that the very sound plans developed in Great Britain for emergency feeding during World War II be broadened. The vastly greater number of persons who may be without food or the normal means to prepare and serve it, as the result of atomic attack, demands that fuller consideration be given generally to the responsibility of the individual for his own survival, and of the community and the nation for the essential feeding of its citizens.

On the other hand, the essence of preparation must be the anticipation of the unexpected. Too great a preoccupation with atomic attack may lead to neglect of this fact. On both sides of the ocean there must be preparation to feed people under any condition.

Queen's Messenger Convoys

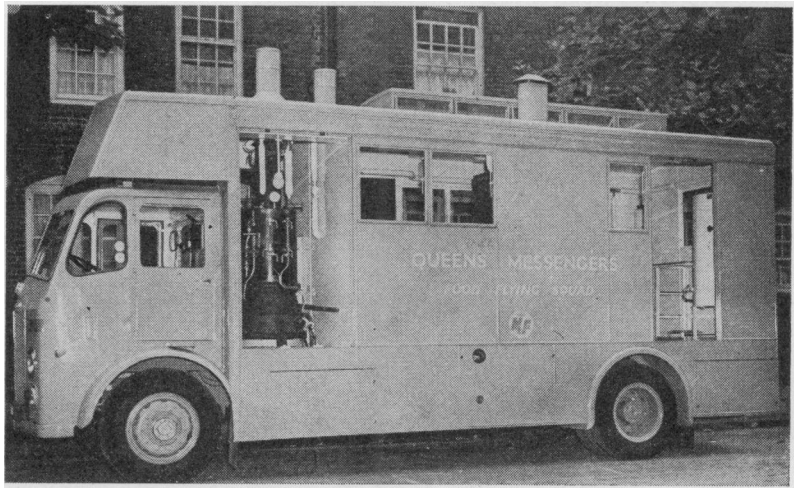
Queen's Messenger convoys were inaugurated personally by Her Majesty during the worst raids of the last war in 1941. Their function is to bring immediate relief after serious air attack. They provide light, hot meals. The Ministry of Food, under whose direction the convoys were administered, found that a convoy's early arrival after an attack helps to keep up morale by showing that relief is on the way, and that something is being done.

The convoy is designed to provide between 6,000 and 8,000 light meals of soup or tea and sandwiches at one operation. Each canteen also carries infant foods in feeding bottles. A self-contained unit, the convoy carries sufficient food to operate at capacity for 2 days, and sufficient hard fuel for 6 hours' continuous operation. Extra fuel is obtained at the site.

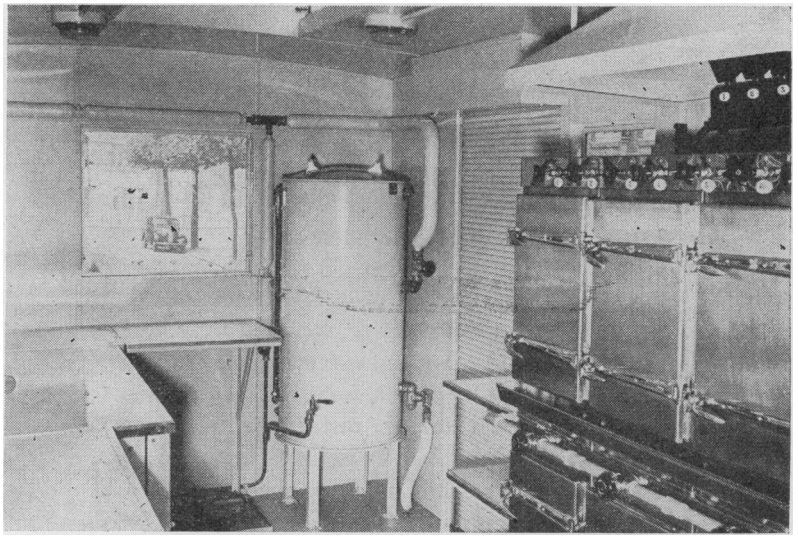
Leadership and Decentralization

All three nations have recognized the importance of local governmental responsibility.

Top: These eight vehicles represent one-half of a Queen's Messenger food convoy. A full convoy consists of an office van, two equipment stores vans, eight canteen vans, two 500-gallon water tankers, two food stores vans, and a welfare van, plus three motorcycles.



Center: The Queen's Messenger kitchen van is used as a separate unit and not as part of the convoy. It is capable of turning out 500 main meals (meat, vegetables, and a sweet) per cooking or 3,000 meals per 24 hours. This picture shows the over-all unit and the Merryweather boiler directly behind the cab.



Bottom: The rear interior of the kitchen van is shown here. The 50-gallon hot-water boiler, hot plate, sterilizer, and part of the steaming oven unit can be seen.

All photographs courtesy of the British Ministry of Food.

The conference emphasized the importance of further delegation of responsibility to the heads of the various local government departments. Civil defense, they underscored, is a civilian responsibility. Food plans must not include operational dependence upon the armed forces.

Strong, imaginative, disciplined, and trusted leadership from the city block to the nation is imperative. Great disruption demands great local responsibility. The community that is not able to feed its people threatens its own existence and endangers the nation.

Recruitment and Training

Training must be training for survival—training in improvisation. It is of first importance to train people to prepare and serve meals under extraordinary conditions. Every community has cooks ranging from the housewife to the commercial chef, but few people know how to improvise or how to operate when the usual hygienic safeguards are lacking. Training must be simple, clear, and practical. The basic staff of instructors need not know the theories of modern warfare. They must know how to do what they must do, and this they can learn only by building or using improvised equipment.

Improvisation

The first essential in emergency feeding plans is the ability to provide food under primitive conditions. It must be assumed that utilities will be destroyed throughout the community and that food must be prepared quickly on whatever equipment is available in the rubble. Safe water is of paramount importance. An ample supply of transportable cooking units to supplement improvised elements must be provided. Plans must be made to use alternative fuels in fixed cooking installations which now depend on gas or electricity.

Commercial Facilities

No present plans for emergency feeding can be complete unless they include the full utilization of the commercial caterers, restaurateurs, and all others who sell meals. It is imperative that every commercial restaurant be opened for business as quickly as possible after an attack.

Plans for the future must contemplate that great numbers of people must be fed, and that publicly owned facilities, such as school lunchrooms, may be inadequate. These basic feeding centers, both public and commercial, must be supplemented by additional feeding centers, mobile canteens, food convoys, and improvised cooking facilities.

Voluntary Agencies

While the basic responsibility for emergency feeding, as with all civil defense, rests with government, the personnel and skills available in voluntary agencies must be brought into full employment. Although civil defense authorities cannot divest themselves of responsibility by the delegation of authority to voluntary agencies, it is felt that broader use of these groups can be made.

Supply and Stockpiling

Food must be available where it is needed or there can be no emergency feeding. Supply organization must be decentralized in such a way that each emergency feeding officer at a feeding center knows how and from whom he will get his food—and will actually get it.

Food stockpiling in each country is influenced greatly by the supply situation. The British, for example, rely primarily on ordinary channels of trade for distribution, but reserves of powdered soup and canned meat in gravy are being held. Plans have been made to insure that necessary supplies of foodstuffs be made available to emergency feeding centers and rest centers to meet the first impact of need.

Availability of pots, pans, dishes, cups, and cutlery pose difficult problems. Great quantities of water will be needed for cleansing and sterilizing. Disposable articles will be of great value if they can be available when and where needed.

Water is a vital necessity. The supply in many communities can be destroyed or readily contaminated, and requires much time for restoration. This is a major supply and reserve problem.

Food Items and Menus

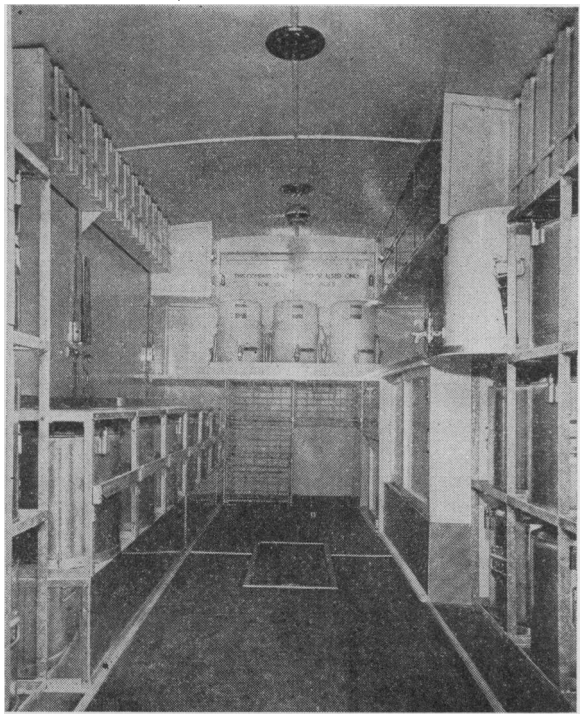
What foods to use in an emergency, the conference noted, is perhaps the least important consideration because we can only serve foods

which are available at the time. However, two principles governing the "menu" emerged from the discussions.

First, a hot, sweet drink must be available for great numbers of people as quickly as possible after the attack. This is a "must" for it helps to relieve shock and restore morale and public order. Preparations for this cannot be casual.

Second, a good, hot meal—not a snack—should be provided within a few hours. British experience shows that this meal often marks the point at which an individual can and will pull himself together and set about the business of solving his own problems.

Improvisation does not mean that menus do not need to be prepared and placed in the hands of the people who must prepare meals. Improvisation is resourceful deviation from a plan, not frantic activity. The full resources of people trained in nutrition and home economics should be called into service in planning meals as well as supervising feeding operations and training workers.



This is the interior (looking forward) of one of the eight canteen vans in a Queen's Messenger "food flying squad" convoy. The canteen is mounted on a 2-ton chassis. The panel section (left) lifts to form a shelter over the counter. The insulated containers seen in racks on either side are used to carry tea, soups, stews, and sandwiches.

Two 500-gallon mobile water tankers are part of each Queen's Messenger convoy. The internally galvanized tank is mounted on a 3-ton chassis. It is provided with a pump capable of delivering 1,000 gallons per hour.

Food for Special Groups

Problems relating to the feeding of a number of special groups remain largely unresolved. Civil defense workers will require regular and substantial meals; the injured in hospitals will require special feeding as will infants and expectant mothers. Further study must be given to these problems in close coordination with the other civil defense services concerned, especially by those responsible for medical and public health services.

Food Administration

The primary object of good planning in civil defense is the preservation of civilian fitness, morale, and the will to win. It is necessary to meet the physiological need for sufficient food to sustain the national effort, but this is not enough. The people must have faith in the rapid restoration of normal facilities and have confidence that their accustomed foods will be in the shops with fair shares for all.

Food supplies must be maintained under all conditions. It is important to restore in the shortest possible time the regular production, processing, and commercial distribution of all the basic foods. It must always be possible to

meet the needs of those able to provide for themselves, of catering establishments, and of the emergency feeding services.

In general, the administration and supply group felt, the key to the successful operation of wartime food planning lies in the wholehearted cooperation and self-organization of the individual food industries and trades working with the government units concerned.

Planning and Leadership

Planning in advance is essential and must be integrated so that the local and regional plans fit into the national plan. There must be coordination at each action level.

It is impossible to make detailed arrangements for every eventuality. The plan must be so prepared that the responsible leader on the spot is free to improvise and make adjustments to meet special circumstances. Only by decentralization can an effective answer be found in time.

Good leadership is of the utmost importance. The leader must have the human touch and evident sincerity, the moral courage to make immediate decisions, and that quality which succeeds in getting others to do what is wanted as part of a common objective.

Self-Help and Mutual Aid

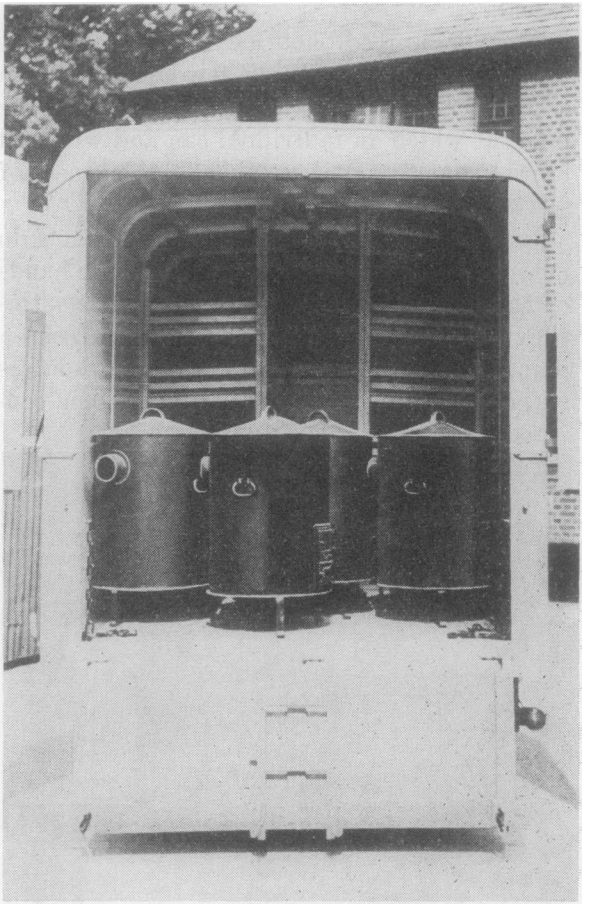
Self-help is important because it is good for the individual's morale and reduces the burden on the civil defense services. It should range from the household to the nation.

The conference report noted that in the United Kingdom the application of this principle to the food industries and trades produced successful mutual assistance during the last war. Whenever a trader suffered from enemy action his normal competitors came to his aid. This might entail the provision of warehousing or counterspace, delivery services, and even processing of food. In many instances, the traders who assisted in this way refused to accept any portion of the profits from the additional business. Many of the agreements were oral, but were always fulfilled.

Dispersal and Transportation

Dispersal is an important safeguard against mass destruction of food and against the interruption of supplies through serious dislocation of transport.

Under wartime conditions, transport and communications become of first importance. The aim is to see that the food is delivered with a minimum demand upon the transport system.



This rear view of a stores van in a Queen's Messenger convoy shows the 2-ton truck loaded with Soyer Boilers, part of its regular equipment. The vans are based near the scene of an attack and the boilers are used to heat tea, soups, and stews which are then loaded into insulated containers and transported by canteen vans to sites where emergency feeding is necessary.

Bread and Milk

Immediately following a heavy attack, the most urgent food supply problems concern bread and milk—the two basic foods for adults and children which cannot easily be stored. Regular deliveries of these two foods are im-

portant in sustaining morale. The demand for bread under these circumstances, the British reported, has been found to increase at least twofold.

Salvage and Glass Damage

The prompt application of proper salvage methods can reduce considerably the loss of foodstuffs from enemy action or ordinary fires. It has been estimated that about 75 percent of the food lost in the first attacks on Britain could have been avoided if measures later developed for the recovery of damaged foods had been applied.

Special attention should be given to the problem of destruction of food by glass splinters. This was a cause of serious loss in Britain. Even packaged and canned foods were frequently perforated by glass particles.

Scientific Aspects

For the maintenance of health, consumer satisfaction, and a high level of work output, the provision of adequate calories is the primary requirement, the scientific delegates agreed. This assumes that adequate amounts of the essential nutrients are contained in the available foods and that the foods are so distributed as to protect nutritionally vulnerable groups.

On the other hand, the conference held, the primary consideration in short-term emergency feeding is the provision of acceptable foods sufficient to allay hunger and sustain morale. Detailed consideration of nutrient values is unnecessary since specific nutritional deficiencies will not develop during this short period in previously well-nourished individuals.

Special Population Groups

Infants are unusually susceptible to even a temporary interruption of their food supply and should receive special consideration in planning supplies for emergency feeding. However, it is not anticipated that with a previously well-nourished population any specific nutritional deficiencies would become evident within a month. It should not, therefore, be necessary to take any special measures to distribute vitamin concentrates to mothers or infants during this period.

Emergency workers and those engaged in heavy work must be well fed, of course, but there is no adequate basis for the classification of workers or industries into arbitrary groups, such as heavy, medium, and light, and therefore for the assessment of their energy requirements. More up-to-date information is needed.

Measuring Nutritional Status

The conferees agreed that experience has demonstrated the necessity for determining the nutritional status of populations under wartime conditions as a guide in the distribution of limited food supplies. Simple methods are essential for this purpose.

Accurate measurements of weight and height should form a major criterion in such an assessment. Combined with clinical appraisements of health, such measurements would have a notable value in assessing the effects of changes in food practices. At the present time base-line reference data of weights and heights, to which changes could be related, are either nonexistent or inadequate.

Steps should be taken now to collect the necessary base-line data and any other appropriate anthropometric measurements in such fashion as to permit comparisons between countries. Research also should be encouraged on additional tests which might supplement the anthropometric data, such as measurements of hemoglobin, enzymes, and specific nutrients.

Emergency Food Hygiene

In discussing sanitation problems in emergencies, the conference pointed out the need to allay public anxiety about the hazards of atomic warfare to food production and supplies, and to place such hazards in proper perspective.

The conferees considered that induced radiation does not constitute an appreciable practical hazard to food. "Fall out" contamination of food from a high atomic burst is usually slight.

Undestroyed food in unbroken containers may be consumed with safety if the container is cleaned externally. This same principle can be applied to food in bulk storage if the superficial layers are removed.

A ground or underwater burst, on the other hand, may result in heavy contamination of a

considerable area. In temporarily uninhabitable areas food will not pose an immediate problem. Monitoring should be used as a guide in entering these areas and assessing the safety of the food found there.

Biological Warfare Hazards

Biological warfare may involve a twofold risk to a country's food supplies: a reduction in agricultural output due to infection of crops or livestock, and contamination of food that will involve a direct hazard to human health.

The conference reported that the hazards to food from biological warfare and bacterial contamination could best be reduced by (*a*) the full development of public health and similar services and the utilization of existing knowledge in detection and control; (*b*) the inclusion of instruction in the hygienic handling of food as part of civil defense training; and (*c*) the universal application of heat to all suspected foods.

Chemical Warfare Risks

Chemical warfare hazards through contamination apply both to agriculture and to man, the conference noted. The risk to the former is probably small, and the risk to man is considered to be most likely in terms of antipersonnel weapons. Where hazards to foods are involved, methods of identification, protection, and decontamination are the main defensive measures.

Concentration of Food

Although the dehydration industries have been severely curtailed since the last war, the conference reported renewed interest in dehydrated products for use by the armed services and civil defense. There is need for further research—including far more background research—into means of improving palatability, ease of reconstitution, keeping quality, and packaging.

Scientific Problems in Food Defense

By NORMAN C. WRIGHT, D.Sc., Ph.D.

It will be convenient to group the scientific problems of food defense under three broad heads: first, those concerned with the maintenance of an adequate and acceptable diet for all sections of the population, and specifically with meeting essential nutritional needs under emergency conditions; second, those involved in the reduction of the bulk and weight of essential foods, in their storage properties, and in their distribution in a convenient, attractive, and easily handled form; and third, those related to the protection of food stocks and to the salvage of damaged supplies.

Many of the problems falling under these three heads are closely paralleled by the wider problems of maintaining an adequate national food supply under war conditions. Moreover, they are relevant even in the more limited field of emergency feeding of the fighting services where specially concentrated ration packs are used. This is, indeed, the reason why the civil departments concerned with research and development in food science in the United Kingdom share with the services the responsibility for investigating the scientific problems involved in food defense—a partnership which has in practice proved of great mutual benefit.

Dr. Wright is the chief scientific adviser to the Ministry of Food of the United Kingdom. He presented this paper in London, November 30, 1951, at the plenary session of the Combined Conference on Administrative and Scientific Aspects of Food in Civil Defense.