is compiled in reference to various services and organisations that are available to help the civilian.

The Guide ends with suggestions upon how we can be of service to the country; and last, but not least, upon how we can grow more food and so release shipping and tonnage for the carriage of essential arms and munitions of war.

The usefulness of this Guide cannot be over estimated. It can be obtained for the modest price of eightpence, post free, from Dr. S. Evelyn Thomas, "Rathcoole," Homewood Road, St. Albans, Herts.

SOME IMPORTANT FUEL FOODS.

As we pointed out in our last issue it is important that facts regarding the value of certain foods, and particularly those that are rationed and their substitutes, should be kept in mind. Public Health Workers in particular can do much to disseminate useful knowledge in this respect; especially to mothers some teaching of the kind should be given or they may overlook the necessity for providing a certain proportion of fats that are easily digested and assimilated. In the children's diet there is still a tendency to replace butter with jam, and the latter can never take the place of the former when it comes to the very varied functions required of food as it affects the health of the body. Indeed, whether by circumstances or intuitive knowledge, the children of 50 or 60 years ago, or at least those in the country and smaller towns, often fared better, from a health point of view, than the children of to-day. A farm labourer's wife of that period was once asked how she managed to rear twelve healthy children on her husband's small wages plus the usual "perquisites" of supplies of milk, oatmeal, home-grown vegetables and the right to keep a pig. Her reply was: "I never spared the butter." Many would do well to lay her lesson to heart, at least in so far as conditions allow. In this connection it should be borne in mind that, as pointed out in a previous article, fat has a retardative and necessary action in controlling the digestion of proteins, and we should also point out that carbohydrates are necessary to the metabolism and oxidation of fats. If there is deficiency of carbohydrate the oxidation of fat is incomplete and ketosis results.

The main fuel-giving foods are butter, margarine, dripping, cream and the like; nuts, too, supply a valuable percentage of fat. Butter has the highest caloric value of any food; it has a pleasant odour which improves during the first few days of keeping, owing to the action of lactic acid and certain aromatic substitutes. Its colour depends a good deal upon the grazing to which a cow is put and is apt to be deepest in Springtime. The amount of fat in butter varies; it is usually about 80 to 85 per cent., but may reach 90 per cent. Butter is very rich in certain fat-soluble vitamins and it contains 12 to 15 per cent. water and about 2 per cent. of non-fatty caseinogen. It has valuable fatty acids, such as butyric, caproic, capric, caprylic, all of which are soluble in water. Butyric is the most important, and butter derives its name from it. Butter contains about 40 per cent. of olein, which gives to it a low melting-point and so adds to its digestibility.

Butter is not only the most valuable food from a caloric aspect, but, with the exception in some cases only, of cream, it is the most digestible and the most easily absorbed of the fats. This gives it great value in sickness. Patients suffering from tuberculosis, dyspepsia, diabetes, and those suffering from certain other ailments, can take a considerable quantity of butter, often with great benefit. Cooked butter is less digestible than is butter in its natural state owing to the liberation of certain fatty acids by heat. The absorption of butter must, of course, take place in the intestine, and it is very complete. It is advisable to give good butter in cases of illness and malnutrition, rather than habitual doses of halibut or cod liver oil.

Margarine comes very close to butter from the point of view of analysis; indeed, in some cases the advantage lies with margarine. It was first manufactured during the Franco-German war, when a prize was offered by the French Government for the best substitute produced to take the place of butter, of which there was a considerable shortage. The prize was won by a chemist—Mége Mouries—and margarine came to be recognised as a cheap and good substitute for what was then, as now, a necessary but still expensive article of diet. It was made first from the fat of the ox and brought near to the composition of butter by the elimination of stearin and palmitin. Later fats from nuts or vegetable oils were added, and now margarine is often made from those alone. Roughly there is about 82 per cent. of fat in margarine, 9.3 per cent. of water, 1.3 per cent. of protein and 6.7 per cent. of ash. The absence of vitamins A and D detracts considerably from its food value, but now many manufacturers add these to margarine. Also a certain percentage of good butter is sometimes added, but this is by law restricted to 10 per cent. There is no doubt as to the purity of good margarine; it is made from the best animal or vegetable fats and the processes of its manufacture add to its freedom from germs. After prolonged boiling, the fat is churned up with milk and often butter. Dripping of one sort or another is a good means of providing extra caloric content to the diet, but it is well to remember that dripping collected at home is likely to be far better than that bought from the butcher. The latter is often subjected to considerable boiling in water, it is collected when cold, melted again and put into bowls to be sold as dripping. In the process of boiling considerable nutritive and flavouring elements pass into the water and are lost to the food. Incidentally, we might say that fish purchased from a fried-fish shop is not equal to that cooked at home, for it is often fried in cotton-seed oil, because this has a high boiling-point; it is flavourless and the fish is less appetising and digestible than when cooked at home. Margarine, dripping and lard are the cheapest means of obtaining calories. The last two contain about 100 per cent. fat. Every fat has its own melting-point, and those forms of fat with a low melting-point are the most digestible. Of the different varieties of dripping, that derived from pork is the most easy to digest, mutton dripping comes next and then beef dripping. They are all wholesome and good when the digestive powers are strong, but should not be used too freely.

Cream is simply the fat of milk in emulsion. It has

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