Towards the end of the article, the author deals with the influence of vitamines, and indicates that, while these substances are present in butter, they would not be met with in margarine

This characteristic would meet the case as regards certain butter and margarine products, but by far the largest quantities of butter now on the market are made from pasteurised cream, and the pasteurisation would no doubt have reduced the original quantities of vitamines very considerably.

On the other hand, large quantities of margarine contain, among other fats, cold-pressed oils (such as ground-nut oil) which, like the better grades of olive oil, do not undergo any refining process whatever, and would therefore lend to the margarine their original content of vitamines.

If vitamines are produced in the lactic acid fermentation of milk, an abundance of these precious substances would be imparted to both butter and margarine, as in buttermaking the ripening takes place after the cream has been pasteurised, and in the manufacture of margarine the ripened skim milk is churned with the fat after the latter has been refined. Hence in both cases the vitamines produced in the fermentation process are not subsequently subjected to any harmful treatment.

It therefore appears that, so far as the presence or absence of vitamines is concerned, margarine would rank as equal to butter. There are, in fact, qualities of margarine on the market which contain a small proportion of fresh egg yolk, and such qualities would doubtless be of high standing as regards vitamines.

S. H. B.

So little is at present known about vitamines that "S. H. B." may well be correct in assuming their presence in cold-pressed oils, in ripened skim milk, and in fresh egg yolk. Even hot-pressed oils have probably not been subjected to such a temperature as to kill the vitamines.

On the other hand, if the present writer's memory is not at fault, the work of American investigators has shown that of several oils investigated, butter fat alone contained vitamines. There is also evidence to indicate that vitamines are closely associated with lipoids, and it is doubtful whether they would be formed during lactic fermentation. It is evident should vitamines be present in nut oils as suggested, that nuts might form a valuable preventative of beri-beri, or scurvy; the writer is unaware if this has been tested in practice.

As stated in the original article, probably sufficient vitamines are present in the rest of the dietary to enable them to be dispensed with in the fat.

THE WRITER OF THE ARTICLE.

May 20.

THE EXTINCTEUR AND ITS LIMITATIONS.

THE portable chemical fire-extinguisher, better known as extincteur, has been much before the public of late. Leaving aside the whole of those unfortunate appliances that belong to the dry powder class and the glass hand grenade type, which are entirely untrustworthy, the portable chemical fire-extinguisher in modern practice may be looked upon as a cylinder of from 2 to 3 gallons' capacity, containing water, with the addition of some substance which may, or may not, add to the efficiency of the extinguishing power of the water discharged.

There are, of course, one or two other forms of portable chemical liquid fire-extinguishers, *i.e.*, certain forms of less than a gallon capacity containing carbon tetrachloride or some combination thereof, intended for use on small petrol fires, and where the capacity is sufficient, say, from 2 quarts to 1 gallon, and the chemical is discharged automatically by some capsule of compressed air or the like, effective results are obtained from such appliances on small spirit fires. Where, however, the appliance only has the capacity of a pint or quart of carbon tetrachloride or some combination thereof, and has to be applied by manual action, the limit of effectiveness is certainly very small, a quart of chemical applied, say, by a double action squirt being able to deal at the most with a 2 gallon tin of petrol spilt over a motor-car or in some vessel of no great area. A weak spot in the use of carbon tetrachloride and its combinations, by the bye, is the fumes it gives off when in contact with fire. For this reason its use in enclosed spaces should in any case be avoided, and people suffering from liver complaint should in any case keep clear of this chemical when used on fires.

But to revert to the ordinary portable chemical liquid extinguisher of 2 to 3 gallons' capacity, as seen in many public buildings, and thus considered by the general public as something acceptable for every-day purposes. We are desirous of warning the public as to unsuitable purchases of such appliances. To begin with, in a very general way a portable liquid chemical fire-extinguisher is not the alpha and omega of first-aid fire-extinguishing, although there is no doubt that these appliances as such are popular. They look so bright and neat. Their presence advertises the owner's forethought. If finished on copper they are quite ornamental.

For the ordinary householder and for the ordinary business establishment where fire appliances are not under constant inspection, we would, however, rather pin our faith in the ordinary bucket of water energetically applied, and the ordinary miniature manual hand-pump or corridor engine. A few dozen buckets and a couple of hand-pumps, involving together perhaps an expenditure of 5*l.* to 6*l.*, will work wonders in a quite substantial fire, whilst the same 6*l.* will only produce three or four 2-gallon extinguishers, which require, as a rule, practice to discharge properly and time to re-charge at intervals; they require also most careful maintenance, and at the best will give the user some 6 or 8 gallons of chemically prepared water as against, say, the 50 gallons of water immediately available for continuous application and rapidly replenished without intervals. A small stirrup hand-pump of the London type, by the bye, can be worked single-handed to supply 4 to 5 gallons per minute at an effective range of 25 to 40 ft.

The whole principle of putting out a small fire is the cooling effect of water applied in fair bulk continuously and under pressure; and the cooling effect can be best obtained by a copious supply