

tion in the use of preservatives,' it is open to question whether a ready acceptance of preservatives by the public would not tend to make further research unnecessary. By prohibiting the use of any preservative not proved to be physiologically harmless, will not the search for such a preservative be stimulated?

H. LEFFMANN (Amer. Jour. Pharm., 1904, 503) acknowledges that a certain degree of injury to health results from the use of most modern preservatives. But he contends that this is not the proper way to look at the question. No preserved food is as good as a fresh food; and even boiling renders albumen less digestible. Dessication, smoking, pickling, have still more marked effect in hindering the digestibility of food. It is therefore an arbitrary and unreasonable conclusion to condemn the newer preservatives while allowing the old. What evidence shows that common salt is harmless in food? What proof have we that benzoate of soda is more objectionable than the residues from wood smoke?

Dr. Wiley stands out clearly for the prohibition of all chemical preservatives in food; he makes a distinction between condimental preservatives and chemical preservatives; but I fear that it may sometimes be difficult to mark the dividing line. He recognizes that exceptional cases may occur, when the employment of a preservative may be the lesser of the evils, e.g., prolonged voyages, or exploration, sieges, &c. Dr. Wiley's attitude is altogether admirable, as the expression of a high principle of ethics; but it may be questioned whether we may absolutely ignore the economics of a matter of this kind. The cost of a food stuff to the consumer is often a reason for his choice of the second best, and there is no doubt that the cost of placing many kinds of food on the market is greatly lowered by the use of preservatives. The wealthy will always be able to commend fresh food stuffs; or to pay the higher prices required to meet the cost of packing in the best methods known to art. But the poorer classes of the community may be compelled to do altogether without certain desirable foods or use these as preserved by one or other of the so-called chemical preservatives. At the same time when we consider that the excretion of most of these substances falls chiefly upon the kidneys, and recognize the fact that kidney disease of one kind or another is a main cause of the loss of vitality in middle life, and indeed figures very largely in mortality records, we cannot but feel that the legislation of potent germicides in food products is a matter of the most serious kind.

It may be well to notice the fact that traces of chemical substances, identical with some of the preservatives above named, occur naturally in certain fruits. Thus, benzoic acid is a constituent of several kinds of fruit, and in particular of the cranberry.

L. PORTES AND A. DESNOULIÈRES (Ann. Chim. Anal. Appl. 401) have found out by the examination of fresh strawberries, that salicylic acid, probably as the methyl ester, is a normal constituent of this fruit. 'The amount in the fresh berries is about 1 mgr. per kilogram, (i.e., about 1 part per million or 0.0001 per cent.)'

E. O. V. LEPPMAN (Chem. Zeit. 1902-465) found a deposit in a vacuum pan, which had been used for concentrating lemon juice. On analysis this gave about 0.75 per cent of boric acid. Various commercial samples of lemon juice were then examined, as well as lemons and oranges, and in nearly every instance strong boric acid reactions were obtained. In the lemons, boric acid was detected both in the juice and in the rind.

Advocates of preservatives have sought to make an argument in their favour of the above mentioned fact. But aside from the extreme minuteness of the quantity naturally occurring in these fruits, the fact that it occurs naturally, and has hence always been a part of the food stuff in question, puts it out of the category of ordinary commercial preservatives.

Some samples of common salt are found to contain traces of borax, and the following note is interesting:—

FARNSTEINER and others (Bericht über die Nahrungsmittel Kontrolle in Hamburg, 1903-4, 36) find that common salt is free from any such amounts of borates as would interfere with the detection of these when used as food preservatives. But certain Italian samples of salt contain notable amounts of borax."

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