

accordingly been made for an investigation of the process at the Chemical Research Laboratory at Teddington. The investigation is now in progress and many experiments have been already carried out on treated minerals and manufactured zeolites. Sir Alexander Houston has also conducted experiments designed to ascertain whether there is any change in the bacterial population of water as a result of treatment by the base-exchange process.

As regards the activated sludge process the Board consider that this process, the de-watering of sludge and the production of gas from sewage, or sewage sludge, present problems in special need of investigation. They think it is a matter for debate whether the activated sludge process is mainly biological or physico-chemical and believe that the biological aspect offers the more promising line of advance. They have accordingly made arrangements for an investigation of the process on biological lines to be carried out at the London School of Hygiene and Tropical Medicine under the immediate direction of Professor W. W. C. Topley, F.R.S.

#### THE ANTISCURVY VITAMIN IN APPLES.

THE Medical Research Council have just issued a report undertaken to determine the presence of vitamin C in apples. The object of the investigation was to ascertain the vitamin content of the various apples on the market and to determine the relation, if any, between the vitamin value and breed of fruit, character of soil, age of tree and season. The principal result has been the discovery of the correlation of vitamin value and a particular breed. The English cooking apple (Bramley's seedling) has been found to have a very high content of vitamin C. Although vitamin C is very easily destroyed when heated in contact with air, it appears that there is little loss of the vitamin when the apples are cooked in their skins.

At present the only means of determining the vitamin C content of a food is by feeding guinea-pigs on a diet devoid of the vitamin but abundant in other respects. The determination is laborious and very expensive, and though much experimental work has been devoted to the anti-scorbutic vitamin by Dr. Zilva, no reliable means of estimating the vitamin C content of a food except by animal experiment has yet been discovered. As a result of the present investigation, Dr. Zilva and his co-workers have come to the following tentative conclusions:—

(1) Of a number of apple varieties tested for their antiscorbutic potency, the Bramley's seedling was found to be decidedly more active than all the other varieties, which differed among themselves comparatively very much less in their vitamin C content. There were no indications that the character of the soil or the age of the tree or season had any effect on the antiscorbutic activity of the apple.

(2) Bramley's seedlings picked from the same tree fourteen days before the normal crop were approximately of the same antiscorbutic value as those of the normal crop.

(3) There was little loss of the vitamin C content of apples stored at 1° C. in the air or at 10° C. in a mixture of carbon-dioxide, nitrogen and oxygen for about three months. The gas-stored apples showed, however, a definitely greater deterioration in the vitamin.

(4) Tests carried out on a number of imported dessert apples showed that the activity was higher in those cases in which the time elapsing between the picking of the fruit and the testing was the shortest. There was no indication of any very marked difference in activity which could be correlated with difference in variety.

(5) The heating of Bramley's seedlings in their skins hardly affected their antiscorbutic activity.