AN ETHEREAL EXTRACT OF STRAWBERRIES FOR THE TREATMENT OF SPRUE.

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[A Preliminary Note.]

THE favourable influence of a strawberry diet on sprue has been known for some time. As it is difficult and expensive to get strawberries except in the short season, and, moreover,

strawberries forcibly grown out of season do not seem to have the same beneficial effect, we sought a method by which the active principle or principles could be extracted and stored.

The experiments of Dr. S. S. Zilva (*Biochemical Journal*, 1920, pp. 494-501) and those of Osborne and Mendel (*Biochemical Journal*, 1920) on the extraction of antiscorbutic and antineuritic principles from cabbages and carrots suggested the method which was adopted. Dr. Zilva showed that it was possible to extract, by means of alcohol, the fat-soluble factor from cabbages and carrots, and that the alcoholic extract also contained the antineuritic and, to a smaller extent, the antiscorbutic factors. He also showed that if the alcoholic extract of cabbages and carrots were further extracted with ether, the ether contained a substance which promoted recovery and renewed growth in rats declining in weight on

Continuous extraction apparatus for extracting a solution with a light solvent. A. Condenser is fitted at D. The solvent is in a flask at K. The solution to be extracted is placed in A, which is then closed by a cork. Small Raschig rings can be put in A to help the extraction.

account of a fat-soluble factor deficiency.

After a number of preliminary experiments, the following procedure was adopted:

Fresh strawberries were crushed with about 5 per cent. of their weight of absolute alcohol and filtered in a powerful filter press. The juice was then extracted for days in a continuous ether-extraction apparatus. The ethereal extract was immediately concentrated in a vacuum over phosphorus pentoxide, a small quantity of either starch or lactose being added. The residue was dried as completely as possible in a vacuum over phosphorus pentoxide, as this appears to ensure greater stability.

The apparatus used is illustrated, and is very convenient. To get the most rapid extraction by thoroughly mixing the solvent with the solution being extracted, a number of Raschig rings are placed in A. These consist of rings whose diameter is equal to their length. They can be made of any suitable material—for example, by cutting 5/16 in. aluminium tubing, 22 gauge, or from glasses. Prolonged experience has shown their value in extractions (cf. Bayer and Co., *Journal of Soc. Chem. Ind.*, 1919, 752a).

The extract we have prepared (mixed with a little starch) is of a dark red colour, has a granular-scaly appearance, is somewhat soft, and has a very powerful fragrant smell of fresh strawberries. A minute quantity of it has been kept in an amber tube for the last ten months (since last June), and apparently has not lost any of its characteristics, being of the same colour, and its fragrant smell being just as strong.

The experimental investigation of this extract is difficult, as sprue cannot be reproduced in the lower animals; we have to rely therefore only on clinical observations, but owing to

the question of expense only a very small amount of extract was prepared, and our clinical investigation has been most limited. We may say that we have tried it in two cases of typical sprue in conjunction with the usual milk diet and alkaline treatment. It was given in 5-grain doses three or four times a day and seemed to have a beneficial effect, apparently hastening the improvement in the general condition; but much further work will be necessary before it will be possible to come to any definite conclusion as regards its therapeutic effects. We have thought it advisable, however, to publish this brief note to enable other observers who might be interested in the subject to prepare the extract during the approaching strawberry season, and to experiment further with it.

HYDRONEPHROSIS DUE TO ABERRANT RENAL ARTERY.

BY

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SOME doubt has recently been expressed as to how far abnormal renal vessels are responsible for the hydronephrosis with which they are associated. In the following case the hydronephrosis appeared to be directly due to the aberrant vessel, and the symptoms disappeared after the operation, which consisted simply of division of the abnormal vessel.

E. H., a well-developed, healthy young man of 22, stated that in the summer of 1918 he experienced pain under the right costal margin, and in the mid-axillary line; this pain went through to his back, but never down the flank or into his leg. The attacks of pain were infrequent to begin with and of short duration; later they became more frequent and more severe, generally coming on in the early morning, lasting about two hours, and passing off after he had walked about a little.

At the commencement this pain came on about once a fortnight; these attacks have gradually increased in frequency, and at the present date (January 5th, 1921) they are appearing three times a week.

In the early part of 1920 there was one bad attack which lasted twelve hours and kept him in bed for a few days. When the pain is severe there is biliary vomiting, but blood has never been brought up; there was no frequency of micturition during the attacks, but he states that there was frequency and the passage of an increased quantity of urine after the attacks.

Between the attacks he feels quite well, his appetite is good, and he has lost no weight, and no history of jaundice could be obtained. He had suffered from malaria while on foreign service in 1916 and 1917.

I have given this history in detail as the patient was very clear as to the nature of the attacks, their increasing frequency and severity, the relief obtained by moving about, and his perfect health in between the attacks.

The right kidney was palpable, not unduly mobile, and at the time did not appear to be enlarged, but was distinctly tender. The left kidney was not palpable, and nothing else of an abnormal nature could be detected in his abdomen. A radiograph of both kidneys was taken, but was negative. His urine was normal, and cystoscopic examination showed both ureteric orifices to be normal and acting well.

Operation.

On January 10th, 1921, the right kidney was exposed by the usual oblique lumbar incision; it was found to be enlarged, and some difficulty was experienced in delivering the lower pole; when the kidney was eventually brought up to the surface, this difficulty was found to be due to an aberrant renal vessel which was passing directly outwards and behind the ureter to the extreme lower pole of the kidney. This was divided and ligatured; the pelvis was found to be dilated to a considerable extent above the level of the divided artery; the ureter below was traced downwards for some distance, and appeared to be of normal calibre. The pelvis of the kidney was opened and a catheter passed down into the ureter without difficulty; there was no evidence of valve or constriction at the junction of the ureter with the pelvis of the kidney. The opening in the pelvis was sutured, the kidney dropped back, and the wound closed with a small drainage tube in the upper angle. There was no leakage of urine. The patient made a good recovery, and has been quite free from his symptoms since.

I first saw this patient in August, 1920, and was unable to come to a diagnosis. He had consulted several medical men from time to time, and was referred to me again in January, 1921, by a pensions board for an explanation of his symptoms, as the question had arisen as to whether his condition could be attributed to military service.

I never saw the patient during an attack of pain, which is perhaps the reason why no enlargement of the kidney was made out on examination; I was induced to explore the kidney because it was obvious that the patient