

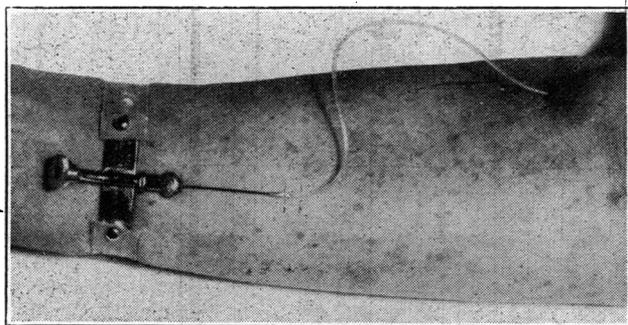
It is felt that this complication and the simple manoeuvre by which it is avoided are worth reporting, because isoprenaline is valuable in the relief of asthmatic attacks, especially so in those patients who are unable to master the (albeit elementary) technique of using and looking after a hand-spray inhaler.—I am, etc.,

London, W.1.

MORAN CAMPBELL.

Heparin Administration by Polythene Tubing

SIR,—I was very interested by Dr. W. A. L. MacFadyen's note (October 22, p. 925) on the use of polythene tubing and a diaphragm adaptor for the intravenous administration of heparin. I have for some time been giving heparin by a similar method, but have used the Robertshaw modification of the Gordh adaptor. This adaptor is similar to that described by Dr. MacFadyen but is provided with a wide metal flange which facilitates attachment to the arm. Although this adaptor is supplied with a rubber strap for fixing it to the arm, it is in practice much better to attach it with a length of elastic adhesive strapping as shown in the accompanying photograph.



Robertshaw-Gordh adaptor with 14 s.w.g. needle and fine polythene tubing. After sterile dressings have been applied over the diaphragm and the puncture wound, the whole apparatus is covered with a soft bandage.

A further advantage of this apparatus is that the diaphragm is set at an angle to the needle, which facilitates injection.

This needle adaptor is supplied by A. L. Hawkins and Co., Ltd., 15, New Cavendish Street, London, W.1, and it has been in use in a number of the wards of St. Bartholomew's Hospital. I can certainly vouch for the simplicity of the apparatus, which has completely revolutionized heparin treatment. Whereas the ordinary Gordh needle cannot be used in the antecubital fossa, the polythene tubing can be readily inserted here and pushed up the vein for an inch or two above the elbow (this is often especially useful in those patients who, having no suitable forearm veins, could not previously be treated easily with the ordinary diaphragm needle).

Finally, I would like to emphasize that many patients are up and about throughout the period of treatment, the polythene tube remaining in the same vein for four or five days, and sometimes for as long as 10 days.—I am, etc.,

Radlett, Herts.

R. S. MURLEY.

Carbachol for Migraine

SIR,—Ophthalmologists will be grateful that such an authority as Sir John Parsons thought it necessary to comment (October 29, p. 980) on the article by Dr. G. S. Graveson (October 15, p. 838). The majority will agree with his remark that Dr. Graveson's article is liable to misrepresentation and may cause suffering to migraine subjects.

I have been particularly interested in this condition for many years, and I have never found a case of permanent homonymous field defect due to migraine. I do not find that the typical migraine syndrome has the scintillating scotomata as a most frequent sign. I consider the bad headache, sickness, photophobia, and the wish of sufferers to rest in a darkened room are most symptomatic. I am acquainted with the theories of migraine here and abroad, but must say that I have not met

many cases of aphasia, tingling, and numbness of fingers and tongue, as described. I have tried to watch the fundal condition in some patients during an attack, and admit my complete inability to see any change in the retinal vessels.

However, my whole ambition in writing this letter is to stress that, whatever theories, syndromes, and ideas we would like to postulate, our great mission as physicians is to bring relief to the unfortunate victims of this or any other condition, and I believe we have a specific for migraine in carbachol. Carbamylcholine chloride is a similar substance to acetylcholine. It is, I believe, resistant to cholinesterase, and is a parasympathetic nervous stimulant and produces peripheral dilatation of the blood vessels. If vascular spasm is the cause, carbachol may counteract it.

Long before the war I used a similar substance, though an inferior one, the German "doryl" (an English preparation was named "moryl"). In an article appearing in this *Journal* in 1945 (May 12, p. 663) Dr. A. K. James gave facts and figures of his treatment of migraine with carbachol. I had prepared a series of cases to report in the *Journal* of my success with "moryl," and I went on to investigate carbachol, and since then I have never failed in curing a migraine attack either temporarily or permanently by the use of this preparation. In fact, I am now so sure of its activity that in bad headaches and conditions simulating migraine where one suspects the history given by a patient I give or advise carbachol, and if there is no immediate improvement I feel the condition has nothing to do with migraine.—I am, etc.,

Walton-on-Thames, Surrey.

J. H. MELLOTT.

New Mechanism of Vitamin Deprivation

SIR,—Under this title Professor A. C. Frazer published an article in your journal (October 1, p. 731). His considerations cover a very wide field—the causes of deficiencies of fat- and water-soluble vitamins, some of which practically have nothing in common but the name vitamin. Several of his statements as well as his main claim to have discovered a new mechanism causing vitamin deficiencies require comment. His conclusions are based on some features of deficiencies of vitamins of the B group—riboflavin, nicotinamide, pyridoxin, and folic acid—as observed in sprue. My comments are as follows.

1. Professor Frazer states that the effect of antibacterial agents on vitamin deficiencies is unknown. This is not so. Considerable reduction of urinary output by man of aneurin¹ and of nicotinamide methochloride² has been observed after oral administration of "sterilizing" sulphonamides to humans, some of which were pellagrins. Moreover, cases of nicotinamide deficiencies have been reported after oral application of succinyl sulphathiazole,³ sulphadiazine, and penicillin.⁴

2. Professor Frazer states that all these vitamins mentioned by him are essential growth factors for bacteria, particularly those which are known to be present in the upper part of the small intestine in sprue. He does not give details of the types found under these conditions. If, however, *Bact. coli*, which are the main producers of nicotinamide in the human intestines under normal conditions, are amongst these bacteria this statement is incorrect, since *Bact. coli* can easily grow without any of these vitamins.⁵

3. Professor Frazer further states that the part played by the intestinal bacteria in vitamin synthesis in human subjects is obscure. It has been shown that the human requirements of aneurin,¹ riboflavin,⁶ and nicotinamide² are covered to a considerable extent by the production and release of these substances by the intestinal flora. These earlier investigations have been reviewed and discussed on several occasions.⁷⁻¹⁰ It has been shown by simultaneous examination of the bacterial composition of the faeces and of the height of urinary nicotinamide methochloride elimination that the latter parallels the amount of *Bact. coli* in the faeces.¹¹ Of the most frequent inhabitants of the human intestines, *Bact. coli* produces, and *Proteus* and *Staphylococcus faecalis* consume, nicotinamide.¹²

4. The competition of nicotinamide-consuming and producing bacteria and other inhabitants of the intestinal tract as influencing the amount of nicotinamide available from this source for human requirements has been discussed in almost every