their work, and they usually disappear, but the nutritional upset persists, and under the influence of lymph stasis the papilloma may ultimately in the course of years evolve into carcinoma without the intervention of any new factor.

In lupus cancer, x-ray cancer, and tongue cancer I have traced every stage of this process, and Mr. O'Connor will find the evidence fully stated in my book *The Genesis of Cancer* (Kegan Paul, London, 1931). I have not had the material for extending my observations to cancer of the penis and of the cervix, but it seems most unlikely that these forms of cancer are exceptions to a rule which appears to be general. The papilla is a little physiological engine. It must be supplied with not too rich a mixture at the right pressure, and must have a free exhaust. Lymph stasis following local bacterial infection violates all these conditions, and cancer is the ultimate consequence.

Temporary lymph stasis is seen in every focus of acute inflammation as Nature's method of inducing proliferation and repair. The enormous legs of elephantiasis show how intense is the proliferative impulse imparted to a tissue if the lymph stasis is permanent. It was from a case of elephantiasis which presented about fifteen separate epitheliomata on the affected limb that my researches started.—I am, etc.,

London, W.1.

W. SAMPSON HANDLEY.

A Method of Abdominal Palpation

SIR,—Dr. E. W. Price (Nov. 1, 1947, p. 703) argues in favour of abdominal palpation when the patient is sitting upright or leaning forward. I have been convinced for a long time that the abdominal palpation used on patients supine is frequently insufficient, and so I complete this first examination, when necessary, by the following methods:

(1) *Genu-cubital Position*.—This throws forward the deeper organs and enables one to distinguish some pains, especially those issuing from the right iliac fossa.

(2) *Orthostatic Position*.—When the patient leans forward, or is sitting, his legs are drawn up against his abdomen. Therefore I usually ask the patient to *lean backwards* and relax as much as he can. In order to make this possible he must be supported at the back. The physician behind the patient could support him, but this situation might prove awkward in some instances.

In order to avoid this difficulty I have had a "palpation board" constructed. It is 14 in. (35.6 cm.) wide and 6 ft. (1.83 m.) high. The top part of the board is attached to the wall at a distance of 17 in. (43.2 cm.), while the base of it is 24 in. (61 cm.) away; this inclines the board at an angle of 8–10 degrees.

To use the vertical palpation, one stands behind the board, between it and the wall. The patient is standing against the board in a leaning position and completely relaxed. The top part of the board is adapted with a groove; this enables it, when not in use, to be slid back against the wall so as not to take up too much room.—I am, etc.,

Geneva.

M. J. DEMOLE.

General Anaesthesia and Surgical Shock

SIR,—In a recent article (1947) I cited evidence to prove that fainting and shock are identical in origin, and that both are due to overstimulation of the sympathetic nervous system, a prominent cause of which in civilized man is pain. Opponents of the theory of the sympathetic origin of shock have pointed out that shock fails to develop in conditions such as biliary and renal colic, in which pain is intense and prolonged (Moon, 1938). Painful (sensory) impulses, however, are not the only shock-producing impulses arising in damaged tissues (Moon, 1944).

That pain is capable of causing shock is clearly demonstrated by the effect, in pre-antiseptic days, of the introduction of general anaesthesia on the mortality from surgical operations (amputations). It is to be remembered that general anaesthesia, though effectively cutting off all painful impulses from the vasomotor centre via the sensorium, does not prevent the reception by that centre of non-sensory shock-producing impulses from the traumatized area via the spinal cord. To prevent the reception of such impulses spinal anaesthesia is required (Tomb, 1937).

In an address to the Hunterian Society in 1848 "On the Advantages of Ether and Chloroform in Operative Surgery" Dr. T. B. Curling quoted statistics showing that the death rate from surgical operations in the London hospitals during the year 1847–8 fell by 50% consequent upon the introduction of general anaesthesia—a result which must be attributed to the diminution of shock from the prevention of pain and the sympathetic overstimulation arising therefrom.—I am, etc.,

Sydney.

J. WALKER TOMB.

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Thiouracil in Toxic Goitre

SIR,—In his letter (Dec. 6, 1947, p. 927) in connexion with our paper on "Thiouracil in Toxic Goitre" (Nov. 15, p. 759) Mr. Henri Roualle mentions experiments in which thyroid tumours have been produced in rats treated with thiouracil. Although these and previous experiments on the same lines are remote from the clinical use of thiouracil, a watch must be kept for neoplasm developing in the thyroid in patients taking thiouracil. After four years' experience we have not yet seen such a development nor has it been reported as far as we know. In the animal experiments the thyroid enlarges, whereas in our experience thiouracil often leads to a reduction in the size of the goitre.

Mr. Geoffrey Keynes and Dr. J. W. Linnell (Dec. 13, p. 971) think that the ten deaths in our 95 patients are to be attributed to thiouracil or perhaps failure to employ some other form of treatment. In nine of the ten this was not so, as shown by the details we gave. Three cases were too near death on arrival for any treatment to be effective; they had thiouracil for a few days to a few weeks before death. Six patients died from cardiovascular disease not immediately due to toxic goitre. The average age of these nine patients who died was 70 years.

As to the potency of thiouracil in restoring normal rhythm in goitrous fibrillation, our figure of 50% restored understated the case. This was because we included in the failures two patients who died shortly after coming under observation and before there was time for thiouracil to exert its effect, and also one, possibly two, patients who also had mitral stenosis. No quinidine was used for any patient. It therefore seems that thiouracil is almost the equal of thyroidectomy in converting goitrous fibrillation to normal rhythm. Lastly, as to the cases in which thiouracil is to be preferred to surgery in toxic goitre, we think that this applies to the elderly, thiouracil being the safer, particularly in those with evidence of degenerative or hypertensive cardiovascular disease. Again, in younger patients with smooth goitres of moderate or small size our results showed good control with thiouracil and a high proportion of remissions.—We are, etc.,

Bournemouth.

HAROLD COOKSON.
F. H. STAINES.

Tetraethylammonium Bromide

SIR,—In the annotation (Dec. 27, 1947, p. 1041) attention is drawn to the great possibilities of the drug tetraethylammonium bromide (T.E.A.B.). Stimulated by the early American publications, we obtained supplies of this drug early this year for clinical trial through the kindness of Dr. W. R. Thrower and Messrs. May and Baker. A short paper is being prepared giving the results of this trial, but it is not out of place to remark here that we have in general failed to produce the very favourable results reported by Coller *et al.* last June (*Annals of Surgery*, 1947, 125, 729).

Our main use of the drug was to attempt to reduce those symptoms most troublesome to hypertensives attending the medical out-patient department—i.e., headaches and giddiness—by weekly or fortnightly administration of T.E.A.B. intravenously or intramuscularly. We found that some patients obtained dramatic benefit, headaches disappearing for days or even weeks and vision clearing appreciably, so that the smaller newspaper previously unreadable could be read with comparative ease. This last statement was made quite independently by three separate out-patients who had never seen each other and to whom no suggestion had been made that improvement

in visual acuity would result. The easing or abolition of headache for as long as several days surprised us, as the effect of the drug on the blood pressure is short-lived, lasting from a few minutes to at most an hour or two. We therefore substituted control injections of saline, elaborate and lengthy readings of blood pressure being taken as before, retinae and pupils being examined every few minutes. Equally satisfactory results in improvement in vision and lessening of headache were reported by the patients after such "dummy" injections.

Apart from this small group where improvement was effected by suggestion no really satisfactory results were obtained with the drug, and the high hopes we held for its being useful in treatment of hypertensive patients unsuitable for sympathectomy have not been fulfilled. We have found the effect of the drug on skin temperature of the extremities variable and erratic and less satisfactory than simpler methods. In some cases little or no drop in blood pressure resulted, though most patients had some depression of systolic and diastolic pressure for 3 to 30 minutes after intravenous injection of 100-600 mg. of the drug. The rate of the injection appeared to play a part as well as the dosage given, the more rapid the administration of the drug the more the effect on the blood pressure.

As stated in your annotation, T.E.A.B. is an impracticable therapeutic agent, but it may prove of use to the research worker. We have not found it a useful drug either in testing rises in peripheral skin temperature or in lessening symptoms in hypertensive subjects. In the last group of cases the psychogenic element features largely in so many cases, and it is easy to produce symptomatic relief by suggestion backed by elaborate investigation. Nevertheless it is possible that new uses may yet be found for this drug, and our trial is still in progress.—I am, etc.,

London, S.W.1.

F. DUDLEY HART.

Acute Non-specific Gastro-enteritis

SIR,—We note with interest the letter from Dr. William Forster (Dec. 13, 1947, p. 971) describing an outbreak of acute non-specific gastro-enteritis in a mental hospital, and we would like to comment on a few of the points made in it.

Treatment and Prophylaxis with Sulphonamide Drugs.—In our experience of a number of outbreaks, some in mental hospitals, treatment of established cases of gastro-enteritis of this type with sulphaguanidine has been without effect on the duration and severity of illness as compared with controls treated symptomatically, a finding in agreement with that obtained by Dr. Forster, using phthalylsulphathiazole. Dr. Forster suggests, however, that "sulphonamides were effective in prophylaxis." Examination of the data given in his letter yields little to support this conclusion, for the drugs were administered when the ward outbreaks had been in progress for some days (9-17 days) and when the attack rates were declining naturally. Again, at least four patients commenced the disease while they were actually receiving prophylactic sulphonamide.

In our experience the duration of outbreaks in mental-hospital wards where no prophylaxis had been undertaken was relatively short, due possibly to the rapid spread of the disease through an unchanging population. Thus in a Leicester mental-hospital outbreak¹ the duration of ward outbreaks on the male side of the hospital ranged from 7 to 14 days (mean 9.8 days) and on the female side from 12 to 22 days (mean 18.4 days). There was therefore considerable variation between wards, but the figures are of the same order as those (12, 15, and 20 days) occurring in Dr. Forster's wards in which prophylaxis was undertaken. The variability between untreated wards makes deductions concerning the value of prophylactic treatment extremely hazardous.

Variation in Attack Rates in Wards with Different Populations.—It was very interesting to note the uniform gradation of the size of attack rate in different wards as given in the table of Dr. Forster's letter. Thus, wards having overcrowded low-grade mental patients tended to have higher attack rates than the wards which were less crowded and had patients of a higher mental grade. We have observed a similar gradation in two mental-hospital outbreaks.^{1,2} This may be partly a reflection of the degree of day-time dispersion in different ward populations, but investigation of these differences and their relation to the mode of spread of the disease might be illuminating. The problem might be approached by comparing the attack rates in "non-specific gastro-enteritis" in these varying ward populations with the rates observed on the one hand in diseases whose method of spread is intestinal-oral, such as bacillary dysentery, or on the other hand "airborne," such as influenza.

Mode of Spread of the Disease.—In the mental-hospital outbreaks that we have investigated, as in that investigated by Dr. Forster,

case-to-case infection rather than water or massive food-borne infection has been the pattern of spread. Dr. Forster states, however, that the infection was "probably airborne" in his outbreak. It would be interesting to know the facts which led Dr. Forster to this conclusion. It is a commonly held belief that the disease is spread by the "airborne" route, but we are in ignorance of the epidemiological method which enables a distinction to be made between "airborne" and case-to-case contact spread of infection. The mere fact that the disease is very infectious, has high attack rates and a particular seasonal incidence, is not by itself sufficient evidence for a respiratory mode of spread.

The findings of Reimann *et al.*,³ who transmitted a similar gastro-enteritis to student volunteers when they inhaled nebulized filtrates of throat washings or stool but failed to infect volunteers by feeding stool filtrate, have influenced the interpretation of outbreaks in this country. Reimann was, however, the first to point out that his experiments were undertaken under difficult circumstances in that the volunteers could not be isolated from the rest of the student body which was experiencing natural attacks of the disease. Further, examination of his figures reveals that the incubation period was between 9 and 21 days in 42% of the volunteers having gastro-enteritis, and as the natural incubation period is 3-5 days it is questionable whether these later cases were in fact due to inoculation. The volunteers were inoculated in batches on six different days using, from (presumably) different donors, material which consequently may have been of different activity. The results obtained by Reimann should, therefore, be applied with caution until they have been confirmed.

Recently a well-planned and controlled experiment has been undertaken in New York by Gordon and colleagues.⁴ These investigators, using known susceptible and carefully isolated volunteers, have shown that a clinically similar gastro-enteritis of the type under discussion can be transmitted by ingestion of filtered stool or unfiltered throat washings but not by the inhalation of nebulized throat washings known to be infective by ingestion. It remains to be proved, of course, that the disease described by Reimann, the New York workers, and various investigators in this country is in fact the same regardless of the similarity of clinical picture, but enough has been said to illustrate the need for caution in labelling the disease an "airborne" infection.—We are, etc.,

B. P. MARMION.
G. T. COOK.

¹ ² These data are quoted with the kind permission of Dr. K. K. Drury, Carlton Hayes Mental Hospital, Narborough, and Dr. T. W. Davidson, City Mental Hospital, Humberstone, Leicester.

³ *Proc. Soc. exp. Biol.*, N.Y., 1945, 59, 8.

⁴ *J. exp. Med.*, 1947, 88, 409.

Penicillin in Otitis Media

SIR,—With reference to the report of the meeting of the Section of Otolaryngology of the Royal Society of Medicine (Dec. 27, 1947, p. 1049) may I be permitted to give a general practitioner's experience in the treatment of otitis media with systemic penicillin, both in acute and chronic cases?

I use the oil-wax suspension of 1,250,000 units in 10 ml., giving a single injection of 200,000 to 300,000 units daily. I had eleven cases of acute otitis media with otorrhoea in children between the ages of 2 and 14, and, with the exception of one, there were no recurrences from two to eight months after injection. The discharge ceased on the second or third day and hearing became normal within fourteen days. I gave another course of penicillin to the recurrent case, and the patient has been free from discharge for the last four months. I have also dealt with six cases of otorrhoea due to chronic otitis media, out of which three recurred, the other three having now been free from discharge from eight to thirteen months. One of the recurrent cases had another course of penicillin injections and has now been free from discharge for the last four months.

I give herewith a short history of a case of chronic otitis media:

A man aged 44 developed a right otitis media with otorrhoea 36 years ago. He had been attending hospital ever since and was treated with peroxide ear drops. He was never free from aural discharge for more than two months. His hearing was becoming impaired and he felt dizzy on bending down his head. In November, 1946, I gave him one injection daily of 250,000 units of penicillin calcium in oil-wax suspension for five days. The discharge ceased on the third