Protein-bound Iodine Levels in Pregnancy

SIR,—A letter from Dr. F. J. Pick (21 November, p. 1329) included the statement that estimation of the serum protein-bound iodine (P.B.I.) is "very helpful . . . in detecting thyroid disorders in pregnancy." This claim must be very seriously questioned. Pregnancy causes a marked elevation in the thyroxine-binding capacity of the serum thyroxine-binding globulin (T.B.G.).¹ As a result it is not at all uncommon to find P.B.I. levels that are at least twice the normal value in euthyroid, pregnant women.^{2,3} This rise occurs at about six weeks following conception and is then maintained throughout pregnancy.¹

The diagnosis of thyroid disease in pregnancy may, in fact, be extremely difficult to confirm by any of the standard tests of thyroid function. The increase in T.B.G. may invalidate not only the P.B.I., but also the butanol-extractable iodine (B.E.I.) level, the erythrocyte or resin uptake of labelled tri-iodothyronine, and the more recently available estimation of serum total and "free" thyroxine. The B.M.R. will be physiologically elevated, and, because of the potential hazard to the foetus, tests of thyroid function utilizing tracer doses of radio-iodine are usually considered out of the question.

Hyperthyroidism or myxoedema in pregnancy may thus have to be diagnosed mainly on clinical grounds alone. The P.B.I. value is only reliable if it can be shown that the T.B.G. capacity is normal. This may be directly measured in some centres,³ but may be inferred with some confidence if the erythrocyte uptake of tri-iodothyronine is in the normal range.⁴ The limitations of this latter test must be constantly borne in mind, however.⁴

Dr. Pick's letter prompts me to add three further comments concerning P.B.I. determinations:

(1) Although the P.B.I. level may indicate latent hypothyroidism, it is also true that clinical hypothyroidism may be present before the P.B.I. has fallen into the hypothyroid range. In such cases, if other tests suggest that the patient is myxoedematous, then the clinical response to thyroid hormone replacement may be the best diagnostic "test."

(2) In large hospitals particularly, great care must be taken to ensure that blood withdrawn from patients for P.B.I. determination is placed in scrupulously clean test-tubes, preferably new. Unless this precaution is taken, it is not unlikely that a previous blood sample may have been taken from a patient with gross organic iodine contamination following some radiographic procedure. A significant amount of this iodine may remain even on washed glass and thus contaminate the P.B.I. sample.

(3) The oestrogenic component of the oral contraceptives may be capable in some cases of elevating the T.B.G. capacity and thus of increasing the serum P.B.I. If the P.B.I. is to be determined on the serum of a woman of child-bearing age she should be specially questioned as to whether she is taking oral contraceptives. If the diagnosis of thyroid disease is seriously in question then these pills must be stopped for at least 10 days before the P.B.I. can be relied on as being unaffected. Similar precautions must, of

course, be taken with any patient receiving synthetic oestrogens.⁵—I am, etc.,

London W.5.

BRIAN WEBSTER.

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- ² Aboul-Khair, S. A., Crooks, J., Turnbull, A. C., and Hytten, F. E., *Chin. Sci.*, 1964, **27**, 195.
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- ⁴ Hamolsky, M. W., Golodetz, A., and Freedberg, A. S., *J. clin. Endocrinol.*, 1959, **19**, 103.
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Toxic Insecticides

SIR,—The use and abuse of toxic insecticides persist, and it is partly the responsibility of the medical profession to see that they are correctly applied and cases of poisoning reported. Recent personal experience of their abuse last summer prompts me to draw the attention of doctors to their effects on the human nervous system. Investigation of a recent neurological case showing central- and peripheral-nervous-system damage to a worker in the strawberry fields led me to discover that organic phosphorus compounds, organic mercurial compounds, and chlorinated hydrocarbons were being applied by a particular grower quite haphazardly when the crop was fruiting and about to be picked.

It is quite obvious that many other growers fail to appreciate the toxicity of the chemicals they use and fail to comply with the manufacturer's instructions and warnings not to apply toxic compounds to ripe fruit, particularly in dry seasons. It is useless for the Ministry of Agriculture to claim that voluntary control of their application is needed to prevent possible harmful long-term and short-term ill effects to human life. Their danger to bird life has been proved.

Dr. Jarrett, of Dorchester, has recently given me details of two cases of polyneuritis almost certainly related to the abuse of dieldrin as a sheep dip in which the material had been handled in strong concentration without precautions. The "Smarden Affair" was a shock to the public, and it was lucky there were no human repercussions. The poisoning of domestic animals eating the flesh of a horse which had died as a result of eating fluoroacetamide emphasized the danger of transmission of this type of poisoning from one animal to another. Have we considered carefully enough the transmission of dieldrin to man from sheep treated with this indestructible insecticide as a sheep dip? Furthermore, I believe the organic phosphorus insecticides are now being applied to cattle to kill warble flies. Are we sure this is entirely safe? The late Rachel Carson did a service to us in reminding people of the hazards of insecticides in America, and, although she overstated her case, it would be wise for us to take her warning seriously. The medical profession must not be lulled into a false sense of the harmlessness of insecticides by believing entirely what is stated by the manufacturers. We have no idea, either positively or negatively, of the effects of their prolonged use on man. Extreme vigilance to correlate obscure illness which may be associated with these compounds is necessary.

I am particularly interested in hearing about cases of polyneuritis related to ex-

posure to insecticides, particularly of the chlorinated hydrocarbon group. It is possible that some people may be hypersensitive to these compounds, particularly if they are misused, but it is difficult to collect firm evidence. If any readers of your journal could supply me with particulars of probable cases I would be most grateful.—I am, etc.,

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Clifton,
Bristol 8.

Giant Follicular Lymphoma of the Spleen

SIR,—Dr. R. A. Hickling (26 September, p. 787) reported on four cases of giant follicle lymphoma "apparently cured" 13, 10, 6, 4, and one year after splenectomy. We would like to give briefly the history of a woman aged 45, in the year 1946.

Because of splenomegaly she underwent a splenectomy, and a giant follicular lymphoma was found. Post-operative localized x-ray therapy was given. Up to 1962 she felt well. At that time a pre-auricular lymph node appeared. On clinical examination and laboratory test no other abnormality was found. For technical reasons, surgical excision was impossible, and therefore local x-ray therapy was given and the node disappeared. In 1963 an inguinal lymph node was found. This was excised and interpreted as giant follicular lymphoma transforming into lymphosarcoma. The patient has now generalized disease.

We see that 16 years after splenectomy activity of the disease returned. A similar phenomenon has been described in breast-cancer patients in whom local recurrences appeared up to 30 years after mastectomy. We had one patient who had local recurrence 13 years after the mastectomy.

The reason for this quiescent period is of course not known. In view of this and the suggestion in the literature¹ that a malignancy in one specific organ may imply increased susceptibility of another specific organ to malignant neoplasm we would suggest careful follow-up of all patients who have once had a neoplasm.—I am, etc.,

Oncological Department, E. ROBINSON.
Hadassah Medical Organization,
Jerusalem.

REFERENCE

- ¹ Moertel, C. G., *Ann. N.Y. Acad. Sci.*, 1964, **114**, 886.

Producing Muscle Movement in Paralysis

SIR,—This preliminary report is intended to establish a date that it is hoped will be of later interest.

It has now been proved possible (and it has been recorded on film) to take an electrical impulse percutaneously from a contracting muscle in the body, to pass the impulse through appropriate circuits and to pass it back percutaneously to one or several other muscles, thereby producing synchronous effective contraction. It is thus possible to produce and maintain contraction in selected muscles in the same individual (or in another individual). Some uses of this technique, when further developed, it is hoped will include, in paraplegic and tetraplegic cases, voluntary muscle movement below transverse cord lesions synchronously with selected muscles above the lesion. For example:

(1) Trapezius, or a segmentally lower muscle, voluntarily operating abdominal and

intercostal muscles to provide either an adequate cough mechanism or augmented respiratory excursion.

(2) In cases of cord section between C.2 and C.6, upper trapezius fibres to operate voluntary finger flexion. In cases in which shoulder girdle and arm muscles have been spared but hand function is deficient, it is hoped that this defect may thus be remedied on a controlled voluntary basis.

(3) Ultimately perhaps, by cross over from anterior deltoid fibres to hip flexors of opposite side, to provide a method of walking.—I am, etc.,

SHANE WATSON.

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Stoke Mandeville Hospital,
Aylesbury, Bucks.

Eliminating Cervical Cancer

SIR,—Your editorial on the above subject (5 December, p. 1409) will command wide support, but in present economic circumstances statements of objectives do not of themselves achieve objectives. The responsibility for the laboratory examination of cervical smears and the provision of gynaecological services associated with these laboratory services is that of regional hospital boards. The laboratory resources, both in staff and buildings, that can immediately be provided by the boards obviously cannot meet the requirements of a complete programme whereby at regular intervals all women who should have an examination can be assured of the necessary facilities being provided.

Since the National Health Service must, like any other social service, be limited in the share that it can command of the national resources in money and manpower, it follows that the development of laboratory resources can eventually only be at the expense of development in other fields. It is therefore imperative that laboratory resources for cervical cytology, both in buildings and manpower, should, as they are developed, be utilized in an orderly and ordered fashion so that they can be put to the best use for the greatest number of women in accordance with agreed and predetermined programmes.

The Association of County Medical Officers has given consideration to this matter and has come to the conclusion that the best use cannot be made of existing and expanding facilities if specimens are going to be submitted in accordance with no predetermined pattern from general practitioners, family planning clinics, and other sources. In coming to this conclusion, the Association does not in any way suggest that specimens sent from these sources should not be examined, but it is of the opinion that if the best use is to be made of resources in short supply, then some ordered programme is essential. It is of the opinion that such a programme can only be developed by the use of existing local health authority resources, including health education, as to the meaning of cervical cytology and the arranging for health visitors, district nurses, and other officers who provide direct services to the public to take part in bringing to the notice of women in the appropriate age-groups the extent and meaning of the services that are being developed for the examination of cervical smears.

The development of these services on the lines suggested requires a close association with the developing services provided by regional hospital boards, and whilst it would be imperative, both initially and at various stages of development, to consult local medical committees, it is the view of the Association that the only way in which an effective programme can be worked out to take full advantage of expanding hospital facilities is for the local health authorities to be charged with the task of providing agreed programmes in consultation with the regional hospital boards and their associated hospital management committees. This view of the Association has been communicated to the County Councils Association with the purpose of asking the Minister of Health to ensure that as the services of the regional hospital boards are developed there shall be throughout full consultation with the local health authorities in order to ensure that what is being provided shall be put to the most effective use.—I am, etc.,

G. RAMAGE,

Secretary,

Association of County Medical Officers
of Health of England and Wales.
Stafford.

Cephaloridine

SIR,—Your comment on my letter (12 December, p. 1530) states that "about 80% of clinical isolates of *Proteus* are *P. mirabilis*." This is not everyone's experience.

For example, Millner¹ found 63% in 130 *Proteus* strains from urinary infections. In this hospital we found 49% of 147 strains from all sources,² whilst Dutton and Ralston³ found only about 35% of 57 strains from urinary infections to be *P. mirabilis*.—I am, etc.,

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London S.W.12.

P. W. KIPPAX.

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- 1 Millner, P. F., *J. clin. Path.*, 1963, **16**, 39.
- 2 Kippax, P. W., *ibid.*, 1957, **10**, 211.
- 3 Dutton, A. A. C., and Ralston, M., *Lancet*, 1957, **1**, 115.

Plantar Warts and Athlete's Foot

SIR,—I find it difficult to accept Dr. A. A. Ross's objections (12 December, p. 1532) to my protest regarding barefoot gymnastics (14 November, p. 1268). Does Dr. Ross believe that an hour or so of barefooted exercise per week (during school terms only) is really likely to have a significant effect on flat-footedness or other foot deformities, particularly when the feet in question spend much of the rest of the week in hallux-valgus-producing shoes? Dr. Ross does not apparently regard a small increase in the number of plantar warts coming to his skin clinic with dismay. But for every extra case which he sees may there not be many treated at home under the guidance of general practitioners? In any case, whatever the theoretical advantages of barefoot gymnastics, the price is paid not in consultant's time, nor in the time of general practitioners, but in the hobbling discomfort of young children and in their fears of the even greater discomfort which may accompany treatment in the clinic. Incidentally, is hobbling a good exercise for the muscles and joints of the lower limbs?

With regard to athlete's foot, does Dr. Ross really advocate that children with the active condition should mix barefoot with uninfected children on the floor of the gymnasium? Perhaps his comments on this point were not intended to be other than superficial.—I am, etc.,

F. J. C. ROE.

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London S.W.3.

Dangerous Anaesthetic Device

SIR,—Dr. Manley (12 December, p. 1532) is quite justified in vindicating his ventilator as being the only agent to interfere with the Bosun's audible warning system. In fact, any apparatus producing a sustained pressure rise of about 25 cm./Wg. (water-gauge) in the anaesthetic system distal to the flow meters may render the audible system inoperable. If this back pressure drops below the figure mentioned at any time then the warning device will sound and will not stop until a pressure of above 100 cm./Wg. is obtained.

Thus, ventilators which operate at low bag pressure (without pressure reduction to the patient circuit), such as the Barnet, East-Radcliffe, etc., and all closed-circuit ventilators are free from this hazard. If the flow control of the later Barnet models is set to give high restriction then back pressures of interfering magnitude may result.

The Manley and the Howells ventilators both maintain a back pressure in excess of 25 cm./Wg. (100–120 cm./Wg.) and therefore interfere with the Bosun's audible warning of oxygen loss.

Incidentally, these latter machines might be indicted for altering the Fluotec output of halothane by virtue of the same back pressures. However, tests performed at Cyprane Ltd. recently indicated that at normal source flow rates (4 litres and upwards) on the Howells ventilator the effect on the Fluotec output was negligible. It is probable that this holds true also for the Manley ventilator.—I am, etc.,

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Royal Free Hospital,
London W.C.1.

Thyroid Carcinoma in the Newborn

SIR,—In a memorandum on a "Case of Thyroid Carcinoma in a Newborn Infant" (25 January 1964, p. 224) I have clearly been mistaken in ascribing the appearances to carcinoma. Dr. Winship, to whom the bulk of the material was sent, has very kindly drawn attention to a condition described as struma intralaryngotrachealis in Henke and Lubarsch¹ and illustrated by an identical lesion to that found in our case.

On behalf of Dr. Enid E. McRuer and myself I sincerely regret this misidentification of an unusual condition and hope this correction may be of assistance.—I am, etc.,

M. D. ROSS.

Harare Hospital,
Salisbury, S. Rhodesia.

REFERENCE

- 1 Henke and Lubarsch, *Handbucher speziellen pathologischen Anatomie u. Histologie*, Bd. 8, p. 331.