Ultrasounding the Heart

SIR,—Your leading article (19 January, p. 83) does a service in drawing attention to the increasing use of ultrasound in diagnosis. Though there is now universal recognition of its importance and safety as a method of investigation, only a small number of hospitals are equipped to provide such a service. I hope that the Department of Health and Social Security will soon decide on a policy to equip all district hospitals with the means for providing this useful aid to diagnosis.—I am, etc.,

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Cranial Arteritis in Old Age

SIR,—May I add to Dr. W. J. Nicholson's excellent article (5 January, p. 33) by saying that in cranial arteritis the erythrocyte sedimentation rate may not rise until the patient is blind in one or both eyes. Prednisolone should be started immediately (10 mg three times daily for two days and then 5 mg three times daily) if there is any suspicious cranial symptom, such as headache and skin sensitivity related to any arterial distribution, however small, and the neurologist informed.—I am, etc.,

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Staphylococcal Septicaemia and C.N.S. Involvement

SIR,—The incidence of staphylococcal septicaemia has declined in recent years. We report three such cases treated at Ruchill Hospital, Glasgow, between January 1971 and February 1972. Each posed a diagnostic problem.

Case 1—A 14-year-old girl was admitted semi-comatose with meningitis, mitral incompetence, splinter haemorrhages, and petechiae. *Staphylococcus aureus* was cultured from blood and cerebrospinal fluid (C.S.F.). She responded initially to parenteral penicillin and cloxacillin but relapsed and died a week later. Necropsy showed acute ulcerative endocarditis of the mitral valve, pulmonary oedema, and emboli disseminated in the brain, spleen and kidneys.

Case 2—A 44-year-old woman presented with a right hemiplegia and motor aphasia and was thought to have herpes simplex encephalitis. Clinically she had herpes labialis, an apical systolic murmur, and a papular rash. Brain biopsy and C.S.F. were normal, but blood culture yielded *Staph. aureus*. She recovered with antibiotic therapy.

Case 3—A four-year-old boy was admitted with bilateral orbital cellulitis, meningitis, bilateral periorbital oedema, chemosis, and profuse seropurulent conjunctival discharge. The proposed, tender right eyeball showed limitation of movement. A clinical diagnosis of cavernous sinus thrombosis was made. The C.S.F. was purulent but sterile. Penicillin-resistant *Staph. aureus* were cultured from blood and conjunctival discharge. The patient recovered with cloxacillin and cephaloridine therapy but had a residual right partial ptosis and paresis of the right external rectus muscle.

Kucers *et al.*¹ reported 33 cases of staphylococcal septicaemia from Australia. Ten presented with endocarditis and six with meningitis; three patients with cerebral embolism died. Harrison *et al.*,² reviewing the neurological presentation of bacterial

endocarditis in the Oxford region (1955-65) showed that 37 of 116 patients were admitted principally with neurological features. The mortality in this group was higher (67%) than in those without these complications (45%). He stressed the importance of bacterial endocarditis in the differential diagnosis of common and uncommon neurological syndromes. Our second patient, thought to have herpes simplex encephalitis, underwent brain biopsy before the blood culture result was known.—We are, etc.,

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¹ Kucers, A., and Bennett, N.McK., *Medical Journal of Australia*, 1964, 1, 217.

² Harrison, M. J. G., and Hampton, J. R., *British Medical Journal*, 1967, 2, 148.

Atmospheric Pollution with Anaesthetics

SIR,—I was very interested to read the article by Dr. L. Strunin and others on "Atmospheric Pollution with Halothane in Out-patient Dental Anaesthesia" (24 November, p. 459).

It is unfortunate that concentrations of halothane in operating theatres are so difficult to measure without using very elaborate and expensive methods that are not normally available in most hospitals. This, however, does not apply to trichlorethylene, which can be measured with a Draeger Sniffer equipped with the appropriate detector tube for trichlorethylene. This gives a direct reading by a colour change in the same manner as a Breathalyzer, is calibrated to detect concentrations of trichlorethylene from 10 parts per million upwards, and is reasonably cheap (about £30 plus detector tubes at 38p each).

Using such a device in the operating theatres in the Plymouth Group, I have found concentrations of trichlorethylene comparable to those of halothane reported in the above paper—that is to say, 25 parts per million (135 mg/m³) during a dental case in which the patient's head was towelled up, 50 parts per million (270 mg/m³) in a case in which the patient's head was untowelled and the sample taken near the anaesthetist's head while he was holding up the patient's chin, and 25 parts per million (135 mg/m³) overall in an unventilated operating theatre after a simulated operating session of about three hours. All with 1.5% trichlorethylene from a Boyle's machine and a gas flow of 8 l./min.

No wonder anaesthetists sometimes feel sleepy at the end of the day! This equipment can be obtained from Draeger Normaleire Ltd., Blyth, Northumberland, and I feel its use is a very convincing way of demonstrating to all staff that the pollution problem is real.—I am, etc.,

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Problems with the Papillary Muscles

SIR,—I read with interest your leading article on this subject (5 January, p. 3), but

was disappointed to see that there was no mention of the use of echocardiography. The echocardiographic appearances of both the anterior and posterior mitral leaflets in patients with ruptured chordae tendinae are well recognized.^{1,2} There has also been a report of the findings in patients with papillary muscle dysfunction following myocardial infarction.³ Impaired left ventricular function and dilatation are easy to detect with an echocardiogram and we have found that the examination has not distressed patients, even when they are severely ill.—I am, etc.,

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¹ Duchak, J. M., Chang, S., and Feigenbaum, H., *American Journal of Cardiology*, 1972, 29, 260.

² Sweatman, T. W., Selzer, A., and Cohn, K. E., *American Journal of Cardiology*, 1970, 26, 661.

³ Burgess, J., Clark, R., Kamigaki, M., and Cohn, K., *Circulation*, 1973, 48, 97.

Home Graduates Only

SIR,—In the advertisement columns of a recent issue of the *B.M.J.* (19 January, p. xxiii) under "Partnerships Available" there were 32 advertisements. Thirty of them mentioned graduation from a British university as being a qualifying condition for applying for the post. Only two mentioned that vocational training would be an advantage. Are the present occupants of general practice more concerned with the place where their applicants received their basic medical education than with any education directed to increase the expertise of the applicant in the specialty of general practice?—I am etc.,

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Reactions to Immunization

SIR,—The campaign of Mr. Jack Ashley, M.P., for compensation of children presumably damaged as a result of inoculation gives cause for serious thought in the interest of both patients and doctors.

Years ago, when some of the dangers associated with inoculating unsuitable children were recognized, I formulated a series of questions which I asked of every parent. These comprised the following: (1) Has the child always been healthy and never suffered from fits or convulsions, asthma, or eczema? (2) Has he been near any infectious disease lately and is he under any form of medical treatment? (3) Is there any history of asthma, eczema, hay fever, or fits in the family? It will be appreciated that if these questions are asked slowly and clearly it takes up quite a lot of working time. My suggestion is that in every clinic or doctor's surgery where inoculations are performed a good-sized notice on the lines I employed should be clearly displayed and the clerk or receptionist made responsible for seeing that it is read. Where satisfactory replies cannot be obtained, it is advisable to avoid giving either smallpox vaccination or whooping-cough injections. As a rule tetanus and diphtheria injections can be quite safely given. Mistakes are most likely to occur when one is dealing with rather illiterate immigrants or in overcrowded clinics

attempting to cope with too great numbers during panic procedures. I regard my suggestion as a minimal safeguard for doctors, nurses, and patients involved in immunization procedure.—I am, etc.,

GUY BOUSFIELD

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Co-trimoxazole Resistance

SIR,—The letter from Drs. R. Then and P. Angehrn (12 January, p. 78) requires comment. The first point raised in this letter concerns our use of Oxoid nutrient broth no. 2 for determining bactericidal effect. We did in fact use this broth with the addition of 5% lysed horse red cells, and said so in our letter (20 October, p. 165). This medium has been used successfully for many years for testing the activity of sulphonamides and trimethoprim *in vitro*; its suitability results from the release of an enzyme, thymidine phosphorylase, that converts free thymidine to a derivative with a much reduced antagonistic potential.¹ Our first point was that *even* in this medium the bactericidal action of trimethoprim/sulphamethoxazole mixture is uncertain;² any bactericidal action is due to the presence of the trimethoprim component alone.³

In the remainder of their letter Drs. Then and Angehrn speculate about the amount and significance of free thymidine in human tissues. They concede that "there are only a few data published on the thymidine content of human tissues"; our second point was that there must be some thymidine present, and its level may well be sufficient to jeopardize any bactericidal action of co-trimoxazole *in vivo*.—We are, etc.,

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¹ Bushby, S. R. M., *Medical Journal of Australia*, 1973, 1, Special Suppl., 30 June, p. 10.

² Lewis, E. J., and Lacey, R. W., *Journal of Clinical Pathology*, 1973, 26, 175.

³ Lacey, R. W., Anderson, J. D., Lewis, E. L., and Gillespie, W. A., *Lancet*, 1973, 2, 509.

SIR,—In their interesting letter Dr. R. Then and P. Angehrn (12 January, p. 78) conclude that co-trimoxazole-resistant thymine- or thymidine-dependent bacterial mutants are rare and of little clinical importance, but add that many may have been overlooked. Hutchison and his colleagues have studied a number of such strains.^{1,2} We reported the isolation of such an *Escherichia coli* mutant in this laboratory in pure culture from a surgical wound.³ The patient had not been treated with co-trimoxazole. The organism thrived on blood agar but failed to grow on lysed blood agar used for sulphonamide sensitivity testing, this practical problem being overcome by sensitivity testing on Oxoid Sensitest medium. We have since recognized that occasional mucoid strains of coliform bacilli showing co-trimoxazole resistance have rather similar peculiar growth characteristics. A recent isolate from the urine of a patient who did not respond to co-trimoxazole was difficult to study in the state in which it was isolated because it so rapidly reverted to normal growth *in vitro* though remaining resistant to co-trimoxazole. It appears then that such strains can be found from time to time in

primary cultures if they are looked for, and do not necessarily appear only in patients who have previously received co-trimoxazole.—We are, etc.,

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Elizabeth Garrett Anderson Hospital,
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¹ McGhie, D., Hutchison, J. G. P., and Finch, R. G., *Journal of Clinical Pathology*, 1972, 25, 976.

² Barker, J., Healing, D., and Hutchison, J. G. P., *Journal of Clinical Pathology*, 1972, 25, 1086.

³ Thomas, M., and Bond, L., *Medical Laboratory Technology*, 1973, 30, 277.

Complication of Laparoscopy during Early Pregnancy

SIR,—We would like to report a potentially serious complication of laparoscopy (lower abdominal peritoneoscopy). We believe that insufflation of carbon dioxide into the uterine cavity is particularly likely to occur in patients who have just had a pregnancy terminated and that this is very likely to lead to hypotension or cardiac arrest, possibly due to gas embolism.

To support this, we report the cases of three patients in whom vaginal termination of a 12-14-week pregnancy was followed immediately by laparoscopy for sterilization. All had 0.5 mg of ergometrine given intravenously before termination. Laparoscopy was performed under general anaesthesia with the patient paralysed, hyper-ventilated, and in the steep Trendelenburg position. A Verres's needle was inserted at the junction of the upper and middle thirds of a line from the umbilicus to the symphysis pubis (so avoiding the aortic bifurcation) and was directed towards the lower end of the sacrum. Carbon dioxide was insufflated at the rate of 1-2 l./min and the pressure was continuously monitored and never allowed to exceed 30 mm Hg. The laparoscopies were done by different surgeons, each of whom had experience of over 200 laparoscopies.

In the first case, 30-40 seconds after the insufflation of the carbon dioxide had started gas was seen escaping through the cervical os. The needle was immediately withdrawn. At the same time the patient became pulseless and cyanosed, with dilated pupils. Resuscitative measures promptly restored her circulation to normal. She made an uneventful and complete recovery. In the second case, after 20-30 seconds of insufflation gas was seen escaping through the cervical os and the needle was immediately withdrawn. Her systolic blood pressure fell to below 60 mm Hg for about five minutes and then returned to normal without any specific treatment. In the third case, after less than 20 seconds of insufflation gas was seen escaping through the cervical os and the needle was immediately withdrawn. There was no recorded change in her blood pressure.

We believe the cause of the cardiac arrest in the first case and hypotension in the second may have been gas embolism. Carbon dioxide is commonly used for tubal insufflation in non-pregnant patients without causing gas embolism. However, it is well recognized that air can enter the open and dilated sinuses of the uterus immediately after delivery and cause air embolism. In these three patients, the soft pregnant uterus and the enlarged, empty uterine cavity would explain why the Verres's needle was so easily inserted into the uterine cavity. The raw surface of the uterine cavity immediately after the termination might well have allowed ready passage of the carbon dioxide into the blood stream.

We suggest that in patients who have undergone termination of pregnancy the uterus should be depressed into the hollow

of the sacrum (for example, with a Currie's cannula) during the insertion of the Verres's needle; and that during the insufflation of carbon dioxide a careful watch should be maintained for gas escaping through the cervical os and frequent measurements of the blood pressure taken.—We are, etc.,

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Effects of Oral Contraceptives on Endogenous Hormone Secretion

SIR,—The findings of Dr. Max Elstein and his colleagues (5 January, p. 11) were of great interest to us as we too have been studying endogenous hormone secretion in women during treatment with oral contraceptives of similar composition. We were particularly struck by the remarkable lack of suppression of luteinizing hormone (LH) excretion during the treatment cycles studied by Dr. Elstein and his colleagues. We have measured serum LH and follicle-stimulating hormone (FSH) by radioimmunoassay and compared basal levels and the response to gonadotrophin-releasing hormone (Hoechst) in normal women during the luteal phase with those observed in subjects during the third week of a treatment cycle with a combined oral contraceptive (containing 50 µg ethynyl oestradiol and 1.2 mg progesterone). In the subjects taking the oral contraceptive we found lower basal concentrations of LH and FSH and an impaired response of the gonadotrophins to the releasing hormone.¹

There appear to be two major differences in experimental design which might account for the difference in results. Whereas we studied subjects after about a year's treatment, Dr. Elstein and his colleagues studied the first two cycles after starting therapy. However, it seems unlikely to us that the pattern of hormone secretion would radically change after a year's treatment and we think a more likely cause relates to the method of assessment of gonadotrophin production. Dr. Elstein and his colleagues measured urine excretion of LH by radioimmunoassay, an approach which is subject to such a large number of problems² that some workers, on the basis of extensive comparative studies³ have concluded that the radioimmunoassay of LH in unextracted urine is invalid.⁴ It would therefore be of great interest to know whether the measurements of LH excretion described by Dr. Elstein and his colleagues were obtained—as suggested by their method reference—on unprocessed urine. If the urine was processed before assay, which method was used? The point is of more than methodological interest, since the two sets of results imply quite different mechanisms of action of the oral contraceptives.—We are, etc.,

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¹ Jequier, A. M., et al., *Journal of Endocrinology*, In press.

² Jacobs, H. S., and Lawton, N. F., *British Medical Bulletin*, 1974, 30, 55.

³ Stevens, V. C., *Journal of Clinical Endocrinology and Metabolism*, 1969, 29, 904.

⁴ Stevens, V. C., *Acta endocrinologica*, 1969, 63, Suppl. no 142, p. 338.