only furnished proof that their own technique is ineffective.—I am, etc.,

E. F. J. RING

Royal National Hospital for Rheumatic Diseases,
Bath

- ¹ Ring, E. F. J., *British Journal of Hospital Medicine*, 1971, 5, Equipment Suppl.
² Lloyd-Williams, K., *et al.*, 1971, I.E.R.E. Conference Proceedings, No. 22, p. 437.

New Electronic Metal Locator

SIR,—We wish to assure Dr. D. Gordon (20 May, p. 467) that we are reasonably familiar with the literature on metal detection (most of which appears outside the annals of medicine), and that we have at no time claimed anything other than a new application of modern semiconductor devices and circuit techniques to the problem (15 April, p. 157). The earlier metal locators utilized thermionic valves and so tended to be large and cumbersome. This disadvantage, along with the tuning difficulties usually associated with the amplitude-sensing, two-coil approach, ensured their eventual disappearance. So far as we are aware, there is no medical metal locator on the market at present.—We are, etc.,

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J. WATSON

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University College,
Swansea

SIR,—Dr. D. Gordon (20 May, p. 467) commenting on the new electronic metal locator, points out that he was involved in producing a similar instrument in 1941 in the Middle East. He quotes George Bernard Shaw saying: "All the best inventions are made regularly every 20 years."

I would like to point out that this statement is certainly true, because the invention was actually made in the first world war when Harvey Cushing used a metal probe in the same way to locate foreign bodies in the brain. This was when he was working with the British Forces. Although an American citizen, he had applied for a commission in Canada so that he could work in France with our Forces. I do not know the exact reference or even whether he wrote an article on the subject but the fact is recorded in his excellent biography.¹—I am, etc.,

JOHN A. ROSS

David Lewis Northern Hospital,
Liverpool

- ¹ Fulton, J. F., *Harvey Cushing*. Springfield, Illinois, Charles C. Thomas, 1946.

Abortion Act

SIR,—In commenting on the often-quoted study by Forssman and Thuwe,¹ which reports that children born to women after refusal of abortion on psychiatric grounds showed above average rates of psychiatric abnormality, educational subnormality, delinquency, etc., up to the age of 21, Dr. K. Jones (27 May, p. 531) says that "all applicants for abortion came to the [psychiatric] department only because it served as a counselling centre for mothers seeking legal abortion. There is nothing to suggest

that the population studied was simply a group of psychiatric outpatients. . . ."

But in fact there are some good reasons for doubting whether these refused-abortion mothers were properly matched with the control series, so far as psychiatric abnormality was concerned. This is because in 1939-41, the period covered by this study, the grounds for legal abortion in Sweden seem to have been rather strictly interpreted (according to Forssman and Thuwe the legal abortion rate was then only 0.5 per 100 live births, compared with 5.7 in 1951 after a further change in the law), and it is therefore unlikely that many entirely normal women would have thought it worth while to apply for termination on "psychiatric" grounds at that time, as they might have done later.

There is indeed some objective evidence that the series studied was psychiatrically abnormal compared with the controls, since Forssman and Thuwe record that 49 of the 199 refused applicants (including those whose pregnancies were later terminated by natural or illegal abortions, and were therefore excluded from the study) had been under observation as inpatients in the psychiatric department of the Sahlgren Hospital before the decision was taken.

Furthermore, considering only those who had been continuously resident in Göteborg up to 1959, they report that "Twenty-seven of the 57 would-not-be mothers had gone to one of the municipal psychiatric outpatient departments for complaints not directly concerned with the abortion, and 10 of their children had done so. The corresponding figures for the control series were 9 and 0."

There is nothing here inconsistent with the view that all Forssman and Thuwe have been able to show is that the children of women who genuinely are psychiatrically abnormal (but not necessarily so when "psychiatric reasons" have been put forward solely in order to support a request for termination) have an above-average risk of being psychiatrically or socially abnormal themselves.—I am, etc.,

C. B. GOODHART

Gonville and Caius College,
Cambridge

- ¹ Forssman, H., and Thuwe, I., *Acta Psychiatrica Scandinavica*, 1966, 42, 71.

Termination of Pregnancy

SIR,—Surgeon-Commander D. Bluett's 1,000 vaginal abortions a year without catastrophe with 50% nullipara is a remarkable feat (22 April, p. 228). As he says in his report he has no knowledge of what happens to his patients after 24 hours, so that his plea to the R.C.G.P. to consider a prospective study is a good one.

Twelve thousand abortions are carried out in Birmingham yearly in private abortion centres, so that a retrospective study would have to include not only the recorded 1,000 but the occasional catastrophe which all consultants in the Midlands know about, since they collect and treat the patients. For example, I have dealt with torn bowel, salpingo-oophoritis, and incomplete abortion admitted from the private sector. These cases were, of course, reported confidentially to the Department. Any follow-up study must be planned over years since infertility,

recurrent second trimester abortions, and rhesus isoimmunization all take time to present. They have, however, been reported in countries using "liberal" abortion as a national policy. At present every fifth pregnancy in England is being terminated, chiefly for socioeconomic reasons. The work is shared by private and "liberal" N.H.S. units. Long-term follow up will be difficult, but the family doctor is clearly in the best position to report long-term complications and successes of termination or repeat terminations.

The alarming Oxford report¹ provides a sharp contrast to Surgeon-Commander Bluett's accident-free experience in the private sector. Oxford has of course the advantage of no pressure to empty beds every 24 hours so that their gloomy facts on injury, sepsis, thrombosis, not to mention rhesus isoimmunization, cannot be ignored.—I am, etc.,

H. C. McLAREN

Department of Obstetrics and Gynaecology,
University of Birmingham

- ¹ Stallworthy, J. A., Moolgaoker, A. S., and Walsh, J. J., *Lancet*, 1971, 2, 1245.

Urinary Candidiasis after Renal Transplantation

SIR,—The treatment of the case of urinary candidiasis reported by Dr. R. Y. Cartwright and his colleagues (6 May, p. 351) underlines several features noted by us since 1969 in our laboratory and clinical studies on clotrimazole and 5-fluorocytosine (5-FC); these have been reported in part.^{1,2} During this time 11 children in this hospital have been treated with one or other of the drugs and we have performed sensitivity tests and several hundred serum and urine assays on material from 55 patients in other hospitals throughout the United Kingdom, mostly cases of severe candidosis or aspergillosis. The assays were by a microbiological method developed here using either *C. pseudotropicalis* Carshalton or *C. albicans* 2606 as indicator organisms.

The reason for the failure of 5-FC to eradicate *Candida* from the urinary tract of Dr. Cartwright's patient probably lies in the selection of a minority population of 5-FC-resistant cells, possibly encouraged by the reduction of the dose on the third day to 2 g. This is below the customary dose of 100 mg/kg/day for adults, although fairly high serum levels were maintained until the sixth day of treatment. Dr. Cartwright was kind enough to refer his cultures to us at an early stage, and our impression was that a minority of drug-resistant cells was present in the pre-treatment culture; although not immediately obvious on solid media tests, it showed clearly in liquid M.I.C./M.C.C. tests. This is one of the principal reasons why we prefer liquid sensitivity tests for all purposes save preliminary screening procedures. We found then that both the 5-FC-sensitive and 5-FC-resistant isolates were sensitive to clotrimazole.

In vitro studies here have shown that *Candida* strains requiring an M.I.C. of over 1,000 µg/ml of 5-FC can be obtained after 10-15 passages by the Szybalski gradient plate method³ from apparently homogeneous strains, initially requiring M.I.C.s below 1 µg/ml 5-FC. In one case of urinary candidosis we have failed to eradicate *C. albicans* which initially was homogeneous and fully

sensitive to 5-FC (M.I.C. 0.05, M.C.C. 1 µg/ml). After 20 weeks' treatment, during which high serum and urine drug levels were maintained, *C. albicans* was isolated from the urine, apparently identical to the first isolate excepting that the M.I.C. and M.C.C. of 5-FC were now over 500 µg/ml. The first and last isolates were both reasonably sensitive to clotrimazole, which the child is now receiving.

As mentioned by Dr. Cartwright, we have been unable to induce the *in vitro* emergence of clotrimazole-resistant *Candida* or *Aspergillus* spp., nor in any of the cases investigated by us have we seen such emergence during prolonged clotrimazole therapy. Our repeated experience has been that the microbiologically active levels of clotrimazole in urine and serum rarely reach the required inhibitory concentration of this drug and almost never attain cidal concentrations, and we have therefore stated² our belief that prolonged treatment, often for several months, may be necessary to create a subinhibitory situation which discourages the fungus rather than decisively eliminating it. We are impressed by the rapid elimination of *Candida* after five days' clotrimazole therapy in Dr. Cartwright's case.

It would be unwise to discount either 5-FC or clotrimazole solely because of occasional anomalies and failures; many of our cases have responded very favourably to these drugs without toxic side effects, none of which we have seen in children, and we regard these systemic drugs as the safest therapy now available for the treatment of severe mycoses.—We are, etc.,

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R. L. NEWMAN

Group Laboratories,
Queen Mary's Hospital for Children,
Carshalton, Surrey

- 1 Holt, R. J., *Proceedings 10th International Congress of Microbiology* (Mexico City), 1970.
- 2 Holt, R. J., Abstracts, *7th International Congress of Chemotherapy*, Prague, 1971.
- 3 Szybalski, W., *Science*, 1952, 116, 46.

Preclinical Detection of Dystrophia Myotonica

SIR,—Your leading article (15 April, p. 124) on "Preclinical Detection of Dystrophia Myotonica" prompts me to refer to a chromosomal abnormality we have reported in the past.

In a study of 17 families with dystrophia myotonica¹ we found a high incidence of miscarriages and a wide range of congenital physical and mental defects such as cleft palate, hare lip, spastic paraplegia, congenital heart disease, congenital cataract, and mental defects. In view of this we made chromosomal studies of leucocytes of peripheral blood in members of the so-called dystrophic generation with the fully developed disorder and members of "the third generation"—that is, children of parents with fully developed dystrophia myotonica. The study was of seven patients, three with congenital physical defects. All showed a modal number of 46 chromosomes. In five of the cases a small number of cells also had an additional small acrocentric chromosome, similar to chromosomes 21, 22, and the Y chromosome.^{2,3} The frequency of cells showing the additional chromosome ranged in different cases from no cells out of 52 to a maximum of seven cells out of 65.

Although the additional chromosome was present at a low frequency in just five cases we suggest that they might be supernumerary chromosomes related to the disorder. The frequency was about five times greater in cells from the defective children born of mothers with the fully developed disease.

The low frequency in the peripheral blood leucocytes could be explained by somatic elimination, which results from the frequent nondisjunction of supernumerary chromosomes in somatic mitosis, and a more accurate indication of their presence might be anticipated in gonadal tissue.

It is possible the increased physical defects in members of the "third generation" is due to increased frequency of an additional chromosome.—I am, etc.,

J. E. CAUGHEY

Department of Internal Medicine,
National Iranian Oil Company Hospital,
Abadan, Iran

- 1 Caughey, J. E., and Barclay, J., *Australasian Annals of Medicine*, 1954, 3, 165.
- 2 Fitzgerald, P. H., and Caughey, J. E., *New Zealand Medical Journal*, 1962, 61, 41.
- 3 Caughey, J. E., *Symposium über progressive Muskeldystrophie*, ed. E. Juhn, p. 280. Springer Verlag, 1966.

Payment by Colour

SIR,—I read Dr. A. B. Kazi's letter (27 May, p. 532) on the subject of pay by colour with great interest. While I regret the circumstances under which Dr. Kazi left South Africa and share his distaste for any system which discriminates purely on the grounds of colour, creed, or tribe, certain points raised by him should be answered.

As an informed, politically aware South African, Dr. Kazi must know that his figure of 11 or 12 black graduates per year is inaccurate, although the numbers are nonetheless pitifully small. In the past five years this school alone has produced 186 doctors, of whom 54 graduated in 1971.

The relative shortage of medical practitioners in African areas is not entirely the fault of the authorities. Most doctors prefer to practise, as Dr. Kazi did, in urban areas, and this is by no means unique to South Africa. The problem will eventually be solved by introducing a national health service for all races. Until then, anyone who wishes to give practical expression to his concern for this country's peoples may do so by working in African rural areas, hospitals, or medical schools.—I am, etc.,

W. P. LEARY

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University of Natal,
South Africa

Treatment of Trigeminal Neuralgia

SIR,—While one realizes that this article (3 June, p. 583) is specifically referring to the action of "To-day's Drugs" little has been done recently to explore the possible causes and more permanent treatment of this cruel condition.

It has often been proposed that it can arise following dental extractions because the tooth nerve is not necessarily separated at the apex of the tooth. Remnant nerve tissue in a socket is not only a good suspect for a later causative neuroma, but is not radio-opaque. One usually searches for residual roots as

possible sources, and cures have followed their removal—but it is not the root, it is the nerve within the root or left behind after removal of the root, which would be a direct cause.

Why has this not been tested out, when so many heroic post-ganglion resections have been resorted to at a later stage? Perhaps because in its earlier stages this condition lies in a no-man's land between dentistry and medicine, and finally finds its way to a specialist outside the dental area.

But it is quite simple to check (preferably early) whether any individual case can be caused as above. The posterior superior branch of the maxillary nerve enters the maxilla approximately 1 in (2.5 cm) above the posterior cervical margin of the last molar (and if it has gone it does not need a computer to find). It is a simple matter to block off this nerve with a local anaesthetic, then stimulate the trigger points, and see if they are still active. If not, then the cause is in the maxillary section, and thinking of more drastic action behind the ganglion seems akin to switching off the whole mains supply, instead of checking first the local fuses, especially as no harm can be done—and no drugs are required.¹—I am, etc.,

S. L. DRUMMOND-JACKSON

London W.1

- 1 Drummond-Jackson, S. L., *British Journal of Clinical Practice*, 1959, 13, 12, 867.

Feto-maternal Transfusion

SIR,—It is surprising to see no mention of Botha's paper¹ in Dr. O. A. Ladipo's excellent work (18 March, p. 721). Although the purpose of Botha's series was to reduce postpartum haemorrhage and shorten the third stage of labour, if more people had taken it up at the time who knows how many Rh-sensitized babies may have been prevented? Botha's work was awarded a special merit prize by the South African Society of Obstetricians and Gynaecologists.—I am, etc.,

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Ramoutsa Village,
Botswana

- 1 Botha, M. C., *South African Journal of Obstetrics and Gynaecology*, 1968, 6, 30.

Hyperthyroidism

SIR,—The article by Dr. Pat Kendall-Taylor on hyperthyroidism (6 May, p. 337), while a reasonable review of the topic in general, made one very serious error. She refers to the indications for antithyroid drugs and cites as one "patients with severe exophthalmos, in whom it is desirable to produce a euthyroid state as soon as possible." Exophthalmos is not itself an indication for therapy, and severe exophthalmos may be made worse by vigorous antithyroid treatment. It is difficult to see why such a statement was made, especially since the reference cited draws exactly the opposite conclusion.—I am, etc.,

MALCOLM C. BATESON

London S.W.1

- 1 Aranow, H., and Day, R. M., *Journal of Clinical Endocrinology and Metabolism*, 1965, 25, 1.