motor neuropathy postoperatively could have been due to the provocation of an attack of porphyria if the anaesthetic of nitrous oxide and oxygen was induced by an intravenous barbiturate.

Though this would be an atypical presentation, one wonders whether the possibility of porphyria should be excluded, if this has not already been done, since this would be of interest should the patient ever be considered in the future for a procedure needing a general anaesthetic.—I am, etc.,

P. G. CUTLER
Leeds, Yorks

Ocular Complications in Renal Transplantation

Sir,—The interesting paper on the incidence of ocular complications in renal transplantation by Mr. R. Porter and others (15 July, p. 133) prompts us to report our own experience. The frequency of cataracts after pretransplant corticosteroid treatment is well known. We have found it appears early after transplant; it rarely impairs the quality of vision, and it regresses as soon as the prednisone dosage has been tapered to 0-16 mg/kg. Systematic eye examinations, including slit-lamp examination, oculomicroscopy, and visual acuity tests are carried out every three months on all our renal transplant patients. Since 1969 we have performed 48 renal transplants and in 36 the transplant function has been satisfactory for at least six months. A posterior subcapsular cataract was noted in half the patients. In eight it appeared within six months after the transplantation. In the others it occurred within 18 months. In all cases the cataract stabilized or regressed.

All the transplants were cadaver kidneys and all the patients but two had one or several rejection crises during the first few months. Thus most of them had received high doses of prednisone (2 mg/kg for three days, then progressively reduced to 0-3 mg/kg). A rejection crisis occurred after the first year in only two patients and necessitated a late increase in the dose of prednisone. Therefore we have found a relationship between high daily doses of corticosteroids and the incidence of cataracts. In only one patient was the cataract severe enough to reduce vision, but it was not severe enough to need operation.—We are, etc.,

C. LEROUX-ROBERT
G. BIODUT
A. MEYRIER
J. D. SRAER

Radiation Menopause

Sir,—It is clear from your leading article (13 May, p. 365) and the subsequent correspondence that experience varies widely both as to the immediate and the remote effects of irradiation used to produce a menopause. Most observers report excellent short-term results (otherwise this form of therapy would probably not persist) but the incidence of subsequent uterine malignancy appears to vary between different areas and in certain departments between those patients treated with radium and those treated by intrauterine radium. There are several possible explanations. Population groups differ as to their incidence of both cervical and endometrial cancer. Pathologists may vary in their interpretation of the significance of different forms of endometrial hyperplasia found in curettages. The dosage of irradiation is another variable. My colleague Mr. W. H. Bond (3 June, p. 592) uses a small dose of external irradiation but compares this with an unnecessarily large dose of intrauterine radium, to the apparent detriment of the latter.

Between the years 1935 and 1950 a large number of patients (around 150 per annum) were treated in the Women's Hospital, Birmingham, by the induction of a menopause with intrauterine radium, a 50-mg tube being inserted by the gynaecologist at the time of curettage. A pilot survey of some 300 of these patients undertaken in 1956 (19-21 years after treatment) showed that 16 had developed some form of major cancer (chiefly breast and lung tumours) but only one case of endometrial malignancy could be traced. A subsequent survey in 1970 of the last 100 cases of endometrial carcinoma treated in the Women's Hospital showed that only one had been previously irradiated with intrauterine radium. Between 1960-64 the hospital undertook 86 "menopause" cases annually, though the present figure is somewhat smaller. The dosage employed has varied with the preference of members of staff, but personal experience has shown that for patients in a menopausal age group 50 mg radium inserted for 24 hours is the maximum that should normally be considered and doses as low as 16 or 14 hours will usually give satisfactory results in women around the age of 50.

The calculation of the actual dosage of irradiation received by the ovaries is impossible, as the distance of the gonads from the source of radium is extremely variable and much depends on the form and movement of the bowel. Measurements at hysterectomy (using a pair of dividers and a dummy tube in the uterus) have shown the shortest distance between the midpoint of the tube and the centre of each ovary to be marginally over 3 cm, with distances up to 4-5 cm not uncommon. Clearly the furthest extremity of the ovary will receive diminished dosage and in cases of uterine enlargement this will be reduced still further. It would therefore be surprising that this form of treatment should give such a high measure of success were it not for the destruction of the endometrium—which must be a factor in the production of the menopause.

Preoperative treatment of endometrial carcinoma by insertion of radium has shown that the growth may no longer be demonstrable at hysterectomy. This suggests at least the possibility that these smaller doses of radium might inhibit the development of atypical endometrial hyperplasia into subsequent malignancy. A number of such cases will have been inserted with a menstrual and menopausal insertion of radium and apparent complete regression, but the duration of follow-up is not yet sufficient for a report.

Nevertheless, for this type of endometrium at least intrauterine radium would seem preferable to external irradiation.—I am, etc.,

WILFRID G. MILLS
Birmingham and Midland Hospital for Women, Birmingham

The Artist's Eye

Sir,—As a school medical officer I find the statement in your leading article, "The Artist's Eye" (19 August, p. 434), that red-green colour blindness affects every twelfth male incredible. We test the colour vision of every school child, male and female, using 1-but one of these I have never discovered any defect.—I am, etc.,

ANN J. GOWER
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Lead Poisoning

Sir,—Lead poisoning among magnificent thousands of lead workers in Europe and the U.S.A. is said to be maintained below 80 µg/100 ml. In their statement on the diagnosis of industrial lead poisoning the 18 signatories to the letter from British countries suggested that increased lead absorption characterized by blood lead of 40–80 µg/100 ml, urinary coproporphyrin of 150-500 µg/l, and urinary 8-aminoacetic acid of 0·6-2 mg/100 ml should be occupationally acceptable. "At increased absorption... mild symptoms... which are common to a number of minor complaints, are not attributable to lead."

But one of the signatories, Professor A. Goldberg, and his colleagues in Glasgow now say in their interesting paper, "Lead Poisoning in Rural Scotland" (27 May, p. 488), that blood levels below 80 µg/100 ml are frequently associated with symptoms and signs. They describe 20 subjects in four households living in rural Scotland with lead contamination of the domestic water supply. The patients (7) were referred for investigation by general practitioners who had "had symptoms of lead poisoning," even though four of these fell within the acceptable range for occupational exposure described above.

What is the reason for this gross discrepancy of opinion? The Glasgow authors' suggestion that length of exposure may be a factor appears unlikely, for lead workers who have been exposed for 30 years have not been found to be more susceptible than others. Nor is the determination of erythrocyte protoporphyrin relevant to the argument. There seem to be four other possible explanations, though the first three are unlikely. (1) There are 17 other "experts" and the lead workers they supervise may frequently fail to notice the symptoms and signs of lead poisoning. (2) Lead workers may differ from rural Scots. (3) Biochemical estimations may be unreliable. It is well known that blood lead estimations vary between laboratories, but urinary coproporphyrin and 8-aminoacetic acid differ less. (4) When treated patients are referred to hospital with undiagnosed abdominal pain, or joint pain, or tremor, or