Radiology's New Chance

SIR,—Referring to your leading article "Radiology's New Chance" (24 May, p. 464), I would like to emphasize two points.

You state with regard to radiodiagnosis "at present the specialty lacks enough recruits." This statement was true two years ago but is less so now. In 1968 the Faculty of Radiologists held discussions with the Department of Health and Social Security. The latter was most helpful and many new training posts were created in England and Wales. As a result an increased flow of recruits entered radiology, and if this increased flow is maintained it seems possible that in about six years' time the situation should improve and continue to improve. There is, however, still great opportunity in radiodiagnosis for a most satisfying specialist career. This diagnostic field, right at the very heart of medicine, dealing with every branch of medicine (with the possible exception of psychiatry), has grown in importance and complexity beyond all recognition in the last 10 years. In 1968 the Faculty of Radiologists prepared two pamphlets, *Prospects in Diagnostic Radiology and Radiotherapy as a Career*, and distributed them to all medical schools and postgraduate institutions. They are still available and can be obtained from the Secretary, Faculty of Radiologists, at the Royal College of Surgeons, Lincoln's Inn Fields, London W.C.2.

My second point is this. You stress the need for more chairs in radiology and more academic departments. With this we in radiology agree. The problem is how to set about creating these. This is not something that the National Health Service or boards of governors or regional hospital boards can provide. This lies entirely within the scope of universities, and unless university administrations and faculties of medicine within universities are convinced of this need, money will not be forthcoming from the University Grants Committee for this purpose.

It is essential, therefore, for those enlightened university administrators and boards of faculties who realize and understand the need for this growth to support their radiological colleagues as the demand for academic departments becomes more apparent and insistent and necessary.—I am, etc.,

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SIR,—Your leading articles (10 February 1968, p. 334, and 24 May, p. 464) emphasizing the urgent need to establish academic departments in diagnostic radiology will be welcomed by all practising in that specialty.

Having recently spent several months as visiting professor of diagnostic radiology in a leading American university, I have observed at first hand the value of a virile academic department. The central position of diagnostic radiology in modern medicine is obvious to all medical students. Recruitment of trainees into radiology is proportionate to their exposure to enlightened teaching and to direct involvement in the exciting new methods of diagnostic radiology and nuclear medicine. In several American teaching

hospitals up to 25% of final-year medical students apply for career training in radiology. The more attractive departments of radiology recruit only from the top 10% of medical graduates. Many of the brightest American medical students are being attracted to diagnostic radiology, but a considerably greater investment in academic departments is planned in order to recruit and train the still larger number of radiologists required in America.

In the United Kingdom, Australia, and New Zealand the great paucity of academic departments fails to stimulate recruitment and thereby further overburdens the hard-pressed radiologist with increasing service commitment, so that even less time is available for teaching and the encouragement of recruits. The Department of Health and Social Security has in mind 200 new radiodiagnostic consultant posts in the United Kingdom (an increment of 40%) within the next 10 years in order to meet the acknowledged critical shortage of radiologists. How are we to recruit this additional number of young men and women of high calibre unless we establish diagnostic radiology as a discipline worthy of its place in the academic establishment of every teaching hospital?

But the establishment of academic departments will not by itself cure the malaise of radiology, nor will it sufficiently improve the number and calibre of its recruits.

As emphasized by Dr. J. K. Davidson (16 March 1968, p. 708) and others, there is a considerable financial inducement for the enthusiastic young radiologist to emigrate. In the North American continent the earnings of the diagnostic radiologists, whether in academic, hospital, or private practice are considerably greater than those of the majority of their clinical colleagues. In Britain the radiologist is less likely than many of his clinical colleagues to achieve a merit award, though the techniques and responsibilities of modern diagnostic radiology may be comparable. The establishment of private practice rooms in radiology is (almost) prohibitively expensive if facilities regarded as essential in modern departments (for example, full nursing and resuscitation facilities, image intensifiers, television) are to be available. Many radiologists therefore prefer (or can only) undertake the radiology of private patients in the hospital departments. It is therefore a considerable additional disincentive to recruitment to learn of the recent considerable increase (up to 100%) in N.H.S. charges for radiological facilities for private outpatients examined in hospital departments. There may well be a case for encouraging geographical whole-time, with limited private practice in radiology, within the hospital; it could well result in an improvement in N.H. radiological services.

The recruitment of non-medical personnel is also an increasing problem in improving or even maintaining existing services. As radiological equipment and techniques become more complicated and sophisticated, so do the demands made on our technical staff. It is essential to have in charge of the radiographic staff of the modern radiological department persons of considerable intelligence and technical skills with a well-developed sense of responsibility, capable of supervising and training the junior staff in techniques of increasing complexity.

There is thus an obvious requirement for attractive career prospects in radiography. Yet after a minimum of 15 years following qualification as a trained radiographer, with charge of a minimum of 20 technical assistants and with responsibility for perhaps

£50,000 of equipment, the maximum salary of a superintendent radiographer grade III is £1,668 per annum. This (plus a possible £100 for exceptional teaching responsibilities) is the maximum salary that can be achieved; it is in fact attained by very, very few radiographers. These peak earnings are barely double that of the first-year junior radiographer (£795 per annum) immediately after qualification aged 21 years. This differential is quite unfair to the career radiographer who hopes to spend his working life in this subject, assuming very considerable responsibilities. This inadequate and unrealistic earnings differential is a major factor in the poor recruitment of intelligent young people into radiography as a continuing career. It explains the considerable loss of well-trained senior and superintendent radiographers to industry (especially pharmaceutical and photographic) and to countries where their skills and experience are more adequately rewarded. It is high time that career superintendent radiographers' salary prospects approached that of the senior technicians in the pathology laboratory.

These are three of the very diverse ills which beset radiology in this country. Without recognition and remedy of these and other deficiencies the malaise of radiology will continue. If I may borrow the titles of your excellent leading articles, "Radiology (will continue) in the Doldrums" and "Radiology's New Chance" will not be grasped.—I am, etc.,

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Complications with I.U.D.s

SIR,—Dr. D. F. Hawkins (10 May, p. 381) is concerned that many of the cases described as "lost to follow-up" in published series may be examples of failure of the device, and I believe that he is right. I have seen six patients each of whom was pregnant with a device in the uterus, and none of these had reported the failure to the centre in which it was fitted. Four of these patients miscarried in the early weeks, one had an accidental haemorrhage at 34 weeks, and one went to full-term.

This may be an attractive method of contraception for some women, but it could be less reliable than many people think.—I am, etc.,

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SIR,—I am concerned that Dr. D. F. Hawkins's letter (10 May, p. 381) may give rise to more misgivings among users and potential users of I.U.D.s than is justified by the facts so far known about them.

The wide variations in pregnancy and complication rates quoted are largely derived from the consideration together of trials performed on a very large variety of different types of I.U.D., many of which have been discarded from use because of their unsatisfactory performance. In a time of rapid innovation and experimentation it is unavoidable that some inefficient devices should be

tested, but not justifiable that the best be condemned for the performance of the worst.

It is true that some of the most publicized trials have been statistically flawed because of high rates of "loss to follow-up," but the reservations this should occasion in our assessment of their results are by no means so sweeping as Dr. Hawkins suggests. Most recent trials, conducted in developing countries, have assessed results on the more correct basis of sample home follow-up studies, where the probabilities of important selection factors in untraced patients is very much lower than in consulting-room studies. These trials have yielded results in all ways comparable to those of Tietze's co-operative statistical programme.¹

While not necessarily the last word, the W.H.O. Scientific Group statement on infection,² "in general, pelvic infection is not a significant problem," represents an informed judgement of the information available in 1968. Incidences of pelvic inflammatory disease "up to 8%" are found only in studies where incidences of this order occur even in the absence of I.U.D.s or when extremely dubious definitions of inflammatory disease are used. The same consideration applies to menstrual disorder, where the incidence depends almost wholly on the criteria of definition employed. Minor menstrual changes, especially increased flow, are undeniably extremely common, especially in the first months of use. In assessing the safety and acceptability of I.U.D.s, our attention must be confined to the severe or persistent disturbances.

The survey of deaths and critical illnesses³ offers a further illustration of this point, for no definition of critical illness was included in the inquiry. This study in fact revealed only four deaths attributable to the I.U.D., with three doubtful associations and three quite unlikely ones. May I, in passing, correct the figure of perforations of the uterus, which is given in the report as 192, not 207. It is of interest for the assessment of clinical impressions and case reports to note that each of the deaths reported to the authors of the survey was reported by several physicians, and one case of perforation with intestinal obstruction was reported by no fewer than 21 doctors.

I find it regrettable that Dr. Hawkins has resurrected some of the old material which was used to "kill" the Gräfenberg ring. The 17 deaths reported in the *Journal of the American Medical Association*⁴ are something of a medical mystery. In that journal they are all attributed to a practitioner named Rust, and said to be the result of general peritonitis or septicaemia. In 1938, in an article by Howard Clark,⁵ they appear again, now attributed to Reist, and the result of perforation. Did these women ever die? Were they in fact wearing Gräfenberg rings? We shall never know.

No one will claim that I.U.D.s are entirely devoid of potential hazards. The extent of these hazards is under continuous careful scrutiny by persons skilled in the evaluation of data and wary of the traps of statistical analysis. Case reporting has its part to play in this process, but must not be allowed to derange our judgement. Sufficient data has been collected and analysed for us to be content that expulsion rates in the first year with accepted devices do not exceed 10% nor

pregnancy rates 3%, and that threat to life is of extreme rarity. Let us base our judgements on such sober figures.—I am, etc.,

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- ⁴ American Medical Association Committee on Contraceptive Practices, *Journal of the American Medical Association*, 1937, 108, 413.
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Transferable Drug Resistance

SIR,—In her paper (17 May, p. 405) Professor Ellen Moorhouse quotes Miss Sheila Halls and myself (29 January, 1966, p. 266) as having isolated R factor-containing *Escherichia coli* from 15 of 24 adult human beings who looked after *farm animals* (my italics). This is not correct. In our paper we did mention that the ampicillin-resistant strains of *E. coli* found in this survey of human beings originated from human beings who looked after intensively reared calves. Although four such strains were examined they did, in fact, originate from two people only. None of the other 13 people with R factor-containing strains in their faeces actually looked after animals. It is therefore not surprising perhaps, as Professor Moorhouse states, that our results resembled those she obtained in her study of healthy infants.

Miss Halls and I never took the view that the 13 people referred to above had acquired their R factor-containing strains from the animal community. On the contrary, in our Discussion we mentioned that we thought the transfer of R factor-containing strains from one of the following species, man, ox, pig, and fowl, to the other was of limited importance because we had found a high incidence of R factor-containing strains in each species.—I am, etc.,

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Hypotensive Treatment

SIR,—There is of course much that I would agree with in your expert's contribution to your series on "Today's Drugs" in the treatment of hypertension (10 and 17 May, pp. 365 and 430). Some statements, however, are at least odd, and some require more detailed classification for the guidance of those who lack special experience in this field.

Under "general considerations" I feel that before lifelong treatment is started baselines should be obtained both as an aid to diagnosis and for reference in future manage-

ment. In addition, a full clinical examination is required which will take into account the appearance of the retinal vessels, the state of all the peripheral pulses, the presence of renal masses and of abdominal bruits, the character of the apex beat, and the quality of the heart sounds. The minimum investigations required are a urine analysis, estimation of blood urea and electrolytes, a chest x-ray to determine the size of the heart, the aorta, and the presence or absence of signs of pulmonary venous congestion, an E.C.G., and an excretion pyelogram. All these investigations should be available in district hospitals to the general practitioner. Ideally every patient should be screened for phaeochromocytoma by an estimation of catecholamine excretion (or of its degradation products) in the urine, but this is not always practicable.

With most physicians I would agree with your expert contributor that "increasingly complicated, expensive, and sometimes dangerous investigations" are uncalled for in most patients, but I would certainly not select as suitable for them "the younger patient with severe vascular disease or renal failure," as these are patients who are unlikely to profit from them. I agree that renal failure, with the exception of clinical uraemia, is no contraindication to hypotensive treatment even though the long-term outlook may not be favourable, but would add that the appearance of hypertension in the course of asymptomatic renal disease constitutes an urgent indication for hypotensive treatment.

As for the heart, how odd to state that "breathlessness on exertion is probably more a reflection of left ventricular failure with incipient pulmonary oedema than of hypertension per se." Certainly, but in most cases left ventricular failure is caused by work overload and it would seem logical to lessen the load with hypotensive treatment. In our urban society with its sedentary habits, symptoms such as breathlessness on exertion can precede physical signs indicative of left ventricular "strain." These comprise alteration of the pulse, a left atrial added sound, accentuation of the pulmonary component of the second sound, and reversed split of the second sound (even in the absence of left bundle branch block). These signs should be carefully sought for, and when present constitute an indication for hypotensive treatment, even in the absence of symptoms.

I personally have little doubt that hypertensive patients with angina benefit from hypotensive treatment, as this diminishes the work of the heart. However, it is probably wise to avoid drugs which can cause severe orthostatic and exertional hypotension, as this may lower coronary perfusion pressure below the critical point—therefore reserpine or methyl dopa with an oral diuretic would seem to be the drugs of choice in this situation. As for oral diuretics, one explicit recommendation must be made—that they be used daily, especially in conjunction with ganglioplegic and adrenergic blocking agents. Their intermittent use, which one has observed many times, is to be deplored because the blood pressure will be considerably higher on the days in which they are not used.

I agree with the preference expressed for bendrofluazide, because it is the cheapest diuretic and it is also of medium length of action. My distinct impression is that long-acting diuretics such as chlorthalidone and polythiazide lead to greater potassium loss. The short-acting diuretics such as frusemide and ethacrynic acid are both expensive and too violent in action—they should be reserved