practitioners use the service with intelligent discrimination and value this facility in the practice of their "specialty."

Dr Lea Thomas also makes the following statement: "The lot of the diagnostic radiologist today is indeed a sad one: overworked, underpaid, of low status (often deserved), and with a dull professional life." The status of any consultant is of his own individual making and radiologists are no exception. It is indeed sad that Dr Lea Thomas, who after all can only speak for himself, should find his status low. Again, radiologists share the same pay structure as that accorded to their clinical colleagues with the same possibility of award for merit to individuals who practise the specialty with enthusiasm. Perhaps when Dr Lea Thomas claims a dull professional life in radiology he is exhibiting a personal lack of enthusiasm, a state of mind not well suited to a teacher.

Surely the answer to the problem of overwork is a proper establishment within the NHS coupled with enthusiastic recruitment of young men by giving them the right environment to realise that radiology and related imaging techniques produce an interesting and worthwhile specialty. Perhaps a compulsory part of their training at senior registrar level should be spent in a district general hospital to understand the contribution they can make to the clinical teams composed of general physicians and surgeons with "an interest in" a particular specialty.

H R WATSON-BAKER

West Cumberland Hospital,
Whitehaven, Cumbria

T G GIRDWOOD
W G SCOTT-HARDEN

Cumberland Infirmary,
Carlisle, Cumbria

SIR,—Dr M Lea Thomas (2 September, p 706) raises an important issue when he describes the leasing of specialist rooms in his department to clinicians. At this hospital a very close liaison between the radiologists and the neurosurgeons has evolved. This was particularly important during a period in 1975 and 1976 when all our establishment consultant neuroradiologists resigned or retired on the grounds of ill health. The table, which illustrates the partnership between the neurosurgical unit and the x-ray department and also clarifies the opening paragraph in our recent article,¹ shows the number of angiograms and air studies performed and by whom they were performed.

During this period a consultant neuro-radiologist made occasional visits to our department. Generally speaking, however, films were discussed by ourselves with the senior registrars in general radiology who produced the final reports. The team worked well and particular credit must be attributed to the senior registrars of this period. Indeed, without their enthusiasm and practical help the neurosurgical unit could not have provided a good or reliable service to the region.

This experience leads us to the following conclusions: a partnership in which the clinicians may carry out a few practical procedures but which retains the neuro-radiologist in total charge of his department will increase each specialist's understanding of the other's problems, maximise the useful information obtainable from each test, and reduce investigations of limited clinical utility. The service will be improved for emergency work, when it may be difficult to assemble a complete team at short notice.

Finally, these arrangements could increase recruitment to radiology and render the final sentence of the letter written by Dr Lea Thomas invalid.

JOHN BARTLETT

Regional Neurosurgical Unit,
Brook General Hospital,
London SE18

¹ Bartlett, J R, and Neil-Dwyer, G, *British Medical Journal*, 1978, 2, 813.

Inadequacy of information on side effects

SIR,—We have reason to question the comprehensiveness of the "side effects" section in drug firm literature.

A 67-year-old woman was admitted with a haemoglobin concentration of 8 g/dl, mean cell volume of 106 fl (106 μm^3), reticulocyte count of 9%, negative direct Coombs test, and absent haptoglobins. The film revealed numerous acanthocytes and "bite" cells. It was known that one month previously she had had normal peripheral blood figures and during the interim she had been taking the drug phenazopyridine (Pyridium) 200 mg thrice daily. The manufacturer's literature listed against side effects "occasional gastrointestinal side effects" only and under over-dosage stated: "Methaemoglobinaemia may develop after prolonged use at a high dosage level." No other haematological side effects were listed. The methaemoglobin level in our patient was minimally raised.

As investigation revealed no alternative cause for haemolysis a search of the medical literature was made and this quickly revealed several references¹⁻⁵ to haemolysis, some associated with "bite cells," in patients being treated with phenazopyridine. The drug was discontinued and over the next month the patient's haematological values returned to normal. Biochemical investigation, kindly undertaken by Dr Pauline Emerson, Radcliffe Infirmary, Oxford, failed to show any abnormality in the pentose phosphate pathway or methaemoglobin reductases in this patient.

The drug company was approached and seemed unaware of the publications mentioned above, quoting only a single report from 1971, which in fact reports a child with overdosage in whom the evidence for haemolysis was equivocal.⁶ Reference was also made to four reports to the Committee for Safety of Medicines between the years 1963 and 1976 of haemolytic anaemia while on phenazopyridine but no further details were given.

What particularly concerns us is that,

despite good and clear documentation of haemolysis as an occasional side effect of phenazopyridine administered at recommended doses the firm's literature made no reference to it at all, and even direct inquiries of their regional medical division failed to elicit very much help.

H C DRYSDALE
MICHAEL D HELLIER

Princess Margaret Hospital,
Swindon, Wilts

- ¹ Greenberg, M S, and Wong, H, *New England Journal of Medicine*, 1964, 271, 431.
- ² Gabor, E F, Lowenstein, L, and de Leeuw, N K M, *Canadian Medical Association Journal*, 1964, 91, 756.
- ³ Eisinger, A J, and Jones, R, *Lancet*, 1969, 1, 151.
- ⁴ Greenberg, M S, *Archives of Internal Medicine*, 1976, 136, 153.
- ⁵ Nathan, D M, Siegel, A J, and Bunn, H F, *Archives of Internal Medicine*, 1977, 137, 1636.
- ⁶ Cohen, B L, and Bovasso, G J, *Clinical Pediatrics*, 1971, 10, 537.

* * * We sent a copy of this letter to the manufacturers of Pyridium, whose reply is printed below.—Ed, BMJ.

SIR,—We were interested to read the case history details itemised by Drs Drysdale and Hellier which we sought six months ago when supplying the reference quoted and drawing their attention to the CSM adverse reaction reports.

Pyridium was first marketed more than 20 years ago. In the resultant world-wide bibliography numbering 437 publications we are aware of only seven inferring haemolytic anaemia. Two were from overdosage, but most related to altered excretion due to renal dysfunction, a recognised contraindication to phenazopyridine. Thus it would appear to be a rather rare suspect event within the appropriate dose range when renal function is adequate, and one notes that the patient in question was aged 67 years.

The appropriate Medicines Act regulations require main side effects to be listed on a product data sheet summary, but nevertheless, in view of this latest well-documented case, we share your correspondents' concern over this particular type of side effect, however remote, and the next revision of the data sheet will reflect our clinical unanimity.

E W WITHERSPOON
Regional Medical Director,
Warner-Lambert (UK) Ltd

Pontypool, Gwent

Starting on the pill

SIR,—Last year Dr Nancy Loudon (20 August 1977, p 521) reported a regimen for starting the oral contraceptive pill on the first day of the menstrual cycle without the use of additional contraceptive precautions during the first two weeks. She also suggested that patients changing to a new pill might start to take it on the first day of withdrawal bleeding or even on the day after finishing their existing preparation, again obviating the need for extra birth-control measures. The Family Planning Association Advisory Panel (Review of Contraceptives) subsequently issued a statement endorsing the views put forward by Dr Loudon.¹ We introduced these regimens in Oxfordshire Area Health Authority (Teaching) family planning clinics in mid-November 1977 and recorded certain details concerning patients seen during the next three months.

In total, 645 women were entered into the study, of whom 78 (12%) did not return to the

	Procedures performed by		
	Neurosurgical unit staff	Senior registrar in radiology	Consultant neuroradiologist
25.9.75-13.2.76 Before installation of CAT scanner ..	63 (37%)	102 (59.5%)	6 (3.5%)
14.2.76-1.10.76 After installation of CAT scanner ..	9 (6%)	105 (74%)	29 (20%)

Menstrual problems in women starting or changing pill

Regimen	No of women	No (%) complaining of menstrual problems
Women first starting pill (on 1st day of cycle)	228	47 (21)
Women changing pill: Starting new pill on 1st day of cycle	125	23 (18)
Starting new pill immediately	214	31 (15)
Total	567	101 (18)

clinic for their three-monthly appointment and about whom, therefore, we have no information. The table summarises the results for the remaining 567 women, none of whom became pregnant.

Of the 101 women complaining of menstrual problems, 82 had spotting or breakthrough bleeding, 10 had amenorrhoea, and 9 had heavy periods. Although we did not include a control group in our study, the rate of reporting of menstrual problems (18%) is not abnormally high in comparison with the rates reported during the first cycle of use of low-dose contraceptives in other investigations.²⁻⁴

Seventeen doctors using the new regimens were asked their opinion of them; 15 thought they worked well, particularly the "immediate change-over" regimen. It was found to be easier to persuade patients to switch to lower-dose pills if extra precautions were not needed. Patients liked the new regimens and were not upset by spotting or breakthrough bleeding. Since an average supply of sheaths and pessaries for two weeks costs about £1, a saving of £645 was made during the course of the study.

Though the manufacturers of pills have expressed their opposition to the new regimens,⁵ we believe them to be effective, acceptable, and economical.

CYNTHIA PHILLIPS

Community Health Offices,
Oxfordshire AHA(T),
Oxford

MARTIN VESSEY

Department of Social and
Community Medicine,
University of Oxford

¹ Family Planning Association, *Combined Oral Contraceptive—Amendment to Patient Instructions*. London, FPA Medical Research Department, 1977.

² Dionne, P., and Vickers, F., *Current Therapeutic Research*, 1974, **16**, 281.

³ Allen, H. H., *Current Medical Research and Opinion*, 1974, **2**, 101.

⁴ Pasquale, S. A., and Yuliano, E., *Contraception*, 1975, **12**, 495.

⁵ Oral Contraceptive Manufacturers. Memorandum on starting the pill. Issued June 1978.

Patient package inserts

SIR,—With reference to your leading article (26 August, p 586) in which you state that critics of patient package inserts argue that, among other things, such inserts may "possibly diminish, rather than enhance, patients' compliance by making them afraid of adverse reactions" we would like to draw attention to our published work on this specific question.

In depressed patients treated with amitriptyline¹ and dothiepin² we found no statistically significant difference in the compliance rates between patients who were warned about side effects and those who were not warned. In a further study³ we found that

patients given written information about side effects of antidepressants had a significantly higher compliance rate than those given only verbal information or no information at all. We are currently investigating whether this is a cognitive effect or an "attention-placebo" effect.

E D MYERS
E J CALVERT

St Edward's Hospital,
Cheddleton,
Leek, Staffs

¹ Myers, E. D., and Calvert, E. J., *British Journal of Psychiatry*, 1973, **122**, 461.

² Myers, E. D., and Calvert, E. J., *Journal of International Medical Research*, 1976, **4**, 237.

³ Myers, E. D., and Calvert, E. J., *British Journal of Psychiatry*, 1978, **132**, 526.

Adverse reactions to intravenous induction agents

SIR,—Dr H L Thornton (23 September, p 897) suggests that the role of the polyoxyethylated castor oil (Cremophor EI) in which alpha-xalone/alphadolone (Althesin) is made up should be investigated in adverse reactions to this intravenous induction agent. It has been established that Cremophor may play a part in severe histamine-mediated reactions to Althesin.¹ However, it is not always the principal cause and in many cases is not implicated at all.² In a case I recently reported³ intradermal skin testing proved conclusively that the reaction had developed to the Althesin alone and that the Cremophor was completely innocent.

R H JAGO

Cambridge Military Hospital,
Aldershot, Hants

¹ Kessel, J., and Assem, E. S. K., *British Journal of Anaesthesia*, 1974, **46**, 209.

² Fisher, M. McD., *Anaesthesia and Intensive Care*, 1976, **4**, 33.

³ Jago, R. H., and Restall, J., *Anaesthesia*, 1978, **33**, 644.

Effect of quinidine on plasma concentration of digoxin

SIR,—We would like to comment on the paper by Dr G Ejinsson (4 February, p 279) concerning an important drug interaction between quinidine and digoxin. In accordance with his results we also found that the serum digoxin concentration rose in three hospital inpatients when digoxin was administered in combination with quinidine (3 tablets Kinidine Durettes twice daily, each tablet containing 250 mg quinidine bisulphate).

A possible mechanism of this quinidine-digoxin interaction is a decrease of renal digoxin excretion during quinidine therapy. The influence of quinidine on the renal digoxin excretion was studied in these three patients by comparing the digoxin:creatinine renal clearance ratio on two days during and again on two days after quinidine therapy. The digoxin and creatinine clearances were

assessed by collecting a 24-h urine sample and a midpoint blood sample. Digoxin concentrations in serum and urine (after dilution with buffer) were determined by ¹²⁵I-digoxin radioimmunoassay (Schwarz-Mann kit). Quinidine or metabolites of quinidine did not influence the digoxin assay in serum and urine.

The results (see table below) indicate that quinidine inhibits renal digoxin clearance. The decrease of the renal digoxin clearance during quinidine therapy might explain the elevation of the serum digoxin concentration in these patients. Our data do not exclude the possibility that another mechanism may also be involved. Further study is required to investigate other mechanisms of this digoxin-quinidine interaction.

Nevertheless our findings confirm the phenomenon published by Ejinsson and we recommend careful observation of the serum digoxin concentration and the electrocardiogram when this combination of drugs is used.

P M HOOYMANS

R C Hospital,
Sittard, Netherlands

F W H M MERKUS

Department of Biopharmaceutics,
University of Amsterdam,
Netherlands

Health education in schools

SIR,—Mrs Rosalind Cole (2 September, p 703) seems to be letting national pride blur her judgment. Health education has been an important subject in American schools and colleges for many years. In Britain the Schools Council and the Health Education Council are still trying to investigate the nature of the subject, so I do not think we can afford to look down on the American way of doing things.

In 20 years of teaching and mixing with teachers I have never come across anything resembling the rosy picture she paints of health education in Britain. Most children, I fear, leave school without even knowing the series of facts which Rosalind Cole despises so much. This is in part due to the ignorance of their "educators." How many British teachers know enough about toxocara, rabies, toxoplasmosis, tetanus, "non-accidental injury to children," the probable causes of ischaemic heart disease, etc?

It would appear to me self-evident that the first stage in a health education programme is to inform the teachers of the facts. The second stage is more problematic. It is pertinent to ask, "Is it ethical to try and manipulate the behaviour of children?" The problems of health education bear some resemblance to ethical problems. Children are likely to think that what teachers tell them about health merely reflects the feelings of the teacher. To overcome this some teachers may resort to

Digoxin:creatinine clearance ratios on two occasions during and on two occasions after quinidine treatment

	Patient 1		Patient 2		Patient 3	
	During quinidine treatment	After quinidine treatment	During quinidine treatment	After quinidine treatment	During quinidine treatment	After quinidine treatment
Digoxin steady-state concentration (μg/l)	0.9; 1.0	0.5; 0.5	2.6; 2.6	1.0; 1.1	1.7; 1.6	1.0; 1.3
Digoxin dose (mg)	0.25	0.25	0.25	0.25	0.125	0.125
Digoxin clearance (ml/min/1.73 ^m)	74; 91	139; 143	43; 29	66; 68	42; 48	63; 54
Creatinine clearance (ml/min/1.73 ^m)	79; 78	98; 102	88; 62	71; 69	61; 64	60; 55
Digoxin:creatinine renal clearance ratio	0.94; 1.17	1.42; 1.40	0.49; 0.47	0.93; 0.98	0.69; 0.75	1.05; 0.98
	mean 1.05	mean 1.41	mean 0.48	mean 0.96	mean 0.72	mean 1.02