The use of one-sixth molar lactate, as suggested by Gaind and Saran,¹ paradoxically does not seem to be associated with an increased excretion of lithium, as administration of such therapy causes a cessation of toxic "fits" before the lithium excretion rate increases. It may be that the administration of lactate increases the epileptic threshold or that it accelerates the movement of lithium into the extracellular compartment.

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¹ Gaind, R, and Saran, B M, *Postgraduate Medical Journal*, 1970, 46, 629.

Reducing doctors' errors

SIR,—Your leading article on this subject (7 May, p 1178) comments that students and junior doctors are "fact gatherers" and suggests ways in which this deficiency should be tackled.

We in Glasgow have developed a series of computer models which become progressively more statistical and give the student an insight into how the clinician uses information to make clinical decisions. This method of instruction has been used widely by over 400 medical students and over 50 general practitioner trainees.^{1 2} They enjoy this method of instruction and feel that it should be made more freely available. The students' decision-making improves and approximates to that of the "experts"; they retain a significant amount of the content.³ With this instruction they become more aware of all levels of action⁴ and learn what they should do and what not to do in any given situation. Conventional teaching tends to stress the former and students are, in general, not aware of inappropriate actions.

We would argue that this learning experience will enable the student to make better use of the clinical information available to him and will alert him to its misuse. Studies in computer-aided diagnosis^{5 6} had suggested that decision-making by clinicians appeared to improve to a marked extent with practice. This was thought to be due to the doctor gaining an insight into his diagnostic mechanisms. Computer-assisted learning seems to have an important potential in helping the student to learn about decision-making.

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¹ Murray, T S, *et al*, *Lancet*, 1976, 1, 474.

² Murray, T S, *et al*, *Update*, 1976, 13, 523.

³ Murray, T S, *et al*, *Medical Education*. In press.

⁴ Murray, T S, *et al*, *Journal of the Royal College of Physicians of London*. In press.

⁵ Taylor, T R, Aitchison, J, and McGirr, E M, *British Medical Journal*, 1971, 3, 35.

⁶ De Dombal, F T, *et al*, *British Medical Journal*, 1972, 2, 9.

SIR,—Your leading article on this subject (7 May, p 1178) rightly states that doctors may easily be overloaded with information. Computers or other automatic devices might help to alleviate this problem, but they can also make it worse.

In this hospital, as in many others, one cannot request an analysis of blood urea only. The automated testing equipment dictates that nine or more other estimations are performed on each sample for which the blood urea is

being measured. As a consequence more data are presented to the clinician than he may want. Where a computer is being used to print the reports from multiple analysers it would seem sensible to suppress all the results that were not specifically requested.

Perhaps results which were not requested should be reported if they lie outside the reference range, but even this can be misleading. As Flynn *et al*¹ have shown, most chemical pathology values are independent of each other and it only needs 14 such randomly varying tests reported against a 95% range for there to be a better than 50% chance that one or more will be out of range. Care is, however, needed in choosing an appropriate range for the specialities of paediatrics, geriatrics, and obstetrics.

One used to be able to leaf through a set of biochemistry reports and have a good idea which systems were being investigated. Good computer systems could bring these days back.

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¹ Flynn, F V, *et al*, *Clinica Chimica Acta*, 1976, 70, 179.

Planning treatment for rheumatoid arthritis

SIR,—Is it possible that a useful contribution to the treatment of rheumatoid arthritis was omitted from your excellent article on this subject (30 April, p 1120)?

In the early stages of this disorder the need for physical education is often overlooked, and yet the inclusion of postural and relaxation training, with carefully directed movements, is very beneficial; these help to lessen pain and to give the patient confidence to move. This aspect of treatment seems to be passed over in most medical papers; perhaps it is often the reason for delayed rehabilitation.

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Polymyalgia arteritica

SIR,—We write in support of your leading article (23 April, p 1046) which draws attention to the risk of development of sudden and permanent blindness in patients with giant-cell (cranial) arteritis. Visual complications occur in 25-30% of untreated cases¹ and although they may certainly be the result of obliteration of the central artery of the retina, as you describe, they are more commonly due to involvement of the ciliary arteries supplying the optic nerve and disc.²

We regard giant-cell arteritis as an emergency and support your plea for immediate treatment with prednisolone or a similar corticosteroid preparation, as a delay of even a few hours may result in irreversible visual failure. We would also endorse your advice that all patients with polymyalgia arteritica already on a low dose of steroids should be warned that any exacerbation of symptoms, particularly any changes in vision, demands that the dose of steroids be instantly increased. We feel that details of this procedure should be given to the patient as well as to the general practitioner to avoid possible delay.

We take issue with your assumption that an initial dose of 40-50 mg of prednisolone a day is sufficient to prevent the onset of these serious visual complications. In our experience patients with giant-cell arteritis may occasionally suddenly lose their vision on this dosage in one or both eyes. We would strongly recommend that a dose of at least 80 mg of prednisolone a day should be given immediately the diagnosis has been made on clinical grounds. A daily dose of this order should be continued until the systemic manifestations of this disease, such as headache and pain in the face and jaw, have completely resolved and until there has also been a significant fall in the erythrocyte sedimentation rate. Only then can gradual dose reduction be carried out.

On such a high initial dose of steroids toxic effects may occur, but this is a small price to pay compared with the greater danger of permanent loss of vision in one or both eyes.

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¹ Jennings, G H, *British Medical Journal*, 1948, 1, 443.

² Crompton, M R, *Brain*, 1959, 82, 377.

"Music has charms . . ."

SIR,—Dr R A Henson's paper (30 April, p 1121) covering many aspects of the neurology of music made interesting reading and for me, with little technical knowledge of the subject, the theme which was most evident was that when considering music the brain is involved in a wonderfully complex and absorbing fashion and therefore has to concentrate to the exclusion of most other distractions.

My particular interest in the subject relates to Dr Henson's conclusion, in which is mentioned the wishes of famous people to die with the sounds of their favourite music as an exit accompaniment. If asked, I think that this would be a common wish of many contemplating death in theory or practice and indicates the tranquillising effect most people experience in listening to music acceptable to them. I think this tranquillising effect of music may be a valuable aid to the sick long before they are dying.

Admission to hospital for investigation and treatment is a frightening experience for the majority of patients in all age groups. Judging from articles recently published by qualified medical men describing their own experience in hospital, our profession is not immune to these fears. The possibility of using music to allay such fears has been in my mind and this letter was prompted by Dr Henson's article and by hearing from a patient, during discussion at consultation, that the patient's dentist did use music as an anxiety-relieving agent. In this dentist's surgery the patients lay back in the dental chair listening to music of their choice through headphones, which gave the added advantage of isolating the patient from surgery noises. This particular individual had found the musical background very comforting. The practice of using music through headphones to distract the patients, to calm them, and to isolate them from frightening noises during the performance of investigations and treatment may be already

used in many places; but the occurrence related by my patient was the first example of this use of music about which I have heard.

It would be interesting to hear if others have tried the use of music in this way and, if so, whether it is thought to have given significant satisfaction and relief of anxiety to patients.

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Clinical rheumatology

SIR,—Clinical rheumatology may have advanced, but Dr A St J Dixon (16 April, p 1015), while making some comments about rehabilitation with which many would agree, singularly fails to progress the discussion about what clinical rheumatologists should do. Like Professor W W Buchanan (11 September 1976, p 628) he works in a specialised unit serving a large population and from this intense but restricted experience generalises about what is needed in a district general hospital. As one who works in a district general hospital in an area generously endowed with rheumatologists I find it difficult to recognise the picture he paints.

Discussions about rheumatology are bedevilled by varying estimates of the prevalence of rheumatoid arthritis, most of which are based on criteria^{1,2} which almost certainly overestimate the amount of clinically significant disease—for example, the British League against Rheumatism has two current publications quoting prevalence rates of 1%³ and 1% and 2%.⁴ The confusion is well illustrated by the Sudbury report,⁵ which revealed a prevalence of probable or definite rheumatoid arthritis of 2.5% using the old criteria² and of 0.35% using the much more stringent 1966 New York criteria.⁶

If the Sudbury experience using the New York criteria is projected on to a moderate-sized district general hospital serving a population of 150 000 it suggests that in this group there would be only 500–550 patients with rheumatoid arthritis. At least half of these would have only mild or moderate involvement, and when one considers that all the other generalised rheumatic diseases combined form a smaller problem than rheumatoid arthritis itself it can be seen that at such a hospital there is no major career to be made out of looking after “rheumatoid arthritis and its complications and those diseases that resemble it in some way.”

Mechanical and degenerative disorders of the locomotor system are the commonest rheumatic problems—the field of orthopaedic medicine—and one of the major problems of clinical rheumatology is to decide who should look after these patients in hospital. If orthopaedic surgeons abound one of the solutions proposed by Dr Dixon of a person combining internal medicine and rheumatology who would deal primarily with polyarthritis may be an excellent answer, though as internal medicine will itself always be a demanding discipline there may be a danger of creating a number of consultants for whom rheumatology is only a second interest. If orthopaedic surgeons are scarce then there may be a useful role for the rheumatologist who tackles both orthopaedic medicine and polyarthritis.

There is no clear solution and geographical factors will always play an important role in delineating some appointments. None the less,

using the district general hospital concept we need more discussion about what type of rheumatologist is required there and in particular what the relationship to orthopaedics should be. Without this discussion we know neither how many rheumatologists are needed nor how best to train them.

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- ¹ Ropes, M W, *et al*, *Bulletin on Rheumatic Diseases*, 1958, 9, 175.
- ² Kellgren, J H, *Bulletin on Rheumatic Diseases*, 1962, 13, 291.
- ³ *The Challenge of Arthritis and Rheumatism*, British League against Rheumatism, 1977.
- ⁴ *Rheumatism, the Price We Pay*, British League against Rheumatism, 1977.
- ⁵ Cathcart, E S, and O'Sullivan, J B, *New England Journal of Medicine*, 1970, 282, 421.
- ⁶ Bennett, P H, and Burch, T A, *Bulletin on Rheumatic Diseases*, 1967, 17, 453.

Cimetidine in alleviation of gastric cancer pain

SIR,—We have noted significant pain relief in two patients with malignant gastric ulcers who have been treated with cimetidine.

The first patient, a man aged 63, was referred with a history of dyspepsia for several years which had become worse in the previous three months. Barium meal confirmed the clinical diagnosis of a 1.5-cm lesser-curve gastric ulcer. Cimetidine 200 mg thrice daily and 400 mg at night was started. When the patient attended for gastroscopy three weeks later he reported complete relief of his pain. At endoscopy the mucosa was growing into the ulcer, which was obviously healing. Biopsy showed adenocarcinoma. Subtotal gastrectomy was subsequently performed.

The second patient, a man aged 66, was referred with severe epigastric pain due to carcinoma of the stomach with liver secondaries. The diagnosis was confirmed histologically by endoscopy. Laparoscopy confirmed the clinical impression that palliative surgery was not feasible. Cimetidine 200 mg thrice daily and 400 mg at night resulted in significant relief of pain after seven days.

We consider that the symptomatic relief of pain in malignant gastric ulcer by cimetidine can be misleading and emphasises the need for endoscopic and histological assessment of gastric ulcers, but that this drug is a useful addition for the clinician in the relief of pain from gastric cancer.

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Thyroid function tests and oral contraceptives

SIR,—The paper by Dr W A Burr and others (19 February, p 485) has shown that the derived free thyroxine index (FTI) may give fallacious results in certain groups of patients.

We have been interested in the measurement of thyroid function during the ovulatory cycle in normal women and in women taking oral contraceptives. Serum total thyroxine (T₄) was measured by a radioimmunoassay method based on that of Challand *et al*.¹ Triiodothyronine (T₃) uptake was measured by a commercial kit method (Thyopac-3, Radiochemical Centre, Amersham). The FTI was calculated for each sample. Serum T₄ and serum T₃ uptake were measured on the 5th and 20th days of the ovulatory cycle of 20 women (controls). The FTI (T₄/T₃ uptake)

was calculated from these determinations. Serum T₄ and T₃ uptake were measured on the 20th day of the cycle of 20 women taking Minilyn (lynoestrenol 2.5 mg and ethinyloestradiol 0.05 mg).

There was no significant difference between T₄, T₃ uptake, and FTI between the samples taken on the 5th and 20th days of the ovulatory cycle of the control group. Comparison of the FTI between the control group and those patients receiving Minilyn showed a highly significant increase in the FTI ($P < 0.0001$ using the Mann Whitney test) in the patients on oral contraceptives (see table). However, while there was good correlation ($r = 0.82$) between the T₃ uptake and serum T₄ in the control group on the 20th day of the cycle, in the patients taking Minilyn the correlation between these two values on the 20th day was very poor ($r = 0.15$).

Derived free thyroxine index in controls and patients taking Minilyn

	Controls		Oral contraceptive group (20th day)
	5th day	20th day	
Mean	87.35	83.4	111.55
Standard deviation	8.25	10.22	22.74
Range	76–99	61–98	70–163

This suggests that the use of the calculated FTI using the Thyopac-3 method can give falsely high results in patients taking Minilyn.

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¹ Challand, G S, Ratcliffe, W A, and Ratcliffe, J G, *Clinical Chimica Acta*, 1975, 60, 125.

Appendicitis and diabetes

SIR,—Professor J P Corridan and his colleagues report (30 April, p 1135) that they found no association between appendicitis and diabetes in individual patients. They assume that since both of these diseases have been attributed to the refining of carbohydrate foods such an association was to be expected.

Their failure to find an association in no way invalidates the hypothesis that these diseases share common causative factors. Appendicitis has been attributed to the increased viscosity of faeces caused by loss of water from the colon resultant on loss of fibre from the diet. Diabetes on the other hand has been related to increased consumption and increased rate of absorption of starch and sugar stripped of their natural fibre packing.

It is possible to increase sugar intake considerably while consuming a diet with adequate fibre to maintain a large soft faecal volume. A friend of mine with 35 years' experience as a medical missionary in Africa saw diabetes appear in his area after the introduction of sugar and sweetened drinks and over 20 years later saw the cessation of new cases when these commodities became no longer obtainable. He saw no case of appendicitis in an African during this time.