herpes simplex stomatitis he does himself an injustice.

The patient had the typical triad of an acute febrile illness, mouth ulcers, and cervical lymphadenopathy with no rash or genital ulcers and no past history of cold sores. Diagnosis was possible without laboratory investigations. The antibody titre to HSV was ≥ 1280 , and for varicella zoster (VZ) the titre was ≥ 1280 ; and it is therefore difficult to see why lack of this numerical information should cause comment when the titres had been stated as being "very high." It is recognised that in primary herpes in young adults there may be a rise in the VZ antibody titre, but the converse is not true. There is no massive rise in the HSV titre in zoster. It seems reasonable to accept these titres as confirmation of the clinical diagnosis. To suggest that the patient had concurrently both primary herpes stomatitis, which is rare in adults, and facial paralysis due to zoster (what used to be called the "Ramsay Hunt syndrome"), also uncommon, hardly strengthens Dr Juel-Jensen's case. It is unlikely that paired sera in this instance would have clarified the position. That culture was not undertaken is unfortunate not because the diagnosis needed further confirmation but because it is not known whether it was a type I or type II infection. There is some evidence, I understand, that type II infections tend to cause a rise in both HSV and VZ titres and it was a type II infection that was implicated in the only other report of Bell's palsy in association with HSV infection. Finally, Dr Juel-Jensen suggests that perhaps the mouth ulcers were unilateral and therefore due to zoster. It would seem that his reading of my report was incomplete, for it was stressed that the ulcers were generalised, a fact to which considerable importance had been attached.

Perhaps no connection does exist between HSV and Bell's palsy, but it would be wiser for the present to remain undecided rather than discount the possibility because this evidence is not consistent with a personal opinion, however authoritative its source.

P GROUT

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Saliva carbamazepine levels in children

SIR,—The usefulness of saliva levels for monitoring phenytoin therapy is well established^{1,2} and recent studies indicate that it may be possible to use salivary concentrations of carbamazepine³⁻⁵ and, with more difficulty, phenobarbitone⁴ in a similar way. These studies, however, were mainly carried out on adult patients. Little is known of anticonvulsant drug pharmacokinetics in children, and the relationship between plasma level and clinical effect is usually assumed to be similar to that in adults.

We have measured plasma and saliva concentrations of carbamazepine in 15 patients aged 3-14½ years receiving long-term treatment with carbamazepine to determine whether a correlation exists in children. Mixed saliva was collected (using a mucus extractor for younger children) after stimulating flow with a few crystals of citric acid and strawberry flavouring powder placed on the tongue. Saliva samples were collected at the time of blood sampling, which was being carried out as part of routine patient management. Samples were frozen at -20°C until assayed for carbamazepine by a modification of the GLC method of Least *et al.*⁶

There was a good correlation between the saliva and plasma levels of carbamazepine ($r=0.87$, $P<0.001$), and the saliva:plasma ratio resulting, 0.30 ± 0.07 (mean $\pm$ SD, $n=17$), is similar to the saliva:plasma³ and CSF:plasma⁷ ratios in adults and to the reported free fraction of drug in adult plasma.⁴

We have used saliva levels in a preliminary study of dose frequency requirements for carbamazepine in children. Using the methods described above, serial saliva samples were obtained from children in hospital and assayed for carbamazepine. The figure shows results obtained in a boy receiving carbamazepine 400 mg twice daily for temporal lobe epilepsy.

Saliva carbamazepine concentrations after administration (arrows) of 400 mg twice daily. Circle indicates plasma carbamazepine concentration $\times 30$. Broken line indicates predicted minimum therapeutic level. Conversion: SI to traditional units—carbamazepine: $1 \mu\text{mol/l} \approx 23.6 \mu\text{g/100 ml}$.

The saliva concentration rose steadily after drug administration (2×200 mg proprietary tablets), reaching a maximum of $10.8 \mu\text{mol/l}$ ($255 \mu\text{g/100 ml}$) after 4.5 h and then declining to minimum levels of $5.6 \mu\text{mol/l}$ ($120-140 \mu\text{g/100 ml}$).

Although the therapeutic range of plasma carbamazepine levels in the treatment of epilepsy has not yet been established, we have accepted a level of $18-50 \mu\text{mol/l}$ ($425-1180 \mu\text{g/100 ml}$) to be optimum on the basis of studies relating plasma levels and clinical effects in adults.^{5,8} The equivalent range in saliva is $5.5-15 \mu\text{mol/l}$ ($130-355 \mu\text{g/100 ml}$). The saliva levels of the patient illustrated here were within this "predicted" therapeutic range and the patient was judged to be clinically well controlled before this study was carried out.

Although the patient was in a "steady state," large daily fluctuations in drug concentration were observed and illustrate how misleading a single level may be if taken at random between doses. The magnitude of the daily fluctuation is probably greater in children than in adults receiving the same dose regimen since the rate of carbamazepine elimination appears to be more rapid in the former age group. As part of a larger study the saliva half life of carbamazepine was determined in the patient described above while receiving single daily doses of the drug. The value obtained was 7.3 h and this agrees with previous findings⁹ that the rate of elimination of carbamazepine in children is greater than in adults.

In the case illustrated saliva samples taken within 1 h of drug administration gave no indication of contamination by unabsorbed drug, but when crushed tablets in orange juice were given to a 3½-year-old child con-

tamination was detected up to 1.5 h after administration.

Saliva levels appear to provide a means of monitoring carbamazepine therapy, enabling the dose to be tailored to suit individual requirements. Care must be taken, however, that there is no contamination by unabsorbed drug. This method also provides a valuable means of studying drug pharmacokinetics. Further work on carbamazepine and phenytoin dosage requirements in children (including the distribution and elimination of the active metabolite of carbamazepine, carbamazepine-10,11-epoxide) is being undertaken.

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¹ Reynolds, F, *et al*, *Lancet*, 1976, **2**, 384.

² Paxton, J, *et al*, *Lancet*, 1976, **2**, 639.

³ Chambers, R E, *et al*, *Lancet*, 1977, **1**, 656.

⁴ McAuliffe, J J, *et al*, *Neurology*, 1977, **27**, 409.

⁵ Troupin, A, *et al*, *Neurology*, 1977, **27**, 511.

⁶ Least, C J, Johnson, G F, and Solomon, H M, *Clinical Chemistry*, 1975, **21**, 1658.

⁷ Troupin, A S, and Friel, P, *Epilepsia*, 1975, **16**, 223.

⁸ Morselli, P L, and Frigerio, A, *Drug Metabolism Reviews*, 1975, **4**, 97.

⁹ Rane, A, Höjer, B, and Wilson, J T, *Clinical Pharmacology and Therapeutics*, 1976, **19**, 276.

Shortage of anaesthetists

SIR,—All correspondents on this subject have concentrated on manning by full-time anaesthetic specialists and have chosen to ignore the large number of doctors in general practice who possess the DA, many of whom no longer administer any anaesthetics.

I have no doubt that the majority of these doctors would be willing and indeed delighted to spend a few sessions a week in the hospital confines giving anaesthetics were it not to their financial detriment to do so. I am not suggesting that these part-time (though basically qualified) anaesthetists should be carrying out thoracic or neurosurgical lists, but there is little else from which they should be barred and they could be supervised in the same manner as junior staff by their consultants.

C A N JARVIS

Parry Sound, Ontario

The other handicap: brightness

SIR,—It is encouraging to see the problems of the gifted child being brought to the attention of doctors by Mr M E Lobascher and Dr N P C Cavanagh (12 November, p 1269). Their article rightly points out the role that education authorities should, but in some cases do not, play in helping these children.

However, there is an organisation, the National Association for Gifted Children, which was formed 10 years ago specifically to aid these children and advise their parents, who are often completely bewildered by the needs of such a child. The association has branches all over the country. Besides giving advice, it holds meetings where parents can discuss their mutual problems and meetings where children can take part in a variety of intellectual and physical activities and have the chance to make friends with others of like interests and ability.

The association is always willing to give advice to and co-operate with any doctor who finds he may have one of these "other"

problem children as a patient, perhaps presenting with hyperactivity, inability to sleep, or plain bloody-mindedness. The headquarters are at 1 South Audley Street, London W1 (telephone: 01-499 1188).

F G HERMAN

Bickley, Kent

"Curing" minor illness in general practice

SIR,—Dr G N Marsh's article (12 November, p 1267) leaves me confused as to his aims.

If he is attempting to reduce the work of the primary health care team, then why has "the health visitor's role . . . increased dramatically" and the "nurse care of minor illness" been "fortified"? It appears that the patient merely consults a different person. I would be interested to see the change in number of contacts between patients and health care team between January 1976 and January 1978. If his object was to reduce the cost of prescribing, then this is easily accomplished by saying "no." (Eventually of course patient-doctor consultation rate would fall to the acceptable zero!)

I fail to see how a "return to the old virtues of self-reliance and independence" can result in the doctor seeing "more serious illnesses and more patients" (*italics added*). I do see, quite often, self-reliance producing more serious illnesses.

I hope that the end result of the new approach to primary health care will not be a system of specialist nurses being administered by doctors.

PETER CATLIN

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Primary care in Kenya

SIR,—As I have been involved in primary medical care in Kenya for just under 15 years now, perhaps I might clarify some points in the article by Dr T D V Swinscow (21 May, p 1337), which has just reached us.

Initially medical assistants were purpose-trained by the colonial government, which was unwilling to send nursing sisters into the bush. This training was stopped before independence, when it was hoped that enough doctors would work in rural areas. When free outpatient treatment was introduced in 1965 more clinical workers were urgently required and an upgrading course for enrolled nurses was started.

A new three-year registered clinical officer course for school-leavers with good school certificate passes was started in 1969 in Machakos and moved to Nakuru in 1972. This school has had an intake of 558 students, of whom 256 have qualified, 251 are in training, and 51 have left training for various reasons. The only further training our graduates can get are clinical officer specialist courses in ENT, eyes, anaesthetics, or paediatrics. They can become doctors only if they get relevant "A"-level passes and complete a normal university course and this is very frustrating for them. They can never run non-Government clinics unless they work with a qualified doctor.

Additionally, our volunteer medical workers include doctors from Holland, Peace Corps workers from USA, and a variety of others from other sources. Missionary hospitals do not account for 40% of the medical work in Kenya and the Flying Doctor Service mainly

helps with surgery in the remote areas. The article could, so far as I am aware, be read to apply to Tanzania simply by substituting the home of their training school at Moshi for Nakuru.

We would be delighted to have help in upgrading some of our excellent clinical officers and would be happy to have a visit from any of your readers who find themselves in Nakuru, but at the moment we are a little doubtful about the accuracy of other *BMJ* comment.

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Changing the FRCS exam

SIR,—I write to support Mr Peter F Jones's excellent letter regarding the proposed changes in the Edinburgh FRCS examination (29 October, p 1145). I can, however, assure him that although a good deal of pressure for these changes may be coming from some specialties, this certainly does not apply to urology. A small working party of Fellows engaged in the practice of urology met earlier this year to discuss the proposals and rejected them entirely in so far as the training requirements of urological surgeons were concerned. At present no candidate for a senior registrar post in urology would be accepted without possession of a fellowship as evidence of his basic general surgical training, and the proposed expanded part 1 FRCS would not be an adequate substitute at this stage. Furthermore, the introduction of a so-called "specialist" FRCS diploma, implying yet a further examination at two or more years after attaining the status of senior registrar, seemed to us totally unrealistic and undesirable. The present system of accreditation run by the Joint Committees for Higher Surgical Training would appear to provide the best basis for assessing and maintaining the standards of higher training in the surgical specialties and should be encouraged.

I do not wish to recount all our other objections but would reassure any potential consultant urologists of the future that it is not (yet) the wish of their seniors to put a further examination in the route to their chosen career.

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Training in accident and emergency medicine

SIR,—Now that yet another investigation into accident and emergency departments has started (5 November, p 1235) it is to be hoped that the conclusions reached will be practical and acceptable to the profession as a whole. In the past there has been a lot of talk about the staffing of accident and emergency departments. Only the most prejudiced individuals would probably now argue with the concept of sensibly sized departments run by consultants with suitable training in the specialty. Through the Joint Committees on Higher Medical and Surgical Training the establishment of senior registrar posts to provide this training is now well advanced. At a lower level the finding of senior house officers will be made easier by the rationalisation of the number of such depart-

ments and the inclusion of such posts in various rotations, including vocational training for general practice.

The real problem for the future will be in finding staff to provide intermediate cover between the senior house officers and the consultants. Only a minority of departments will ever have the facilities to justify the presence of senior registrars. Unfortunately too many people look to the staffing concepts in other specialties to solve the problems of the accident and emergency department and wish to appoint more and more registrars. Few such registrars could have a long-term career in accident and emergency medicine.

Accident and emergency medicine has two major differences from most other specialties. Firstly, the varying work load is spread over a large part of the day and does not conform to normal working hours, which means that intermediate-grade staff should always be present in the department, rather than on call. Secondly, there is a very limited need for the on-going care of inpatients, so that the employment of doctors on a limited sessional basis is practical. Rather than discussing registrars, the employment on long-term contracts of doctors on a multisession basis (say, minimum of five sessions per doctor) to work in the department throughout most of the 24-hour period should be considered. These doctors would have the interest and experience to advise the more junior doctors and take part in postgraduate activities and yet have job security which could be adapted to their personal and domestic requirements. Such a grade does not exist, as the hospital practitioner grade is too restricted, while clinical assistants do not have long-term contracts recognising their increasing expertise.

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The medical manpower debate

SIR,—I write concerning Scrutator's comments on the recent debate in Council on medical manpower (22 October, p 1095). Dr David Guèret Wardle's remark was incorrect and I do not know the source of his information. In 1977, this medical school made the transition from two six-monthly graduations per annum to one annual graduation. This transition necessitated finding house jobs in August/September 1977 for about 100 new graduates plus 50 others who needed a second preregistration post, having graduated in November 1976 (a total of over 150). There was never any question that there would be enough house jobs for them all "in UCH or associated hospitals," and all concerned knew this. Some found posts on their own initiative. An assurance was given that suitable house jobs would be found elsewhere for the remainder.

When the lists for "UCH and associated hospitals" were published early in July about 30 new graduates were still in need of a post for August 1977; of these, 23 had posts for February 1978. Within the next two weeks suitable posts were found for 20 new graduates and by the beginning of August we had placed all those who were available for interview and whose choice of job was not restricted by tight geographical constraints.

It is unfortunate that inaccurate information