can really run the casualty department efficiently and stop its misuse by the public. I quite agree with Mr. A. E. Bremner (10 October, p. 113) that "orthopaedic surgeons ... [with their] somewhat narrow training are inappropriate" to this type of job. A better idea was conceived by Professor R. B. Duthie,² who "suggested that the post of accident surgeon might be held by a young and recently trained and certificated person for a period of a few years on first appointment to the staff of the hospital." This is very reasonable in that it attracts people of highest calibre to the accident department.

So what we need in charge of accident departments is a fully fledged consultant with full supporting staff, who in time will become a senior general surgeon. Is it not time to acknowledge that this important aspect of hospital practice deserves its own full-time consultant cover?³ It is about time we realize that doctors and nurses are more important than buildings and machines.—I am, etc.,

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REFERENCES

- 1 National Health Service. *Accident and Emergency Services*. H.M. (68) 83.
- 2 Duthie, R. B., quoted by Hadfield, G. J., *Annals of the Royal College of Surgeons of England*, 1970, 47, 159.
- 3 *Lancet*, 1969, 1, 90.

SIR,—The recent report on the accident services¹ will be welcomed by all who serve in them. In particular it draws attention to the inadequate buildings and the medical staffing problem. The first is due to lack of finance (and have we not got our priorities wrong?)—the second is largely due to the Ministry's refusal to consider new registrar posts, encouraged perhaps by the current opinion that training is better achieved by lectures than by practical experience. Had these unknown centres been visited at the time of a major accident it is probable that excellent treatment and staffing would have been found. If the public demand consultant treatment for minor injuries they should pay the price; but will a fully trained consultant wish to spend his time in these mainly minor functions without junior assistance? The casualty consultant (with junior staff and beds) may be needed but surely only in the largest centres.

Our departments are within 20 to 30 miles of most accidents and have in the past been adequately staffed for emergency treatments, with consultants in most specialties available within 15 to 60 minutes, with immediate resuscitation by the junior staff on duty or by the anaesthetics department. No financial guarantee is required on admission nor is there any charge at the end of the treatment—even after expensive intensive care therapy. In which country would your readers prefer to have their major accidents?—I am, etc.,

R. F. N. DUKE.

Stratford-upon-Avon Hospital,
Warwick.

REFERENCE

- 1 Accident Services Review Committee of Great Britain and Ireland. *Report of a Pilot Study Conducted by a Working Party on Progress in the Provision of Accident Services*. London, British Medical Association, 1970.

Wheel Chairs

SIR,—I would quite agree with Dr. K. R. Heber's strictures on the present design of wheel chairs (31 October, p. 302). In my experience they are all fundamentally unstable, and although this is sometimes an advantage for the unpropelled chair and adds to the manoeuvrability, it is a gross hazard for the electrically propelled vehicle.

Those of us who have had experience with track vehicles appreciate that these are both more stable and more simple to manoeuvre. I feel that some effort should be made to develop a wheel chair with two electrical motors driving tracks on each side so that steering, braking, and reversing could all be controlled by simple buttons or by some kind of joystick. By placing the driving sprocket in upper pulleys of the track the vehicle could more easily negotiate kerbs and steps without, as at present, tipping backwards and would allow the quadriplegic a degree of control which is now quite impossible.

Is it too late to hope that the Ministry's department for invalid vehicles would perhaps talk to us who are interested in that provision with a view to fundamental new designs?—I am, etc.,

IVAN CLOUT.

Crawley, Sussex.

believed. The accompanying photograph was taken a short while ago and shows the second wheel chair supplied to this child within less than a year in an attempt to get a suitable chair for him. The chair is far too wide; there is inadequate support for his back allowing a secondary scoliosis to develop; the chair arms are inadequately placed to give him support and they prevent him from reaching the wheels; there is no foot support. These are just a few of the obvious errors and inadequacies of this chair.

This is not an isolated example. A clinic seldom goes by without a child being seen with some ill-fitting appliance of one kind or another. It seems as though people think that anything will do for children, and those who design wheel chairs seem to have done so without seeing the children in the chairs.

I would like to join with Dr. Heber in making a strong plea for a really consorted attempt to get good wheel chair services for our patients.—I am, etc.,

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Institute of Child Health,
London W.C.1.

Emphysema in Coalworkers

SIR,—We have read with interest the paper on emphysema in coalworkers' pneumoconiosis by Dr. R. C. Ryder and his colleagues (29 August, p. 481) and the ensuing correspondence. We wish to comment on certain features of the paper which we believe should be borne in mind when considering the authors' conclusions about emphysema and coalworkers' pneumoconiosis.

Although the authors distinguish between centrilobar, panlobar, and focal dust emphysema they expand the last term to include destructive emphysema of a whole lobule when this is associated with dust. They define a lobule as the "smallest component of lung surrounded by connective tissue septa." This may contain some three to five acini¹ and as a consequence their term "focal dust emphysema" embraces not only centrilobular but panlobular emphysema. Put another way, emphysema involving a whole lobule is regarded as focal dust emphysema when it is associated with dust but as panlobular when not so associated. It is for this reason that they found panlobular as well as centrilobular emphysema in only a minority of miners; or is it possible that exposure of lungs to coal dust protects them to some extent from these varieties of emphysema? The authors point out that when "readily recognizable panlobular or centrilobular emphysema" were present in miners' lungs they were found mainly in parts containing little or no dust; this is not surprising in view of the fact that they excluded by definition both types from dusty areas of the lung.

The authors give no details of the place of residence, ethnic group, social class, or smoking habits of the contrast population. We are not told whether these were similar to the mining population or not; and, if not, how they differed. In this respect, Sir, your editorial in the same issue of the *B.M.J.* (p.

handicapped people. He is concerned with problems of wheel chairs for adults, but the problems of those supplied to handicapped children have to be witnessed to be

478) gives the impression that both populations were known to be drawn from the same area.

The selection of the mining population by panel attendance and death imposes an inevitable and strong bias and leaves unknown the population of living miners and ex-miners (with or without pneumoconiosis) from the same decades and areas of the deceased miners and ex-miners. The absence of an age gradient of emphysema in the mining group compared with the contrast group would seem to confirm this bias. The explanation given that confluent fibrotic lesions may have obscured emphysema is improbable as no gradient in men with category "O" to "A" was demonstrated. This point has also been commented on by Dr. C. M. Fletcher (17 October, p. 176).

We cannot accept that the difference in the prevalence of emphysema found to exist between the miners and the contrast population is representative of the real difference between miners as a whole and the general population. Nor do we think the authors have demonstrated an excess of any particular type of emphysema among the miners with pneumoconiosis.—We are, etc.,

W. RAYMOND PARKES.

R. G. B. WILLIAMSON.

T. J. G. PHILLIPS.

London W.C.2.

REFERENCE

- 1 Reid, L. *The Pathology of Emphysema*, p. 329, London, Lloyd-Luke, 1967.

Maternal Phenylketonuria

SIR,—I welcome your leading article (24 October, p. 192) encouraging us to screen for phenylketonuria in the antenatal clinic. I would like to take the argument one stage further and come down in favour of ferric chloride or Phenistix urine testings as part of the routine urine examination in the antenatal clinic, rather than using a blood test, which takes longer, costs more, and tells us less. Auerbach¹ has ingeniously shown from a study of reported cases that a positive urine test separates the mothers with phenylketonuria whose babies are at risk from those that are safe better than blood levels of phenylalanine—which, as you point out, are not a good guide. At least two cases have been described, one in North America and one here,^{2,3} where undiagnosed mothers with phenylketonuria have been picked up by routine antenatal Phenistix, in one of which³ a low phenylalanine diet during pregnancy similar to that described by Allan and Brown⁴ resulted in the birth of a child with normal intelligence.—I am, etc.,

L. J. H. ARTHUR.

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REFERENCES

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- 2 Huntley, C. C., and Stevenson, R. E., *Obstetrics and Gynaecology*, 1969, 34, 694.
- 3 Arthur, L. J. H., and Hulme, J. D., *Pediatrics*, 1970, 46, 235.
- 4 Allan, T. D., and Brown, J. K., in *Some Recent Advances in Inborn Errors of Metabolism*, ed. K. S. Holt and V. P. Coffey, p. 14, Edinburgh, Livingstone, 1968.

Gangrene of Digits

SIR,—The case report by Dr. O. H. B. Gyde and Dr. D. L. Beales (31 October, p. 284) is of great interest and bears a strong similarity to our description of three African children with bilateral symmetrical gangrene.¹ These three patients presented with gangrene of the finger tips despite the presence of patent digital arteries. No predisposing factors were apparent and we could not elicit any history of previous virus infection.

Investigation of the coagulation mechanism revealed no abnormality but there was significant depression of spontaneous plasma fibrinolytic activity as compared with age- and sex-matched controls. This finding has been described previously²⁻⁴ in patients with widespread thrombotic disease. Histological examination of postmortem material from one of our patients showed thrombus in a vein draining the gangrenous area.

The basic disorder in such patients is not clear and it may be that the changes described by us were "effect" rather than "cause." However, the presence of organizing thrombus in the patient reported by Dr. Gyde and Dr. Beales and in one of ours would suggest that a trial of fibrinolytic enzymes (streptokinase) given early in the evolution of the disease process would be of value.—We are, etc.,

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REFERENCES

- 1 Turpie, A. G. G., Forbes, C. D., and McNicol, G. P., *British Medical Journal*, 1967, 3, 646.
- 2 Nilsson, I. M., Krook, H., Sternby, N. H., Soderberg, E., and Soderstrom, N., *Acta Medica Scandinavica*, 1961, 169, 323.
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- 4 Brackman, P., Mohler, E. R., and Astrup, T., *Scandinavian Journal of Haematology*, 1966, 3, 389.

Continuous Ventilation and Oedema

SIR,—Dr. J. M. K. Spalding (12 September, p. 645) asks if our patient who developed marked oedema while on long continued intermittent positive-pressure ventilation was underventilated during weaning. We regret if we did not make it clear that there was no attempt at weaning our patient off the ventilator. The patient has a permanent loss of all respiratory muscular activity because of her myasthenia gravis. We are unable to give details of her airway pressure during the first nine years of her treatment as she was not under our care at that time. When she was transferred to our care she was on positive-pressure ventilation using a Barnet Mark II as a time-cycled minute volume divider. The minute volume was 8 litres, rate 13, inspiratory time 1 second, and the maximum positive inspiratory pressure 15 cm. water. A subatmospheric expiratory phase was introduced without any other alteration to the setting of her ventilator. The oedema resolved but when the subatmospheric expiratory phase was withdrawn the oedema reappeared. The oedema again disappeared when several days later the subatmospheric expiratory phase without any other change to ventilation was reintroduced.

Since the only change made in this patient was the introduction of a subatmospheric expiratory phase and this was associated with regression of the oedema we were naturally interested, particularly as the reduced lung volume consequent upon the subatmospheric phase reduced the lung compliance and caused the peak airway pressure to rise to 20 cm. H₂O when the inspiratory time was held constant.

The fact that it was repeatable in our patient led us to ask if anybody has observed anything similar in patients who have been on continued intermittent positive-pressure ventilation over a long period.—We are, etc.,

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P. J. TOMLIN.

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Birmingham.

Prophylactic Lithium

SIR,—I was most interested to read your recent leading article (29 August, p. 479) on the prophylactic use of lithium carbonate. The published evidence in support of its therapeutic action is steadily increasing, but, as you so rightly comment, these results must be interpreted with great caution at this early stage of assessment. Since, however, the initial successes are stimulating an ever wider use of this salt it is most important that the method of determining the correct dosage be crystal clear. Unfortunately this particular issue remains clouded as many leading authors give conflicting advice.

The primary aim should be to keep the serum lithium level between 0.8 and 1.6 mEq/l.¹ A lower level of 0.6–0.8 mEq/l. is acceptable if a higher one causes intolerable side effects.^{1,2} The dose of lithium salt required to achieve the therapeutic serum level is quite unpredictable except by the regular monitoring of the blood. A variation in the serum lithium level from a constant daily dosage might be expected to coincide with mood change, since it has been shown that lithium retention in the body was greater in manic patients than when they were normothymic.^{3,5}

In my own group of patients it was found that, on average, a stable serum level was obtained by the third week. Once achieved it was maintained in the majority of patients for long periods, although in two patients there was a sudden change to a new higher stable level without any apparent clinical reason. Venepuncture was carried out every six weeks; this proved satisfactory from both the clinical and patient's points of view. It is important to know that after taking lithium orally there follows a peak rise in the serum level which is quite unpredictable in both magnitude and duration. It is therefore quite unreliable to calculate the dosage of medication on a serum level where oral medication has been taken in the preceding eight hours. The occurrence of a peak rise has a further importance, since my own observations suggest that certain side effects, particularly gastrointestinal, have a close association with the height and duration of the elevated serum lithium level. Other authors⁶⁻⁸ have also shown that the less serious side effects are related to the serum level of lithium, even within the therapeutic range (0.8–1.6