retransfuse themselves to produce polycythaemia (5 April, p 923). Their surprising conclusion leads to the reductio ad absurdum that the heart could pump blood consisting solely of red cells around the circulation and contrasts with the experience of many respiratory patients with secondary polycythaemia, who benefit symptomatically from venesection. They also ignore the implications of polycythaemia in the genesis of thromboembolic conditions and of the associated arterial hypertension, so convincingly shown.

Their study merely showed, in patients without cardiovascular disease at rest, that haemoglobin delivery to the periphery was highest in those with the highest haemoglobin up to 200 g/l. Before too wide implications are drawn the alternative relation between cardiac work and oxygen transport should be considered. Fig 4 purports to show a linear relation between minute distances and haemoglobin concentration. The addition of confidence limits to a linear regression line does not make the regression line more appropriate to the data if the correct model is not being used. Inspection suggests that a more appropriate analysis might be the calculation of two separate regression lines for those points above and below 100 g/l, or the calculation of an exponential curve where the maximum change of gradient would be about 105 g/l. If this is correct then it is likely that the cardiac work would be at its lowest at around 105 g/l. This could easily be confirmed by calculating "linear cardiac work" for each individual subject. Assuming that oxygen delivery was adequate for the patients at rest then the authors' own data would suggest in this respect that the ideal haemoglobin is, in fact, the one that is conventionally accepted as such. Athletes in training may well be capable of taking advantage of the greater potential of oxygen delivery because their hearts are capable of the excessive cardiac work required for this. Subjects with cardiac respiratory disease, on the other hand, with less exercise demand, might well appreciate the benefit of lower cardiac work even if the maximum potential oxygen delivery were lower.

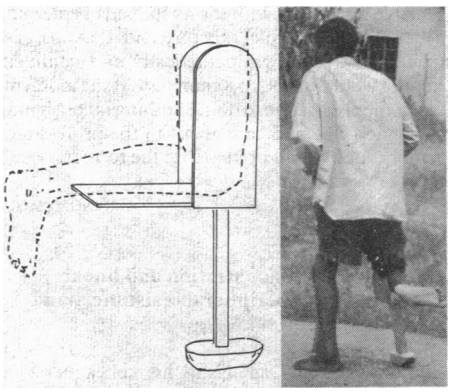
C K CONNOLLY

Department of Medicine,
Memorial Hospital,
Darlington DL3 6HX

Orthopaedic scooter

SIR,—Like all good inventions, the orthopaedic scooter (K9) is simple and presumably cheap (26 April, p 1121). No doubt the principle will be extended to other uses in this country and overseas.

I have recently used a modification of this idea on a patient in Tanzania. He was 20 years old and was crawling on hands and knees, having suffered poliomyelitis in both legs some years earlier. This resulted in fixed 90° contractures of both knees. Since the left leg had a strong hip and foot, the knee was arthrodesed, so that he can walk upright on this leg with the aid of crutches. The right foot was paralysed and deformed, thus precluding operation on the knee. However, the right hip was reasonably strong, so he has been fitted with a wooden peg leg with a rubber covered rocker foot (see figure). This has enabled him to walk on rough ground with one stick, thus leaving one hand free.



Left: Wooden peg leg built to accommodate a flexed knee and with a rubber rocker foot. Right: patient wearing the leg and walking with the aid of crutches.

I wonder if there might be some occasions, even in Britain, when a patient with a lower leg injury might be better able to negotiate steps and rough ground if the device was strapped to the leg (with Velcro) and the castors replaced with a "foot." I have myself joined in a game of football with disabled wearing such a device, strapped to one leg with the knee flexed to a right angle. After a little practice it is possible to proceed without crutches or stick. If desired, a trouser leg, slit down the back, can be worn over the device, and a shoe worn on the suitably shaped "foot".

P M WESTON

Government Zonal Referral Hospital,
Mbeya,
Tanzania

Role of an immunisation advisory clinic

SIR,—In Oxford we have tackled the same problem as that faced by Dr S Lingam and colleagues (5 April, p 939) but in a different way. In November 1984 we appointed a specialist immunisation nurse who was specifically trained to be able to advise on and administer immunisation without requiring the presence of a doctor.

Against a background of a generally good uptake of immunisation, certain families were easily identified who could not, or would not, attend clinics for immunisation. These were referred by health visitors, school nurses, or GPs to the immunisation nurse after they had failed to attend routine appointments. All children had a written prescription in their clinic notes for immunisation stating that they were medically fit for each vaccine.

The nurse then visited the families at home to give them immunisations. Often a preliminary visit of explanation and discussion was necessary. Frequently several children in one family were immunised. Courses were completed either by the nurse at home or by clinic visits. None of the families visited refused immunisation and some started attending clinics again. There was no sudden demand for unreasonable home immunisation.

Groups of travellers' caravans were also visited. These children are almost entirely unimmunised except for tetanus, which they acquire on their frequent visits to casualty departments. The immunisation nurse was well received by these families, and 100% uptake for diphtheria, tetanus, polio, and measles was achieved, although there remains a deeply entrenched resistance to pertussis vaccine in the travelling population. The only difficulty was in completing courses before the families moved on—but there is always next summer.

In all, 197 children were immunised and 108 children completed their primary course (between January 1985 and April 1986). The nurse also had many opportunities to discuss immunisation with both medical and nursing colleagues and is a useful source of good advice. Telephone queries are also answered in the department. It has been our policy to encourage the immunisation against measles with gammaglobulin of children such as described in the second article by the same authors (19 April, p 1044). Like them, we have had no untoward consequences and are glad to know that the antibody level has been shown to be satisfactory.

We hope to extend training to enable other nurses and health visitors to give immunisations without a doctor being present, as it has proved an efficient and cheap method of immunising children in more disadvantaged families. The difficulties families have in attending clinics are often underestimated, and, as has been shown before,[1] those who most need the service fail to get it.

NORMA JEFFERSON
GILLIAN SLEIGHT

Community Health Offices,
Radcliffe Infirmary,
Oxford OX2 0HE

1 Zinkin PM, Cox CA. Child health clinics and inverse care laws: evidence from longitudinal study of 1878 preschool children. *Br Med J* 1976;ii:411-3.

SIR,—Any means which improves acceptance of primary vaccination is a good thing, but an advisory clinic is only one means of doing so. Its achievement should be considered against other methods in use and not as an end in itself, particularly as the approach is mainly to undo misconceptions and not to prevent the confusion in the first place.

One strength of the advisory clinic is that, as well as discussion, the immunisation is given—a situation which also occurs in primary care. I have reported from this practice a 99% uptake for diphtheria, tetanus, and polio vaccination in children born in 1975-80, a 90% uptake for measles, and a 79% uptake for whooping cough, despite Glasgow being a hotbed of discontent over pertussis vaccination.[1] The figures for those born in 1981-2 were 100%, 90%, and 84% respectively,[2] and in 1983-4 pertussis uptake was above 90% and measles joined the others at 100% (to be published). Thus the potential for vaccination in general practice has been shown.

Carter and Jones have shown that health visitors are the largest single positive influence on parents' attitudes to immunisation.[3] In Glasgow the health board child health computer scheme has made a major contribution. Education would help, but above all better communication could cheaply and effectively prevent much of the confusion the advisory clinic now has to cope with.

For instance, better hospital neonatal discharge and follow up letters which comment positively on the advisability of future vaccination would be one way—after all, only 13 of the 117 cases reported had non-medical reasons for attending the clinic. Parents seeing such a statement in a letter from a specialist or hearing their own doctor quote it coupled with discussion can find it very reassuring. If information on contraindications is not clear in hospital letters or in the general practitioner's mind then the telephone has its uses.

The advisory clinic will have a useful part to play, but it is expensive in resources and must take care that its extra provisions are not simply used as a parallel to existing services. I was alarmed to read that increasing numbers attending were thought to reflect "need" for the clinic. I never imagined all the pubs in Glasgow reflected need, but rather demand, and that is not quite the same thing.

S K ROSS

Glasgow G44 3QG

1 Ross SK. Childhood immunoprophylaxis: achievements in Glasgow practice. *Health Bull* 1983;**41**:253-7.
2 Ross SK. Immunisation for whooping cough—a general practice investigation. *Pulse* 1984;**44**:47.
3 Carter H, Jones IG. Measles immunisation: results of a locality programme to increase vaccine uptake. *Br Med J* 1985;**290**:1717-9.

Br Med J (Clin Res Ed): first published as 10.1136/bmj.292.6533.1460 on 31 May 1986. Downloaded from http://www.bmj.com/ on 20 April 2024 by guest. Protected by copyright.