cedure becomes established children who are found at the routine school eye test to have defects of vision will already have been identified and be under treatment, except, of course, for those missed in the initial screening. But they will be no worse off than they are at the moment and it is hoped that a considerable number of children who are being overlooked at present will benefit from the early treatment of their defects. It seems much more profitable to devote resources to a screening procedure of this sort than to the somewhat outdated task of purveying spectacle prescriptions at traditional school eye clinics.

H CAMERON

Ophthalmic Unit,
Heathfield Hospital,
Ayr

Evolution of poliovirus since introduction of attenuated vaccine

SIR,—Dr H V Wyatt (20 August, p 518) seeks the elusive paralytic rate of poliomyelitis with neurological manifestations in the period before the era of oral vaccination. Figures from the collaborative survey designed to study all cases of typical and suspected poliomyelitis, including non-paralytic "aseptic meningitis," in the Western and Eastern Hospital Board areas of Scotland during the first two years of introduction of inactivated vaccine may be helpful.¹

Polioviruses were isolated from 79 (71%) of 112 patients classified clinically as paralytic poliomyelitis and from 26 (11%) of 239 with non-paralytic meningitis. Thus 79 of 105 poliovirus infections with neurological disease were paralytic—a paralysis rate of 75%. Imperfections of the virus isolation procedure mean that the true rate may deviate from this estimate, but probably not by much: serological tests in parallel revealed only 16 additional poliovirus infections.² By similar calculations the paralytic rates were over 60% in 1958-9,³ the last major epidemic in this area, and 74% in 1962,⁴ the last outbreak before control was achieved by the general use of oral vaccine.

NORMAN R GRIST

University Department of
Infectious Diseases,
Ruchill Hospital,
Glasgow

¹ Grist, N R, *et al*, *Health Bulletin*, 1958, **16**, 27.

² Grist, N R, *et al*, *Scottish Medical Journal*, 1960, **5**, 355.

³ Sommerville, R G, MD thesis, University of Glasgow, 1959.

⁴ Green, D M, and Bell, E J, *Ninth Symposium of European Association against Poliomyelitis and Allied Diseases, Stockholm, 1963*, p 113. Brussels, Masson, 1964.

Atherosclerosis, Down's syndrome, and Alzheimer's disease

SIR,—In their very interesting paper Dr J C Murdoch and others (23 July, p 226) report a complete absence of atherosclerosis in all of five patients with Down's syndrome who went to necropsy. At the same time they report that the cause of death in 11 of 21 subjects not necropsied had been reported as cardiovascular in origin.

Some years ago I came across a similar situation in regard to Alzheimer's disease (senile psychosis, cerebral amyloidosis). Here too most of these cases are attributed to "cerebral arteriosclerosis" during life. Post-

mortem examination, however, invariably showed minimal atherosclerosis and occasionally complete absence of this disease. I was often astonished to note "lily-white" arteries in subjects over 80 years of age who had suffered from Alzheimer's disease during life.

Cerebral amyloidosis has been reported as a very common finding in elderly—aged 35 years and over—mongols. It would be very interesting to know if in fact Dr Murdoch and his colleagues found many plaques or tangles in their cases. Such a finding would be of great interest to those trying to probe the causation and mechanism of Alzheimer's disease.

WILLIAM HUGHES

Bristol

* * * We sent a copy of this letter to Dr Murdoch, who consulted Professor Hume Adams, who carried out the neuropathological studies in the cases referred to. Their joint reply is printed below.—Ed, *BMJ*.

SIR,—Four of the five subjects who went to necropsy had the brain submitted for neuropathological examination to the Institute of Neurological Sciences, Glasgow. In three (men aged 40 and 60 and a woman aged 66) there were large numbers of plaques in the representative areas of cortex examined, but in only two of these were there numerous examples of neurofibrillary change. In the fourth case (man aged 56) there were no significant plaques or examples of neurofibrillary change. These findings would accord with the previously reported high incidence of Alzheimer's disease in elderly subjects with Down's syndrome.

J C MURDOCH

Department of General Practice,
University of Dundee

HUME ADAMS

University Department of
Neuropathology,
Institute of Neurological Sciences,
Southern General Hospital,
Glasgow

Medical genetics

SIR,—Your readers may wish to know that copies of the memorandum on the training of medical geneticists (leading article, 30 July, p 279) prepared by the working party of the Clinical Genetics Society may be obtained from the undersigned.

A W JOHNSTON

Chairman of Working Party

Woodend General Hospital,
Aberdeen

Immersion and drowning in children

SIR,—Since the subject of airway warming in the treatment of accidental hypothermia has been raised in your leading article (16 July, p 146) and the subsequent letter from Dr C D Auld and Professor J N Norman (20 August, p 519) I feel that it is time to get the facts in perspective.

In my original article¹ it was suggested that if a non-shivering hypothermic person breathed an atmosphere which is warm and humid it might be possible to conserve 30% of the metabolic heat produced. On theoretical² and experimental grounds³ airway warming is only a supplement to insulation of the body. Nevertheless, in animal experiments³ and

clinical cases² airway warming has been shown to accelerate the rate of rewarming as compared with surface insulation alone. (This fact makes it potentially dangerous for continuous use in chronic hypothermia,⁴ for example, in the elderly if the patients are allowed to breathe spontaneously.) Though the rate of rewarming is of interest there are other factors important in the treatment of hypothermia. Airway warming appears to have a beneficial effect on cardiovascular status^{2,5} and cardiac rhythm^{2,6} out of proportion to the actual rise in temperature, and clinical observations suggest a similar improvement in cerebral function.² In spite of these possible benefits a lot of research is still required to establish the clinical value of airway warming and to allow its use in the treatment of accidental hypothermia to be accepted or rejected.

Since airway warming can act only as a supplement to surface insulation any equipment should be fail-safe, and this means, in addition to other factors, that the initial heat/moisture surge of the CO₂/soda lime reaction⁷ must be controlled. This is especially important since the equipment will be used infrequently by the non-medical members of the rescue services, usually under adverse conditions. I can therefore only repeat⁸ that, to my knowledge, though a number of designs have been described (some commercially available) and while these may be effective in the hands of their originators, there is still insufficient information available to allow any unit to be recommended for general use.

The equipment initially described¹ is *not* the Reviva despite the reference in the letter from Dr Auld and Professor Norman, and in fact the Reviva is a totally different design.

E LL LLOYD

Department of Anaesthetics,
Royal Infirmary,
Edinburgh

¹ Lloyd, E L, *et al*, *Scottish Medical Journal*, 1972, **17**, 83.

² Lloyd, E L, *British Journal of Anaesthetics*, 1973, **45**, 41.

³ Lloyd, E L, Mitchell, B, and Williams, J T, *Resuscitation*, 1976, **5**, 5.

⁴ Bloch, M, *Brain*, 1967, **90**, 769.

⁵ Lloyd, E L, Mitchell, B, and Williams, J T, *Resuscitation*. In press.

⁶ Lloyd, E L, and Mitchell, B, *Lancet*, 1974, **2**, 1294.

⁷ Guild, W J, *Journal of the Royal Naval Medical Service*, 1976, **62**, 173.

⁸ Lloyd, E L, *Outdoors*, 1977, **8**, 9.

Doctors' errors

SIR,—In a recent leading article (7 May, p 1178) on reducing doctors' errors it was suggested that medicine of the future might include a computer-aided system sitting on the physician's shoulder. In the present state of the economy this would seem to be a pipe-dream and it is often rewarding to look at simple, cheaper alternatives which might go some way to reduce errors.

The device described here was developed for use in general practice, but that is not to say that its use is limited to that setting. The idea of the device was occasioned by my dislike of a too rigid concept of the decision-tree approach to diagnosis and treatment while being only too painfully aware that the amount of information available to bear on a given case was often so great that it might not be mobilised every time it was needed and that the growing complexity of interactions between different factors has become difficult to bear constantly in mind.

As there are dual pathways of diagnosis and