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apex. A tuberculin test was strongly positive, but repeated sputum examinations were negative for acid-fast bacilli. Within 3 days of starting treatment with streptomycin, isoniazid, and rifampicin the patient was afebrile and his clinical condition rapidly improved. 5 months later a chest radiograph was normal except for some basal left costal pleural thickening.

CASE 3.—A 23-year-old woman was referred to us for the diagnosis of obscure fever of 2 months' duration. Her only complaint was of recurring fever for which she had been treated with chloramphenicol and tetracycline. She reported having lost much weight during the past 2 months. She was kept under observation in hospital for 3 weeks, during which time she was constantly febrile, the temperature rising in the evenings to 39–40°C. Physical examination and X-ray of the chest showed no abnormality. Repeated sputum examinations were negative for acid-fast bacilli. The patient's tuberculin test, however, was strongly positive. At the end of the 3rd hospital week she was started on streptomycin, isoniazid, and rifampicin. Within 24 hours she was afebrile. She gained weight rapidly and was discharged from hospital 5 weeks later in excellent condition to continue treatment for at least 9 months.¹

These three cases are typical of the problems facing us in the diagnosis of obscure fevers in Egypt. We recently showed that the most important infections in Cairo are the chronic enteric fevers and tuberculosis² and that the misuse of antibiotics further complicates the diagnosis of these infections.³ Besides its effectiveness, therefore, a daily single dose of streptomycin, isoniazid, and rifampicin is very practical, particularly when nursing facilities are scarce and the patient is critically ill. Unfortunately, because of the expense of rifampicin we have only used this regimen in special cases. A full report on the problems of tuberculosis and obscure fevers in Egypt is being prepared.

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Abbassia Fever Hospital, Ministry of
Public Health, and U.S. Naval
Medical Research Unit No. 3,
Cairo, Egypt.

Z. FARID
B. TRABOLSI
A. HASSAN
W. F. MINER.

NO CHILDHOOD

SIR,—Your comment (June 14, p. 1326) on the pamphlet *No Childhood*, dealing with handicapped children in hospital, accepts too uncritically the solutions proposed. The patients at present in this hospital are those whom the social services departments are unable to place elsewhere. Only two weeks ago we opened a new ward for the accommodation of hyperactive adolescents with whom the local-authority residential care staff could no longer cope. This illustrates one crucial point which your review ignores: that handicapped children grow up—and may become more difficult to handle in later life.

Hospitals for the mentally handicapped at present care for: (i) patients with severe behavioural problems, most of whom have committed criminal offences; (ii) a proportion of patients continually or intermittently psychotic; and (iii) patients with multiple handicaps, many of whom are bedridden and elderly. Of course, in addition we have a certain number of patients who are normally placid and physically well. Some are intermittently disturbed, but in general could be cared for in the community were the facilities available. But in my opinion the hospital would still be needed as a back-up facility in the event of sudden changes in behaviour pattern or physical deterioration.

It can well be argued that present hospitals for the mentally handicapped are too large. Smaller hospital units of 20–30 beds have been pioneered here in Wales, but whether they will be able to cope with the whole range of patients

now looked after in larger hospitals has yet to be proved. I see no evidence that social services departments are willing to take over the care of our more demanding patients. Until the day arrives when they are, we shall still need hospitals both large and small.

Hensol Hospital,
Pont-y-clun,
Mid Glamorgan.

T. ALUN PHILLIPS.

VIRUS-LIKE PARTICLES IN CALVES' FÆCES

SIR,—We read with interest the preliminary communication by Dr Mathan and others (May 10, p. 1068), which reported the occurrence of particles resembling orthomyxoviruses and coronaviruses in faeces from Indian children and adults. These particles were not found in Indian neonates, nor were they observed by Flewett et al.¹ in their studies in the U.K., raising the question whether these particles are causally related to the abnormalities of

Particles in faeces from calves with diarrhoea (direct electron microscopy). Stained with 4% sodium phosphotungstate, pH 7.1, magnification $\times 100,000$. a: reovirus-like particles. b: coronavirus-like particles. c, d: myxovirus or mycoplasma-like particles.

intestinal structure and function common in Southern India.

We have been examining faeces from calves with diarrhoea directly in the electron microscope. In addition to reovirus-like (fig. a) and coronavirus-like (fig. b) particles similar to those observed by others,^{2,3} we found myxovirus—or mycoplasma-like particles resembling those described by Mathan et al.—in 33 of the 35 faeces examined. Typically these were spherical particles about 150 nm. in diameter, and possessing a fringe of surface projections 10–15 nm. in length (fig. c). Larger, more irregularly-shaped particles were frequently seen (fig. d). No evidence of an internal component was found, even after lysis of the

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particles using deoxycholate. So far, attempts to propagate these particles in eggs, cell cultures, and mycoplasma media have not been successful. Similarly, Mathan et al. have been unable to grow the human particle, so that the exact nature and significance of both the human and bovine particles is unknown. Nevertheless, the possibility exists that, like the calf and human reovirus-like particles,⁴ these newly described bovine and human particles are also related. Further studies are in progress.

Veterinary Research Laboratories,
Stormont,
Belfast BT4 3SD.

M. S. McNULTY
W. L. CURRAN
J. B. McFERRAN.

ROTAVIRUS INFECTIONS IN A
MATERNITY UNIT

SIR,—The staff of every maternity unit is familiar with outbreaks of mild diarrhoea in which no bacterial pathogens can be detected. On May 29, 1975, faecal extracts from 3 newborn babies at St. Thomas' Hospital, who had loose, offensive stools but no vomiting, were examined by electron microscopy, and numerous rotavirus particles were detected in each of these specimens. During the next four weeks, faecal extracts were examined from a further 61 symptomatic and asymptomatic babies in all three maternity wards as well as the newborn special-care unit. Rotaviruses were detected in 29 (45%) of 64 babies, their ages ranging from three to nineteen days (median five days). No bacterial pathogens were isolated.

The accompanying table shows that rotaviruses were detected more frequently in bottle-fed babies. Naso-

RELATION BETWEEN TYPE OF FEEDING AND ROTAVIRUS
DETECTION

—	Breast-fed	Bottle-fed	Total
Rotavirus detected	11	18	29
Rotavirus not detected	24	11	35
	35	29	64

Difference between detection of rotavirus in breast and bottle-fed babies is probably significant 0.01 > P > 0.05.

pharyngeal aspirates were examined from 2 and urine from 9 babies whose faeces contained rotaviruses. No rotavirus particles were detected in the nasopharyngeal specimens but virus was seen in the urine of 1 male baby: it is impossible to eliminate the possibility of faecal contamination in this case.

Within five days of detecting rotaviruses in the stools of the first 3 cases, rotaviruses were detected in babies from all three maternity wards and in the newborn special-care unit. It is not known how infection was introduced; none of the mothers or nurses gave a history of recent gastroenteritis. Furthermore, rotaviruses were not detected in stools of the mothers of the three babies who presented with diarrhoea. However, it is possible that infection may have been transmitted by young children visiting one of these mothers some two to three days previously. Nevertheless, although it has not been documented, it is possible that adults with or without symptoms may excrete virus, the amount of virus being below the threshold for detection by electron microscopy.

Electron microscopy revealed that some of these babies were probably excreting virus in the order of 10⁸–10¹⁰ per ml. of faecal extract. Virus-particle aerosols, created, for example, by nappy changing, together with the fact that rotaviruses are extremely thermostable,⁵ suggest that

the St. Thomas' outbreak may run a protracted course. Clinically, 6 of the 29 babies had loose, offensive stools (ranging from 2 to 12 per 24 hours) and, although none was seriously ill, 1 was treated with 5% dextrose by mouth for twelve hours. The remainder had only the occasional loose stool or were asymptomatic.

In general, babies excreting rotaviruses did not experience any delay in regaining their birth-weight or in their discharge from hospital.

This outbreak shows that rotaviruses, as well as being associated with the more severe forms of gastroenteritis which provide a major cause of both morbidity and mortality, particularly in developing countries, can cause mild or even asymptomatic infection neonatally. Until the recent association between rotavirus and gastroenteritis was recognised,^{6,7} no cause for this outbreak would have been identified.

Departments of Virology and
Pædiatrics,
St. Thomas' Hospital and
Medical School,
London SE1 7EH.

I. L. CHRYSTIE
BARBARA TOTTERDELL
M. J. BAKER
J. W. SCOPES
J. E. BANATVALA.

RAPID DIAGNOSIS OF VIRUS INFECTIONS

SIR,—We do not entirely agree with your statement (June 28, p. 1411) that "Virus identification by electron microscopy, despite its value for research, is not generally applicable for routine diagnosis except in smallpox". It is certainly true that many clinical virology departments still do not have access to an electron microscope, but most which do, particularly if they are sited on hospital premises, find it indispensable for the rapid diagnosis of certain virus infections.

Many more patients whose immune mechanisms are suppressed because of disease or its treatment are now seen in hospital practice, and these patients are prone to severe virus infections, particularly those caused by the herpes group of viruses. A diagnosis on clinical grounds alone may be difficult, since such patients frequently present with atypical or even bizarre clinical features. By electron microscopy such herpes viruses as herpes simplex or varicella/zoster can usually be identified within a few minutes of collecting specimens. A rapid diagnosis may well be invaluable, for, although herpes infections in immunocompromised hosts may be severe or disseminate rapidly, many patients respond well to antiviral chemotherapy, provided treatment is not delayed. Similarly, a diagnosis of eczema herpeticum can often be made or excluded in patients with atopic eczema; it is not always easy to distinguish this condition from eczema complicated by infection with pyogenic organisms. Eczema complicated by infection with herpes or vaccinia viruses may be severe and even life-threatening, although treatment with antiviral chemotherapy including, in the case of vaccinia, antivaccinal immune globulin may result in dramatic improvement.

It is possible to detect varicella/zoster virus within minutes of collecting specimens from children who present with one or two very early chickenpox-like lesions. This may be invaluable, for arrangements can then be made to protect susceptible contacts at particular risk—e.g., children with leukaemia or those having treatment with corticosteroids, by giving them antivaccinia immune globulin as quickly as possible after exposure. The electron microscope is the method of choice for making a viral diagnosis on

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