practice in Africa is not entirely relevant.—I am, etc.,

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Keratoconjunctivitis Caused by Adenovirus Type 19

SIR,—In the summer of 1973 an epidemic of acute haemorrhagic conjunctivitis due to enterovirus type 70¹ occurred among industrial workers, including Belgian commuters, in Dunkirk, France. Our inquiry into the possible spread of this virus in Belgium was negative. However, it led to the isolation from eye swabs of an adenovirus identified as type 19. Between August and November 1973 the virus was isolated from five patients with severe bilateral keratoconjunctivitis. In another such patient neutralizing antibodies against adenovirus 19 rose from a titre of less than 8 on the third day of illness to 32 after three weeks. All patients were from the Antwerp area, where similar eye disease had been noticed since the spring of 1973. No other viruses were isolated.

In December 1973 and May 1974 adenovirus 19 was isolated from the eyes of seven patients with keratoconjunctivitis (five cases) or conjunctivitis (two cases) at the outpatient clinic of Wilhelmina Gasthuis Academic Hospital, Amsterdam. Two strains of adenovirus type 3 were also isolated from eyes in this hospital during the same period.

In Belgium and in Holland cases were sporadic and apparently non-iatrogenic. They involved adults of both sexes and were healed after two to several weeks. Adenovirus 19 was grown from swabs taken two to five days after the beginning of eye symptoms. A variety of cells supported isolation of the virus in three laboratories: human diploid cells, primary human kidney cells, primary human thyroid cells, and primary African green monkey kidney cells. In vitro study, including neutralization with antisera against adenovirus types 1-33 and haemagglutination inhibition tests, did not reveal a difference between our isolates and the prototype strain.

Since it was first isolated in 1955 from the eyes of a Saudi Arabian child with trachoma,² infections by adenovirus 19 have been reported rarely and the virus has not been claimed to cause any disease. Our isolations of adenovirus 19 from keratoconjunctivitis in 1973 and 1974 coincide with the observation of similar cases in the U.S.,³ and with a hospital-related outbreak which occurred in Canada in 1974.⁴ It thus appears that adenovirus 19 has emerged simultaneously as an agent of keratoconjunctivitis in different parts of the world.

Adenovirus 19 may have acquired pathogenicity for the eye recently. Alternatively, the current outbreaks may have revealed a property that had remained unrecognized because of the rarity of the virus. The following data support the idea that adenovirus 19 has been prevalent for a long time in certain parts of the world. Sera collected from the healthy adult population in Belgium in 1974, in Mali in 1972, and in Zaïre in 1970 were examined for the presence of adenovirus 19 neutralizing antibodies. The 40 Belgian sera examined did

not neutralize adenovirus 19. Of 40 sera from Mali, 85% had a neutralizing titre of at least 16 and 45% had a titre of at least 64. Of 40 sera from Zaïre, 85% had a titre of at least 16 and 40% of at least 64. The highest titre in African sera was 512. This is presumptive evidence for the prevalence of adenovirus 19 in Africa, which needs to be confirmed by virus isolation. Though animal hyperimmune sera against other adenoviruses tend not to neutralize adenovirus 19,⁵ the possibility that adenoviruses other than type 19 may have contributed to the antibody titres in Africans cannot be dismissed.—We are, etc.,

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- 1 Mirkovic, R. R., et al., *Bulletin of the World Health Organization*, 1973, **49**, 341.
- 2 Bell, S. D., et al., *American Journal of Tropical Medicine and Hygiene*, 1959, **8**, 523.
- 3 Hierholzer, J. C., et al., *New England Journal of Medicine*, 1974, **290**, 1436.
- 4 *Morbidity and Mortality*, 1974, **23**, 185.
- 5 Wigand, R., et al., *Archiv für die gesamte Virusforschung*, 1965, **15**, 188.

New Alternatives in the N.H.S.

SIR,—You are to be congratulated on organizing the conference on "New Alternatives in the N.H.S.", the first part of which is reported in your issue of 2 November (p. 272). Unfortunately, however, some concepts of very doubtful validity seem to have crept unchallenged into the discussion. For example, it was stated that there is no saving in hospital overheads when unnecessary inpatient treatment is avoided. This hoary chestnut appears valid only when one's outlook is blinkered to focus on the individual patient. A proper overall view reveals the opposite picture. For example, in a 400-bed hospital with 20 wards, if each ward contains only one unnecessary patient there is the equivalent of a whole ward being unnecessarily occupied. If all these patients were discharged and the distribution of the remaining patients was rationalized there could be very real savings in heating, cleaning, catering, maintenance, and administration costs. In planning a new hospital with this correct economic principle in mind the corresponding building costs will also be saved.

Secondly, it was stated that when varicose veins were treated by injection as an outpatient procedure the savings in surgical inpatient costs must be balanced against the fact that "nearly all" the injected patients would have to be re-treated in five years' time. In fact a controlled clinical trial¹ has shown on a five-year follow up that only 22% (25/115) of cases treated by outpatient injection had required to be re-treated. The corresponding figure for those treated by inpatient surgery was 12% (12/9). Thus the very substantial savings on inpatient costs are certainly not offset by any dramatic difference in the relapse rates.

It seems unfortunate that in a discussion in which economic issues loomed so large those with experience in this field were somewhat sparsely represented.—I am, etc.,

GEORGE TEELING-SMITH

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1 Weddell, J. M. Personal communication, 1974.

Economies in the N.H.S.

SIR,—My sympathies go out to Dr. M. C. Connell and his department (2 November, p. 291) in the matter of unnecessary x-ray examinations. It is not however for the Law Society, the B.M.A., or the protection societies to say what is and what is not negligence. This is a matter for the court advised by expert witnesses.

I am not at all surprised that during the radiographers' strike many of the accident cases sent away never came back. Presumably these patients had no bony injury and so there would have been no litigation whether or not an x-ray was ordered. These cases are not the problem.

The simple fact is that when a patient suffers harm as a result of a failure to x-ray following injury, then it is well-nigh impossible to find an expert who will stand up in court and say that there was no need to x-ray. If such there be, I shall be delighted to hear from them—but before offering their services they should be aware of the sad fact that on investigating such cases one almost always concludes that an adequate history would have demanded an x-ray.—I am, etc.,

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Secretary,

Medical Protection Society Ltd.

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SIR,—A recent Ministry letter has exhorted discrimination in the use of the ambulance service. Patient attends surgery on foot; reason for consultation, a request for an ambulance to attend hospital. When pointed out to him that he is freely mobile he counters with the fact that the hospital told him on his previous visit to contact his G.P., who would order an ambulance.—I am, etc.,

D. ATKINSON

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Respiratory Recording from the Oesophagus

SIR,—Professor J. S. Robinson's experiments (26 October, p. 225) should serve as a warning to all anaesthetists that a stethoscopic examination of the chest is mandatory in all intubated cases.

The presence or absence of breath sounds, normally spontaneous but produced by artificial inflation in the apnoeic patient, will establish whether or not the tube is in the trachea. Also bilateral air entry will confirm that the tube is correctly placed and has not been inserted too far so as to enter a bronchus.

This test, which can be performed in seconds, will add to the patient's safety and the anaesthetist's peace of mind.—I am, etc.,

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