serological tests.[11] The resistance to infection extended for several months. However, the difficulty of obtaining appropriate amounts of the sporozoite antigen has severely limited the practicability of this method.

Previous attempts at experimental vaccination of monkeys with formolized or otherwise attenuated erythrocytic forms of the simian parasite *P. knowlesi* have been only marginally successful, because the immune response thus obtained was limited to the same strain or antigenic variant of the plasmodium and even then was of relatively short duration.[12] A more promising result from immunizing rhesus monkeys with isolated forms of the erythrocytic stage of *P. knowlesi* was recently reported by a group of workers from Guy's Hospital Medical School.[13] Their preliminary studies suggested that much of the protective malaria immunity is related to that stage of development of parasites in the blood when merozoites, derived from mature and fragmenting schizonts, are released into the plasma. This could be recognized by means of the "schizont infected cell agglutination" or S.I.C.A. test developed at the National Institute for Medical Research in London.[14]

The Guy's Hospital research group isolated a large fraction of merozoites from an in-vitro culture of erythrocytic schizonts of *P. knowlesi*. Some 900-2000 million merozoites emulsified in Freund's adjuvant were then injected into six rhesus monkeys. The animals showed no detectable disease, but when challenged with normally infective erythrocytic forms of *P. knowlesi* showed a considerable degree of immunity in the form of very low parasitaemia or its total absence. Though this immunity was specific to *P. knowlesi* it extended over a range of antigenic variants or strains of this parasite. Clearly vaccination with merozoites induces in monkeys a broader spectrum and a higher degree of immune response than any other method attempted until now. These results are of importance as they open the way to preparing a human vaccine against *P. falciparum*, which has a range of antigenic diversity similar to that of *P. knowlesi*.

The great stumbling block is the feasibility of a continuous in-vitro culture of *P. falciparum* as a source of antigen. Difficulties that remain to be solved were well described in two recent documents.[15 16] In the meantime a determined attack on the problem has been launched at the University of New Mexico, in Albuquerque, U.S.A. The American investigators have announced that their attempts at large-scale in-vitro culture of *P. falciparum* in bone marrow cells or in the blood of *Aotus* monkeys may lead "within a year or so" to clinical trials in man.[17]

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Prisoners' Health

The annual report of the Prison Department serves as a reminder, if such be needed in these troubled times, of the state of lawlessness in Britain and of our attempts to cope with it. Medicine is increasingly regarded (quite correctly) as an integral part of the social sciences, and its practitioners should, therefore, be concerned with all aspects of crime as one symptom of social malaise.

An apparent cause for self-congratulation in the report for 1973[1] is that the average daily number of people in custody in December 1973 was 35 010, the lowest figure since mid-1969. Unfortunately, taken as an index of the incidence of offences against the criminal law, this statistic is illusory, for the fall is almost certainly due to the continuing trend away from custodial sentences and the impact of the parole system, introduced in 1967, whereby prisoners are allowed to serve some portion of their sentences under supervision in the community.

In spite of the reduction in the adult prison population there is still overcrowding in many establishments. It is a sad commentary, however, that the junior detention centres for the 14-16-year-olds were full throughout the year and that the pressure on these centres increases. Nevertheless in the face of general overcrowding the health of the inmates was good; no serious outbreaks of infectious disease occurred. There were several cases of hepatitis assumed to be caused by amateur tattooing, a practice which seems from general observation to be on the increase especially among young offenders and to have become the accepted badge of a particular criminal subculture.

With the noteworthy exception of medical officers the prison service is short of staff. The unfortunate result is that the introduction and development of new methods of treatment such as the decentralization of facilities for treating prisoners with a drink problem have had to be curtailed or deferred.

The problem of drug dependence in the community at large is reflected in the 1260 persons received into custody during 1973 reported as having some dependence on drugs—though the principal medical officer of Brixton prison considered this an underestimate. He stated categorically that there is an increase in the number of drug abusers admitted to Brixton and of these there is a marked increase in those who abuse barbiturates. There has been a substantial rise in those remanded in custody for psychiatric reports: from 11 953 in 1972 to 12 542 in 1973, with a rise from 1130 to 1193 in the number of hospital orders (Section 60 of the Mental Health Act 1959). The true extent of the increases can be seen only in the context of the dramatic change since 1961, the first full year after the implementation of the Mental Health Act, when the number so remanded was only 6366 and only 838 hospital orders were made.

A most disturbing, recurring complaint is the difficulty of finding beds in psychiatric hospitals for psychiatric patients on remand. One senior medical officer went further and reported: "in one or two cases where we have had disturbed psychotic inmates on remand, National Health Service reluctance to admit them to hospital has resulted in a compromise whereby the hospital agrees to take them on a hospital order but at the end of 28 days, the agreement being that in the meantime we will get them well enough to go to hospital. This is tantamount to using a prison hospital as a secure admission ward prior to transfer to an open ward."

This is not quite as paradoxical as it may seem. Conventional psychiatric hospitals, as we have so often pointed out,[2-7]

offer virtually no security—which in essence is what the care of so many itinerant and disturbed psychotics demands. Until such time as the interim Butler Committee recommendations[8] are implemented and more secure units are made available this practice will continue and very likely increase.

What stands out in the report is the degree to which the prison medical service takes care—and takes good care—of substantial numbers of society's sore thumbs—alcoholics, difficult epileptics, drug-addicts, psychopaths, and psychotics, particularly chronic schizophrenics. In this respect prisons take second place only to mental hospitals. Indeed, what seems an obvious step to take is to pool the resources of these two vital if unglamorous services. Happily there is evidence that this symbiosis is already beginning and is a two-way process. Several prison M.O.s with psychiatric qualifications and experience are now undertaking sessional work in the National Health Service clinics in London, Winchester, Cardiff, and on the Isle of Wight. Conversely, the number of visiting psychotherapists to the prisons rose from 50 in 1971 to 60 in 1973, most of whom are consultant psychiatrists in the National Health Service. Furthermore, there is a slow but steady increase in the appointment of joint consultants in forensic psychiatry who divide their time between the Prison Service and the National Health Service or university departments. The next logical step forward is to pool not only personnel but premises.

[1] Home Office, *Report on the work of the Prison Department*, 1973, Cmnd. 5767. London, H.M.S.O., 1974.
[2] *British Medical Journal*, 1967, **1**, 317.
[3] *British Medical Journal*, 1969, **3**, 426.
[4] *British Medical Journal*, 1970, **3**, 537.
[5] *British Medical Journal*, 1971, **3**, 443.
[6] *British Medical Journal*, 1972, **4**, 129.
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[8] Home Office and Department of Health and Social Security, *Interim Report of the Committee on Mentally Abnormal Offenders*, Cmnd. 5698. London, H.M.S.O., 1974.

Health Education in the Reorganized N.H.S.

Our failure to make any real impact on the epidemic of cigarette-induced disease in nearly 25 years has been partly due to lack of resources devoted to health education but also to the isolation of the public health services responsible for health education from the main medical services in hospital and general practice. The reorganization of the N.H.S. has made it possible to extend health education and, perhaps, begin to control the great modern epidemic diseases. If this opportunity is to be grasped there are three main needs. Clinicians and all other health service staff have to be convinced that health education could be effective in the prevention of disease. Secondly, training will be needed: training of health education officers to take charge of district health education units, training of specialists in health education and specialists in epidemiology, training of health service staff, especially clinical doctors and nurses, in the part that they should play in health education, and the training of future staff by including health education in the basic training of medical students and other health professions. Finally, there will have to be adequate resources in both materials and staffing.

The D.H.S.S. acted with commendable speed in giving advice[1] to area health authorities on health education in March 1974. Regrettably, little action followed this initiative, because salary scales for health education officers have not yet been decided by the Whitley Council, and in the absence of agreement the Department of Health has not permitted area health authorities to appoint such staff. Furthermore, a recent D.H.S.S. staff training memorandum[2] has shown that there have been fewer applications than expected for places on the various training courses provided (at D.H.S.S. expense) for health education officers and other health service staff. Apparently area health authorities have not taken advantage of the chance offered to train staff so badly needed in this field.

In these times of financial stringency it is all too easy to postpone action, especially as most of the ex-public-health doctors with experience in health education are now overburdened with administrative problems in their new roles in the reorganized N.H.S. The present neglect of health education is not unique; other branches of preventive medicine are suffering equally for similar reasons. Has not the time perhaps come for the D.H.S.S. to correct the flight from the field in preventive medicine which the reorganization of the N.H.S. has caused? Experienced staff at present sitting at their desks in the Department, the regions, and the areas, are needed to provide the skilled manpower for preventive medicine in the districts.

[1] National Health Service, *Reorganization of National Health Service and of Local Government*, HRC (74) 27. London, Department of Health and Social Security, 1974.
[2] Department of Health and Social Security, *Staff Training Memorandum*, STM (74) 37. London, D.H.S.S., 1974.

Treatment for Cataplexy

Cataplexy is part of the syndrome of idiopathic narcolepsy and manifests itself as a brief attack of muscular weakness. (The term should be distinguished from catalepsy, which refers to the maintenance of unnatural postures.)

The cataplectic attack is nearly always a response to sudden emotion, most often laughter or anger, less often elation, sexual excitement, or fear; and it is always the same one or two emotions that are characteristic for any particular patient. The attack may affect the whole body, with collapse on to the floor, or at other times involve only a sagging of the jaw or trembling and slight buckling of the knees. It usually has a duration of seconds but in rare cases may last for several minutes. The narcoleptic's spells of irresistable sleep usually precede the first cataplectic attack by some years.

When the normal person falls asleep he spends the first hour in non-rapid eye movement (N.R.E.M., orthodox, or E.E.G. slow-wave) sleep. A pathognomonic feature of idiopathic narcolepsy is the frequent and immediate passage from wakefulness into rapid eye movement (R.E.M. or paradoxical) sleep.[1] The latter state includes a profound loss of muscle tone[2] and abolition of the H-reflex[3] (the knee-jerk elicited by direct electrical stimulation of the tibial nerve). Cataplexy is, therefore, today regarded as a partial manifestation of R.E.M. sleep: indeed the patient may slip into R.E.M. sleep during his cataplectic attack, as Guilleminault *et al.*[4] have recently reported. Some of the tricyclic drugs prevent the appearance of R.E.M. sleep, and among these the most powerful is clomipramine,[5] which has proved particularly successful in the prevention of cataplexy.[6]

Most narcoleptic patients find the spells of daytime sleep to be their greater problem, but there are some in whom cataplectic attacks recur several times a day and so constitute a major disability. Guilleminault *et al.* selected five patients