Peripheral neuropathy due to folate deficiency is unusual. H. C. Grant, A. V. Hoffbrand, and D. G. Wells[10] described three patients with peripheral neuropathy who had low serum folate levels and who showed improvement after folic acid therapy. These patients, however, were taking poor diets, and possibly the neuropathy was due to a deficiency in other vitamins. The improvement in their neuropathy with folic acid therapy could have been due to increased appetite restoring the vitamin deficiencies. In a study of patients on long-term anticonvulsants S. J. Horwitz, F. A. Klipstein, and R. E. Lovelace[11] have been unable to demonstrate improvement, either clinically or on electromyography, in 12 patients with low folate levels and peripheral neuropathy subjected to a double blind trial of folic acid therapy.

At the present time it remains to be proved that deficiency in folic acid produces any effects on the nervous system of otherwise normal people.

Cathartic Action

The season of good cheer is also apt to be one of dietary indiscretions, so that the already considerable public appetite for purgatives finds fuller expression than usual. These drugs can be obtained without restriction and must be among the most widely used for self-medication. It has, for instance, been suggested that 30% of the elderly take them regularly at least once a week.[1] But despite the frequent use of purgatives we know little about the mode of action of some of them.

The anthraquinone derivatives, of which senna and cascara are examples, are particularly poorly understood. It was claimed at one time that they had a direct irritant effect on the mucosa, but when A. H. Douthwaite and R. Goulding[2] gave senna to mice they were unable to detect any evidence of inflammation in the gut, though purgation was produced without difficulty. Experiments in animals have suggested an effect limited to the large intestine in increasing propulsion, possibly through stimulation of the myenteric plexus, but there has since been little or no support for this concept.

Recently neurohistological staining techniques have been used to show that senna can damage nervous tissue in the intestinal wall of the mouse.[3] The normal mouse intestine tends to contract after the trauma of excision, but this activity was considered to be impaired in 14 of the 20 given the drug by mouth for at least 14 days beforehand, and similar results were obtained after intra-peritoneal injections. Little histological change in the gut was evident after oral treatment until it had continued for four months, but then dendritic swelling and axonal fragmentation were found in the myenteric plexus. In those mice given intraperitoneal injections the main features were the appearance of large numbers of axon swellings and of boutons terminaux. These changes were similar to those which can be produced by mepacrine.

Resection of the colon in a woman who had taken purgatives for 40 years because of symptoms of constipation afforded the opportunity to look for the same changes in the human gut. The variety of purgatives she had taken made interpretation of the results difficult, but some abnormal features were found. They included an increase in the number of Schwann cells and a reduction in the number of neurones and axons.

The cathartic colon is a well-known clinical entity,[4-6] and it would seem that damage could at least in part be due to the anthraquinone group of drugs. But it is impossible to deduce from experiments in animals with frequent and perhaps large doses of purgatives whether a small regular dose of an aperient in man is potentially harmful. The reasons for taking laxatives are hard to determine and are likely to be based more on upbringing than on physiological need. In these circumstances it seems right that purgatives should be known as at least potentially hazardous. In general the likelihood of damage, if a real risk, is probably diminishing, for a comparison of the proportions of laxative takers in populations questioned in 1939–40 and in 1963–4[1,7] suggests a sharp decline of the habit in all age groups, though it remains frequent in the elderly.

Transient Global Amnesia

In 1958 C. M. Fisher and R. D. Adams[1] reported 12 cases of a syndrome in which isolated episodes of transient amnesia occurred in otherwise healthy persons. During the attack, which usually lasted for a few hours, the patients were disorientated in time and place and were incapable of recording and retaining new impressions, yet they showed no significant defect of remote memory. The onset was usually abrupt and recovery was also relatively rapid. Following recovery, however, the affected individuals invariably had no recollection of the events which had occurred during the attack, and often there was retrograde amnesia extending for up to three hours prior to its onset. In 1960 M. B. Bender[2] described 26 similar cases. In 1964 Fisher and Adams[3] published a more comprehensive report of their experience with this syndrome, and seven additional cases were described in 1966 by E. C. Shuttleworth and C. E. Morris.[4] T. Bolwig[5] has now described four personal cases, all of whom were elderly, three over the age of 70. One of his patients suffered two such episodes but none of them had any past history of epilepsy, head injury, cerebrovascular disease, or of any other significant illness, save for one who had been successfully treated for cranial arteritis. Apart from mild hypertension, no patient showed any physical abnormality during or after the attacks, and mild and non-specific abnormalities were discovered in the electroencephalogram in two cases only. Each patient complained of feeling "strange" during the attack. Restlessness and anxiety were frequently observed and there was often intermittent confusion and disorientation. A total inability to record and retain new information was the salient

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feature of the condition; one patient asked if her daughter was wearing a new dress, even though the patient had been with her when she bought it the day before.

While episodes of prolonged amnesia occurring as a response to stress are often construed as being hysterical, this organic syndrome is quite unlike so-called hysterical amnesia, in which the patient is unaware of his own identity and of his address and is often incapable of answering any questions about himself or his past life. In transient global amnesia, by contrast, memory for events in the remote past and awareness of identity usually remain intact even during the attack, but the patient knows that his memory is defective and is incapable of repeating within a few seconds or minutes a test phrase offered to him. These episodes commonly occur in middle-aged or elderly patients who show evidence of mild hypertension or atherosclerosis, they have been described as coming on after exertion or prolonged exposure to cold, and recovery is almost invariably complete within a few hours; all this strongly suggests that the syndrome is due to transient cerebral ischaemia. Recent clinical and experimental evidence has underlined the importance of the mamillary-hippocampal complex in memory function, and Bolwig[5] has suggested that this syndrome is probably the result of transient ischaemia in the hippocampal region of one or other temporal lobe—a view which is now widely held. In the typical case transient amnesia alone is rarely, if ever, an indication for specialized neuroradiological investigations, including angiography, and since recovery within a few hours can be confidently predicted no specific treatment other than reassurance or sedation is needed. The disorder is probably much more common than is generally recognized. It is alarming both to the patient and to his relatives, but the prognosis appears to be uniformly favourable.

Elusive Salmonellae

Organisms of the salmonella group are widely distributed throughout nature, and it is scarcely surprising that most primary agricultural products are contaminated with them. Outbreaks of food-poisoning, or less frequently of enteric fever, can often be traced to eating contaminated food. Consequently much of the work of public health laboratories in the United Kingdom and other countries is devoted to the examination of foods and food products, as well as of animal and human excreta, for the presence of salmonellae. With so much effort being expended in the chase it is desirable both that the bag should be a good one and that different laboratories should show consistency in their results.

Results were compared from various laboratories of isolating salmonellae from samples of pig faeces and minced meat which were either naturally contaminated or had been artificially contaminated with *Salmonella utrecht*.[1] The laboratories taking part in this strenuous technical Olympic were situated in eight countries in Western Europe, including Britain, and each employed its own routine techniques. It was found that all were equally successful at isolating salmonellae so long as there was no large competing flora, but, as soon as the non-salmonella bacterial population increased, results from the different laboratories became much more inconsistent. This particularly applied to the isolation of salmonellae from artificially contaminated minced meat.

An earlier comparison[2] of results of attempted salmonella isolation from minced meat was undertaken by five different laboratories in the Netherlands. Two of the five obtained lower numbers of positive isolations than the remaining three. Though in the earlier part of the investigation the different laboratories used the techniques of isolation to which they were accustomed, later a standardized technique was followed in all laboratories. Despite this uniformity there was no evidence that the two laboratories whose results were below standard showed any improvement. Even those laboratories judged comparatively efficient failed to identify appreciably more than half the positive samples.

Several factors may contribute to discrepancies in the results of such trials. For instance, in the circumstances of natural contamination salmonellae are not evenly distributed throughout the product.[3-5] Furthermore, in any foodstuff the presence of food-poisoning organisms may be obscured by that of other germs.[1 6 7] Cold storage of the foodstuff also increases the difficulty of isolating salmonellae either by lowering their numbers in relation to the competing microflora[1] or by subjecting them to low-temperature metabolic injury such as has been described in connexion with other germs.[8] It is to compensate for these difficulties that various techniques of treating inocula containing a mixed flora and including salmonellae have been described.[9-11] The enrichment medium devised by F. Rappaport, N. Konforti, and B. Navon[12] has been subjected to careful trial[13-15] and seems to offer considerable advantages. The biodynamics of salmonella enrichment are of exceptional interest and have been carefully studied by J. E. Jameson,[16 17] from whose observations the value of secondary enrichment is clear.

In view of all these difficulties one may wonder why foodstuffs cannot be examined in the same way as water supplies, the presence of the coli-aerogenes group of bacteria being accepted as an indication of faecal pollution. Unfortunately the presence of faecal coliform organisms is not necessarily directly related to the presence of organisms of the salmonella group.[18 19]

In a field full of the risks of discrepancy, sampling and bacteriological techniques are two variables which lend themselves most easily to international standardization. But E. H. Kampelmacher's observations[2] indicate that factors making for diverse results exist which are not purely technical or the result of heterogeneous distribution of salmonella in foods. While it is to be hoped that local and international agreement may be reached on these matters, it may be a relief to microbiologists in an automated age to know that here, as in other areas of their art, there is in the end no substitute for experience.

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