and starchy foods thus give a sense of repletion directly after a meal and a regretful sense of emptiness five hours later; the fats have a greater staying power. It is an old and wise tradition that fat-eaters are more piously contented with existence than those who abhor fat. Again, if one wishes to give a person undergoing much strain from work or disease a more than generous amount of food he is given average diet, and fats and protein are added in more than average proportion; but if carbohydrate is piled on carbohydrate the result is flatulent fermentative dyspepsia and even physical exhaustion. Fats are tabloids of concentrated food, undiluted with water. They have more than double the calorific value of any alternative food. The question of bulk is of importance, as the alimentary capacity has its limits. E. H. Starling states[2] that fat should compose from 20 to 25 per cent. of the whole diet.

Summary.

(1) We find that tuberculous patients require more food than the average amount needed by the ordinary labourer outside. The minimum for Gateforth patients contains 3500 calories, the patients being almost invariably adults.

(2) The diet must be rich in protein and fat—protein, 4 to 4½ oz. per head per day; fat, 4 oz. per head per day. We consider that the fat should be largely animal fat, particularly in the form of milk and milk products. If margarine is used it should be as oleo-margarine and not made from vegetable fats.

(3) Eggs should be in the dietary, and when they are not supplied their place should be taken by an extra amount of meat given according to accurate calculation.

(4) Whole-meal bread, beans, peas, and lentils should always be used, together with a plentiful supply of fresh fruits and vegetables grown in the sanatorium grounds.

(5) Two pints of milk per day is the amount we suggest for each patient, and we draw attention to the following facts:—

In the final report on the production and distribution o milk (Cmd. 483) it is pointed out that 0·25 pints per head per day is the average amount of milk used in Great Britain, although this amount is increased by the use of condensed and other forms of preserved milk. This amount is inadequate, but from the daily milk allowance at Gateforth (namely, 2 pints per head) we get 25 per cent. of the calorific value of the total food supplied, 33 per cent. of the total protein, 36 per cent. of the total fat, and the following percentage of the total vitamines: 75 per cent. of the total food rich in fat soluble A; 63 per cent. of the total food rich in water soluble B; and 65 per cent. of the total food rich in antiscorbutic principles.

Can the importance of a plentiful, clean, rich, milk-supply, not only to the patient in the sanatorium but to the multitude outside its gates, be further emphasised? We have seldom needed to depart from a routine diet based upon the principles and rules of experience set down in the foregoing pages. Raw-meat feeding has not been carried out at Gateforth, although it is sometimes prescribed in the sister institution at Armley. Again, in the very few cases of hæmoptysis met with at Gateforth diet has been reduced to the traditional drastic minimum of hospital practice, the sufferers being transferred as soon as possible to a more suitable institution.

[2] Brit. Med. Jour., August 3rd, 1918, p. 105.

A MEDICAL MAYOR.—**Mr. Arthur Charles Roper**, honorary surgeon to the Royal Devon and Exeter Hospital and Exeter Eye Infirmary, has been nominated as Mayor of Exeter.

SALARIES OF SCHOOL MEDICAL OFFICERS.—At the last meeting of the Devon Education Committee it was decided that the salaries of school medical officers should in future be £500, increasing to £600 per annum by annual additions of £25. It was also determined that the salary of the present medical officers be raised to £500 a year, as from April 1st last, and that the travelling allowance be raised from £175 to £200 per annum.

SYMPTOMS RESEMBLING TABES DORSALIS

ARISING AFTER ANTITYPHOID INOCULATION.

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THERE is ample evidence that the low percentage of cases of enteric fever in the British army during the recent war was due to systematic inoculation with anti-typhoid vaccine, and also that in the vast majority of cases such inoculation was quite harmless. Large doses of the vaccine are well tolerated by healthy persons, but this is not always the case in persons who have some morbid taint. The vaccine may light up a latent tuberculosis, may cause a rise of temperature, and a recrudescence of intestinal symptoms in persons who have suffered from enteritis, and may lead to the development of albuminuric retinitis in the subjects of Bright's disease.[1] Meyer has recorded a sudden death due to œdema of the glottis after inoculation in a case of status lymphaticus.[2] Very rarely symptoms of disease have been observed to develop in previously healthy persons soon after inoculation. The sequence, of course, may have been accidental, the observed illness being due not to the vaccine but to some other agent. A critical investigation of every case is essential, but even then it may be difficult or impossible to decide as to the cause of the illness. The absence of satisfactory proof, however, neither detracts from the interest of the association, nor lessens the necessity for putting it on record.

Sequelæ of Antityphoid Inoculations.

Before describing a case recently under observation, I will briefly allude to some communications by French physicians, in which cases of nervous sequelæ of anti-typhoid inoculation are described. In nearly all the triple vaccine known as T.A.B. was used, and the symptoms appeared suddenly within a few hours of the vaccination. Two cases with signs of cortical thrombosis are reported by Roussy and Cornil[3]:—

1. A sensory disturbance of the left arm with ataxia developed on the day after a third injection of T.A.B.; the disturbance was of cortical type and corresponded to the description of cortical lesions given by H. Head and G. Holmes. There was slight tremor of the left hand and movements of the fingers resembling those of athetosis. The motor power was not impaired: slight muscular atrophy developed for a time,

2. The patient fell unconscious after a first injection of the same vaccine. He was found to have right hemiplegia, total aphasia, and signs of meningeal reaction. Six months later there was a typical residual hemiplegia with dysarthria.

In both cases the Wassermann reaction was negative. The authors think they were justified in regarding the inoculation as the cause of the cerebral lesion. Seven cases are recorded by Souques[4]:—

1. A man, aged 41, was found in a semi-comatose condition with right hemiplegia and aphasia a few hours after a second injection of an anti-paratyphoid A and B vaccine; he remained semi-conscious for about a week. Hemiplegia and dysarthria were present 18 months later. Syphilis and alcohol were excluded.

2. A man, aged 35, was suddenly seized with headache, pyrexia, and vomiting three hours after a fourth injection of anti-typhoid vaccine. A year later there was right-sided paresis together with other symptoms which pointed, in the author's opinion, either to a unilateral cerebellar disturbance or to disseminated sclerosis.

3. A man, aged 33, almost immediately after a fourth injection of T.A.B., began to suffer from violent headache and other meningeal symptoms. Eight months later there were no objective signs of a cerebral lesion, but the patient complained of constant headache and was very irascible and indifferent to the conduct of his affairs; he also suffered from marked amnesia. The Wassermann reaction was negative.

4. A man, aged 38, previously healthy, had a genuine epileptic fit during the night following the day when he had a second injection of T.A.B. vaccine. Subsequently other fits occurred and always during the night.

5. A man, aged 19, a few hours after a second injection of T.A.B. vaccine, became feverish, vomited, and had a stiff neck. Four months later he suffered from constant headache. The Wassermann reaction was negative.

6. A man, aged 21, after a single injection of antityphoid vaccine, developed severe headache and vomiting; the vomiting continued for a month, the headache during the four months he was under observation.

7. A man, aged 41, after a third injection of the vaccine, noticed that the right side of his neck was getting larger; four months later his eyes were unduly prominent and his hands trembled. Graves's disease was diagnosed and marked signs of this disease were present

two years later. Souques believes that there was a causal relation between the inoculations and the sequelæ, but offers no explanation of the association.

A fatal case of acute ascending Landry's paralysis is reported by Guillain and Barré,[5] death occurring nine days after a fourth injection of 1½ c.cm. of T.A.B. vaccine. After a full consideration of the case the authors conclude that the vaccination was in some way the exciting cause of the paralysis.

The Author's Case.

The following is a brief clinical account of a patient under my own care:—

History.—J. W., aged 36, was admitted to Brinnington Hospital on June 22nd, 1920. He enlisted in August, 1914, and became an orderly in the R.A.M.C., stationed at Woolwich. He had always enjoyed good health. Towards the end of January, 1918, his left arm was injected with antityphoid vaccine without any ill-effects. A week later he was inoculated a second time. In a few hours he began to feel sickly, and on getting out of bed the following morning his legs gave way and he fell on the floor. He was helped up and put to bed. A doctor saw him the next day and told him to get up and fight it out. He could get up but could only walk by catching hold of objects near him; his hands also were helpless and he frequently dropped things he was carrying. He states that although he has had various kinds of treatment there has been no improvement in his condition, which is now much the same as it was two years ago. About 18 months ago his blood and cerebro-spinal fluid were examined; both gave a negative Wassermann reaction. On admission to hospital he complained of headache, a burning feeling down the spine and in the abdomen, and of weakness of the left leg; he said his left foot often turned over (inversion) and threw him down.

Symptoms.—These have not varied much during the last three months, and are as follows. All movements of left leg weak; resistance to passive movement at ankle, knee, and hip much impaired. Muscles of both legs flaccid, showing a slight or moderate degree of hypotonus, as when the limb is raised with knee extended. Marked incoördination of both arms and legs. When his eyes are closed his attempts to touch the tip of his nose are very imperfect, especially with a finger of the left hand; Romberg's symptom well marked; gait ataxic. Cutaneous sensibility appears to be slightly impaired over whole of left side. Knee-jerks, examined many times, have always been sluggish; right jerk, the weaker of the two, sometimes impossible to elicit; ankle-jerks also sluggish; right jerk very feeble. Abdominal reflexes have never been obtained; plantar reflex, flexor in type, very feeble and often absent. Micturition delayed, slow, and prolonged. Sexual functions impaired; he states that he has not had an erection since beginning of illness. Pupils are unequal in size, right pupil being smaller than left; both react to light and accommodation, but right pupil not so well as left. Mental condition excitable; he tends to exaggerate his symptoms, and states that his memory is very bad. Blood and cerebro-spinal fluid, again examined, gave a negative Wassermann reaction. Psycho-therapy, but not including hypnotism, with many attempts to re-educate the movements of his limbs, have been tried without success.

Diagnosis of the case is difficult. The ataxia, the hypotonus, the unequal sluggish knee-jerks, and the unequal pupils strongly suggest tabes; the Wassermann reaction, however, is negative. If the symptoms of tabes should become more distinctive then the old question will arise—namely, Can true tabes ever occur apart from syphilis? My answer is that I have seen cases which presented symptoms indistinguishable from those of tabes in which syphilis, so far as our present tests go, could be absolutely excluded; such cases, however, are very rare. Hysteria has been fully considered; there is much in the man's behaviour and conversation to support that diagnosis. Experience of the psycho-neuroses during the war has tended to widen the range of hysteria, to lead us to regard many symptoms as hysterical which formerly were thought to depend on definite lesions in the nervous system; we are finding an increasing difficulty in separating "functional" from "organic" disease. Even the ataxia, or at least some of it, in cases of genuine tabes, may be psychical in origin. But hysteria alone can scarcely account for such objective signs of disease of the nervous system as are present in the case described.

References.—1. Bussy: Lyon Méd, 1919, p. 20. 2. Meyer: München. med. Wchnschr., 1919, p. 261. 3. G. Roussy et L. Cornil: Rev. Neurol., 1919, p. 453; also G. Roussy, p. 505. 4. A. Souques: Rev. Neurol., 1919, p. 501. 5. G. Guillain et J. A. Barré: Rev. Neurol., 1919, p. 595.

SURGICAL TREATMENT OF MALIGNANT DISEASE OF LIP AND JAW.[1]

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I PROPOSE to consider certain factors connected with the lesions indicated in the title of this paper. More particularly do I wish to lay stress upon the best means to be adopted for the eradication of the disease, the restoration of function and the prevention of deformity.

I will first consider malignant disease of the lip, and bring to your notice certain interesting facts connected with its incidence. In a recent paper[2] A. C. Broders gives certain statistical data compiled from a series of 537 cases. He divides epithelioma of the lip into four grades, according to the differentiation of the cells. The least malignant type is that in which differentiation is most pronounced, whereas lack of differentiation indicates the quick growth of more pronounced malignancy. The microscopical appearance is of little value as an indication for treatment, but may be of considerable value from the point of view of prognosis.

Relative Incidence.

The relative rarity of the disease in females is an outstanding feature. In Broders's series of 537 cases the male patients number 526, whereas only 11 were females, a proportion of 49 to 1. C. Rowntree recorded particulars of 241 cases, males affected being 233 and females 8, a proportion of 29 to 1. In the Cancer Hospital malignant disease of the tongue in women is sufficiently uncommon. Malignant disease of the lip is even more so, and our experience here suggests that the proportion indicated by Broders is more nearly the correct one. Epithelioma of the lip again is a lesion of advanced age; thus in Broders's series the youngest case was 21 years of age and the oldest 97, with an average age-incidence of 57·3. In Rowntree's series the youngest patient was 29 and the oldest 81, the average age being 56·4.

A large proportion of people affected are connected with outdoor activities, Broders noting that 68 per cent. were thus employed. In a number of cases, too, the malignant lesion is preceded by a sore or ulcer. The freedom of the upper lip as compared with the lower is very striking; the lower lip is affected in 96 per cent. of the cases, the remaining 4 per cent. being those cases in which the upper lip and the angles of the mouth are the sites involved.

Ætiology and Duration.

The lesion is usually situated to one side or other of the middle line, and shows a marked predilection for the muco-cutaneous surface. In those cases affecting the free border of the lip the influence of syphilis would appear to be a negligible factor. This is in marked contrast to the findings in malignant disease of the tongue, where a definite history of syphilis can be elicited in something like 95 per cent. of the cases.

In those cases, however, in which the buccal surface of the lip is primarily affected the syphilitic history, or a definite preceding syphilitic lesion, plays a larger part as an ætiological factor. In four-fifths of the cases patients are addicted to smoking, and in a large proportion of these the method employed is the pipe—frequently clay of the unglazed variety. The relationship of clay-pipe smoking to epithelioma of the lip is demonstrated by F. L. Hoffman in his work on "Mortality from Cancer throughout the World." He states that in the district of Columbia the negro women smoke clay pipes, a habit which is practically unknown among the white population. At ages over 40 8·4 of 100,000 of the black population are afflicted with mouth cancer, whereas only 3·3 of the whites are similarly affected. At ages over 70 the incidence of malignant disease in the blacks increases to 30·1, as compared with 8·6. In this connexion it is interesting to note that the incidence of cancer of the lip undergoes no diminution in old age, such as is

[1] A post-graduate lecture delivered at the Cancer Hospital.
[2] Journal of the American Medical Association, March 6th 1920.