highest point in the axillary line. Again, when both air and fluid are present in the pleural cavity, a splashing sound will be produced on shaking the patient. The displacement of the heart in pneumothorax is frequently very great, for the entry of air into the pleural cavity destroys the cohesive property of the pleura by separating their two opposing surfaces so that the lung collapses, thus leaving unopposed the normal negative pressure set up by the other lung, and in consequence the heart is pulled over towards the sound side.

Treatment.

The acute symptoms at the onset should be relieved by a hypodermic injection of morphine and the application of a hot fomentation to the side. In many cases this is sufficient, and in three or four weeks the air will have been absorbed. In other cases, however, it may be necessary to tap the air in the pleural cavity, and this may have to be repeated three or four times in the first twenty-four hours. In such cases Fishberg recommends the injection of a quantity of air into the pleural cavity, on the assumption that the rise of pressure so caused will be sufficient to keep the perforation in the lung closed long enough to enable it to heal. In hydro-pneumothorax the same conservative plan is adopted as in the treatment of a simple pleural effusion. No mechanical intervention is undertaken for some three weeks, unless rendered necessary at an earlier date by the appearance of the signs of positive intrathoracic pressure. At the end of this time, if there are no indications of absorption, air is removed, and only after this has proved inadequate is fluid withdrawn. In pyo-pneumothorax the pus is withdrawn as soon as diagnosed, preferably by repeated aspirations in tuberculous cases.

ARTIFICIAL PNEUMOTHORAX.

The treatment of pulmonary diseases by the induction of artificial pneumothorax was first suggested by Carson, a Liverpool physiologist, about 1822, but it is only in recent times that the method has been employed on an extensive scale. It is now recognized as a valuable therapeutic measure in properly selected cases of pulmonary tuberculosis, in severe cases of haemoptysis, and to replace a pleural effusion or "tuberculous empyema." Less frequently it is employed in the treatment of bronchiectasis and pulmonary abscess.

In regard to pulmonary tuberculosis, all are agreed that the most suitable type of case for pneumothorax therapy is the one in which the lesion is unilateral and unaccompanied by firm adhesions, but opinions differ in regard to the most suitable stage in the course of the disease in which to employ the treatment. Some authorities advocate pneumothorax therapy in the early stages of unilateral lesions, on the grounds that the chances of the disease becoming bilateral are thereby diminished, that there is less likelihood of meeting with firm adhesions, and that the more local the disease the more chance is there of the lung refunctioning after compression. Others, however, prefer to wait until residence in a sanatorium has been given a trial before resorting to artificial pneumothorax. Personally, I adopt the latter course, and only consider the induction of artificial pneumothorax if, at the end of six months' residence at a sanatorium, there is no improvement in the patient's condition. The effect of sanatorium treatment in these early cases is, in my experience, so beneficial that the number of cases that will require the induction of pneumothorax is very small. The value of pneumothorax therapy lies more in the fact that it may prove beneficial in those cases which do not respond to ordinary sanatorium treatment, rather than in its being applicable to great numbers.

It is sometimes employed with success in cases in which both lungs are involved, provided that the second lung is but slightly affected, but such a procedure is not without risk, for it may, and does sometimes, lead to rapid extension of the disease in the uncollapsed lung.

Method of Induction.

To the method of induction of artificial pneumothorax I do not propose to refer, for the technique can only be learnt from an actual demonstration. An initial 300 c.cm.

of air is introduced, not with the object of causing collapse of the lung, but of producing a cavity of reasonable size which can be enlarged by subsequent refills. The first refill is usually given the next day, and the second about two days after the first. Afterwards the refills may be repeated at intervals of three days, then at four or five, the intra-pleural pressure being gradually raised each time until at the end of two or three weeks efficient collapse has, as a rule, been obtained. In these refills the amount of air given varies between 600 and 900 c.cm. If more than this is required it is safer to give the refills at more frequent intervals than to put in a larger quantity at one time. It then remains to space and adjust the refills so as to prevent the lung from expanding again. This can only be determined by a careful watch on the temperature chart, the patient's weight, and the signs, symptoms, and x-ray appearances in each case. Frequent x-ray examination is the best way of ascertaining the amount of collapse. In cases of haemoptysis, where rapid compression of the lung is desired, a larger quantity of air than is usual in the ordinary case of pulmonary tuberculosis may be given.

Once the lung has collapsed efficiently it is inadvisable to allow it to expand under two years, and even at the end of that time, if on expansion there is a return of symptoms of active pulmonary tuberculosis, further refills must be given. After such efficient collapse monthly refills are usually sufficient to maintain it.

The presence of laryngeal tuberculosis is no bar to the employment of artificial pneumothorax, but its induction is contraindicated when there is extensive and active disease in both lungs, or when there is extensive tuberculous disease elsewhere; also in cases complicated with heart disease, diabetes, asthma, bronchitis, and emphysema, and in old people and persons of a highly nervous temperament.

The main principle underlying the therapeutic value of artificial pneumothorax is rest. Rest is essential to the healing of any wound, and collapse of the lung affords such rest by annulling the respiratory excursions. Moreover, by relieving the state of tension in which lung tissue normally exists, it promotes healing by allowing cavities to collapse, with consequent apposition of their walls and ejection of their toxic and infective contents. Again, collapse of the lung induces a venous and lymphatic stasis in the lung, and thus promotes the formation of fibrous tissue. The effect of such stasis is also to retard the absorption of toxic products into the general blood stream and to impede the escape of tubercle bacilli into the lymph stream, thus tending to localize the lesion.

Furthermore, it is suggested by Goebel¹ that the tubercle bacillus, being an aerobic micro-organism, requires a plentiful supply of oxygen, and therefore does not thrive so well in a lung which is collapsed owing to obliteration of the pulmonary capillaries.

REFERENCES.

- ¹ Mitchell Lecture, *Lancet*, November 5th, 1921. ² Maurice Fishberg: *Pulmonary Tuberculosis*, published by Henry Kimpton. ³ *Practitioner*, July, 1921. ⁴ *Lancet*, December 14th, 1912.

THE MENTAL ASPECT OF EPIDEMIC ENCEPHALITIS.*

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OCCURRENCE.

MENTAL symptoms were found to have occurred in a high proportion of cases. Thus, of 113 patients, mental symptoms were noted in 92, at either acute or chronic stage. In view of the variation of symptoms and their relation to the age of the patient the cases were analysed with special reference to the age factor. For this purpose the patients were divided into two groups: (1) children and adolescents up to the age of 18 years inclusive, and (2) patients aged 19 years and above. One patient from each group failed to survive to the chronic stage.

* Being the abstract of a paper which was read before the Liverpool Medical Institution on December 13th, 1928.

Children and young people showed a rather greater liability to mental affection than did the patients of adult years. Of the 113 patients, 47 were of Group 1; 42 of these (that is, 89.4 per cent.) showed mental symptoms, and of the 5 patients not so affected none were under the age of 15 years. On the other hand, from the 66 adult cases mental affection was noted in 44 (that is, 66.6 per cent.). In Group 1, therefore, mental symptoms occurred with greater frequency than in Group 2, and were the rule in all cases under the age of 15 years.

Mental Symptoms in Epidemic Encephalitis: Occurrence of Symptoms According to Age Groups.

Type of Case or Symptom.	Group I, Children and Adolescents (aged 1-18 inc.)	Group II, Adults (aged 19 and over).
ACUTE STAGE:		
Total cases of epidemic encephalitis ...	47	66
Cases showing mental symptoms ...	42 (89.4%)	44 (66.6%)
Acute delirium	27 (77.8% be- came chronic)	29 (34.4% be- came chronic)
Sleep disturbance	25	24
Emotional or conduct change	9	4
Psychotic symptoms... ..	3	5
Catalepsy stupor, etc.	13	13
CHRONIC STAGE:		
Conduct change	21	11
Moral change	12	0
Emotional instability	22	13
Psychotic symptoms... ..	5	13
Phobias and psychoneurotic symptoms	4	3
Bradyphrenia	11	13
Nocturnal excitement	12	6

DEGREE OF PERMANENCE.

There appeared, too, to be a greater tendency towards the more permanent type of mental affection among children and adolescents than among adults. Out of 92 cases showing mental symptoms at some stage, a history of acute delirium was given in 56—27 in Group 1, 29 in Group 2. In 21 cases out of 27 (that is, 77.8 per cent.) in Group 1 mental symptoms were noted in the sequel, while of the 29 adult patients only 10 showed a mental sequel (that is, 34.4 per cent.). The degree of mental affection at onset appeared to bear no relation to the symptomatology of the sequel.

PROGNOSIS.

With regard to the general question of prognosis in the case of mental disorder occurring during epidemic encephalitis, it has already been indicated that there is a greater tendency to the more permanent type of mental affection among children and adolescents than among adults. Of the 61 cases in which mental symptoms occurred during the chronic stage, or sequel of the disease, 23 showed gross mental change such as should warrant special care, whether the symptoms consisted of change of conduct, moral change, or states akin to the manic-depressive psychosis or chronic delusional insanity. Of these 23 cases, 16 belonged to Group 1, and while under observation none of the 16 recovered a normal state of mind. On the other hand, from the 7 cases belonging to Group 2, which were observed over the same period of time, several of whom were certified, 5 showed a complete return to sanity. It would seem, therefore, that the prognosis with regard to mental affection, other than delirium at onset, which occurs during childhood or adolescence, is extremely bad. On the other hand, in adults, even when the symptoms are of gross mental disorder, and might indicate a bad prognosis where the case is one of pure psychosis, the prognosis is relatively good, since in patients in whom the encephalitic mental state resembles psychotic disorder of an extremely chronic type complete recovery frequently occurs.

THE AGE FACTOR IN SYMPTOMATOLOGY.

The dependence of mental symptomatology on the age of the patient, so often recorded in the past, was well

illustrated in the present series. The case records were analysed to determine the incidence of the following groups of symptoms: in the acute stage from delirium, neurosis, emotional instability, change in conduct, moral change, disorder of sleep, nocturnal excitement, psychotic symptoms, and evidence of katatonia, catalepsy, or stupor; and in the chronic stage for bradyphrenia and euphoria in addition to the above.

During the acute stage the symptomatology of the two age groups was very similar, with the exception that patients who exhibited marked emotional instability and change of conduct as the chief feature of their acute attack were more common in Group 1, comprising children and young adults.

In the sequel the differences between the two groups were very much more marked. The mental symptomatology of Group 1 was characterized by change in conduct, moral change, emotional change, and nocturnal excitement. In adults, on the other hand, not only was the tendency to mental affection generally less, but among those cases affected psychosis occurred with greater frequency.

MORAL DISORDER.

In classification of the symptoms, definite distinction has been drawn between disorder of conduct and moral disorder, since the former may exist in marked degree, without any element of the latter, and also a certain amount of conduct disorder may depend on physical involvement, an aspect to which further reference will be made. Of the whole series, 12 patients exhibited moral change, but none of these came from Group 2. Among the symptoms met with in such cases were observed the following: uncontrolled use of bad language, gross cruelty, pugnacity and violence, thieving, lying, mythomania, in which the patient seemed unable to refrain from telling the most obvious untruths or from ridiculous exaggeration, truancy from school, running away, begging, marked and precocious eroticism, masturbation, indecent exposure, incest, sodomy, or indecent assault. No somatic sexual precocity, such as that noted by Wimmer,¹ was observed, however. Among young males there was naturally a greater tendency to the more violent type of disorder, such as criminal or indecent assault.

DISORDER OF CONDUCT.

Change in conduct, too, proved much more common among children and adolescents than among adults, two-thirds of the 33 cases exhibiting such changes falling into Group 1. Every degree in change of conduct was noted, from the acquisition of some particular habit to conditions in which almost an entire change of personality was involved. Grimaces, noises, nail-biting, carelessness as to, or perversion of, daily habits, singing, jumping, merycism, and spitting occurred.

Patients suffering from disorder of morals and conduct often showed themselves quite amenable temporarily, as if enabled for the moment to exercise voluntary control—when, for a short time, indeed, many of them would exhibit acute consciousness of their shortcomings; but as soon as outside influence was withdrawn their symptoms would return. Voluntary attention was frequently diminished, but instinctive attention was markedly increased, the patient showing an abnormal degree of curiosity. Though the intelligence quotient, as measured by Stoddart's modification of the Binet-Simon tests, was found to be very much below normal in several cases, it was difficult to determine whether any actual impairment of intelligence was present, since the poor response to a test might be accounted for by the derangement of attention just described, or by bradykinesia and bradyphrenia of the patient—the first preventing adequate continuity of concentration, the second group of factors causing rapid fatigue and disinclination for mental effort generally. Any defect of intelligence so recorded, therefore, would appear to be rather of a functional character, than to be due to any organic brain involvement.

PSYCHOTIC SYMPTOMS.

A resemblance was noted between patients suffering from epidemic encephalitis and those afflicted with such psychoses as manic-depressive insanity and dementia

praecox. There were found to be distinct points of difference, however, between the mental disorders of epidemic encephalitis and the psychoses which they resemble. The delusional state of epidemic encephalitis is more transient and variable than that of chronic delusional insanity. The mental outlook is objective and the immobility bradykinetic in those cases which resemble melancholia, but which differ from it for those reasons. The apparent katatonia of epidemic encephalitis is rather bradykinetic and bradyphrenic than part of the introversion of dementia *praecox*.

PSYCHONEUROTIC SYMPTOMS.

Cases closely resembling definite types of psychoneurosis were not of common occurrence, and apparently bore no relation to the age of the patient. Well-marked psychasthenic symptoms, however, occurred in a few cases. At first sight the similarity between the mental symptoms of epidemic encephalitis and those of the psychoneuroses appears a strong one. On thorough investigation, however, it is found that there are two important differences. In the first place, the former may clear up and disappear quickly without the application of any treatment, while the latter, in the absence of psychological treatment, tend to pursue a chronic course or to improve very gradually. Secondly, the effects of psychotherapy on post-encephalitis tend, with certain exceptions, to be of a transient character, while in the psychoneuroses permanent recovery may be looked for. In other words, by psychological treatment in epidemic encephalitis we are only dealing with what has been vaguely described as the "large functional element" which is present in many organic nervous diseases, whereas in hysteria and the psychoneuroses we are concerned with conditions which, if not of psychogenic origin, are at any rate much more dependent upon psychic factors.

Among those who support the psychogenic theory of the causation of this condition considerable claims have been made for the value of psychological treatment. Apart from extravagant claims, however, psychotherapy has proved of definite value as a symptomatic form of treatment in a number of cases—this especially in the cases where insomnia or sleep inversion occurred. The method of treatment was mainly that of suggestion, and the effect was quickly obtained. The various "stunt" methods of suggestion which have been described, such as the injection of innocuous substances, do not appear to be of value since they have no sound rationale and can only be transient in effect. In intelligent patients, where a large so-called functional element is superimposed on the organic trouble, psychotherapy may be of considerable and lasting benefit.

REFERENCE.

¹ Wimmer, A.: *Chronic Epidemic Encephalitis*, Heinemann, London, 1924, 14, 83, 84.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A CENTIPEDE IN THE NOSE.

A STONEMASON's labourer, aged 28, recently presented himself to me with the following history.

For two or three years he had suffered from difficulty in nasal breathing, deafness, slight vertigo, and headache. For the past few weeks, however, one nostril seemed to be definitely obstructed, and tightness and irritation in his nose caused insomnia and sneezing. Involuntary nasal whistling occurred from which he sought relief by breathing through the mouth. One morning, when he was trying to clear his nose, a large and very active centipede was ejected through one of the nares. With some difficulty he captured the centipede alive and brought it to me in a box. Since that morning his nose has felt altogether more comfortable; the difficulty in nasal breathing and the local irritation have practically ceased. Examination of the nares showed enlarged turbinates and a deflected septum, but there was no oozing and no sign of gross trauma. The patient does no gardening and has no recollection of smelling flowers at any time in the past two months. On the other hand, his story that the insect came from the nose and nowhere else was very clear.

Cases of nasal infection by insects, though rare, do occur in this country. Greenbottle and bluebottle flies (blow-flies), even in Great Britain, occasionally deposit their ova in the human nose or ear, extensive ulceration and actual necrosis of the soft parts and even of bone being produced

as these ova mature. Such ova have even been found in the anterior chamber of the eye, having reached there probably by way of the nasal sinuses. How easily blow-fly infection may occur must be known to many who were on active service in the tropics and saw cases of wounded being taken up with masses of flies adhering to their eyes, mouth, and nose. Blow-flies will lay their eggs on any open sore, and in Gallipoli and other war zones the sufferings of the wounded were often aggravated by this cause. Wounds or

ulcers infected by larvae must be dealt with promptly and thoroughly. They should be irrigated with a 1 in 20 carbolic solution or swabbed with pure benzene. Tumours resulting from the pressure of larvae should be freely opened and the contents expressed. Iodine seems to be inadequate; I have poured iodine upon a mass of writhing maggots without producing any apparent effect upon their vitality. Gad-flies or bot-flies, whose maggots live in certain tumours in the skin of oxen, in the stomach and intestines of horses, and in the nostrils and other cavities of sheep, goats, and deer, have occasionally produced nasal infection in man, leading to inflammation and even necrosis of tissue. The grey flesh-fly, common everywhere in summer and autumn, in place of eggs produces living maggots which have sometimes been observed in abscesses in the human nose and ear; they number 50 to 80 in a swarm and change to pupae in five to eight days, developing into flies eighteen to twenty days later.

On the whole it appears probable that the centipede did not enter the patient's nostril in its adult state, but was accidentally transferred there at some earlier phase of its development. The photograph, which could be taken only after the creature had been chloroformed, gives but a poor idea of its normal active appearance.

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ILEO-ILEAL INTUSSUSCEPTION DUE TO A FIBROMA.

THE occurrence of a case of intussusception in an adult is sufficiently unusual to merit recording.

A miner, aged 25, was admitted to the Nottingham General Hospital with a history of having had, during the past four months, five attacks of vomiting associated with pain referred to the umbilicus. This pain was described as one of distension; it was accompanied by rumbling as though wind was trying to pass. Defaecation gave relief, but latterly aperients in increasing doses had been required.

The abdomen was distended with a well-marked "ladder pattern"; it was tympanitic and there was some epigastric tenderness. Rectal examination revealed nothing abnormal. An enema produced a constipated result, subsequent to which the bowels were well opened naturally.

Through the right linea semilunaris the peritoneal cavity was opened; small gut distended to the size of the patient's fist presented with collapsed coils of ileum below it. On passing the hand down into the right side of the pelvis a mass could be felt like an intussusception; this was brought up into the wound and proved to be one of the ileo-ileal type. Reduction was easy, only about two inches of gut being involved. At the apex of the intussusception a lump could be felt in the lumen of the bowel, so after applying a clamp across the loop the intestine was opened longitudinally and a tumour about 2 inches by 1 emerged; this was cut away along with its short pedicle. The wound of the intestine was then stitched up transversely with a loop on the mucosa stitch and a superimposed Lembert suture. Before releasing the clamp the ileum proximal to it, which was not only greatly distended but also hypertrophied, was lightly clamped for a small area, and a purse-string suture was inserted. At the middle of the area a puncture was made, and a large catheter was inserted. On removing this second clamp much flatus and several ounces of faecal fluid escaped through the catheter. As the catheter was withdrawn the purse-string suture was tied and the puncture wound then buried. The abdominal wound was repaired, a muscle drain being inserted.

The patient made an uninterrupted recovery, and six months later wrote "I do not feel anything from my operation."

Dr. Kilian Clarke, pathologist to the hospital, reported that a section of the tumour showed it to be a pure fibroma.

I wish to acknowledge my indebtedness to Mr. C. H. Allen for permission to treat and describe this case.

Nottingham.

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