has been found. It suggests that we are dealing with such a widespread abnormal vascularization of the intracranial area. My thanks are due to Professor Douglas and Miss Eaves for their valuable help in the pathological investigation of this case.

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POST-ENCEPHALITIC DELINQUENCY.*

BY

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In a recent book¹ I recalled that during the war, from September, 1915, to February, 1916, first at Commercy and later at Verdun, as medical officer in charge of the neuropsychiatric services, I was struck by several cases of encephalomyelitis presenting peculiar mental symptoms. It was these mental forms of the disease that first put me on the road to discovering epidemic encephalitis, which, along with Moutier and Calmettes, I then called subacute encephalomyelitis. In a series of 208 patients studied at Commercy and Verdun, three had attracted my attention by their symptoms of fever, delirium, and mental confusion, which, without investigation, had been attributed to typhoid fever. One of these patients, suffering from amnesia, affective indifference, transient excitation, followed by asthenia and indolence, suggestibility, faulty judgement, stereotyped gestures, and negativism, resembled a case of dementia praecox. A fourth patient, a few weeks after influenza, had become almost demented and suffered from somnolence and intellectual collapse. A fifth had difficulty in speaking, an uncertain gait, headache, intention tremor, hemiparesis, and hemianaesthesia of the right side. A sixth, whose illness at the inception resembled, but was proved not to be, typhoid fever, suffered from diminished vision, clonic spasms of the eyes, unaccompanied by lesions of the fundus, and opisthotonos. Finally, a seventh had been seized with epileptic crises, with progressive mental deterioration, speech defects, and other symptoms too discordant to be attributed to cerebral tremor.

Eight further cases observed afterwards at Bar-le-Duc showed ill-defined mental symptoms—for example, impaired memory, intellectual deterioration, hebétude, and somnolence, but unassociated with modification of the cerebrospinal fluid. In most of these cases an infectious state was noted, accompanied by febrile reaction, delirium, fatigue, inertia, and rigidity. Although the cause of the condition, in spite of researches then being carried out, was unknown, the patients improved under treatment, but several, after the acute phase had passed, had a fixed expression, slackening down of their actions and thought processes, and in some cases a tremor—symptoms which are singularly allied to those of what is now called epidemic encephalitis. As well as these purely mental forms I described convulsive choreic, meningitic, hemiplegic, ponto-cerebellar, ponto-medullary, acute ataxic, and anterior poliomyelitis forms. Of this polymorphism Professor Achard wrote:

"It might at first be believed, and was as a matter of fact believed for some years, that the disease described in France and in Austria in April and May, 1927, respectively, was not the same, so different were the two pictures drawn of it. Our fellow-countrymen had described a disease of very diverse forms; the Viennese author a disease very simple in its symptoms. . . . It was not until later that it was noticed that the disease could assume varied, changing, and unexpected aspects, and that this very diversity appeared to be one of its essential attributes. . . . Von Economo's description represents only one type of the disease.

* Abstract of a lecture delivered in English at the Universities of Glasgow and Edinburgh, on the invitation of Professor Currie and Professor Edwin Bramwell, April 22nd and 29th, 1929.

In strict justice it is the most exact description that has the greater merit, and it is Professor Cruchet's publication, which preceded von Economo's by a few days, that takes priority."

I cite these remarks less to return to the question of priority than to emphasize the importance of the polymorphism of encephalitis, a character which I considered essential from the beginning. This polymorphism, which is found in all the clinical forms of encephalitis, is an attribute of the mental forms with which I wish to deal more particularly.

The commonly described clinical syndromes of mental disorder can be recognized only with difficulty in epidemic encephalitis. The maniacal, melancholic, and chronic delirious syndromes are never clearly defined. I have known encephalitic patients with delusions of persecution, but modified, unobtrusive, and unaccompanied by auditory hallucinations. Much the same is true of the cases of megalomania, and of those patients whose psychoses assume the obsessive form. The most common type resembles dementia praecox, but even then with sufficiently marked differences.

I will cite a case representative of the conditions I have mentioned.

THE CASE OF ALIX.

This patient was aged 10 when, on February 10th, 1920, the first symptoms presented themselves; his teachers noticed that his eyelids drooped, and that he had a vacant expression. His vision was blurred and he had diarrhoea. On February 13th, at about 6 o'clock in the evening, he fell asleep during evening preparation. He had a raised temperature and was taken to the school infirmary, where, though he went on sleeping at night, it was observed that his body would every now and then move spasmodically. The next day he went to chapel, but fell asleep there. The fever, spasmodic movements, and blurred vision persisted, and that same evening he was taken to his home in a motor ambulance. On his arrival he was put to bed. He was febrile, delirious, restless, and the spasmodic movements continued. He had no sickness and the diarrhoea stopped.

On February 15th he was very tired and his tongue was parched; movement of the head was accompanied by pains at the back of the neck; his eyes were almost closed and staring upwards; he seemed blind, and could recognize neither the doctor nor his parents. His breath was very fetid, and he could only be roused from sleep with difficulty. Owing to pains in his neck and his loins he was unable to sit up in bed. Kernig's sign was slightly positive. An examination of his blood yielded no relative information. The next day his condition was worse; his teeth were clenched, and he had difficulty in swallowing. For a few moments during the morning vision returned, but he soon fell into a state of torpor.

On February 17th he was able to read a few lines from a newspaper, though it seemed to him to be printed in very small letters. His condition improved; the attacks of sleepiness were shorter, trismus was not so pronounced, his tongue less parched, and he was able to drink some milk without too much difficulty. He had, however, rather restless nights. On February 18th and 19th the fever increased, and restlessness once more became marked, but on the 20th improvement became evident and continued until the 22nd, when he was allowed up for a little while. Delirium was still present, but occurred for shorter periods and less frequently. During the following days he improved so rapidly that he was able to go out and ride a bicycle during the first week in March. He still had attacks of sleepiness, however.

Six Weeks Later.

When I examined him about six weeks later he seemed much better. He would get up about 6 or 7, ride his bicycle, and live a normal life till about 5 or 6 in the evening, when he would go to bed tired and fall asleep. At 7 he would be awakened for dinner, but sometimes he would be so overcome with sleepiness that he would keep mouthfuls of food in his mouth without swallowing them. Occasionally he would fall asleep after each mouthful. On certain days he had to be carried upstairs, undressed, and put to bed; his sleep was restless, and sometimes he was even seized with somnambulism.

The changes in his character were very remarkable; he had become irritable and insolent, and had violent outbursts of anger which were followed immediately by sleepiness. He would repeat the same thing over and over again, and would constantly put the same questions. When a story was read to him he would ask for the explanation of each word, even when he knew it quite well. He was unstable and changed his games frequently. Before his illness he was, if anything, mentally advanced for his age; now he was rather backward. His memory appeared to have deteriorated and his intelligence to have slackened. He complained of fatigue and headache at the slightest mental

effort. His words were those of a child younger than himself; he spoke of going on a steamer or of becoming a naturalized American. He often had phobias. One day he thought that a heap of dust was a dead man and was afraid to approach it. If his sister's food fell on the ground he was worried that she might poison herself; if she had no hat, she was sure to get sunstroke, and so on.

On examination, his left eyelid was seen to be slightly drooping; the right eyelid was normal, but the droop in the left had noticeably increased since his recent illness. The left pupil was smaller than the right, which was slightly affected with mydriasis. Reaction to light was weak and vision blurred—in the right eye more than the left. There was no diplopia. Right eye vision was 10/10, left eye 3/10. His patellar reflexes were brisk.

It is needless to discuss the diagnosis. The case was one of encephalitis, of the lethargic type, such as was seen above all during the winter of 1919-20, the period of the first great French epidemic. The attacks of sleepiness, with their curious associated symptoms, were pathognomonic. It is worth considering the later stages of Alix's illness. As he grew he became more difficult and unmanageable; his physical development made rapid strides, but his mental state became increasingly unsatisfactory.

Three Years Later.

When I saw him in 1923 Alix was 13 years old, but so well developed physically that he looked 16. He was no longer affected with somnambulism, but his character had become progressively worse. He was irritable, insolent, quarrelsome, argumentative, boastful, would listen to no reproof, and insisted on having his own way in everything. In his narratives, shooting, fishing, rifle shots, and knife thrusts no longer had any terrors for him. He was, in fact, an excellent swimmer, and would plunge without hesitation into the Gironde, and, in spite of the strong current, remain in the water for hours on end, at the risk of drowning; or he would go out among the rocks, climbing the most impracticable places without realizing the danger.

This Hotspur had phobias in singular contrast to his intrepid nature. He was terribly afraid of microbes and had a mania for cleanliness; he was for ever washing his hands and scraping the soap he had used with a knife for fear that it had become contaminated. He changed towels immediately after using them, and if anyone else touched his towel he would throw it on the ground and immediately take another. He was afraid of spiders and saw them in his nightmares; he accused them of having urinated into his bed from the ceiling of his room. He had similar phobias for rats. He had become not only unpleasant in his behaviour—even spitting into the faces of people beside him—but often actually indecent.

A Year Later.

A year later, in 1924, a new factor appeared; he began to have spasmodic torticollis, which became progressively worse. At first there was no spasm when he was lying down, a little rigidity when he sat up, and twisting of the head and neck towards the right side only when he stood upright and began to walk. Any effort—for example, riding a bicycle—that brought into play the muscles in his arms and trunk exaggerated the condition. At this same period he experienced real difficulty in speaking, and was not always well understood. His instability, impulsiveness, and lack of will-power remained, and though for some time he was apprenticed to a locksmith, it was found impossible to teach him a trade. At the slightest reprimand from his mother he would become spiteful; sometimes he would strike her, being afterwards seized with remorse; or he would engage in a violent physical struggle with his father, become recklessly destructive, and shortly afterwards cry bitterly and make exaggerated manifestations of affection towards his parents. His petty indecencies were frequent, and he became gluttonous.

Present Condition.

We come now to March, 1929. Alix is 19 years old, tall, robust, full of physical energy, but his neuropsychic condition has scarcely altered. Neither the spasmodic torticollis nor the mental state has been modified by the numerous treatments followed for the past five years; these have included five pilgrimages to Lourdes, vibratory massages at the hands of various quacks, electrical, x-ray, and actinotherapeutic measures at a neurological centre, and the prescriptions of many doctors and specialists. Splints have not been successful as a remedy for the torticollis.

As soon as one meets Alix one is struck by this spasmodic torticollis. His head is turned to the right and droops in front, the chin resting on the collar-bone. The left sterno-mastoid muscle seems to be stretched, hard, and hypertrophied. With great effort he can lift his head and move it towards the left, but soon, by successive jerks, it turns again towards the right shoulder. To lessen the fatigue resulting from the constant effort to keep

his head lifted, he presses on the right side of his forehead, or on the right superciliary ridge, but his hand gets tired in its turn, and he has to support it by leaning his elbow on some fixed point. This antagonistic gesture is well known to neurologists. The phenomenon is certainly of central origin, as I pointed out at the Annual Meeting of the British Medical Association in Edinburgh in July, 1927, when S. A. Kinnier Wilson read a paper to the Section of Neurology on tics and allied conditions. I stated that in 1907 I had already noticed the occurrence of Brissaud-Meige's "efficacious antagonistic gesture" in spasmodic states of non-mental origin, and that I had recently seen it in several cases of torticollis following epidemic encephalomyelitis.²

Alix's speech is muddled and explosive, and, especially at the end of the day, it is often difficult to understand him. He complains of getting tired fairly quickly; though he has retained his vigorous brute strength he has lost some of his agility and suppleness.

He eats at all times of the day, gluttonously, without control, and messily; at meal times he sits down to table, but every two minutes gets up, goes away, and returns, never satisfied. He is in constant conflict with his neighbours, before whom he behaves coarsely and without restraint. He likes to play the rich young man, changing his clothes and shoes as often as ten times a day. He loves the company of distinguished persons, to whom he writes ardent letters which he takes seriously. He spits wherever he happens to be, and has other objectionable personal habits. He is still quarrelsome, and if crossed will shriek aloud and roll on the ground, simulating a state of lethargy.

DISCUSSION AND DIAGNOSIS.

All the post-encephalitic cases with psychic disorder, in children or adolescents, seem almost copied from each other. The true pervert, unlike the post-encephalitic pervert, displays an original evil impulse, which remains the same or becomes aggravated with age. He is persistent, incorrigible, cynical, and content to give himself up to his taste for morbid spitefulness. He delights in the refinement of suffering, remaining cold and insensitive to the moral pain he inflicts on those around him. He is often given to violence, thieving, lying, and pretence.

The post-encephalitic patient, on the other hand, becomes perverted only after his illness; his perversity is relative, as unstable as his character, irregular and fanciful. It is a question of playing pranks rather than of doing real evil. His cruelty is never coldly systematic, and it is unpredicated. He is, moreover, affectionate, sensitive to reproof, and penitent. If he steals, lies, has violent fits of anger, or practises indecencies, it is more out of thoughtless imitation than of genuine vice. If he simulates, it is more like a capricious child acting without discrimination than knowingly to deceive those about him. His appearance, too, is very different. The look of the real pervert is hard, icy, deceitful; that of the post-encephalitic is gentle, sometimes shy or self-satisfied, smiling—the marks of a character which easily unburdens itself. Professors Fuzière and Pages³ (Montpellier) have rightly insisted on the significance of this sensation of well-being, which, as they say, is so characteristic of Cruchet's disease.

The mental condition of the post-encephalitic delinquent strongly reminds one of dementia præcox: lazy, impulsive, incoherent, suggestible, and yet negativistic, given to affection, sudden escapades, offences against decency, and disconcerting failures of memory and judgement. His mental state at a given phase in his illness undergoes a sort of regression, but it is not a regression which goes on increasing until it ends in dementia; it stops at a period which varies according to the intensity of the encephalitis. Thus a child of 10 may regress to the mental age of 6 or 7, or even younger; a child of 15 or 16 may fall back to the intellectual level of 10 or 12. In certain cases, when the illness is over, the patient gradually recovers the abilities temporarily lost, and starts again on the upward grade towards the normal state. In other cases the psychic condition becomes fixed at the point of regression reached by the patient; or else it becomes stabilized at the age of the child at the time of its illness. Thus Alix's mother said, "In my opinion my son's brain has not progressed; it has remained as it was when he was 10, the age when he took encephalitis."

It must be added that the disease frequently implants in these children, even those stabilized at a given age, a form of morbid agitation and perversity, of which a weak

character is the essential sign. But if it be admitted that this perversity may remain markedly identical to that of the age of the beginning of the disease—for instance, as in the case of Alix—one can quite conceive its seeming considerably exaggerated when the patient has become an adolescent of 18, a young man of 25, and, with all the more reason, a man of mature age. One is thus tempted to see deep instinctive perversity where there exists only the puerile perversity of a weak-minded person. There lies the capital phenomenon, which it is easy to recognize as soon as attention has been drawn to it.

The perversity of the congenital pervert, in fact, increases with age; in the case of the post-encephalitic it may get better, or sometimes worse; most frequently it remains identical through the different periods of his life, but—and this is the essential point—with a mental debility which is henceforth constitutional. This state may improve in some cases, but frequently it changes for the worse or remains stationary; one is then obliged to put such patients in schools for nervous and abnormal children, like the one of which I am the head at Le Bouscat, near Bordeaux, or in reformatories when they are too difficult to look after and watch over. But in any case it is the state of mental debility which dominates the clinical picture.

THE PATHOLOGY AND TREATMENT OF CERVICAL GLANDS IN CHILDREN.

A REVIEW OF 330 CONSECUTIVE CASES.

BY

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WHATEVER may have been the advance in social legislation in recent years, any surgeon connected with a children's hospital in Scotland must have been struck with the prevalence of cervical adenitis. It is proposed in this paper to consider the pathology and to give, if possible, the true

FIG. 1.—Distribution of the cervical glands.

indications for conservative and operative treatment. It is essential to picture the distribution of the cervical glands and to understand their structure. Figs. 1 and 2 may suffice.

Children up to 12 years of age are treated in the Royal Aberdeen Hospital for Sick Children; 330 cases of cervical adenitis were treated during the period reviewed—March, 1923, to March, 1927. Enlarged cervical glands were found to be more common in girls than in boys. The numbers were 183 and 147 respectively. The present series has been followed up for two to six years after leaving hospital. They may be divided into two main groups: (a) Acute and subacute non-tuberculous adenitis—74 cases (22.4 per cent.). (b) Chronic tuberculous adenitis—256 cases (77.6 per cent.).

CONCLUSIONS.

To sum up: what must be remembered is the variability of the post-encephalitic delinquent case, the fundamental basis of which is, above all, mental debility. One does not meet with distinct, unmistakable, categorical types of delinquents; they are irregular, undefined, and do not fit into any of the nosographic classifications which have been established up to the present. It would seem that the morbid histological diffusion of the encephalitic virus, which is so evident, involves a sort of regrouping of mental clinical states, which, for the moment, disorientate the mind and bring to it an impression of disorder.

And, finally, there can be recognized even in the enumeration of the descriptions of the mental clinical forms themselves, and of delinquency in particular, the polymorphism of encephalomyelitis, to which I drew attention in 1917, and which, after having been ill understood and rejected at that time, has to-day become a classic datum which is no longer even questioned.

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ACUTE AND SUBACUTE NON-TUBERCULOUS ADENITIS.

Although poor general health and defective hygienic surroundings are undoubtedly contributory factors, enlargement of glands is usually secondary to some local focus of inflammation. The primary causes were:

Infections of the nasopharynx, including the	
exanthemata	28
Infections of the scalp	24
Chronic otitis media	8
Dental caries	6
Septic abrasions of the face	6
Unknown	2
	74

Infections of the Nasopharynx.—The jugulo-digastric and neighbouring deep cervical glands are usually involved, the prevailing organism being the haemolytic streptococcus.

FIG. 2.—Lymphatic gland.

Infections of the Scalp.—Septic abrasions following trauma or chicken-pox and impetigo contagiosa commonly cause enlargement of the occipital and posterior auricular glands. They tend to suppurate rapidly. The infection is most frequently staphylococcal. In the poorer classes pediculi and "nits" account for many cases. It has been said that the swollen glands are secondary to abrasions caused by scratching, or to infection entering the skin by the biting of lice. Such views are open to doubt. The glands affected are usually the jugulo-digastric and upper deep cervical group. They are oedematous to the touch, and differ in type and distribution from glands secondary to suppuration in the scalp. Whether they are toxæmic in origin or not, it is exceptional to isolate organisms from the glands. "Nit-glands" readily subside on treat-