

If now we analyse these records we obtain the following clinical facts:—

TABLE VII.—*An Analysis of the Periods of Incubation.*

Name of disease.	Shortest period of incubation.	Longest period of incubation.	The largest number occur on the following days.	The majority of the cases arise between the following days.	Percentage referring to previous column—e.g., 59 per cent. occur between 2nd and 4th days.
	Days.	Days.	Days.	Days.	
Scarlet fever	1	9	2nd and 4th	2nd and 4th	10 out of 17 = 59 00
Chicken - pox	13	19	15th	14th and 17th	24 out of 36 = 66 00
Mumps ...	14	25	19th	17th and 20th	50 out of 69 = 72 46
Roserash ...	12	22	16th	14th and 17th	31 out of 40 = 77 50
Measles ...	8	14	11th	9th and 12th	18 out of 24 = 75 00

I have thought that it might prove of interest to add a further record of the number of times an epidemic has been prevented by the instant isolation of the first and second cases and to show to some extent the infectiousness of the

TABLE VIII.—*Epidemics arrested by the Early Isolation of First Cases.*

Date.	Roserash. No. of cases.	Measles. No. of cases.	Mumps. No. of cases.	Scarlet fever. No. of cases.	Chicken-pox. No. of cases.
1871 ...	—	—	—	—	—
1872 ...	—	—	—	1	—
1873 ...	—	—	—	—	—
1874 ...	—	—	—	—	—
1875 ...	—	1	—	—	1
1876 ...	1	—	—	—	—
1877 ...	1	—	—	—	—
1878 ...	—	—	1	—	1
1879 ...	—	—	1	—	—
1880 ...	—	—	—	1	1
1881 ...	—	—	—	1	—
1882 ...	—	—	—	—	—
1883 ...	—	—	1	—	1
1884 ...	—	—	—	1	—
1885 ...	—	—	—	—	—
1886 ...	—	—	—	1	—
1887 ...	—	—	—	1	—
1888 ...	—	—	—	—	—
1889 ...	—	—	—	—	1
1890 ...	—	—	—	—	1
1891 ...	—	—	1	—	—
1892 ...	—	—	—	—	2
1893 ...	—	—	—	—	1
1894 ...	—	1	—	2	2
1895 ...	—	—	—	—	2
1896 ...	—	—	—	1	—
1897 ...	—	—	2	—	—
1898 ...	—	1	—	—	—
1899 ...	—	—	—	—	—
Number of epidemics prevented	2	3	5	9	11

various diseases in the early stage. It is therefore clear that those infectious diseases which have been arrested the fewest number of times are the most infectious at the onset. It will be seen that roserash bears the palm.

Rugby.

A CASE OF TOXÆMIA WITH CONVULSIONS.

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A YOUNG man, aged 34 years, consulted me on Oct. 26th, 1898, regarding a peculiar numb sensation which he had experienced on the previous day in his left hand and arm and on the left side of the face and head. He was apparently strong and healthy, florid as he had always been from leading an active outdoor life, did not feel weak, and was free from headache, sickness, or any other symptom. The urine contained neither albumin nor sugar, nor any trace of acetone. The urea was also normal in quantity. The only other observable symptom was that the first sound of the heart was subdued and muffled. He had been working hard for some months both mentally and physically. The family history presented only the interesting fact of hereditary gout. The patient had no syphilitic history and he lived a very moderate life as regards alcohol. I ordered him to the south of England for complete rest and whilst there he had no symptoms of any kind to attract attention. He returned home on Dec. 4th. On the night of the 7th, after a fatiguing day, he was suddenly attacked on going to bed with violent general convulsions, preceded by the same numb sensations in the left leg and arm. Three seizures succeeded each other in rapid succession in the course of which the tongue was severely lacerated. I saw him immediately after the fits were over and stayed beside him for several days and nights. The convulsions were succeeded by violent vomiting which lasted intermittently for two days. The tongue was coated very thickly with a deep brown fur and the odour of the breath was so very unpleasant that it was at once observable to anyone entering the sickroom. He was dull and stupid for a day or two and had no recollection of anything which had happened. The urine now contained albumin, but this was probably due to the congestion caused by the violence of the fits. The reflexes of the left leg were exalted; sensation in both legs was equal; the pupils were equal on both sides and sensitive to light. There was no optic neuritis. The bowels had previously been constipated and owing to the vomiting no medicine could be given by the mouth, but what could be effected by enemas and glycerine injections was done successfully. At this stage he was seen by a well-known consultant who gave a very guarded opinion suggesting the probability of a cerebral tumour situated in the right fissure of Rolando. With such opinion I was loth to concur. On the night of the 14th the patient was threatened with another seizure; the twitching in the left leg and the numb feeling in the arm returned. He was in violent alarm, being quite conscious. A quarter of a grain of morphia was at once injected hypodermically, and 15 grains of chloral per rectum, which speedily allayed the symptoms. Another attack threatened on the 15th which was aborted in the same way. On the 16th a more pronounced attack came on; the left leg and arm twitched violently, the patient remaining conscious. During these events the tongue was dirty and the breath was as offensive as before; thirst was very great and the idea of eating was quite repugnant. On the 17th he took calomel and rhubarb, of each five grains, which acted very freely, bringing away large and exceedingly dark, foul-smelling stools. The patient expressed himself as feeling easier after that; the vomiting did not return, the thirst was less, and the edges of the tongue began to clear. There were no further local symptoms except that he could not well direct the left hand to pick up a small object. The bowels were kept very freely opened by pills given at night containing grey powder and compound pill of colocynth followed by draughts of hot mineral water in the morning. He still had 10 grains of chloral per rectum at night to ensure sleep which came on regularly. The fur was leaving the tongue and the offensive

odour was diminishing. The urine was normal and did not even deposit urates. As the tongue cleaned the appetite returned and in pleasing contrast to his former state of apathy the patient began to manifest interest in his surroundings and in private affairs. These symptoms progressed with such favour that his restoration to a comparative state of health was rapid. On Feb. 1st, 1899, the patient who had been out a good many times walking short distances, the left leg dragging a little on those occasions, drove a few miles over a rough country road to visit a neighbour and on his return had another convulsion, preceded by the numb feeling in the leg. It did not last long nor was he dazed or stupid after it; his memory was not at all impaired nor was there any loss of strength. The tongue was found to be dirty again, and the odour of the breath was objectionable, but not to the same extent as on the first occasion. Calomel brought away very dark offensive motions. He got up again in a day or two but was much afraid to go downstairs as he had lost confidence in his muscular power. He was taking hot mineral water every morning and four grains of calomel every seventh day. The patient came downstairs on the 12th and all went well until the 24th, when he had an interview with his father which included reference to business matters. He then had a conference with the factor, and finally with a friend. Being tired he went early to bed, when the same symptoms began in the leg, spreading up the left side and down the left arm and left side of the head. These became convulsed and finally all the muscles of the body were in violent motion, but it is to be noted that on this occasion he did not lose consciousness. The eyes were very anxious and staring, but not squinting. Suddenly, when the movements seemed most violent, they simultaneously ceased and he exclaimed "Thank God." At this attack the tongue was clean and the bowels were well cleared. The pulse kept strong and there was no tendency to vomiting. From the first feeling in the foot to the end of this attack the nurse judged to be about 10 minutes. He slept well afterwards and had no headache. After this he was put on 20 grains of bromide of ammonium thrice daily. On March 9th he was found to have kept very well and on this date he left home for an extended rest and change of scene.

In order to throw some probable light on the case let me cite in a few words the leading points of a previous illness. Five years ago the same patient consulted me, the prominent symptoms then being headache, constipation, furred tongue, and irritability of the skin, with patches of eczema. (As mentioned above he inherits a gouty diathesis.) This was preceded, as was the late illness, by occasional turns of ill temper. During the subsequent course of medicine the symptoms cleared and all went well until a patch of skin on the chin suddenly became inflamed. This was succeeded by others on the chin and neck, which threw out crop after crop of pustules, which lasted for a fortnight, on the subsidence of which he speedily recovered. A course of water at Nauheim benefited him greatly.

In closely examining such cases one is struck by the similarity of the course of events to that occurring in uræmia, epilepsy, and cerebral tumour. In regard to the first-named it is to be noted that the kidneys were perfectly healthy and secreting a normal quantity of normal urine. With diseased kidneys one is of course not surprised to encounter any of the numerous phenomena usually met with in so-called uræmia, but it must be observed that the same class of symptoms may be met with while we are dealing with perfectly sound kidneys. Whatever part urea may play in the production of the clinical symptoms it is hard to explain how it can produce such a wide and varied train of events. I do not purpose to discuss the mechanical and chemical theories at present before us but simply to quote my case in support of the latter. That the exciting cause of the two illnesses of my patient was a toxin or toxins absorbed from the liver or intestines I do not doubt. I am of opinion that in the one instance the skin was selected as the channel of elimination, and in the other a similar poison produced an irritant discharging effect on the motor cortical cells in the region of the right fissure of Rolando. What these poisons are is not known, although several theories exist. In this relation the following remarks by Dr. Saundby assist one to some extent. He says, "We are not in a position at present to explain precisely the pathogenesis of so-called uræmia. It is plain that the clinical phenomena vary and that there are many poisons to which these symptoms may be due." "If we are to get a nearer knowledge of these problems it must be by differentiating the

clinical types and by recognising the probability that different agencies may be at work in each." Dr. Bradford in writing on Uræmia in Allbutt's "System of Medicine," says: "Modern knowledge, however, certainly shows that a poison circulating in the general blood-stream may pick out but one portion of the nervous system or even produce a lesion on one side of the body only." There was no optic neuritis to support the idea of a tumour being the cause of the symptoms. On March 10th I saw the patient with Sir William Gowers. After an exhaustive examination he also was of opinion that there was no tumour, that probably the nerve-cells were weakened by the first illness, and that the toxin circulating in such impure blood determined the convulsive seizures in the later illness.

Berwick-upon-Tweed.

THREE CASES OF JUVENILE GENERAL PARALYSIS.

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THE following cases of juvenile general paralysis have all ended fatally at the Newcastle-on-Tyne City Asylum within eight months.

CASE 1.—A young man, aged 22 years, single, was admitted into the asylum in February, 1898. He had always been strictly temperate and had been considered to be a sharp, clever boy, but was never strong. Five years before his admission he was an eye-witness of his father's accidental death and he was very considerably affected by the shock. The first definite mental symptoms were noticed three years before his admission, when he became stupid, dull, and lazy. Two years later he became shaky and tremulous. His sister and his father's uncle were insane. No history of syphilis could be obtained. On admission he was found to be considerably demented and he could only with difficulty comprehend the simplest question and his memory was almost a blank. Physically he was well formed and nourished. His speech was slow, hesitating, and slurred, with much twitching of the lower facial muscles. His tongue was protruded with difficulty and was very tremulous. The pupils were unequal, irregular, eccentric, and they reacted sluggishly consensually and to direct light. His gait was feeble and unsteady. Mentally he varied much from day to day. At times he was childish, happy, and emotional, and he would talk in an exalted manner of his new clothes and his high wages. On other occasions he was dull, heavy, and unresponsive. The dementia gradually became more profound. He always remained stout and took his food well. The knee-jerks became greatly exaggerated and all the paretic symptoms intensified. On Sept. 27th he had a paralytic seizure, from which he quickly recovered. On Oct. 3rd he had three right-sided convulsive seizures. After the third seizure continuous twitching commenced on the left side of the face and in the left limbs, continuing all night in spite of treatment, and on the following morning extending to the other side. During the next three days he had many severe general convulsions and in the intervals twitchings of the right side of the face, the right arm, and the leg. He died on Oct. 8th at 9.10 P.M. A post-mortem examination was made on Oct. 10th at 11 A.M. The body was found to be well nourished. The skull cap was thick, hard, and dense. The dura mater was considerably thickened, stiff, and opaque, without abnormal adhesions either to the calvarium or the lepto-meninges. The basal vessels were healthy. The pia arachnoid was thickened, spongy, and milky, with dilated vessels and excess of fluid in its meshes. Adhesions were universal over both hemispheres with the exception of the occipital poles. The choroid plexuses were cystic. Seen from the surface the convolutions were wasted, especially in the pre-frontal regions. The cortex was extremely atrophied and soft and the lateral ventricles were dilated. The ependyma both of the lateral and fourth ventricles was coarsely granular. The heart was small and flabby with no valvular abnormalities and the myocardium was of normal colour and not unduly friable. There was extensive broncho-pneumonia of the basal lobe of the right lung. The kidneys showed atrophy and fatty changes in the cortex. The encephalon