some facial twitching ensued, and in a minute or so she would be all right once more. Formerly she had complained of a "singing in the ears." This vanished, and her trouble was always a "hot feeling at the top of the head." Marked irregularity of the pulse was noted before several of these minor attacks, and the jugular pulse was often found to be exactly double that of the radial. The blood pressure fell to 195 mm. Hg. She was treated with strychnine and belladonna in small doses, and also by liq. trinitrin in 1-minim doses three times a day. This was gradually raised to 3 minims.

She continued in this condition till September 20th, when Sir William Osler and Dr. Gibson saw her in consultation. The heart was found normal, save for a

Tracing taken on September 20th, 1910, the blood pressure being 250 mm. Hg. It consists of apex, jugular, and radial pulsations with a time marker of one-fifth second. The interpolated diagram between radial and jugular pulsations indicates the events in the auricle (As) and the ventricle (Vs). It shows that only every third auricular contraction is followed by a ventricular; the rhythm is, therefore, of the 3:1 type, and the block is incomplete.

faint basal systolic murmur. The blood pressure was 250 mm. Hg, and the cardiographic tracings are here reproduced.

On September 22nd she had an attack in which she was unconscious for about a minute. The pulse fell to 27, and was very irregular both in time and strength. General spasmodic twitching of the facial muscles occurred at intervals during the day. The blood pressure was 230 mm. Hg.

September 26th. This morning she had several minor attacks with feelings of nausea and faintness. In the afternoon vomited after a glass of Apenta water; several other attacks of vomiting accompanied by an irregular pulse occurred during the afternoon. At 7.10 p.m. she vomited and became suddenly unconscious. The nurse said she went red for a few minutes, then pale. There was a general tremor for some seconds; then stertorous breathing began. The nurse gave her about 10 amyl nitrite capsules. When seen at 7.30 p.m. she was pale, clammy, unconscious. Pulse 144 and weak. Eyes turned up, and heavy stertorous breathing present. She was given $\frac{1}{8}$ grain strychn. hypod., 1 grain also of Nativelle's digitaline, and $\frac{3}{4}$ of Hoffman's anodyne. There seemed to be an immediate response: the breathing became easier and pulse stronger. After a little, the eyes became more normal, colour began to return to the face, the breathing was less stertorous, and marked general facial twitching ensued. For a few seconds the pulse became quite slow (40-50), accompanied by marked improvement in colour of face. Then back went the pulse to 140 again. Next ensued much restlessness, attempts to rise in bed, and she appeared to be going to vomit, but did not do so. Then the pulse began to beat in groups of 2, and subsequently became regular and slow. The patient quite gradually regained consciousness, made signs for a drink, confused speech returned to her, and then normal speech came back about three quarters of an hour after the onset of the attack.

September 27th. She rambled a little during the night, and for the first time her stools were offensive. In the temporary absence of the nurse she got out of bed at 5.45 a.m. and had another apoplectiform attack; this time everything was normal again in fifteen minutes, though she passed through the stages of engorgement, unconsciousness, stertorous breathing, etc., as before.

September 28th. Very weak. Pulse 40, regular. Blood pressure 140 mm.

October 4th. Very feeble during last week. Refused all food, save milk and champagne. Heart sounds weak, with a diastolic murmur. Blood pressure 150. Sleeping badly and feeling sick. Now and then vomiting a little; she has had no sign of any attack. Given pituitary extract and ernutine with no effect on blood pressure.

October 5th. Pain in right intercostal muscles and some gouty swelling of left foot came on, and the next day she was much better in herself, but very irritable. Blood pressure 180 mm.

October 12th. All pain had gone after small doses of colchicum. Blood pressure 195 mm. Pulse 56, and irregular.

October 15th. In the morning she was thought to be very much better, and she had not had an attack for over a fortnight. Being a strong-minded person, she insisted in the afternoon on getting up to stool. She passed a small amount, then fell over and died.

The following notes of the *post-mortem* examination were kindly furnished by Dr. Gibson:

Post-mortem Examination.

The heart is larger than normal, and weighs 365 grams. The epicardial fat is moderate in amount. The apex of heart is formed by the left ventricle. The valves are normal and rather less sclerosed than is usually seen at this age. The right auricle and right ventricle are normal in size. Left auricle is normal. The cavity of left ventricle is slightly larger than normal. The columnae carneae are flattened. The muscular fibre of heart is everywhere pale and brownish. There is no sclerosis of endocardium of either right or left sides, either local or in relation with valves. The wall of the right ventricle and to some extent the left shows fatty infiltration from the epicardial fat. There is some hypertrophy of muscle of left auricle. The muscle of right ventricle is slightly hypertrophied, and that of left ventricle definitely so. There is no evidence of any gross lesion in the parts neighbouring upon His's bundle. The anterior coronary artery is definitely thickened and twisted near its opening into the aorta. This thickening is general with a few areas of fatty degeneration, but no calcification. The posterior coronary artery is similarly affected. The kidneys show early thickening of the arteries and the irregular depressions on the surface of the cortex characteristic of the arterio-sclerotic kidney, but in a very mild degree.

Microscopic Examination.

The section taken along the long axis of heart through His's bundle shows very marked fatty infiltration of the bundle, but a fair number of fibres are still present. The artery accompanying the bundle shows no marked changes. There is increased formation of fibrous tissue in neighbourhood of and extending into bundle; also very markedly in the interventricular septum, where also there is very considerable fatty infiltration. The muscular fibres of the ventricle are hypertrophied, and show extreme brown atrophy, but the striation is good. There is fatty infiltration and some increased fibrosis of the auricles and hypertrophy of the muscle cells. The section taken at right angles to the direction of main trunk of His's bundle shows a lessening of its total bulk by fatty infiltration. The fibres that are present show their striation and stain normally. The artery and vein accompanying the bundle are large, and the former shows a moderate degree of arterio-sclerosis.

NERVOUS AND MENTAL SYMPTOMS IN A CASE OF ADDISON'S DISEASE.

BY

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INTERNAL secretion in its relation to nervous and mental diseases has not, until quite recently, been considered seriously, or received the attention it deserves by those who are investigating the pathology of mental disorders. In view of the above fact, I think the publication of the following case will be of considerable interest to those who are researching, or who are contemplating research, in this branch of pathology. The case in question is one which affords valuable data of psychiatric and surgical interest.

The patient, H. S. S., was a male aged 49, manufacturer's agent. His family history was very good, and with the exception of gonorrhoea his previous history gave no evidence of any mental or physical illness. Early in October, 1911, he complained of an inability to do his work, and his friends noticed that he was depressed and restless.

These symptoms gradually increased, and the patient realized that he was suffering from some nervous ailment.

Tremors of the hands, lips, and tongue now developed, and he became so restless and nervous that medical advice was sought. Neurasthenia was diagnosed, and the treatment adopted was the usual one of complete change and rest in bed with tonics and nourishing food. A favourable prognosis was given.

The patient, who was now in a country nursing home, developed the delusion that his face was altering in appearance. He became suspicious, more depressed, and steadily lost flesh. It is stated that no alteration in the patient's complexion was noticeable at this stage. The restlessness and tremors increased and the patient's memory and judgement became impaired. He now developed the delusion that his penis had disappeared. It is interesting to note that simultaneously with this delusion he persistently experienced hallucinations of smell and taste, with the result that he commenced to refuse food. He became unmanageable and was removed from the home.

On January 1st, 1912, I saw the patient for the first time in consultation with Dr. Dewar Forbes, of Edmonton, who had just taken charge of the case, and it was decided that certification was necessary. The following physical signs were present:

Inequality of pupils (the left being larger than the right), with sluggish reaction to light. The knee-jerks were exaggerated, and the plantar reflex was flexor. Tremors of tongue, lips, and hands were marked. Cutaneous sensation was unimpaired, but there was a distinct loss of muscular tone in all the limbs. His speech was slow and slurred, and his handwriting irregular.

It was suggested at this stage that the case might be one of incipient general paralysis, and an unfavourable prognosis given.

On the same day he was admitted to Bethlem Royal Hospital. He now complained of severe headache, and was restless, confused and very agitated. The pulse-rate increased to over 100, and was of low tension. Severe constipation was present, and caused anxiety for some time. Owing to the hallucinations of taste and smell the patient persistently refused food, and looked upon those around him with suspicion and a certain amount of fear. He was fed by tube, but fortunately this procedure was not necessary for long, as the patient began voluntarily to take food.

Nausea and occasional vomiting developed, and as numerous dental stumps were present they were extracted on the presumption that they might be the cause of oral and gastric sepsis. He, however, continued to lose weight, suffered from insomnia, and was cachectic (non-pigmented).

On April 30th the patient, who had now been in the hospital for four months, complained of abdominal pain and diarrhoea, and it was found that melaena was present. There was general tenderness over the abdomen and acute pain in the region of the hepatic flexure, with marked rigidity of the upper part of the right rectus muscle, suggesting some local peritonitis. Nothing in the nature of a definite tumour could be felt, but in view of the fact that the patient, in addition to the latter signs and symptoms, had suffered for some time with cachexia, loss of weight, and constipation, it was thought that a malignant growth might be present in the hepatic flexure of the colon. After consultation with a surgeon it was decided to postpone operation.

The pulse continued to be rapid (120 to 140) and of low tension, and the temperature rose occasionally to 100° F. for a few hours. The knee jerks were now almost absent. Asthenia, diarrhoea, and cachexia were very marked, and when going to stool the patient had frequent attacks of vertigo and syncope. His mental condition was, at this stage, one of agitation, restlessness, and apprehension. Memory, perception, and orientation were impaired, and speech was slurred.

These signs and symptoms gradually became worse, and the patient died on May 8th. On *post-mortem* examination no signs of general paralysis or other brain disease could be found, and, with the exception of a small adhesion at the brim of the pelvis, the whole intestinal tract was perfectly normal. So far this left the diagnosis in a state of obscurity, but on examining the adrenal glands they were found to be much enlarged, somewhat sclerosed, and on section macroscopically the right one showed a large haemorrhage, with numerous others of presumably earlier date. On microscopical examination the haemorrhages

and sclerosis were confirmed, but no evidence was forthcoming to show the presence of tubercle bacilli.

On comparing the clinical data with the *post-mortem* findings a ready diagnosis could be made, and the cause of the death was certified as being due to Addison's disease.

HIGH-FREQUENCY CURRENTS IN TRIGEMINAL NEURALGIA.

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THE beneficial influence of high-frequency currents in the treatment of various neuroses and neuralgias is well known to those who have carefully studied and applied this method of treatment, and the incredulity which is expressed in certain quarters only means, at least in many instances, that the treatment has been ineffective because it has been inefficient. It is curious to note the readiness with which the practice of electricity as a therapeutic agent is handed over by the profession to unqualified persons. What is true of other forms of electricity, and, indeed, of therapeutic measures generally, is true also of high-frequency currents. Unless used intelligently and not as a mere routine measure, and without regard to the wants of the individual patient, it is absurd to expect that good results will follow.

An illustration of the value of high-frequency currents when perseveringly and appropriately used, even in severe trigeminal neuralgia of long standing, may be found in the following record, and it is noteworthy that some form of electrical method, applied apart from skilled supervision, had previously failed to produce improvement. The lesson is obvious—that methods of treatment can only be judged fairly when they are put into operation under proper conditions; and, again, that both in their own interests and in those of their patients, medical practitioners would be well advised to retain in their own hands the use of electrical and other therapeutic measures, rather than to delegate those measures to those who, acting without knowledge, must necessarily act without judgement.

A widow lady, aged 60 years, in good circumstances, was sent to me in November, 1911, by Dr. John Love, of Glasgow, because of severe trigeminal neuralgia of eight years' duration on the right side. The attacks were frequent and severe, and even in the intervals between them, the patient lived under the constant fear of their return. All this had necessarily produced considerable prejudice to the general health. She had lately been at one of the English spas, and had been treated by ionization by a bath attendant, but without benefit. I began high-frequency treatment on November 2nd, 1911, and continued daily until Christmas, with very decided relief of the pain. During the break of the Christmas holidays the pain returned. Treatment was accordingly renewed, and was continued with one or two intermissions until June, 1912. By that time the attacks of neuralgia had completely disappeared, and the patient's appearance and general sense of well-being showed a corresponding measure of improvement. She reported herself in August 1912, when she had been absolutely free from pain for nine weeks. I saw her again at the commencement of October, when she informed me that, with the exception of a comparatively slight and transient attack she had suffered no pain, and that "to live was a pleasure." I met the lady in the street on November 27th, when she told me she was still free from neuralgic pain.

This is, of course, an impressive experience, but it is far from being exceptional. I have had many cases of neuralgia of all degrees of severity in which relief and often complete cure have followed the use of high-frequency currents. The method is no doubt one which causes the medical attendant a certain degree of trouble, but I am sure that if the profession would give it personal attention, they would find it both valuable and reliable.

DR. G. V. WORTHINGTON writes from Luxor to deprecate the apprehensions which are stated to have induced some intending visitors to Egypt this winter to cancel their arrangements. The Turko-Balkan war has not, he says, created unrest among the Egyptians, and they will certainly not do anything to endanger the harvest they derive from winter visitors. A similar apprehension which was felt, he says, in England last year on account of the war in Tripoli was soon found to be groundless. Although fighting then took place on the borders of Egypt it had no disturbing influence whatever.