begin two years previous to admission immediately after a fall from the top of a signal post 20 ft. high, during a storm. He was picked up insensible, and remained unconscious for half an hour; he was then able to walk home, apparently uninjured. He went to bed at his usual hour and slept well. Next day at breakfast he found his hands shook so much that he was obliged to carry the cup in both hands in order to bring it to his mouth. This tremor of the hands and arms, which was most marked on the right side, was followed by tremor of the head and body; and these tremors, which increased on voluntary movement, lasted one year before the next symptom appeared, namely, stiffness in the right knee and foot followed by cramps in the calf, and a feeling of weight, as if the foot were very heavy, in walking. The foot was dropped. There was also some giddiness, especially in turning round. Six months later the right foot became numb, with feelings of pins and needles after walking, relieved by rest. A few days before admission he suffered from frequent micturition, otherwise the bladder was normal. The mother stated that he was getting weak-minded, but he appeared to be quite intelligent, though somewhat childish and loquacious.

State on Examination.—The patient looked healthy, but was thin, and the muscular system not well developed for a working man. He kept his mouth open, and had a somewhat fatuous expression. He was excitable and was constantly smiling, the smile showing exaggeration of the nasolabial folds. In speaking the eyes were widely opened, giving him a staring appearance. His speech was jerky, explosive, but also muffled in character, with an occasional break into high notes. The heart's apex was in the sixth space, half an inch outside the nipple; the cardiac dullness was slightly enlarged, and there was a systolic murmur at the apex and right base, loudest at the former. The other thoracic and abdominal viscera were healthy, and the urine normal. When sitting slight choreiform movements of the limbs occurred almost constantly, with tremor of the head, arms, and trunk. This tremor of the arms increased on movement, but did not resemble the typical tremor of disseminate sclerosis, consisting rather in a lateral, swaying, or oscillating movement of the hand from side to side when grasping, followed by a coarse tremor when the object was seized or reached. The movements of the legs appeared to be stiff. The gait was irregular (most of the cerebellar than of the ataxic type), and was worse when he closed his eyes; there was then some stamping of the feet when walking. He was especially unsteady and apt to lose his balance on turning round. He was not able to stand still. No difficulty in swallowing. No affection of sensation. No muscular atrophy or hypertrophy. No paralysis of facial muscles. Hearing and smell normal. Eyes: Pupils equal, somewhat dilated; reacted to light, accommodation, and consensually. There was lateral nystagmus (oscillations towards the side to which the eyes were directed) when the eyeballs were moved to either external canthus. The optic discs showed moderate but distinct atrophy. Slight ptosis was present on either side. Reflexes: Knee-jerks exaggerated. Achilles-jerks increased; no ankle clonus. Babinski's sign present in right foot, not in left. Cremasteric and abdominal reflexes absent. Elbow and wrist jerks normal. There was slight lateral curvature of the spine, with the convexity to the right in the dorsal, to left in the lumbar region. Pes cavus was present on both sides, most marked on the left, the foot being hollow, the arch greatly increased, and shortened from before backwards. Hard and tender corns were present on the soles of the feet. Under treatment in hospital for six weeks, with rest, graduated exercises, electrical baths, and arsenic he showed some degree of improvement in co-ordination of movement of the arms and legs.

CASE II. Personal History.—The elder brother was by occupation a clerk, aged 26; in his case the disease had not been so long in existence, and was less advanced in some respects. There was no history of any previous illness, except measles when a child. He was a married man, and had never had syphilis. He thought his illness might possibly be due to a blow received on the right knee at football. Twelve months previous to admission the patient noticed that his feet used sometimes to come heavily to the ground when walking. Soon afterwards there was stiffness of the right knee, and the right foot felt so heavy that he could hardly get along on rough, uneven ground. The feet were turned inwards. Later he suffered from a throbbing pain over the sacrum. The difficulty in walking steadily increased. He now complains of unsteadiness in walking, of "reeling like a drunken man," so that he has several times fallen down; of difficulty in lifting his legs, especially the right; of a numb feeling in the legs and hands; of some pain in the back; and of failure of sight. He had had no pains in the limbs, and no affection of the bladder.

State on Examination.—He was well nourished and of a good colour; the muscular system not strongly developed, but no muscular atrophy. The chest was small and expansion deficient; the thoracic and abdominal organs were healthy. His gait was cerebellar in type, much more so and less ataxic than in his brother's case; he reeled in walking, but at the same time he walked with a stiff movement of the knees and a jerking forwards of the thighs. The right foot turned inwards and was brought across the left in walking, and the left foot was not well lifted off the ground. The gait was worse with the eyes shut. He stands with legs wide apart; with feet together and eyes shut he swayed to a moderate extent. He could stand on his right leg alone, but not on the left. There were no choreiform movements, and no tremor or inco-ordination of the arms or hands, except that with the eyes closed the movements of the left hand were not quite exact. There was no loss of the sense of position. He readily recognized the nature of objects when placed in his hands (without aid of sight). The tongue was slightly tremulous. Speech, swallowing, hearing, smell, and taste normal. Face symmetrical. Eyes: No ptosis in this case. Some loss of power of convergence. Well-marked fine vertical nystagmus on looking upwards, and in looking to either side lateral nystagmus of that eye only which moved into the external canthus. Pupils small, equal, react to light, accommodation, and consensually. Commencing atrophy in each optic disc, most marked on the left side. Arms: Elbow-jerks present, increased on the right side. Legs: Slight rigidity of the leg muscles, especially about the knees; knee-jerks and Achilles-jerks exaggerated, ankle clonus on both sides; Babinski's sign present on the right side, plantar reflex normal on the left. The right foot showed a slight degree of pes cavus, with overaction of the long extensors of the toes. There was slight lateral curvature of the dorsi-lumbar spine, with the convexity to the right. No affection of

sensation was anywhere detected. The patient was quite intelligent; mentally he seemed normal, and was fully sensible of his sad condition. No improvement was obtained from treatment.

To the above account I have only to add that except with regard to the points mentioned at the beginning of this paper, the differences from the ordinary clinical type of Friedreich's ataxia are well marked, and the disease began in both patients after the age of 21. Two points seem to me worthy of notice; first, the history of injury in both cases, which was very definite, and succeeded at once by symptoms in the first case, less pronounced and therefore more uncertain in the second, but in him also the symptoms appeared within a few months of the accident, and first in the injured leg; secondly, that in each of the brothers the early symptoms were nearly identical.

CASE OF HEREDITARY OR HUNTINGDON'S CHOREA.

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THE following case of this disease may be of interest, as, to the best of my knowledge, not many cases have been recorded in England. I have no new facts to relate concerning the malady, but the hereditary nature of it and the great tendency to mental failure in it is fully in accord with the description as given by Huntington, of New York, in 1872. A serious point as to the management of these cases arose in regard to this.

The family history is imperfect. The father of this patient suffered from chronic adult chorea for many years, and was in the workhouse, where he developed insanity after the administration of chloroform for the amputation of a finger; he did not live long after his removal to the asylum. The mother's mother committed suicide, and the mother herself became suicidal and died in an asylum; there is no distinct history of chorea in these cases. A sister of the father's suffered from chronic chorea and was married and had two children—a son, aged now about 30, who has developed chorea during the last two years, and a daughter who is married and is said to be suffering from it. The patient is a labourer, aged 46, married, with one daughter, 13 years of age, who is quite well at present. About twelve years ago his wife noticed that his hands and arms twitched very much, and this was soon followed by twitchings of his shoulders and face; his legs were not much affected, and until just lately he has been working on the roads, but has had to give it up owing to the great difficulty in holding his tools. For several years his temper has been getting very bad, and he flies into a great passion on the least provocation; he has threatened suicide. When the patient is sitting quietly and, as he thinks, unnoticed his mouth is continually moving from side to side and his brows up and down, his face going through continuous involuntary grimaces, and his shoulders rotating backwards and upwards as he he was going to fall sideways off his chair, his hands and arms meanwhile going through irregular movements of flexion and extension, pronation and supination; he answers questions quite rationally, but his speech is thick and indistinct, and occasionally he swallows with difficulty; he emits grunting noises when sitting quietly or when in bed. There is no tremor of his tongue on protrusion, and the movements of his eyeballs are not noticeably affected. He can keep his body and face quite still for a short time if told to do so, and he can hold out his hands quite steadily, with the thumbs adducted under the palm, but all the movements recur when he fancies he is unnoticed and when his voluntary efforts to steady himself no doubt get tired out. He can write his name fairly well. He walks like a man more or less intoxicated, but there appears to be no loss of power in his limbs, his knee-jerks are normal and he can stand alone with his eyes closed and feet together; he has no bowel or bladder trouble. His arteries are thickened and tortuous, but his general health is good, and he would be able to work if he could hold his tools. His wife states that his movements continue during sleep, and that she frequently wakes up quite uncovered owing to his continuous movements dragging off the bedclothes.

The most important point of the case is how to deal satisfactorily with a man in his mental condition: at any time he may become dangerous to himself and those about him—his wife is afraid to leave him alone with his child in case he should be seized with one of his ungovernable fits of passion, and yet beyond this symptom of insanity—if so it can be called—there is nothing to warrant one in signing a lunacy certificate, and still further, little chance of it being signed by the examining magistrate after his interview with the man in his present state of mind. Knowing full well the history of this class of case one feels certain that the only safe and proper place for a patient of this kind is in the county asylum or where he can be always under skilled observation.

Other interesting points in the case are (1) the continuation of movements during sleep, (2) the power of voluntary efforts to control movement—this latter, no doubt, accounts for the former, (3) the commencement of the disease at the usual age with its tendency to gradually increase in severity, (4) the hereditary nature of the nerve degeneration. I have no means at hand of finding out whether most of the recorded cases have occurred in country villages where intermarriage is very prevalent, but there is no doubt but that it is answerable for a great deal of the deterioration which one sees both mentally and physically in many country districts.

Note.—Since writing the above, the man has attempted suicide and has been sent to the County Asylum.

A CASE OF FRIEDREICH'S ATAXIA.

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It is by the kind permission of Mr. E. M. Wrench, F.R.C.S., of Baslow, that I am able to publish this case. My first note, made in November, 1897, is as follows:

E. A., female, aged 14, spare, but looking her age, complains of loss of power in her hands and arms, and inability to stand or walk without support, falling down if she attempts to do so.

History of Present Condition.—Her mother first noticed awkwardness in walking when she was 7 years old, and says she, used to carry her head poked forwards. Shortly afterwards she noticed her speech became drawing and indistinct. About three and a half years ago the patient had suffered from pains in the joints, but the doctor who attended her said it was not rheumatic fever. The arms were only slightly affected before the patient had measles about three weeks ago, she could help her mother in the housework, "wash up," etc., but could not write or sew well. Since the attack of measles she could not stand or walk so well, and had lost flesh.

Family History.—Father and mother alive and well. Two brothers aged 10 and 5, and two sisters aged 13 and 8 years respectively, quite healthy, and as far as could be ascertained there is no history of any nervous disease in any member of either parent's families. Both parents are steady, hard-working country folk.

Previous Illness.—With the exception of measles three weeks ago has enjoyed good health.

Present Condition (November, 1897).—The child has now quite recovered from measles, and has been up and about nearly a fortnight. In the sitting posture she remains quite still, with her head bent forwards. When spoken to her head sways from side to side as she looks up. She keeps her arms semiflexed and her wrists flexed with fingers extended, and at present complains of pains in the joints when moved. (Examined later when pain was absent, flexion and extension could be performed, but when at rest the limbs resumed the above-mentioned position.) Her pupils are somewhat dilated but equal, and react to light and accommodation; there is no nystagmus, neither can it be demonstrated by prolonged lateral deviation of the eyes. The tongue appears natural, and can be protruded straight. Her speech is slow and drawing, like that of a patient suffering from painful tonsillitis. Her memory is good. Knee-jerks and ankle-clonus are absent. When asked to stand up she separates her feet widely, and thrusts her head forwards. In walking she rolls from side to side, and the effort is accompanied by jerky movements of the head and shoulders and choreiform movements of the arms; she clutches at any near

object for support, and walks on the outer edge of her feet. Romberg's symptom is present. Asked to pick up anything, her hand sways from side to side, the fingers are spread out over it and then suddenly grasp it. Lateral curvature of the spine and talipes equinus are well marked, and examination in bed discloses the striking deformity of the great toes so well illustrated in Pierre Marie's account of this disease published in the Sydenham Society's *Transactions*, namely, hyperextension of the proximal with flexion of the distal phalanges of the great toes. Skin reflexes and sensation are normal. No retinal changes were found on examining the eyes with the ophthalmoscope.

Progress.—September 7th, 1902. The condition of the patient is decidedly worse than when the previous note was taken five years ago. Her expression is not markedly dull, and her mental faculties remain good, but she is now practically helpless; static ataxia is well marked, and the talipes has now reached the condition of pes cavus, and the deformity of the great toes is very pronounced. The hands are much less useful, knitting can only be performed with effort, and quickly tires the patient. Her chief solace is in reading. Her general health on the whole keeps good, but lately she has been troubled with attacks of gastric pain and flatulence. She remains fairly well nourished, considering the long partial disuse of her limbs. Sensation remains normal, and the eyes still show no signs of nystagmus or retinal changes. All the other members of the family remain healthy.

Remarks.—The chief points of interest in this case are: The absence of any history of nervous disease in the family; the absence of the disease in any other members of the family, the youngest of which is now ten years old; the inability to attribute the disease to intemperance or syphilis, or any cause whatever; and, lastly, the absence of one of the chief, though sometimes a late, sign in this disease—namely, nystagmus—and the occasional occurrence of joint and gastric pains.

CASE OF COMPLETE PARAPLEGIA SUCCESSFULLY TREATED BY FORCIBLE EXTENSION OF THE SPINE.*

By
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D. M., aged 10 years, was admitted into the West End Hospital for Diseases of the Nervous System under the care of Dr. Outtersson Wood on November 21st, 1900.

For the following history of the case we are indebted to Dr. H. J. F. Simson, the Medical Registrar to the hospital.

History.—Father and mother healthy. Six children in the family, of whom one died of measles and one of tuberculous peritonitis; other children healthy. Beyond the ordinary diseases of childhood the patient had been healthy until about two years before admission. In 1898 his mother stated that she noticed that there was something wrong with his back. The patient was treated as an out-patient at a hospital, and kept in a jacket for eighteen months and discharged cured. In the course of a few weeks (probably about six) the boy's legs "began to be stiff," and he experienced a difficulty in moving about; this was first noticed in March, 1900, and in May there was complete paralysis of both lower limbs.

State on Admission.—The patient was found to be suffering from complete paralysis of both lower extremities, a condition which had lasted for about six months. The patient was a well-nourished and well-developed lad, mentally and physically. There was complete paralysis of both lower limbs associated with marked rigidity and a good deal of adductor spasm, but there was no flexion of the knees or thighs. The knee-jerks were greatly exaggerated, and there was ankle and patellar clonus. The plantar reflex was increased and Babinski's sign was markedly present.

Sensation.—From the umbilicus downwards there was greatly diminished perception of pain. If pricked pretty firmly with a pin he could feel it but did not cry out as if hurt. Tactile sensation was almost entirely lost. Cold was acutely perceived but always as heat; heat produced no sensation of any sort. There was a band of hyperaesthesia midway between the umbilicus and the ensiform cartilage. Above the band of hyperaesthesia the movement and sensation were normal, both as regards trunk and arms. Bladder and rectal functions were unaffected. Examination of the spine showed an angular curvature in the region of the second, third, and fourth dorsal vertebrae, with a backward curve of the cervico-dorsal region as a whole. There was marked tenderness on percussion over the

* Read before the West London Division of the Metropolitan Branch of the British Medical Association.