

A CASE OF CATALEPSY OCCURRING IN A BOY AGED 15 YEARS.

By DONALD E. CORE, M.B., CH.B. VICT.,
RESIDENT MEDICAL OFFICER, BARNES CONVALESCENT HOSPITAL,
CHEADLE.

THE patient was brought into the out-patient department of the Derbyshire Royal Infirmary with a history of having had three "fits" during the preceding six weeks. Up to that time he had been perfectly healthy, and there was no evidence of his having had fits or convulsions during infancy. His previous medical history was good, but he appears to have been very backward while at school. His father at the time of his admission stated that in these fits the boy had first become very stiff for a short time and then jerked himself about, but had never fallen, as there had always been time to recognise what was about to happen and to get the boy into a chair. There had not been any passing of urine in these attacks, neither had he ever bitten his tongue. There was no history of fits of any kind in any other member of the family. The last fit occurred some two weeks before the patient was first seen, and was apparently followed by a state of stupor, in which the boy would not feed himself, and had to be made to pass his urine. Once his attention was drawn to his necessities, however, he passed it himself naturally. Otherwise he had been in a condition of blankness, and it was for this condition that he was brought into the hospital.

When first seen the boy was in an absolutely passive condition. He allowed his limbs to be put into any position, and made no attempt either to resist or to alter their attitude. The extremities could be moulded into positions as if they had been made of wax. He was, however, alive to painful stimuli, and resented pinpricks by frowning and finally by turning his body away from the stimulus. The only muscles which were active were those of the eyes; these were moved voluntarily, and the patient watched proceedings with interest. The general condition was very good, the boy being well grown and with remarkably well-developed muscles.

Nervous system.—Motor: Active movements, with the exception of the ocular muscles, were in entire abeyance. The legs and arms could be put into any position without the least resistance, and they were maintained in these attitudes until, the weight of the limbs overcoming the muscular strength, they slowly dropped. Thus, the arms being erected over the head, they remained in this position for over a quarter of an hour. Then they began to sway, and the excursions becoming wider and wider they finally lay by the side. The legs fell more quickly, being exhausted in from five to ten minutes. After the sensory system had been investigated by the use of a pinpoint the passivity of the limbs lessened, and very considerable strength was manifested. There were no tremors and no evidence of any head retraction. The boy on admission was able to stand, but would make no attempt to walk. He had to be led about as though he were blind. The muscular tone was normal. Sensory: There was much resentment displayed to painful stimuli. In most cases this was manifested by a screwing up of the facial muscles. Reflexes: The knee-jerks were present and normal. Ankle clonus was absent on both sides; Babinski's reflex was similarly absent on both sides. The superficial reflexes were present and active. Bladder and rectum: There were incontinence of urine and marked constipation. Special senses: There was no nystagmus. The right pupil was slightly larger than the left. The discs were normal. The pupils reacted normally. On his admission it was impossible to say whether he was able to hear or not. He took no notice of anything that was said to him. Mental: Entire negativism, altering occasionally to a state of anger. There was no evidence of any cerebral irritation. Speech: Absent. There were no trophic lesions of any kind present on his body. The heart, lungs, and abdominal organs were normal.

The boy would not feed himself and had to be spoonfed. Shortly after his admission he would not swallow what was put into his mouth, and he had to be nasal-fed. After the first meal given in this way, he took his food perfectly well if it was placed in his mouth. On the eighth day of his stay in the hospital he developed a very slight but quite definite squint, the left internal rectus apparently being at

fault. This, after varying from day to day, disappeared within a week of its appearance.

The boy was treated with galvanism and massage, and although at the time of application he seemed to improve, he remained in the state described for over 16 weeks. During this period he never, apart from electrical stimulation, made a single voluntary movement. He lay on his back staring at the ceiling and generally soaked in urine. While being galvanised he turned himself about in order to evade the battery, and on several occasions shouted out, but as soon as the current was taken off he relapsed into his former state. Some ten weeks after his admission contractures of the fingers made their appearance, and any effort to extend them met with the most violent resistance. This was followed by flexion of the legs on the thighs, and of the thighs on the trunk, but the mental condition remained just as it was, and the limbs when straightened could be moulded in the same way as when he was first seen.

Sixteen weeks after his admission the boy was suddenly heard singing in the night, and shortly after he spoke a few words apart from electrical stimulation. From this time he recovered rapidly, but for some time after he was able to feed himself and to speak his muscles were in their original state of waxy flexibility. Thus after having been given a plate of rice and a spoon he would sit and stare at the food without making the least attempt to eat it. Then when some was lifted into his mouth he would start feeding himself and would continue to raise the spoon to his mouth long after the plate was empty. When told to stop he would slowly obey. If he was questioned, he would at first make no effort to answer, neither would he look at the questioner, but after a long pause he would in a peculiarly monotonous tone reply. This transition state rapidly passed off, and the boy became what was probably his normal condition. This was one of irritating stupidity, mingled with a low degree of cunning. He was intensely disobedient and stole consistently from the other patients in the ward. He had no idea of decency, and would get out of bed the moment the nurse's back was turned, and, taking off his clothes, would run about the ward naked. He was able to read and write and to work out simple arithmetical problems. He was sent to the Derby Infirmary Convalescent Home, where he stayed three weeks.

The temperature throughout the whole period of his stay in the hospital was normal. There was never any albuminuria.

My reasons in publishing this case are its rarity and the duration of the condition. When he was first seen the question raised was whether he had not some meningeal trouble, and this was made all the more probable by the inequality of the pupils and the squint. There was never any elevation of the temperature, and the pulse was always perfectly normal. There were no signs of any cerebral trouble, and a diagnosis of hysteria was made. This was confirmed by the appearances of the contractures. A diagnosis discussed was one of post-epileptic stupor, but the length of time which had elapsed between the last fit and his admission, 14 days, put this out of the question. Then again, the fits were not perfectly typical of epilepsy.

Of the many hysterical manifestations the case conformed most closely to that known as catalepsy. This state nowadays is considered to be almost always hysterical, although Whitla in his recent text-book says that it may be associated with such diseases as meningitis and melancholia. Osler, Fagge and Pye-Smith, and Savill all agree in regarding it as purely hysterical. Kraepelin, on the other hand, looks upon catalepsy as a symptom more or less synonymous with "flexibilitas cerea," and considers it characteristic of *dementia præcox*. Maurice Craig, under the heading of "Catatonic Stupor," describes the following condition associated with mental depression, delusions, and hallucinations: a markedly resistant condition of the muscles, which, when overcome, remain in whatever attitude they are placed; mutism, and occasionally automatic imitative speech, "verbi-geration."

Dr. Hack Tuke, in Allbutt's "System of Medicine," states that catalepsy may be a condition *per se*, or it may be associated with mental symptoms. He describes a case which resembles the one above as belonging to the former class. In his opinion it is a rare condition and one which almost always affects young females. The onset is generally ascribed to mental shock of some sort and the symptoms come on suddenly. In the case I have just described there were no mental symptoms of the nature of delusions or

hallucinations. The boy was certainly mischievous and remarkably unintelligent, but he did not differ in these respects from many boys of whose mental health there is no doubt. Dr. Hack Tuke further remarks that the memory for events which have occurred during the attack may or may not be impaired. In my case many small details of ward discipline and also fragments of conversation which had been spoken at his bedside during the stage of negativism were remembered with the greatest clearness.

The pathology of these cases is uncertain. The immediate factor at fault is the motor inhibitive function of the cerebrum, but this does not carry us very far to their solution. The primary trouble is essentially that of the group of functional disease to which it belongs—namely, the hysterical diseases. In the consideration of mental disturbances from the standpoint of function, one can recognise three factors which, acting normally, are responsible for comprehension, thought, and memory. These three factors are the afferent, the central, and the efferent paths of the central nervous system. Any element of these three systems may influence one or all the elements of the other two. In highly developed organisms the afferent and efferent systems work upon each other through the central; for some actions, however, the activity of the central processes is not necessary. In health the central system works upon the efferent by a process of excitation and depression, the healthy exercise of these functions constituting judgment. In a steady state of health the central system does not materially alter or affect the normal impressions received from the afferent paths, but in disease it does, the result being delusions. Delusions are the result of a disturbed central mechanism—that is to say, they are the outward and visible sign of intrinsic central trouble. Intrinsic afferent trouble constitutes such diseases as blindness, deafness, and the like; intrinsic efferent trouble the various paralyses. A diseased action of the central mechanism on the efferent system results in disturbances of judgment. Most diseases of the mental organisation are referable to excessive, diminished, or perverted function.

In the case above considered, we may imagine the higher elements of the central mechanism to be, as it were, blotted out. That is to say, comprehension and thought, at the time of his attack, were non-existent. With the abolition of comprehension, the influence of this function on the actions disappeared, the lad manifesting no sign of judgment, and so arose such symptoms as refusal of food, incontinence of urine, and the plasticity of the limbs. Memory, as we have seen, was not altogether in abeyance, but was not associated with any efferent impulse. The trouble was one in which the highest functions only were concerned.

The recovery of many of these cases is not infrequently accompanied by an attack of maniacal excitement, as though the central mechanism, after its long period of inactivity, begins work with its functions exalted.

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Cheadle, near Manchester.

REMOVAL OF SUPERFLUOUS HAIRS BY IMPROVED METHODS.

BY A. HOWARD PIRIE, B.Sc., M.D. EDIN.,

CHIEF ASSISTANT IN THE ELECTRICAL DEPARTMENT, ST. BARTHOLOMEW'S HOSPITAL.

THE removal of superfluous hairs by means of electrolysis is a very satisfactory minor operation when well carried out. Frequently, however, a small scar is produced at the seat of operation, and in order to avoid such a scar a simple precaution is necessary which is not mentioned in works on medical electricity. Like all other operations, it must be performed intelligently and not blindly, without regard to the principles of electricity, anatomy, and physiology. It is often spoken of as if the root of the hair was burned by the electricity as a *nævus* is burned by a cautery point. This is quite a wrong view to take of the operation. The destruction of the root of the hair is caused by an acid or an alkali, generated at the positive and negative poles respectively.

1. If a needle which is not acted on by acids is used, such as gold or platinum, and it is connected to the negative pole, then nascent chlorine appears round the needle with the

formation of hydrochloric acid and destruction of the hair bulb. It is as if a minute quantity of free hydrochloric acid had been injected into the hair follicle. 2. If a needle which is acted on by hydrochloric acid is used, such as zinc, the acid attacks the zinc, forming chloride of zinc, and this goes into solution; thus both hydrochloric acid and zinc chloride are set free in the hair follicle. In this case a little of the zinc remains in the follicle, but is not driven in to the surrounding cells, and therefore there is no staining of the skin where a corrodible needle is used, provided it is connected to the negative pole. 3. If a non-corrodible needle such as gold is used for the operation, and it is connected to the positive pole, free sodium is liberated at the surfaces of the needle; this at once combines with the water of the tissues to form caustic soda, which in turn attacks and destroys the root of the hair. 4. If a corrodible needle, such as a steel needle, be used and be connected to the positive pole free sodium is liberated at the surface of the needle, which at once becomes caustic soda, which attacks the iron, forming oxide, and hydrate of iron. This remains in the hair follicle and therefore does not stain permanently the skin. But there is a much more important action going on in this case which does stain the tissues, and that is the transport of iron ions from the steel needle into the actual cells of the skin, where they are fixed and remain as iron oxide or rust. For this reason a corrodible needle must never be attached to the positive pole in this operation. No pigmentation is therefore produced if one uses a corrodible needle, provided it is connected to the negative pole.

When the current is turned on and the needle which is attached to the negative pole touches the skin, acid formation at once begins. As the needle sinks into the hair follicle the acid also penetrates deeper till it reaches and destroys the bulb of the hair. The needle must be left a sufficient length of time to allow sufficient acid to collect in the follicle to destroy the root of the hair. But while the root is being destroyed, so is the skin around that part of the hair which is embedded in the upper layer of the skin. It is quite unnecessary to destroy more than the root of the hair, and this destruction of surrounding tissue is the cause of future scarring. This can easily be avoided by a simple method of insulating the needle to within a sixteenth of an inch of its point. When a needle is so insulated and thrust into the root of the hair, the free acid attacks only the root and therefore there is no scarring left after the operation. Patients have remarked to me on the decrease in the amount of reaction following the operation when the insulated needle has been used, and it is very striking to an operator who uses an insulated needle after being accustomed to a naked needle.

The method of insulating the needle is very simple. In the first place, I prefer to use a fine wire in place of a needle. I find the wire supplied with the finest hypodermic needle useful for the purpose. It is finer than a No. 12 sewing needle, which is the finest sewing needle obtainable. Another advantage of this wire is that it has not a sharp point and therefore is not so likely to leave the hair follicle and make a false passage. If too much force is used in introducing the wire it bends and makes further progress impossible. By its extreme fineness it finds its way down by the side of the hair, and in the case of hairs whose roots take a curved course in the skin it follows the curve instead of making a false passage, as the finest sewing needle does. Unless the point of the needle reaches the actual bulb of the hair the operation is useless. Therefore a fine wire with a blunt point is better than a fine sharp needle for the purpose.

The wire should be insulated as follows. Hold a piece of shellac in the left hand and the wire in the right. Heat the wire to redness in a Bunsen flame, and while red hot embed it quickly in the shellac all except its point and lift it out again quickly, thus leaving a sixteenth of an inch uncovered by shellac. There is thus a thin layer of shellac left on the wire, and it fits it so well that no irregularity appears to the naked eye in the outline of the wire as compared with its former state. The tip of the wire must not touch the shellac. One-sixteenth of an inch remains naked at the tip of the wire. The wire cuts into the shellac when it is red hot as one cuts a banana with a knife.

Conclusion.—To sum up, the essentials of good results in this operation are: (1) connect the needle to the negative pole; (2) use a fine stiff wire as a needle (the wire supplied