With respect to the mechanism of the production of these phenomena by physical agency, I would explain it by the presence of a peripheral stimulus, which, being sufficient to affect the superficial nerve-fibres, would by this medium react upon the nerve-centres. "Can a local stimulus," it may be asked, "when applied to an anæsthetic region, have any influence beyond the immediate part?" To this I answer in the affirmative, for the following reason, amongst others. A patient came to me, the outer half of whose forearm, owing to a lesion of the ulnar nerve, was quite insensible. Desiring to test whether an experiment recorded by the Commission would be effective in such a case, I requested him to place a thimble on his little finger and to keep it there for half an hour.* It was too large, however; and, to prevent it from slipping off the drooping and wasted hand, he had to maintain it in position with the other. But, when I had applied faradisation to the insensible part of the arm, he was surprised to find that the thimble no longer slipped off. The finger had increased sufficiently in size to fill it; and this, of course, was due to an influx of blood, determined by a peripheral stimulus.† Again, in a case recorded by Dr. Duchenne (de Boulogne), where a patient was affected with intense anæsthesia of the left side, the faradic stimulus, though unfelt, wherever applied in that region, was followed by a sensation of dizziness, vomiting, and pain in the left side of the thorax, under the breast. On the right, or sound side, the local stimulus was normally perceived, and no such remote effects followed. Hence a peripheral stimulus, when applied to an anæsthetic region, is capable of reacting on the nerve-centres; and, judging from the last mentioned case, the presence of anæsthesia may even favour such an effect, by diminishing resistance or removing interfering forces.

When the efficacy of a metal-application was spoken of as due to some inexplicable "virtue" inherent in the object, it was natural that the mind should resent such a notion, and appeal to psychical action in preference. But the case assumes another aspect when we find that, on the application of metals, electric currents are generated; and when it is next demonstrated that, in the absence of the metals, these currents are sufficient to produce the same phenomena, there can be little hesitation in declaring that a satisfactory explanation is before us. On the other hand, there may be efficient stimuli other than electrical; and nothing justifies us in excluding from this category the irritation of a sinapism, for instance, or that caused by a ligature drawn so tight as to produce cedema of the member. The actual cautery also might be equally effective. Before rejecting the possibility of a physical agency in cases where apparently inefficient objects are applied, it would be well to investigate whether some unnoticed cause has not been at work to disturb the electrical condition of the part. The researches of Du Bois-Reymond, it should be remembered, show that thermo-electric currents may be produced by inequalities of temperature not generally suspected of possessing such an influence, and that other readily overlooked causes may give rise to electro-motive action. The propriety of such an investigation becomes obvious when we find, by the experiments of M. Regnard, that comparatively feeble electric currents are sufficient to determine the production of the phenomena we have just reviewed.

I conclude in the memorable words of Claude Bernard: "The physiology of the nervous system is yet but very little advanced. If its instructions were to be waited for by pathology, the latter would be

new comer in the hospital. On the other hand, I can certify that, judging by her expressions afterwards, she would scarcely have borne the experimentation so patiently had she not believed that metals were applied.

* No recovery of sensation in the finger was experienced at the time, neither was its occurrence considered probable.

† It is suggestive that an effect should be produced where the sensations of touch, pain, tickling, and temperature are abolished, as they were in this case. The fact tends to corroborate Dittmar's opinion that there are special fibres, answering to electrical [mechanical and chemical] stimuli by reflex action through the vasomotor centres. Dr. Duchenne (de Boulogne) accounted for the active hyperæmia, observed after faradisation, by supposing the existence of vaso-dilators. It is generally stated that Claude Bernard, who was chiefly responsible for the hypothesis of active dilatation, afterwards abandoned it; and this is true to a certain extent, but it should be added that he resumed its advocacy, and upheld it for some years previously to his decease, as I had many opportunities of knowing. Here I may refer to the statements of Dr. Bennett (*Brain*, vol. i, p. 335), that he has never seen the punctures which had been made in an anæsthetic region bleed on the return of sensibility; and that "the nature of the wound inflicted by the needle seems alone to determine if blood shall follow, and this whether the skin be anæsthetic or not. This may serve to explain the circulatory changes supposed to be produced by the metals." It does not, however, explain the elevation of temperature. But, in fact, nothing more quickly attracts the attention of medical visitors at La Salpêtrière, than the sight of blood oozing out of pin-pricks, on the return of sensibility, where previously there was little or none. With respect to the supposed necessity for different kinds of wounds, it may not be amiss to say that the ischæmic phenomenon was first noticed because leech-bites on the anæsthetic side were found to yield but very little blood, whilst on the other side it flowed as usual. Professor Schiff's production of analgesia by the rapid withdrawal of blood should not be forgotten. Activity of capillary circulation, recovery of sensibility, and increase of temperature and of strength, seem to me to be very closely correlated.

exposed to the danger of allowing important phenomena to escape. It is better that it should not wait, but rather continue to register facts, which are as so many problems, the solution of which must afterwards be sought out by physiology."

TWO CASES OF HYSTERIA.*

By JOHN S. BRISTOWE, M.D., F.R.C.P.,
Senior Physician and Lecturer on Medicine at St. Thomas's Hospital.

CASE II. *Hysterical Catalepsy: Mania: Double Consciousness, etc.*—A healthy-looking, interesting, and accomplished girl was, without any obvious reason, attacked, in September 1873, with pains in her chest-walls simulating those of intercostal rheumatism. They were supposed to be hysterical, and had subsided at the end of a week. But after a couple of days, again without apparent cause, she passed almost suddenly into a curious cataleptiform condition. Her muscles were perfectly rigid; her arms and legs and head and neck being extended so that she could be carried or lifted like a statue from one place to another; but her hands were firmly closed, and her feet similarly affected, so that the toes were flexed into the soles of her feet. The joints generally were so firmly fixed that no force that her medical attendant, Dr. Simpson, of the Old Kent Road, felt justified in employing, availed to move them. The only exceptions were the shoulder-joints and those of the head and neck. The arms, in fact, could be moved readily at the shoulders, and remained for an indefinite period in any position in which they were placed. The movements of the head and neck I will describe presently. She appeared to be entirely devoid of feeling, perfectly deaf, and her eyes were fixed, but she was not wholly insensible; for, although she took no notice of anything, or of anyone else, she always showed signs of pleasure, and moved her head from side to side, when Dr. Simpson came in the line of her vision. Yet she took no notice even of him when his image fell on the lateral parts of her retinae. Her teeth were clenched, and she did not attempt to speak or to take food. But Dr. Simpson soon found that, on passing his finger backwards between her teeth and cheek, and then inserting the tip behind the teeth between the upper and lower jaws, the spasm of the jaws almost immediately yielded, and he was able to administer spoonfuls of milk. But there was still some difficulty in swallowing, and it was often returned, in part by the nose. He had to feed her four times a day. At the end of about a month, she recovered almost suddenly; and, when her hands and feet opened, the fingers and toes were found to have made deep depressions in the palms and soles respectively.

In December, her friends determined to take her to Brighton for the benefit of her health. Before she left, Dr. Simpson paid her a complimentary visit; and immediately after this she observed to her parents that, if she were taken ill there, she would have only Dr. Simpson to attend her. She left home on the Thursday, and on the following Monday morning a telegram reached Dr. Simpson requesting him to come down to her at once. He arrived at Brighton in the evening, and found her again cataleptic, and very nearly in the same condition as that from which she had recovered two or three weeks previously. Dr. Simpson then learnt the following facts about her, some of which were important, and others at any rate strange. It appeared, that about 11 o'clock that morning she began to experience a sense of numbness and rigidity; and, being quite sensible at the time, she requested that Dr. Simpson should be at once sent for. Her parents went into another room, discussed the question, and decided not to telegraph (at any rate at once), but to tell her that they had telegraphed. They returned to the room and told her that they had sent her message. But she at once taxed them with their deceit; and the result was, that the telegram was sent off. At 12 o'clock, she said to her parents, "The telegram has reached Dr. Simpson's house, but he is not at home, and will not reach home until two." At two, she observed, "He has now got the message, but he is hesitating whether he shall come or not." Later on in the day, she said, "Now he has started," and about an hour or so afterwards she called out that his train was being delayed at Horsham, and that it would arrive at Brighton half an hour late. Now, all these assertions of hers were, Dr. Simpson asserts, absolutely true. He was out at twelve, when the telegram arrived; he did not reach home until two; and then he had to go to the London Hospital and get a *locum tenens* before it was certain that he could go to Brighton that day. His train, which she had timed accurately, was delayed half an hour at Horsham, and arrived at Brighton half an hour late. Her condition, as above remarked, was now, as nearly as possible, what it had been

* Concluded from p. 146 of last number.

previously : she was rigid, deaf, almost, if not quite, insensible to pain, and showed pleasure when Dr. Simpson came into her line of vision. But now the sight of other persons, which was formerly unheeded by her, threw her into violent convulsions. She, in fact, took her father and mother and other persons for wild beasts, usually lions and elephants; and, on catching sight of them, immediately, with a loud scream, passed into an epileptiform attack, in which she lay for about a quarter of an hour, moving her head rapidly backwards and forwards, and with her face and eyes turned powerfully to the left. There was no foaming at the mouth, and no biting of the tongue, and she came to with a deep-drawn sigh. On the following Wednesday, she was brought back to London, being lifted from her bed to the carriage and from the carriage to her bed "like a rod of iron". She continued in this condition for eight or ten weeks : rigid, insensible to pain, deaf, suffering from very frequent fits, all brought on in the way described, and taking food, in the form of milk, from Dr. Simpson only. It may be observed that, in order to avoid sending her into a fit, her mother used, when she wanted to pass her evacuations (of which the signs were always easily recognised), suddenly to throw a sheet over her head, and then she was lifted by her head and heels and placed supine over the bed-pan. During the greater part of this time she made no attempt to speak; but at the commencement, and also when she was convalescent, she would occasionally, on recovering from her fit, refer to the elephant or lion she had seen. During the whole of this [period, the fits came on several times a day.

Towards the end of the time referred to, the rigidity gradually disappeared, commencing from the hips. But she now began to suffer from extreme pain and tenderness in her limbs, so that she could not bear to be moved or even to be touched, and would frequently scream with pain. The soreness and tenderness, however, gradually subsided; and before long, she fell into a strange condition, in which she continued with little or no variation for the next two years. She could now move her limbs freely, and, indeed, seemed to have much muscular power, yet was unable to rise from her bed, or even to be fed, without assistance; and even then, the exertion was usually attended with an attack of profound syncope. She could feel, but there was marked insensibility to pain, and she was absolutely deaf. On the other hand, she was closely observant of all that was going on round about her; was voluble in her talk, her vocabulary being peculiar; and would often sing; would never take food from any one of her immediate friends or relations; was vindictive, biting if she had the opportunity, and concealing sticks or knives under her pillow, and, at any rate, striking with the stick if she had the chance. For a long time, Dr. Simpson was the only person whom she cared to see, or whom she would obey. As soon as she saw him in the room, she would tremble with pleasure and eagerness, hold out her arms to him, fondle his hand in hers, and begin to talk volubly. She would first say "paws", which meant shake hands, and if he did not shake hands, she would become sullen, cry, and refuse food until he did. Then she would say she had a lot to tell him, and would recount all that had occurred since his last visit. His visits, which were for the purpose of feeding her, were made four times a day. She would only take milk; would always insist on leaving some in the basin; and the more she left the better, saying she had the best of the bargain. Generally, when she commenced, she would hold up her fingers, signifying by that, that she would only take ten spoonfuls, and generally that was all that she could be prevailed upon to take; but occasionally, Dr. Simpson, by holding up two fingers, would persuade her to take two spoonfuls more. But then her refusal was absolute. She was not particular as to the size of the spoon, and consequently the largest possible table-spoon was employed ultimately. She never took more than three pints of milk a day, and no other food whatever. After a few months, Dr. Simpson, by gradually introducing to her his partner and his assistant, managed to prevail on her to allow herself to be fed in turn by them. During this time, it was intimated to her that Dr. Simpson wanted articles for a bazaar; and for a period of four months she devoted herself to dressing dolls, of which she dressed more than fifty, and making ink-markers. The dolls were very tastefully got up, and some were arranged in groups, illustrative of the old woman who lived in a shoe, and the like. During the whole of this time, she had a strong antipathy to her father and mother and other relatives, and did not even seem to know who they were. She knew them, however, from one another, and gave them names. One sister she called a "dog", another sister a "fox", her mother was "that one", her aunt was "the other one", and another friend was "the other t'other one". I do not think that her father had a name, but she disliked him more than all the rest, and for a long time, as her fits were gradually disappearing, his presence alone caused them. From first to last, she had between one and two hundred fits.

At the end of about two years from the commencement of this con-

dition, her mother one morning heard her heave a deep sigh, and saw her head drop suddenly on one side upon the pillow. She thought she was dying, rushed up to her and said, in alarm, "Do you know me, Edith?" when the daughter replied "Yes", in a scarcely audible whisper. This was the first indication of hearing, and of recognising her mother, which she had manifested. She remained in this condition for a few minutes, and then suddenly passed again into her maniacal state. From this time forward, she would have, nearly every day, one of these lucid intervals. At first, they would last for about ten minutes, but gradually increased in duration, so that, at the end of six months, they would often last from half-an-hour to two hours. These lucid intervals always came on in the manner above described, and always ended suddenly. They were always characterised by the same phenomena, and these, it will be observed, were in many respects the exact converse of those which marked the maniacal state. While in them, she appeared to preserve all her natural qualities of mind; was timid and affectionate, knew and appreciated her father, mother, other relatives and friends, and, moreover, seemed to have no recollection of what took place during her alternative condition. But she was in a state of utter bodily prostration. She spoke in a whisper; she kept her eyes closed with tremulous eyelids, but could see when they were opened for her; and her hearing, which in her other state was absolutely lost, was now preternaturally acute. Indeed, any slight shock, and especially a slight but sudden noise, would render her at once maniacal. On the first occasion on which Dr. Simpson saw her in a lucid interval, he conversed with her quietly, asked her to put out her tongue, which she did, and then invited her to take food, which she declined, but in a quiet, lady-like way, and simply because she was not hungry. He asked her also if she knew him, and, although she knew her father well, she told him she did not recognise who he was. He then tried to feed her with a spoon, when she suddenly opened her eyes, was excited as usual at his presence, at once greeted him with "Paws, doctor", and insisted on shaking hands with him, and said she would have her "bitings", which was the term she applied to her meals. The lucid intervals gradually increased in duration, so that at the end of another four or five months, they sometimes continued for days together. Moreover, as these increased in length, the others diminished, until at length they constituted what might be termed mad fits of a few minutes' duration only. It must be added, that the extreme bodily prostration of her lucid periods gradually lessened, and that by degrees the power of opening her eyes, of speaking aloud, and of taking food without going off into a maniacal paroxysm, were restored during their progress. She had improved thus far, but was still quite unable to walk, by November last. At that time, her parents determined to move to another house. She was removed, under the superintendence of Dr. Simpson, in an open phaeton, placed upon a bed which was laid diagonally across the seats. In the attempt to remove her, she went off into a cataleptic state, in which she remained all that night, and until the afternoon of the next day; she then became maniacal, and continued maniacal for two or three days more; then this condition also subsided, and she was restored to the state in which she had been just prior to her removal. She gradually improved in health and strength, but continued unable to walk until she was taken to the Isle of Wight, in July 1877. Here she recovered perfectly; and, early in October 1877, on her return to London, she walked without assistance to Dr. Simpson's house, and reported herself well.

I may add that, while the alternative conditions above described were in progress, she appeared, while in the one, to know absolutely nothing of what had occurred in the other, but to retain a vivid recollection of all that had happened to her in the previous periods of the same condition; that, although her diet for more than two years consisted of somewhat less than three pints of good milk daily, there was no appreciable emaciation; that her excretions (with the exception that there was a tendency to constipation) were normal, and that she menstruated regularly; and that no bed-sores or excoriations formed. I had the opportunity of seeing her once or twice, and was present on one occasion when she passed from her maniacal to her comparatively sensible condition.

Having recounted the details of the above two remarkably interesting cases, I need not, I think, occupy time with any comments upon them; they speak for themselves. They were obviously both cases of extremely aggravated hysteria; both presented many and striking phases of that protean malady, and they were both so long under observation, that any question of malingering, or of the presence of organic disease, admitted of a satisfactory answer in the negative. The one recovered, but recovered independently of medical treatment; the other went out of the hospital no better than she was when she entered it, and in her case, even more markedly than in the other, medicine was of no avail. I may add, in reference to this case, that I regard the asthmatic attack

as having been hysterical, equally with her analgesia, paraplegia, and maniaco-convulsive seizures.

[The above paper was written in October 1877. Since then, M. N. has again been under my care for about twelve months. During this time she has remained paraplegic; she has recovered the power of moving her legs to a slight extent as she lies in bed, but is still unable to walk, or even stand. She has suffered severely from symptoms like those of ulcer of the stomach: I believe, however, that these, like her other symptoms, have been hysterical. They have included extreme gastrodynia, continual vomiting and loathing of food, together with much emaciation and general weakness and prostration. She has had two or three of these attacks, each lasting for some weeks, separated one from another by intervals of apparently complete absence of stomach derangement, and recovery (excepting as regards her paraplegia) of perfect strength and health.—Feb. 1879.]

HYSTERO-EPILEPSY.

By THOMAS ANDERSON, M.B., Rosewell, Edinburgh.

M. H., AGED 18, had always enjoyed good health, although, a year ago, she broke her arm. She was first taken ill while at her work. She suddenly felt a pain in the left breast, which shot up to her head; then a rushing sound in her ears; everything became dark, and she fell. When she returned to consciousness, she found herself in bed. These attacks recurred regularly every half-hour until I saw her two days afterwards. At the time of my first visit, she lay in bed unconscious, and making regular and rhythmical movements with her arms and legs, and also with the muscles of the face; the eyes were squinting and turned upwards. My first impression was that what I saw was the clonic stage of an ordinary epileptic seizure. The temperature, however, was only 98.2 deg., and, on pressing downwards in the left iliac region, she became sensible immediately, and was smiling as if nothing had happened. On resuming the pressure in the same situation, she screamed and became unconscious again, the same clonic movements having also returned with all their original intensity. The pressure again restored her to sensibility. I instructed her mother how to proceed on the occurrence of another fit, and left. Next morning, I was sent for hurriedly, the report being that, on coming out of a fit, she was unable to speak. On visiting her, I found that this was the case; for, even when severely tested, she could not utter a syllable, although she protruded the tongue, and moved it in every direction in her efforts to articulate. In addition, there were loss of hearing on the left side, achromatopsia, and loss of smell and taste, anæsthesia of the left arm and leg, and contracture of the legs. I need scarcely recapitulate all the details of these symptoms, which were those usually noted in this disease. On applying several metals—zinc, iron, copper, silver, platinum, etc.—there was no effect produced; but, on placing a sovereign to the left temple, she gradually recovered the perception of colour in the reverse order (as I afterwards found) of its loss. The same metals were then applied to the legs, first to the left and then to the right; sensibility and the power of movement returned in twelve minutes. Again, on placing the sovereigns under the tongue, her speech returned in ten minutes; but *gasping* efforts to speak began in five minutes after the application of the gold, and these continued until she took a long inspiration and said, "There it is now". Her speech was lost again in half an hour, and each time the gold was applied it was observed that the time taken to recover the sense or faculty was longer. Chloride of gold and sodium were administered internally, and the fits became gradually less frequent and of shorter duration. Occasionally, after a seizure, there were anæsthesia and analgesia; and again, after the next fit, sensibility sometimes returned.

In two weeks after my first visit, the aphasia was still present; but she stated that she had been able to speak for short intervals, and, on the occurrence of a fit, she had lost the power again. I had the gold applied for two hours; it had no effect, and the patient made fruitless efforts to speak. I removed the coins, and applied the continuous current of a battery. In a few minutes, the aphasia disappeared, but not at once; for she had tried to speak several times for the sake of having the battery removed. After this date, electricity was applied whenever there was any loss of sensibility, and with the invariable result of restoring it in a few minutes. At this period, with the view of ascertaining what part, if any, electricity played in the action of the metal, I made some experiments with a delicate astatic galvanometer and Wheatstone's bridge, indicating 1 Ohm in 50,000, using a chromic acid battery. I found that the current given by the sovereigns was so small as scarcely to deflect the needle of the galvanometer. The "resistance" in this patient was very great, and the least amount measured was

142,000 Ohms, when the electrodes were placed over the radial artery at the wrist. Now, in a number of healthy persons, I have never found this resistance amount to more than 30,000 Ohms, which is very rare, and in most of them it never was more than 7,000 Ohms.

During the second month after the first accession of symptoms, the patient had only one fit, the catamenia (which had been absent for three months) returned, the anæsthesia, etc., disappeared altogether. It is now five months since she took any medicine, and during that period has enjoyed very good health.

In the recent number of *Brain*, Dr. Hughes Bennett states, in concluding his article on Metalloscopy and Metallotherapy, that "it must be admitted that the above observations tend to show that the beneficial changes resulting from the application of metals to the skin are due rather to the mental effects they produce than to any special virtues emanating from the metals themselves". Now, in the foregoing case, as in M. Charcot's, when the patient was in an unconscious state, pressure was exercised in the iliac region, what part had "expectant attention" or "mental emotion" in restoring her to consciousness? And how could a comparatively uneducated person knowingly give the colours in strictly mathematical order, when the perception of colour returned? In this, as in Dr. Bennett's and in some of Professor Charcot's cases, as I have stated, the patient did certainly occasionally recover the lost sensation without the application either of the metal or the galvanic current. At first sight, the action of the metal might be put down as an electric one; but, when the "resistance" was so great in this patient, how could such a weak current as that given by the gold affect her, and also, as M. Charcot says, why did the application of the other metals, which also give rise to electric currents, have no effect? I am more inclined to believe in the theory of a specific action of the selected metal, of the nature of which we have no knowledge. Although, in this case, the insertion of the needle into the anæsthetic parts was not followed by bleeding, yet, in the wards of La Salpêtrière, I have frequently seen slight hæmorrhage follow, and that, too, without reproducing sensibility.

In conclusion, I may state that all the symptoms in this case were noted, and the experiments performed, in the presence of competent medical witnesses.

GANGRENOUS CELLULITIS AROUND THE RECTUM.

By VINCENT JACKSON, M.R.C.S. Eng.,
Surgeon to the Wolverhampton and Staffordshire General Hospital.

ISCHIO-RECTAL gangrenous cellulitis is, in our experience, so rare a disease, that, as a contribution to the subject, I am desirous of supplementing the cases of Mr. Furneaux Jordan, by recording the only one I have seen.

On the evening of June 27th, 1878, I was requested to visit a gentleman who had just arrived from Windsor. I learnt that my patient, previously the proprietor of a large hotel, was engaged upon the turf, and regularly attended all the important race meetings throughout the kingdom. He was a large-made, full-blooded, and well-to-do looking man, never intemperate, but living upon the best eating of everything in season, drinking champagne and claret-cup, and now and then enjoying port wine and nuts.

The weather was intensely hot, and he had been much exposed to the sun's rays, which, producing a feeling of fatigue, had induced him to sit down on a very hard-bottomed chair, two days previously. At the time, he felt pain on the left side, between the ischial tuberosity and the anus; hardness soon followed the pain, both being accompanied with a feeling of great *malaise*. Upon examination, I found pyrexial symptoms well marked, a distressing one being intense frontal headache; the local trouble was shown me. I observed that the soft parts between the anus and the left tuber ischii were swollen; to the eye, the skin was shining, red in its centre, and to the feel it was tense and hard. The bowels had been, by medicine, freely relieved; the urine, which was not abundant, was loaded with pinky-brown lithates, but it was free from albumen and sugar. My advice, of having a free incision made into the brawny tissues, was not followed, although I carefully explained the good that it would do, and the dangerous harm that it might possibly prevent.

The next day, everything was worse. The patient had not slept; the pain, before great, was now torture. He said he was sure he was mortifying. The swelling and hardness had much extended; the red spot was now a black one, and its large areola was of a dusky red colour. As soon as it was possible, ether was given, and a large incision exposed a gangrenous mass of cellular tissue, and let loose an ichor of a most putrid but non-feculent odour.