was diminished, and to find out whether or not hippuric acid is excreted by the liver as well as by the kidney. The difficulty experienced in obtaining permission to perform the experiments of this series precludes the hope that this question can be determined in this country at present.

ACTION OF SODIUM-SALICYLATE.

Scarcely anything is known regarding the physiological actions of salicylic acid. Bertagnini (quoted in Husemann's *Die Pflanzenstoffe*, 1871, p. 696) took a hundred grains within two days in four-grain doses, and felt nothing but ringing in the ears and some degree of deafness. He observed that the acid was excreted in the urine in the form of salicyluric acid. It is known that this is a conjugate of salicylic acid and glycin. The formula of benzoic acid is, $C_7H_6O_2$; that of salicylic acid, $C_7H_6O_3$. Their near chemical alliance and their similar behaviour towards glycin rendered it probable that salicylic acid, like benzoic acid, excites the hepatic cells. This substance has been for some time a fashionable remedy in acute rheumatism. The dose for a man is from fifteen to twenty grains.

Experiments 3, 10, 11, 12, and 14, already detailed, furnish abundant evidence of the remarkable powers of sodium-salicylate as a stimulant of the liver, and other experiments yet to be described (Experiments 26 and 28) furnish evidence still more striking; indeed, this substance is a certain hepatic stimulant, never failing, when placed in the duodenum, to excite the liver within half-an-hour. Owing to its certain and speedy action, it has been repeatedly used in this series of experiments, merely to furnish an effect which might be readily compared with that produced by some other substance. Table 6 gives the coefficients of bile-secretion under its influence.

TABLE VI.

Sodium Salicylate.	Total Dose in Grains.	Grains per Kilogramme of Body-Weight.	Secretion of Bile per Kilogramme of Body-Weight: per Hour.	
			Before.	After.
Experiment 26....	20	1.00	0.178 cc.	0.565 cc.
„ 3....	25	1.55	2.260 cc.	0.664 cc.
„ 11....	20	2.15	0.329 cc.	0.890 cc.

Result of Experiments with Sodium-Salicylate.—It is a very powerful hepatic stimulant in the dog, and will probably be found to have a similar effect on the human liver, now that attention is directed to the subject. Its slight action on the intestine is probably the reason why its effect on the liver has passed unobserved by the physician. It may, however, perhaps be thought that, in the above experiments, attention has been too exclusively directed to the benzoic and salicylic acids, while the sodium with which they are combined has been lost sight of. It will therefore be important to observe the effects of other sodium-salts. In the second series of experiments (this JOURNAL, 1877), sodium-phosphate was shown to be a powerful excitant of the liver, while sodium-sulphate and Rochelle salt were found to have a similar though a feebler effect.

ACTION OF SODIUM-CHLORIDE.

Sodium-chloride is a cathartic when given in doses of 120 to 240 grains. Nothing is known regarding its action on the liver; but, as it occurs in considerable quantity in the mineral waters of Carlsbad, Ems, and Friedrichshall, that are of service in abnormal conditions of the liver, we thought it desirable to test its action on this organ.

Experiment 17.—Dog that had fasted eighteen hours. Weight 25 kilogrammes. (Fig. 17.) Ten cc. water were injected into the duodenum at ω : a needless precaution, as the bile-secretion is unaffected by so small a quantity. One hundred and twenty grains of sodium-chloride in 10 cc. water were injected at s , s' , s'' , and s''' , 480 grains being given in all. The resulting increase in the bile-secretion was very trifling.

NECROPSY.—The small intestine contained 203 cc. of liquid with numerous mucous flakes. As only 50 cc. of fluid had been injected, decided purgative action had taken place. The vascularity of the mucous membrane was slightly increased.

Result of Experiment with Sodium-Chloride.—As the foregoing experiment seemed so clearly to show that sodium-chloride is a feeble hepatic stimulant, it did not appear necessary to repeat it.

[To be continued.]

A COMMUNICATION was received by the Mayor of Exeter this week, dated from the War Department, stating that it is not the intention of the Government at present to extend the operation of the Contagious Diseases Acts in Exeter.

REMARKS

ON

HEMIANÆSTHESIA AND ITS CURE.

By SAMUEL WILKS, M.D., F.R.S.,
Physician to Guy's Hospital.

THE subject of hysterical anæsthesia and its cure after the application of metals seems to have divided the profession into those who find an explanation for the result in galvanic agency and those who, discarding this as purely speculative, connect it in some way with a mental operation. Neither view, to my mind, will satisfactorily account for the phenomena; nor do I think it probable, in the present state of our knowledge, that an explanation can be looked for. We cannot unravel the mysteries of a very intricate piece of mechanism by watching it; discoveries have never been made by any such method. Researches are instituted to solve simple questions, and thus step by step, by discovering new laws, we apply these in explanation of complex conditions which had hitherto been unintelligible. No one, by looking at the brain or nerves, can tell the nature of the forces operating; and, if he conjecture that they may be electrical or of the nature of those forces which have lately been observed in the telephone or microphone, it must be remembered that we have gained a knowledge of these forces in the laboratory. It is probable that, if we could at the present moment be told the nature of nerve-force, the very terms of the expression would be foreign to us. We are, indeed, in the position of not knowing what kind of force is produced in the brain and cord, nor the mode in which it is transmitted. Our knowledge is almost limited to the facts that an act of the will can move our muscles, and that a galvanic current can do the same. We, therefore, consider that every observable change in the nervous and muscular system must be due to one or other of these causes.

In cases of hemianæsthesia, it is very clear that other substances than metals will induce a cure; but, on this account to attribute the results to the will or some mental operation, affords us no explanation of the nature of the phenomena; for, if it be granted that an effort of the will is sufficient to restore movement to a paralysed limb, and bring back not only common sensation, but the activity of the special senses, which had been previously lost, we cannot understand how any state of the will can account for the production of the original symptoms. The case is often argued as if the hysterical condition were one of shamming or feigning, so that, if a woman have paralysis of a limb, it is the same thing as if she did not choose to move it; but a mere unwillingness or negative state of mind is certainly not the same as hysteria. Any of us may declare that we cannot move an arm or leg, and at the next moment change our mind and move them; but, in the hysterical condition, this is rarely possible; for the will has gone. Sir James Paget says rightly that the very essence of the disease consists in the patient not being able to "will". To rouse the will constitutes the cure. Thus it happens that an hysterical woman will ask the doctor to aid her in making the effort; and, if she cannot accomplish it herself, a sudden shock or fright will rouse her nerve-centres sufficiently for her to throw the requisite force into the limb. If there were any doubt as to the hysterical condition being much more intricate than that dependent upon a want of volition, the accompanying hemianæsthesia and loss of the special senses would show it; for the latter could scarcely be due to any effort or want of effort on the part of the patient. She can deceive and declare she is blind when she is not so; but she cannot produce the hysterical amblyopia.

To me it seems clear that, in these cases, the brain, as a whole or in part, has ceased to act or perform its function; no other explanation appears to me at present sufficient to include all the phenomena; for we notice that there is paralysis of motion, sensation, and of all the special senses, and therefore the function of the brain must be in abeyance, somewhat after the manner of sleep.

My principal object in the present communication is to draw attention more especially to the fact that an injury or blow is often the starting-point of the attack; this is an additional factor to be considered in discussing the nature of hysterical paralysis, and is of great interest in connection with the subject of localised lesions of the brain. Thus a patient who lately left Guy's Hospital attributed her symptoms to a fall.

She had been under the care of Mr. William Toulmin of Clapton, in consequence of her having fallen over a bottle and struck her back, on which followed weakness of the right side, loss of sensation as well as of hearing, seeing, etc. On suspicion that her back might have been injured, Mr. Toulmin put her on a Sayre splint and sent her to the hospital. She displayed all the usual phenomena of hemianæsthesia, and was improving under the latest method of metallotherapia when she left us. An exactly similar case to this has been reported to me, in which the whole of the phenomena which Charcot describes were produced by the application of metals, and in this girl the paralysis ensued from a fall on the back. The readers of Brodie will remember how, in his valuable work on the joints, he with great acumen points out the fact that hysterical and other nerve-affections often succeed to a slight injury, and he warns his pupils to be careful in treating the latter and perpetuating a purely nervous complaint. It will be apposite to the subject if I quote some paragraphs of his work.

"In a great number of instances, local hysterical symptoms appear to be connected with some accidental injury; generally a very slight one; and they are then especially liable to be misunderstood and mistaken for something very different from what they really are. For example, a woman is bled in the arm. She complains of pain extending down the forearm to the hand, up the arm to the axilla and shoulder or to the neck. You examine the cicatrix, and discover nothing unusual in it; but the patient flinches when it is touched. In another case, the patient has received a blow on the head; she subsequently complains of pain in it and many other sensations referable to the seat of injury. In another case, a young woman pricks her finger, or perhaps the finger is merely pinched. Soon afterwards, she complains of pain extending from the finger upwards along the hand and forearm. This probably is followed by a convulsive action of the muscles of the arm, or by a continued contraction of the flexor muscles on the anterior part of the arm, so that the forearm is kept permanently bent, at least while the patient is awake; for the spasm is generally relaxed during sleep."

"A young lady, eleven or twelve years of age, pricked the forefinger of her left hand with the point of a pair of scissors. This was immediately followed by pain in the course of the median nerve, and, on the following day, the forearm was fixed by muscular contraction at a right angle with the arm. After a few days, all the muscles of the hand and forearm were affected with violent spasms, producing strange convulsive movements of the hand and forearm. These were attended with sickness and vomiting. By degrees, the other limbs became affected, and it was impossible for the patient to walk or even to stand; sometimes the diaphragm was affected so as almost to threaten suffocation. At other times, the jaw was closed by a contraction of the masseter muscle or she lay in a state of opisthotonos."

It is important, therefore, in the attempt to elucidate the hysterical state, to remember how frequently a shock, either bodily or mental, appears to be its determining cause. A very marked example occurred to me some years ago in the case of a girl who, on returning home one Sunday evening from church, was assaulted or frightened by a man in a lonely road. She arrived home in an hysterical condition, and, when I saw her on the following day, she lay in bed, like a statue, perfectly senseless and motionless. She never moved a muscle, and a needle could be thrust into any part of her skin without her perceiving it. This condition lasted some weeks, when she recovered. It is clear that this girl's brain had lost its power or ceased to work. She could exercise no volition, and all perception was gone. If we consider that her brain was functionless, as in sleep, we have no difficulty in understanding the case of hysterical hemianæsthesia; it is a similar condition with one-half only of the brain affected. My own opinion is that, in these cases, one hemisphere has come to a state of rest; for, if this be not admitted by those who believe in localised functions, they must admit that a considerable portion must have ceased to perform its function when we have regard to the multiplicity of the symptoms. Having myself a belief in the double action of the brain, I have no difficulty in understanding how consciousness still remains.

The question of injury, however, is very important to consider from a practical point of view; for it might lead us to confine a patient to her couch for many months, or even lead to the performance of an operation, as I shall presently show. In the two cases just mentioned, the blow was received on the back; but it might have occurred on the head, and then the question of its importance would be a still more difficult one. Thus I published, in a volume of *Guy's Hospital Reports*, the case of a young man who was brought out of the streets into the hospital for dead. He was found in a fit, and, as afterwards appeared, was half-starved; he had been long out of work, and had had several blows on the head. After he rallied, we found that he was almost helpless on the right side; his arm was flexed and contracted; his leg extended; he had total hemianæsthesia and partial loss of the special

senses; there was also a suspicious lump on his head. This condition gradually passed off in about a month. If the case had been that of a woman, we should at once have pronounced it one of hysteria; and this diagnosis I at last gave, believing that some shock unknown to us, physical or moral, had been sufficient to suddenly arrest the working of one side of the brain in this predisposed young man.

Showing how important the question of injury is in such a case, I will quote an instance from Guthrie's work on *Injuries to the Head*, in which he trephined with success, but which case I think my readers will agree with me in considering to be one only of hysteria. Possibly, if the trephine had been applied to the skin, the cure would have been equally effectual. I will, however, first quote a genuine case of injury reported by Guthrie, resembling many which have since been published in proof of the motor functions of certain convolutions of the brain, in order to show how closely it resembles Guthrie's second case, and other undoubted examples of hysteria.

Charles Murray, aged 33, of the Foot Guards, was wounded at Waterloo on June 18th, 1815, by a piece of shell which struck him on the superior part of the left parietal bone. He remained insensible about half an hour, and, on recovering, was found to be unable to move his right arm and right leg, which hung dead and had lost their feeling. He was admitted into Antwerp Hospital two days afterwards, and, when he had been there four days, he was trephined, and some pieces of bone removed. Immediately afterwards, he was able to move the limbs, and was sensible when they were touched. He gradually recovered, so as to be sent home, the only symptom being some weakness of the right hand. The pulsation was still visible at the bottom of the wound. He was subsequently discharged cured.

M. A. Farnham, aged 23, a stout healthy-looking girl, received a blow two years ago from a stone falling from a doorway, under which she was passing, which struck her upon the left side of the head, at a spot an inch anterior to the parietal prominence. The immediate effect of the blow was insensibility, followed by acute pain in the head, which ever since continued to mark the seat of injury. A week after the receipt of the blow, she began to lose the power of moving the right arm; there being, however, no loss of sensation or any disturbance of the cerebral functions. During the following twelve months, the symptoms remained unchanged, and she visited several hospitals without relief. The paralysis then became more complete, and she was finally admitted into the Westminster Hospital. The arm and leg were then quite paralysed; the arm, which had been flaccid, was rigid; and vision and hearing were slightly affected. Mr. Guthrie removed a disc of bone from the exact point in the parietal region to which she referred the pain. The portion of bone showed no disease. An hour afterwards, she raised the paralysed arm, and was able to extend the fingers; the pain was relieved, the countenance was less dull, and sensation was returning. During the following three days, fever and rigors appeared, as if inflammation of the brain were supervening. When these symptoms had passed, the paralysis had completely disappeared, and the sight and hearing were regained. Mr. Guthrie adds: "She has since had some relapse of pain and uneasiness in the head; but is altogether a different person, although of a very hysterical temperament. The cicatrix on the head is firm, and she considers herself to have been cured by the operation, although I find it difficult to say in what manner it was effected, or why the removal of the bone, which was in a perfectly natural state, should have given relief."

In considering a case of this kind, we may at once place it in the category which Brodie framed, and believe that a blow on any part of the body might have been productive of the same symptoms, or conclude that the injury to the head might have, in a more decided manner, caused some commotion in the brain, especially as the paralysis was on the opposite side to the blow. At all events, such cases must be taken into consideration in discussing the question of localisation of symptoms in connection with injury to the surface. It would be a good study to compare Guthrie's two cases of the soldier and the girl, and draw the pathological and clinical differences between them. Quite apart from the question of the localisation of very definite forms of spasms and paralysis, with injury to particular convolutions, the general fact remains that hemiplegia is a result of an implication of the whole surface. In hysteria, I believe, the action of the hemisphere has ceased, but we see the same thing in the more definite lesion produced by inflammation. Although I had for a long time been aware of the fact that those dying of unilateral arachnitis had suffered from hemiplegia, I endeavoured to explain it on the supposition that the deeper ganglia might have been involved; but, after the very accurate observations of Mr. Jonathan Hutchinson on the effects of inflammation of the brain, I was forced to admit its truth, and at once assented to his doctrine, that an unilateral meningitis was productive of paralysis of the opposite side of the body. I consider myself indebted to this surgeon for my present knowledge on

this subject, as I am not aware that anyone else had previously made similar observations. The production of special paralysis in consequence of localised lesions is a further development of the subject, as shown by Jackson and Ferrier.

Although I am arguing in favour of direct shocks to the nervous system, be they physical or moral, as instrumental in the production of paralysis of various kinds, I am quite open to the conviction that these conditions may be perpetuated by purely mental operations, and may also be removed by methods which act solely on the mind. As a good example of this, I may here allude to the termination of a case of hemi-anæsthesia, published in the JOURNAL, by Mr. Horrocks, House-Physician of Guy's Hospital, a few months ago. This girl, having passed through the whole ordeal of metallotherapia as well as the orthodox treatment by galvanism and medicines, remained perfectly incorrigible, and left the hospital just as she entered. The punctiform appearance of her anæsthetic arm showed how perseveringly she had been "worked at", to use my clerk's expression. A few weeks ago, her mother requested me to take her in again, which I did, and I then determined to practise a totally different plan; viz., to leave her alone. I ordered her nothing, and systematically passed by her bed, as if her case were not worth the trouble of discussing whilst there were so many sick people about her. In fact, I neglected her with a purpose, when one day I found her sitting at the side of the bed, which she had hitherto kept, and she told me that she could walk a little, and had some feeling in her right side. I then encouraged her; said that she would now make rapid progress. This she did, and soon left the hospital perfectly recovered. It, therefore, certainly seemed that the treatment by a "masterly inactivity" had been more successful than all the orthodox and novel methods practised on the first occasion. This is simply the experience which every medical man must have had in all kinds of hysterical disorders, where treatment is often as positively bad as neglect is as positively good.

In looking upon a woman's nervous system, I often picture to myself an instrument something like a differential thermometer, having a glass globe full of air and a number of pipes leading from it containing fluid, which are constantly influenced by the pressure within. I see the fluid in the pipes unceasingly oscillating or passing up and down under the slightest influence on the bulb, and, in like manner, I see in my imagination a nervous fluid continually in motion, or may be in undulation, through the whole of the nerves of the body. I witness then, as in the girl I mentioned who received a shock to her brain, all undulation cease; in another, cease on one side of the body only. The fright or blow may stop the current, and the limb is for all purposes dead; or it may have an opposite effect and throw it into a state of jactitation. If these slight causes will so derange the nervous apparatus, it is not surprising that equally slight causes will set it in order again. The nerve-force seems to be constantly ebbing and flowing under the influence of the most trivial impulses. A fall on a medicine-bottle deprives a girl of movement and feeling on one side, as well as of these of her special senses, and a sovereign tied on her leg will bring them all back again. I am often reminded of a remarkable watch belonging to a schoolfellow in my younger days, and which, in modern phraseology, was in a state of unstable equilibrium. The mere taking it from his pocket or looking at it would often arrest its movement, when a slight knock would send it on again. The works had never been good, or, being out of repair, the slightest jar would stop their action; and, what seemed remarkable, another blow would again start them into movement. So in these women, with their unstable nerves: a violent shock paralyses them, and another shock, be it galvanic or of a cry of alarm, will set them again in action. But not only a sudden effort of the will will set right the machinery, but the application of metals to the limbs or a trephine to the head.

I can, therefore, understand how a strong effort of the will will rouse the dormant powers; that is how the healthy hemisphere can send a stimulus to the inactive one; but this fact does not cover all the forms of cure which we see, nor does it afford an explanation of the production of the first symptoms. I do not see how a mere negation of the will can deprive a person of common sensation and the use of all her senses. As I before said, until the nature of nerve-force is better known, the explanation cannot be forthcoming.

OLD Yarmouth ale, like the bloaters, seems to be naturally provocative of thirst; since a sample analysed by Mr. Piessé of the Strand is said to have contained 126 grains of salt per gallon, which was considered, however, to be "naturally present in the water" with which true Yarmouth ale is brewed. It would be curious to know what would be the ultimate thirst of the ingenuous native who slakes the drought resulting from a feast of bloaters with draughts of "true Yarmouth ale".

A CLINICAL LECTURE

ON

IDIOPATHIC GANGRENOUS CELLULITIS AROUND THE RECTUM.

By FURNEAUX JORDAN, F.R.C.S.,

Surgeon to the Queen's Hospital; Professor of Surgery in Queen's College, Birmingham; Consulting Surgeon to the Women's and the West Bromwich Hospitals.

I SHOW you here a rather notable case. It is the least grave example of idiopathic cellulitis in the vicinity of the rectum I have seen. It is the first I have seen in a hospital, such cases occurring, as a rule, in the well-to-do; but our patient is a commercial traveller, so situated that hospital accommodation is a necessity to him. The more marked features of his case are those which are found in a class of cases of which I have seen a few remarkable illustrations in the private practices of my medical friends.

This man is of immense size, tall, stout, and weighing above twenty stones. He is excitable and active, and has been worried of late with reverses. He eats largely and drinks deeply. He has been much exposed to cold and wet, and, after more than usual exposure, he came in with a big swelling on the left side of the anus, extending outwards to the tuberosity, forwards to and across the perinæum, and backwards to the sacrum; it was pale, hard, and painful. Fever and extreme prostration were present. Iodine liniment was freely applied in large patches to the neighbouring skin. Incisions were also made into the swelling, and revealed most strikingly a large black mass of dead tissue, without any suppuration. There have been slight relapses, but in each relapse the black masses have become smaller. There has been no suppuration, and death has been confined to cellular tissue.

This typical but mild case (mild, I believe, from early and active counterirritation) suggests several topics for brief comment. The disease is essentially idiopathic. A kind of creeping cellulitis, not attended with much swelling, in rare cases, follows operations on the pelvic structures. In this, and in other cases which I shall briefly cite, there have been no operation and no injury.

The few cases I have seen have been in big, heavy, middle-aged men; in men of continual activity and excitable temperament, always working or travelling, or eating or drinking; in men who combined two bad habits—eating much and drinking much; in men sufficiently well-to-do to indulge at will, and who firmly believed that excess of work needed excess of victuals and liquor; in men who were indifferent to weather, and had been notably exposed to cold and wet. All the cases I have seen occurred in cold weather, and I believe they are more frequent with us in the exposed high table-land of mid-England. It is not probable that all the favouring conditions, which have been combined with singular uniformity in my cases, will always be found together. Some causes may be powerful, others feeble, others absent. Probably, idiopathic cellulitis occurs in men, chiefly because men combine the several conditions which lead to it. Freely drinking women rarely eat excessively. It is a matter of wonder, not confined to the public, that "drinkers" should live so long, seeing that they frequently take little solid food. In truth, they live so long because they eat so little. Singularly little food supports the adult. Take much food, and at the same time check metamorphosis with copious alcohol, and you lay a train for very certain pathological explosions. One of these explosions, and a dangerous one, is cellulitis around the rectum. The pale, hard, slightly lobed, extremely prominent swelling projecting between the big buttocks of a big man is not easy to describe. It may begin anywhere in the vicinity of the rectum—around the tube or near the surface; if it begin deeply, it quickly comes to the surface; if it begin under the skin, it soon extends deeply. Its deep position is sometimes known by the effects of pressure, as on the sacral plexus. In a somewhat similar disease—cellulitis of the neck—I have known paralysis of one arm appear a day or two before the dense collar in front of the neck.

The progress of the disease is very rapid. The skin over the swelling, if not cut by the surgeon, quickly melts away, and discloses a mass of dead, black, foetid tissue, but, as a rule, no suppuration. The slough comes away rather slowly; a cavity, usually of extreme size, is left, which closes tardily, and leaves, curiously, no fistula, as does the ischio-rectal abscess.

The gravest feature in the progress of these cases is the great tendency to relapse or extension, or both. Cellulitis, closely followed by