moreover, as I have endeavoured to show in the book supplying the text to the article upon which I am commenting, important consequences flow out of this theory, which consequences are themselves strong arguments in favour of the probability of this theory—consequences which show that electricity, instead of being a mere accident, may be an all-important agent in vital phenomena, an agent in many cases doing work which has been wrongly attributed to life.

The subject, no doubt, is difficult enough, but its difficulties, in the main, disappear when once the threshold of the inquiry is crossed; and my object at present is to ask my readers not to be deterred from entering by any terrors connected with the “dweller on the threshold”, but to enter boldly, and then to do me the justice to weigh my argument as a whole, and not in part, and to reserve their judgment until they can find time to read what I have myself written on the subject.

EXPERIMENTS WITH CARBOLIC ACID.

By ANGUS MACKINTOSH, M.D., Callington.

IN the interest of science, as bearing specially on the effects of carbolic acid on organic substances, I desire to record a few experiments, with their results, which I carefully performed with carbolic acid in November last, with the view of proving further to my own satisfaction certain chemical and physiological changes that I have observed in treating ulcers and severe surgical injuries with the acid. The results at which I arrived were published last year; and, in consequence, Messrs. F. C. Calvert and Co., the well known chemists of Manchester, kindly forwarded to me several samples of the different preparations made by them, to be tried in small-pox, etc. I have now tested them in many cases of small-pox with almost unparalleled success, and also in various surgical operations; and, in justice to Messrs. Calvert and Co., must say that I consider their preparations immensely superior to any other of the acid yet given to the profession.

Having had reasons for years to question the accuracy and correctness of the germ-theory of disease, and of the *modus operandi* of the antiseptic system of treatment, so ably brought before the profession by my respected teacher, Professor Lister, I last year called the attention of the profession to the fact that the beneficial effects of carbolic acid on wounds, etc., were not to be attributed solely to the destruction of atmospheric germs, but mainly, if not completely, to the chemical and stimulating effects of it on the constituents of the blood and surrounding parts. The following experiments confirm the opinion then expressed.

CLASS I. Experiment i.—On November 8th, 1870, I mixed a quarter of a pound of bullock's blood (fresh) with two ounces of F. C. Calvert and Co.'s carbolic acid No. 5 (proportion, 10 of water to 1 acid), and covered the whole so as to admit no air. The temperature was 50 deg. *Result*, July 10th, 1871: No signs of putrefaction.

Experiment ii.—On November 8th, 1870, I mixed a quarter of a pound of bullock's blood (fresh) with two ounces of Calvert's carbolic acid No. 5 (proportion, 10 of water to 1 acid), and left the whole uncovered and exposed to the air. The vessels used in this and the previous experiment were placed side by side in the same apartment. *Result*, July 10th, 1871: Not the slightest signs of or tendency to putrefaction.

Experiment iii.—On November 9th, 1870, I weighed two ounces of lean fresh beef, and placed it in a pot with two ounces of carbolic acid (Calvert's No. 5, 10 water to 1 acid), and covered the contents completely from the atmosphere. *Result*, July 12th, 1871: The meat was perfectly free from putrefaction.

Experiment iv.—On November 9th, 1870, I weighed two ounces of lean fresh beef, and placed it in a pot with two ounces of carbolic acid (Calvert's No. 5, 10 water to 1 acid), and left the contents exposed to the air in the same apartment with Nos. 1, 2, and 3. *Result*, July 10th, 1871: There was no offensive odour nor putrefaction.

CLASS II. Experiment v.—In January 1871, I excised from a man's left arm a non-malignant tumour weighing a pound and a half, and dressed the wound with thin muslin and Calvert's carbolic acid No. 5 (proportion, 30 of water to 1 of acid). The acid solution was dropped freely over the muslin many times during the day. The wound healed without suppuration or putrefaction.

Experiment vi.—I amputated an old man's middle finger in April 1871, and dressed it in the same way as No. 5, with thin muslin, dropping the acid solution freely over the muslin several times throughout the day. The result was a perfect cicatrix, without any appearance of pus, suppuration, or putrefaction.

Experiment vii.—A miner had both arms and face burnt in consequence of an explosion whilst blasting. The face was treated with linseed-oil and linseed-meal poultices, and afterwards with oxide of zinc

ointment. A small quantity of pus could be detected. The arms were treated with carbolic acid and linseed-oil, 1 to 20. The muslin (the only covering) was always kept wet with the oil and acid. The result was a complete cure, without any pus or putrefaction.

These experiments, in combination with those which I published last year, have completely convinced me that the detailed plan of dressing wounds recommended by Professor Lister is absolutely unnecessary for the object of healing wounds by the first intention or without the formation of pus; and that the germ-theory of disease is, correctly speaking, an error.

In the first class of these experiments, I treated the blood and beef with exactly the same quantity of the acid solution, in the same proportion; and sealed one so as to exclude the contents completely from the atmosphere, and left the other exposed to the atmosphere. Under these opposite conditions, both, in the course of eight months, presented almost the same appearance, and no appreciable distinction could be recognised between their odours. There were no marks or signs of putrefaction in either.

The second class of experiments also gave the same result, and shows that only careful attention and regular application are required to produce always similar effects. I used the muslin cloth, so as to allow a free current of air to all parts of the wounds. I firmly believe that the real difference in healing with or without suppuration is chiefly, if not altogether, owing to regularity in the application; and that the beneficial effects of the acid are to be principally attributed to its chemical and stimulating influence on the constituents of the blood and other parts concerned.

NOTES ON THE TREATMENT OF INSANE PATIENTS IN PRIVATE PRACTICE.*

By D. YELLOWLEES, M.D., Medical Superintendent of the Glamorgan County Asylum.

IF we could obtain prophetic knowledge as to the effects of remedies, or could understand a case as fully at its commencement as after we had watched its progress, this unattainable knowledge would often modify our treatment. Possessing unusual opportunities for observing insanity in all its phases, and for watching the progress of cases of which others have seen only the commencement, it has occurred to me that this special experience, in so far as it relates to home-treatment, might be usefully summarised. I hope no one will construe my remarks as reflecting on the treatment of others, or will suppose that I wish to assume the office of an instructor: nothing can be further from my intention. I know well the extreme difficulty—often the impossibility—of properly carrying out the treatment of the insane at their own homes; and it is with a view to lessen, if possible, this difficulty, that I submit the following notes.

Insane patients treated at home are apt to get—

1. *Too much narcotic medicine and too little general treatment.* This is often the case, and very naturally. The mental excitement is the most prominent symptom, the one which most alarms the friends, and for the abatement of which they are supremely anxious. Even to the practitioner, the brain-disturbance is apt to eclipse the other symptoms, and to receive undue or almost exclusive attention; whereas treatment may be urgently required for the amenorrhœa, the dyspepsia, the constipation, or other coexisting disorder, of which the brain-disturbance is probably in great measure a result. Relieving a sluggish liver, or restoring the functions of a neglected skin, often allays excitement better than any quantity of sedatives. When sedatives are necessary—and they are often most necessary and beneficial—chloral hydrate, bromide of potassium, or bromide with cannabis Indica, should generally be first used; they often answer admirably, and the injurious general effects of more direct narcotics are avoided. I am satisfied that the recovery of curable cases has often been retarded, and the condition of hopeless cases aggravated, by the undue use of opium. On the other hand, it is often of great value.

2. *Too much depression and too little support.* This is a frequent phase of home-treatment. Antimony, alone or with morphia, is often a favourite remedy; and the friends are always anxious to aid in keeping the patient low. This may, perhaps, be wise treatment in some cases; but it is very certain that brain-excitement is usually a result of *asthenia*, and requires support far oftener than depression. I know no form of excitement that is aggravated by an ample supply of the most nourishing and wholesome food. In every case it is an essential element of proper treatment, and in many cases a liberal addition of stimulants is the best sedative we can use.

* Read at the annual meeting of the South Wales and Monmouthshire Branch, July 5th.

3. *Too much confinement and too little open-air exercise.* This constitutes a drawback almost inseparable from home-treatment, so great and so obvious that I need only mention it. A most important means of restoration is wanting when the patient cannot get out of doors, and has nothing on which to fix his attention or expend his energies beyond the limits of his room.

These unfavourable conditions are rendered still more so by—

4. *Too much interference and too little tact* on the part of those around the patient. If he be apprehensive, dejected, or terror-stricken, he is harassed by attentions and services which he wholly misinterprets, and which only aggravate his distress. If he be irritable, defiant, or dangerous, he is coaxed, deceived, or threatened, as seems best to serve the purpose at the time; and, if he be thus goaded into violence, or driven to it by delusions and the utter *ennui* of close confinement, the only notion of management usually entertained by friends is to overpower him by sheer force and tie him to the bedstead—the omnipotent influence of calmness, truthfulness, patience, and non-resistance, being unknown or untried.

I anticipate, of course, the reply to all this: that such evils, or most of them, are inevitable in the treatment of lunatics at home. I answer that, where such evils are really inevitable, no one should undertake the treatment, and the sooner the patient is sent to an asylum the better; but they are not always inevitable, even when they seem so at first, and many insane patients can quite well be treated at home. In such cases, these short notes may serve to indicate the evils to be chiefly avoided.

REPORTS

OF

MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS OF GREAT BRITAIN.

MIDDLESEX HOSPITAL.

CASE OF INTRACRANIAL OSTEOPHYTES WITH HYDROCEPHALUS: DEATH: CLINICAL REMARKS.

(Under the care of Dr. HENRY THOMPSON.)

RUTH CLEAVER, a servant, about twenty-three years of age, was admitted on January 14th, 1871. For some years she had been liable to severe throbbing headaches, and to a discharge from the right ear. She had also suffered a good deal lately from mental worry and distress. On June 18th, she was seized with an attack of vomiting, which lasted twenty-four hours, and then ceased on the administration of a dose of calomel. From that date the headache became more continuous and more severe.

On admission, the pulse was 68; respirations 20; temperature 98.2 deg. The patient was dull and stupid, complaining of acute throbbing pain, chiefly at the top of the head, but stretching down the back of the neck. There was great intolerance of light; the pupils were dilated, sluggish, and unequal; the right was the larger. The breath was fetid; the gums spongy and red. The tongue was coated with a thick creamy fur, and protruded slightly to the right side.

January 15th, 10 A.M. Pulse 58; respirations 20; temperature 98.8 deg. The extremities were cold. There was no action of the bowels or of the bladder. Urine was withdrawn by catheter; it was of specific gravity 1030, contained no albumen, and no sugar.—1.30 P.M. *Tache cérébrale* was readily produced and well developed. A roseolous blush appeared this morning in irregular patches over the neck and front of the chest, and, though fully pronounced at the time of the visit, disappeared entirely before the visit was over.—3.30 P.M. She was quite insensible and comatose. Pulse 160, irregular in force and rhythm, short and sharp. The face was deeply flushed; the pupils were dilated, equal, unaffected by light.—4 P.M. The face and lips were intensely blue; the breathing slow and stertorous. Frothy fluid escaped from the mouth and nose. The pulse was too small and rapid to be counted. She died at 4.15 P.M.

Necropsy, twenty-four hours after death.—On removing the calvaria, the dura mater was found to be deeply injected; the convolutions were flattened; and the hemispheres gave the feeling of fluctuation to the touch. On removing the brain, a large quantity of perfectly clear fluid issued from the third ventricle. This, together with that withdrawn from the lateral ventricles, amounted to seven ounces. On slicing away the hemispheres, the white substance was found to be greatly softened, and the ventricles themselves enormously dilated. A portion of the softened material, submitted to the microscope, showed no appearance of granule-cells. There was no trace of tubercle to be found anywhere; nor was there any plugging discovered either in the

veins of the neck, the venæ Galeni, or the cerebral sinuses. Imbedded in the dura mater, and seemingly developed from it, were eight or ten thin plates of bone, not adherent to the calvaria. At the base of the skull, especially on the right side, there were several similar deposits, which adhered firmly to the temporal and occipital bones; and at these points the dura mater appeared to be wanting. With the above exceptions, the cranial bones were healthy. There was, however, a small vein plugged within the substance of the right petrous bone. In the thorax, the heart was small, its muscular substance firm; the aorta was atheromatous in patches; the aortic valves were thickened, with minute vegetations engrafted upon the thickened portion. The pericardium contained about an ounce of clear straw-coloured fluid. Both lungs were greatly congested, and attached to the chest-walls at various points by a few old fibrous adhesions; but they contained no tubercle. Several of the bronchial glands were reduced to cretified masses. No tubercle was discovered in the abdominal cavity or in its contents.

Remarks by Dr. Thompson.—At first sight, on a hasty glance at the history and symptoms of the above case, caries of the petrous bone, with its ordinary accompaniments and consequences, would almost inevitably have been the diagnosis which would have taken precedence of all others in the mind of the observer. Possibly, if this glance had been yet more superficial, and limited to existing symptoms alone, he might have entertained the idea of tubercular meningitis. Nothing of either kind was disclosed in the *post mortem* examination. There was no abscess of the brain; no unequivocal inflammation of its membranes; no pyæmia; no disorganisation of bone-substance; no thrombosis of sinus or vein, if we except the plugging of an insignificant venule within the right petrous bone—an event in itself of no material bearing on the pathology of the hydrocephalus. Again, there was no tubercle anywhere, nor anything akin to tubercle in the remotest degree, unless we so designate the cretified masses found in the bronchial glands. The key to the diagnosis was the long duration of the headache, which had lasted for some years before admission—a circumstance wholly incompatible with either of the above mentioned hypotheses, and pointing to the probability of some more or less massive or solid intracranial growth, although he would have been a bold man who should have diagnosed the particular growth discovered—the osteophytes developed originally from the dura mater; for such would appear to have been the origin of all the growths described, whether they were imbedded in the dura mater or adherent to the bones. In the absence of every other assignable cause, we can only conclude that these osteophytes played the part of tubercle in producing hydrocephalus. The peculiar membrane, the seat of their development, was indeed different; but the result was similar. The pathological changes proper to inflammation were less conspicuous; but the morbid process itself in all essential respects bore a strong analogy to that which is ordinarily set up by the presence of tubercle in the meninges. The so-called cerebral streak and the roseolous rash are worthy of a passing notice. Clearly they were the same phenomena under different aspects, and due to the same fine susceptibilities in the cutaneous circulation; the one presenting accidentally or spontaneously the same vascular engorgement which the other can be made to exhibit artificially.

CHILDREN'S HOSPITAL, BIRMINGHAM.

CHRONIC RHEUMATIC ARTHRITIS.

(Under the care of Dr. JOHNSTON.)

H. C., female, aged 7, was admitted an in-patient of the hospital on June 15th, with general rheumatic pains in all her joints, no one joint in particular being affected. There was no cardiac mischief. The left side of the face was flattened, the axis of the lower jaw on that side being directed towards the opposite side. The condyle could not be felt. There was no depression in front of the meatus auditorius. The molar teeth were decayed. She had some slight power of movement of the jaw, but could not speak at all distinctly. The left forearm was pronated and flexed. The elbow-joint was swollen, particularly on the radial side. The head of the radius could be felt much enlarged. On supinating and flexing the arm (which caused great pain), a crackling could be heard and felt in the joint. The mother said that, when three weeks old, the child came to the hospital with rheumatic fever, after which she was "paralysed"; but, after being under treatment for twelve months, she could use all her limbs well except the left arm, which was weak. About this time she noticed that the jaw-bone was "growing out of its place". There was then no swelling of the elbow-joint. When two years old, the child was run over, the wheel passing over the left elbow. A short time after this, the mother noticed that the joint was enlarging; and it has gradually increased till of its present size. The child suffers no pain except in changeable weather, when she has the rheumatic pains.