former theory. Perhaps had I not given so much air, which prolonged the induction of anæsthesia, the spasm might not have happened.

Regarding the difficulty of getting the finger down the throat and into the larynx, I have tried the experiment on several cadavera, and have found that in children it is easy to pass my forefinger, which is rather short, past the epiglottis, and push its tip into the larynx. In a woman of ordinary type, by well depressing the lower jaw, and by pushing up the larynx from outside, as in putting on the finger of a glove, I can well get down to the glottis. In the ordinary man or big woman I cannot with the finger by any means touch the vocal cords. They are beyond reach. Hence, in cases of laryngeal closure occurring in full-sized adults, when the finger cannot reach the larynx, tracheotomy would be necessary.

FORMIC ACID AND THE INHALATION OF FORMALIN AS A PREPARATION FOR AND AID TO THE OPEN-AIR TREATMENT OF PHTHISIS.*

By J. LARDNER GREEN, M.R.C.S.ENG., L.S.A.,
Salisbury.

FORMALIN is the name given to the saturated aqueous solution of 40 per cent. of formic aldehyde obtained from wood spirit by oxidation, the dilute 1 per cent. of formalin in water has no corrosive action; it is harmless to warm-blooded animals. One tablespoonful in one quart of water suffices for the disinfection of rooms, clothing, etc. Aronsohn found that 1 part of formic aldehyde to 20,000 parts of water destroyed the typhus and anthrax bacilli. It has the great advantage that it can be used in a vapourised condition and so available for the disinfection of perishable material without destroying them. Formalin is valuable as a disinfectant and deodorant cleansing septic wounds; it destroys bacteria and combines with the fibrous tissues, so promoting rapid healing.

Dr. Mitchell¹ says that formalin is often useful in the treatment of malignant growths; but to the physician it is useful when inhaled in a fine spray in catarrhal and tuberculous affections of the lungs. Diseased mucous tissues are more tolerant of the vapour than are healthy mucous tissues. Formalin has been successfully used in skin diseases, notably in epidermycosis decalvans and E. tonsurans.

Years ago when in search of the best means for preserving cut flowers in their pristine colours by destroying the microbes causing the fermentative changes (whereby their colours become lost) I found formalin the best for the purpose. Flowers thus retain all their brilliancy and are in strong contrast with the ordinary dried flowers of the hortus siccus. This germicidal property led me in 1895 to experiment with formalin in the treatment of catarrh and influenza, with the hope of destroying the microbes accompanying those diseases. The success was immediate and decisive, as reported in my paper read before the meeting of the Southern Branch, November 25th, 1896. I then recommended a trial of the inhalation of formalin in the early stages of tuberculous consumption, stating that formalin diminished the number of the bacilli in the sputum, as was afterwards confirmed by Dr. Murrell early this year. Dr. Cervello of Palermo has experimented in a similar way. In 1895 the inhaler used by me was not equal to the production of very fine mist-like spray of the dilute solution: subsequently various forms of inhalers were tried, the vapour of formalin issuing forth was almost invisible.²

The most satisfactory mixture for the inhalation has been: R Formalin ʒj, glycerin ʒivss, aq. pur. ʒv. M. To be used with an inhaler four to six times in the twenty-four hours, as may be suitable. Should there be more than usual sensitiveness in the air passages, aromatic spirit of ammonia ʒx may be added to the above mixture.

The following cases illustrate the benefit derived from these inhalations:

* Read in the Section of Medicine at the Annual Meeting of the British Medical Association, held at Portsmouth, August, 1899.

CASE I.—G. P., a gentleman over 30 years of age, went in 1878 to South Italy for the purpose of securing a milder climate—there he had hæmoptysis with continued feeble health—during each subsequent winter spent in England the cough and catarrh returned. In 1895 he used the inhalation of formalin with great relief; since that date he has been free from chest complaints.

CASE II.—B., a young woman, aged 21, had always suffered from winter cough and bronchitis, with symptoms of the first stage of phthisis. In 1897 she inhaled formalin, and has not since suffered from any severe cold or cough.

CASES III AND IV.—Two cases reported to me this year by a physician in Harrogate. He writes: "The first patient said after using the formalin a few days it had given her more relief than anything she had previously tried." The second: "W.C., aged 40 years. Illness began with pleurisy of both sides, May 25th, 1899. On June 5th there was a second attack, with congestion of both lungs. Temperature was normal for three days (June 16th to 19th), then it gradually began to rise a little each day until it reached 104° F. The consolidation of lung tissue continued, especially of the left lung. The cough was very troublesome. Angier's petroleum emulsion was given, but the temperature remained at 102° F. I began," my correspondent continues, "with your prescription of formalin; in two days the temperature became normal and has remained so for a fortnight. July 25th: The patient is gaining flesh, the lungs are slowly recovering, and the breathing has become normal."

These cases, my own personal experience, and the numerous cases reported in the European and American journals, prove how bright a prospect is opened up by the inhalation of formalin when given to suitable subjects of phthisis. This being so, I conclude from the proofs of the very excellent results of the open-air treatment that the question arises, Would it not be best to combine these two effective methods for each to supplement the other?

Cases of phthisis in their early stages may, in the first instance, be treated by the inhalation of formalin together with suitable dieting, so as to kill or weaken most of the bacilli before the patient starts upon the open-air treatment, and during that time he is still to continue the inhalation, as may be thought advisable; in this way the length of the sojourn in the sanatorium would be shortened by probably one-third. We may deem the benefit derived from the open-air method arises chiefly from the strength and hardiness conferred upon the patient who thus becomes able, on leaving the sanatorium, to resist the invasion of the tuberculous bacilli. By these combined methods of combating the inroads of phthisis we not only relieve the patient more quickly from suffering, but by shortening the time spent in the sanatorium we diminish the outlay, and shall thereby be able to meet more fully the needs of the poorer patients, who form, both absolutely and relatively, the majority of consumptives, for more of them could thus be accommodated.

The combination of both these tried and successful lines of treatment is earnestly recommended to those who have many opportunities to carry out in a wide field for observation the suggested mode of treatment in the confident hope that we shall greatly lessen the number of the unhappy victims of the greatest scourge of the civilised world; we know that at present "of every seven persons who die, one of them dies of some form or other of tuberculous disease."

NOTE AND REFERENCE.

¹ BRITISH MEDICAL JOURNAL, February 11th, 1899, p. 337. ² (a) Messrs. Oppenheimer's "Vapouriser." (b) The Formalin Hygienic Company's "Atomiser." (c) Messrs. Slater Brothers' "Cloudiser." (d) Messrs. Burroughs, Wellcome, and Co.'s "Atomiser."

A CASE OF JACKSONIAN EPILEPSY CURED BY OPERATION.

By H. DRINKWATER, M.D., C.M., M.R.C.S.,
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THE following case is of interest because at the present time, more than four and a half years since the operation, the man is well and able to work as well as ever he could. The case was a severe one, for the man at the time of the operation was almost helpless, and was rapidly losing his mental powers.

T. W., a joiner, aged 38, first seen in the summer of 1894, had complained of severe and almost constant pain in the left temple for several months, and had occasional "fits" with loss of consciousness. He had been a heavy drinker, but said he had not suffered from venereal disease. The pain in the left temple was soon followed by pain in the right arm, with some loss of power, so that he could not put on his coat without assistance. In August, 1894, he fell down in the street; he "suddenly turned round," dropped down, and frothed at the mouth. He recovered in a few minutes. The next fit occurred six weeks later, whilst at work. He kept well for six weeks, and

then had three fits in a fortnight. The last was the most serious of all, for it was followed by absolute paralysis of the right arm and leg, but without any loss of sensation. During the fits it was observed that the right arm was always more convulsed than any other part of the body, and sometimes was the only part so affected. The paralysis passed off in three weeks. On March 12th, 1895, he had a still more severe fit whilst standing in the house; he "fell down, was convulsed in the right arm, turned blue in the face, and then breathed very hard." It was followed by complete loss of the use of the right arm and leg lasting three days. The next fit occurred on April 12th, 1895. He fell down, turned very red in the face, but did not lose consciousness. Another fit occurred as he was going to bed at night, and on April 21st he had another.

On April 23rd I explained to him and his friends that he was losing ground, for his mental faculties were certainly getting duller, and he was now never free from pain in the head, and as no treatment hitherto adopted (including, for instance, potassium iodide and mercury in large doses) had proved of any benefit, I proposed trephining the skull, and they readily gave their consent.

Seeing that the convulsions were most marked in, and sometimes actually confined to, the right arm and leg, it seemed pretty certain that their cause was situated in the neighbourhood of the ascending frontal convolution of the left side, and most probably near its lower part, as the speech was affected. During the last three weeks the patient had noticed, every evening after going to bed, a twitching of the right arm and hand, which he was often unable to arrest.

The pain in the head was always much worse immediately after the fits than at any other time. I had repeatedly asked the patient whether he had ever sustained any injury to his head, and he always declared most emphatically, and so did his mother, his brothers, and sisters, that he never had been hurt about the head, and on examining it I failed to find any evidence of injury.

For the last week I found that on pressing firmly over the region of the left ascending frontal convolution, about its middle portion, he complained of pain, and so also on percussing the same spot. On April 25th I operated (he had a fit early in the morning). On shaving the scalp a linear cicatrix an inch long was discovered just half an inch above the point at which I had intended to trephine. It was an old scar, proving that my suspicion of injury was well founded. The patient can tell us nothing about it. On dissecting a rectangular flap down a portion of the bone was laid bare that had evidently been fractured in a radiating manner, the fracture being limited to the outer table, as the rounded portion of bone showed no sign of fracture on the inner aspect. The depressed portion, that removed by the trephine, was exactly over the area which I thought was being irritated, and half an inch below the cicatrix. The bone had evidently suffered from inflammation, as it was of similar structure throughout its entire thickness. The appearance of the dura mater was quite healthy.

On changing the dressing the day after the operation, primary union was found to have occurred throughout the whole extent of the wound. Up to April 30th he had had no sensations since the operation, such as were of daily occurrence before it.

By May 16th all discharge from the wound had ceased. Before the operation he had had very little control over the right arm and hand; for example, he could not use a knife and fork. But from May 6th he had been able to use the knife a little, and his grip was rapidly becoming stronger. On this day he laced his boots himself for the first time for some months. His articulation had improved, though it was still not quite distinct; the most noticeable defect being with the labials, especially *f* and *v*.

On May 16th I was called to him at 8.30 A.M. He had passed a bad night. His brother, who was sleeping with him, was awakened at 5 o'clock by hearing him breathing heavily. He found him "lying on his face, and he soon after began to tremble all over." He thought he had had a fit. His temperature was normal, wound looked all right, and there was no return of pain in the head. On the previous day a pedlar had called at the door, and wanted to fight. This had upset the patient very much at the time.

On May 20th the wound was completely healed. In the evening he had "two faints" like the old feelings, but very much milder, and again on the 23rd, 27th, and 30th. The administration of potassium iodide was recommenced.

On June 7th he felt much better, and had no pain in the head. His mother said that he now joined in conversation, whereas before the operation all he said was "Yes" or "No," or "I don't know." He had not had any feeling of "faintness" since May 30th.

On June 8th the optic discs were found to be normal.

On June 22nd, whilst walking, he "felt his face flush;" he rested against a wall for a few seconds, and then walked on. He had no feeling of falling. He was now very much sharper in every way. Before the operation the shortest time he took to count 20 was seven seconds, and many numbers were very indistinct. Now he says the same distinctly in four seconds.

On July 15th he resumed work.

On August 8th, whilst at work, he fell down, and bruised his forehead. This was the first attack since May 30th.

In April, 1896, he complained of pain above the site of operation. As I was doubtful about his habits as to alcohol, I sent him to the Northern Hospital, Liverpool, to be under observation. He remained there eight weeks.

The man is now (December, 1899) in good health, and working regularly at his trade, and has had no return of the old trouble for which the operation was performed, more than four years and a-half ago.

LIVERPOOL MEDICAL INSTITUTION.—At the annual meeting held on January 11th, Mr. Edgar A. Browne, F.R.C.S. Edin., was elected President; Mr. H. Briggs, F.R.C.S., Hon. General Secretary; Dr. J. E. Gemmell, Hon. Librarian; and Mr. F. C. Larkin, one of the Hon. Secretaries to Ordinary Meetings and the Pathological Section.

MEMORANDA: MEDICAL, SURGICAL, OBSTETRICAL, THERAPEUTICAL, PATHOLOGICAL, ETC.

A CASE OF IMPERFORATE VAGINA.

A GIRL, aged 17, unmarried, was seen by me about eighteen months ago, owing to the non appearance of menstruation. As there was a family history of delayed menstruation—her mother not having menstruated before 17 years of age—I advised waiting until the same age before submitting her to an examination. Hysterical seizures having appeared in a severe form, I was again consulted, and decided on an examination.

She was slim and very tall for her age. The breasts were firm and well developed. The abdomen showed no swelling above the pubes, but was sensitive to the touch in the ovarian region. The mons veneris was normal, and the vulva seemed normally developed. In the position of the vaginal orifice was a small round aperture that did not admit the little finger. A sound was passed in, but only entered to about half an inch into a very small *cul-de-sac*. On passing the finger into the rectum the point of the sound could be felt. Passing beyond this nothing could be felt like the cervix or body of the uterus. The most careful recto-abdominal examination failed to demonstrate the presence of a uterus. With a sound in the bladder the septum between the urethra and rectum was felt to be exceedingly thin, and no trace of a vagina could be found. The ovaries were next searched for, and an elongated thickening could be felt on the two sides in the ovarian region, and more marked on the right side. There was some sensitiveness on pressure, especially on this side. The patient was examined by two other medical men, one of whom entirely agreed with my diagnosis of complete absence of vagina, uterus, and tubes, with slight hypertrophy of the ovaries. While concurring in the absence of uterus and vagina, the other failed to find any trace of ovaries.

Such is the brief statement of the physical condition found by examination.

In cases like this *post-mortem* examination has sometimes shown that the absence of the uterus has been apparent and not absolute, the organ being represented by a muscular band closely applied to the posterior bladder wall. Hence it can here only be asserted that the uterus is not discoverable by clinical examination.

An interesting point in this case is that, although there is apparently complete absence of the uterus and vagina, there is a perfectly normal development of vulva, mons veneris, and mammae. This fact inclines me to think that the thickenings felt at the sides are really ovaries, especially as the patient is possessed of the ordinary amorous feelings, as evinced by her manner of acceptance of the attentions of a suitor who has since offered marriage. As marriage is impossible and surgical interference not warranted, the question of the presence of ovaries is important, as, if the hysteria—which has already caused the loss of her situation—be persistent and incapacitates her for work, removal of the ovaries must be considered.

Port of Spain, Trinidad.

STEPHEN M. LAURENCE.

TWIN PREGNANCY WITH CENTRAL PLACENTA PRÆVIA.

On October 17th, 1899, at 5 P.M., I was urgently summoned to attend C. W., aged 26, suffering from severe flooding. She had borne one full-term child two years previously. There had been more or less hæmorrhage for three weeks, but the sudden and severe attack rendered immediate aid necessary. The patient was in the eighth month of pregnancy. On vaginal examination the cervix admitted three fingers, and the placenta only could be felt lying over the centre of the internal os. The pains were feeble and irregular, and with each pain there was a considerable loss of blood. Forcing two fingers of the right hand through the presenting body (the placenta), whilst pressure was maintained over the abdomen with the left, the fetal head was reached enclosed in its membranes. These were punctured and internal podalic version performed with difficulty. The right hand being again passed