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## Original Communications.

*Surgical Shock.* By WILLIAM FULLER, M.D.,  
Professor of Anatomy, University of Bishop's  
College. (Read before the Medico-Chirurgical  
Society of Montreal, January 19th, 1877).

GENTLEMEN,—Surgical shock is a condition which appears to be very imperfectly understood; consequently, its treatment is wholly empirical and not based upon any scientific knowledge or theory. In the works on surgery the symptoms have no physiological arrangement, and the treatment is directed toward stimulating the circulation, generally by alcohol, with certain cautions against producing a too sudden or intense reaction.

In the study of shock we must go back to the moment of accident and take into consideration the subjective symptoms which take place previous to the arrival of the surgeon. I find upon enquiry that there is a sequence of sensations experienced by the patients, which is nearly the same in all cases, modified by the nature and violence of the accident and the nervous susceptibility of the person.

As an illustration of these sensations and the order in which they occur, I will give a few cases described in the patients' own words. In a comparison of the description of their feelings and their sequence given me on paper, I was struck with the close resemblance and the surprising distinctness with which they were fixed on the memory at a time when excitement and physical depression would seem to be an unfavorable moment to receive a lasting mental impression.

Case 1.—A robust youth, aet. 19 years, injured in the hand by a circular saw, describes his sensations as follows: "I felt at first when the saw struck my hand a dull thud pass over my whole body, and a sound in my ears as if a bass drum was struck close to my head. There was no pain, and I did not know that I was caught until I saw the blood. In a couple of minutes I felt a tingling feeling, something like a sleepy foot, all over me as if the blood was rushing very fast through my veins. I then felt very warm, and broke out in a sweat, got weak, had a buzzing in my ears, felt sick at the stomach, and was chilly for a few hours, when I got

warm. I was also sleepy while I was cold, and sick at the stomach."

Case 2.—A shunter, of good constitution, aged 32 years, had his ankle and foot crushed by a wheel, says: "As the wheel passed over my foot I felt no pain, but a feeling all over me as if I was pressed down by a heavy weight. Immediately after I was released I experienced a burning sensation in the injured part as if it were too close to the fire. This feeling ran up my leg and spread over my whole body, when I felt too warm. This lasted, I think, from three to five minutes, when a very acute pain set in with a chill, and I broke out in a perspiration all over. I think there was a sound in my ears like running water, and at the same time a desire to vomit and a general weakness. I also had a difficulty of breathing, and wanted air and water. I did not feel the burning sensation after the chill. This is all I remember until after the amputation of my leg."

Case 3.—S. H., driver, healthy, aged 40 years, was badly scalded on the legs and arms by hot water and steam issuing from a boiler, describes his feelings as follows: "The steam caused a prickling on my limbs like needles. I next felt a numbness in my bones and body, had no other feeling for fifteen or twenty minutes while I was walking about. I went into a car and sat down. Did not know that I was burned except in the hands. My heart then began to jump violently, and I felt very warm for about half an hour. After that I was very cold, and took a great pain in the stomach and then in the back, and had cramps in the stomach and limbs. About four hours after the accident I got a glass of brandy, which had no more effect on me than water. I was very cold all this time and my belly swelled. The pain came in my back about two hours after I was scalded and lasted several days. I was insensible, slept, and remember very little of what passed for a couple of days. The doctor gave me a powder when I got home, which I think warmed me a little.

I have made enquiry into several cases in order to elicit the early symptoms of shock, and have found the sensations and the order of their occurrence to closely correspond to the above illustrations which I have chosen, as they were the most intelligently given, and also as representing three kinds of accident, viz.: sudden injury, an injury by a crush done slowly and by

a scald. The shocks in these cases were moderate, and its stages were sufficiently slow that the order of sensations could be observed. I have not been able to get much information in cases of severe shock, farther than that there was a terrible feeling which was not pain.

Assuming these observations to be correct, we will now sum up the symptoms of shock, subjective and objective, and endeavor by the light of physiological research to explain their significance. Experiment upon animals has proved that the first effect of excitation of the cerebro-spinal system is contraction of the vascular system of the body, increasing the tension of the vessels, accelerating the blood flow and slowing of the heart's action. 2nd. A stage of paralysis of the vaso-motor system with dilatation of the vessels, diminished tension, stagnation of the blood and frequent ineffectual heart's action.

Violent irritation stops the circulation, 1st, by excessive contraction of the vessels, and 2nd, by the complete paralysis that follows, the capillaries being dilated to such an extent as to contain all the blood, so that none reaches the heart and large veins which are found to be empty. This is observed in a frog killed by a sharp tap on the abdomen: all the blood is contained in the capillaries of the intestines, and thus it is removed from the circulation as effectually as if the animal had been bled. This is what happens in extreme shock, which is immediately fatal.

Continued and repeated irritation causes alternate contraction of the vessels, and finally exhausts the nerves and produces the condition of extreme shock. The frequency and debility of the heart's action in this stage of exhaustion is not due to direct depression of the organ itself, but to want of blood to fill it, since it immediately resumes its wonted vigor if it is artificially filled with blood or a saline solution.

Irritation of a sensory nerve excites, 1st, its own centre, and the reflexion is upon the vessels in immediate connection with it. A stronger irritation extends to other centres in physiological relation with the first and the vessels in reflex relation with them. A still stronger irritation extends over all the nerve centres, but affects most those immediately irritated by it, thus, while the later symptoms of shock may vary, the several stages of this condition are the same.

In the application of these principles to the symptoms of shock we observe, 1st, the "thud," the "pressing feeling," the "numbness in the bones," all mean the same thing, viz.: shock or sudden excitation of the cerebro-spinal system and primary contraction of the vascular system. The next sensation unanimously expressed was that of warmth and excited action of the heart. This is probably the stage of commencing a moderate dilatation of the vessels, when the tone is moderate, the heart full and vigorous, and the circulation consequently good. This stage is short, and precedes complete dilatation, followed by perspiration and symptoms due to deficient supply of blood to the nerve centres, such as general debility, nausea, blindness, tinnitus aurium, syncope, convulsions, &c.; again, pallor and coldness of the surface, and suppressed secretion of the kidneys take place from accumulation of blood, as a passive congestion, in the abdominal organs, which contain a large amount of this fluid on account of their extensive capillary system. A rapid small fluttering pulse and thirst are due to an empty state of the heart and great vessels. There are other symptoms of shock the causes of which are not so evident. Among these, I will mention moderate dilatation of the pupils; an upward tendency of the eyes, tympanites, imperfect breathing, sighing, and a constant desire to be raised up, and, in some severe shocks, a violent pain in the stomach, which is often the unfortunate man's only and great distress. This symptom appeared to me to occur in those who were injured shortly after a meal. In a hopeless case I once injected hypodermically two or three grains of morphia in an hour without any sensible effect.

Vomiting and chills are reactionary symptoms, the former by forcing the blood from the abdomen to the heart, and the latter by dilating the vessels leading to other parts of the body, and thus assisting the abdominal vessels to resume their tone by relieving the pressure upon their walls.

Beside the direct shock to the nervous system and the secondary effect upon the circulation, there is another consideration worthy of notice: We are aware of the influence of the nerves upon the nutritive processes of the body, the secretions and the blood. Instances of the immediate changes produced upon the mother's

milk by mental shock, causing death in the infant, are upon record. The vital quality of the blood is that condition in which the chemical and physiological interchanges in and among its elements is steadily and continuously maintained, and any disturbance which destroys the equilibrium of these changes with the nutritive supply is a toxic agent and lowers vitality. Shock may thus act upon the blood as an electric discharge during a thunder shower does upon milk, destroying at once to a greater or less extent its specific quality so that, while the nerve centres and heart may be capable of resuming their function, the blood elements have passed into stable combinations, incapable of those reactions with the tissues in nutrition which constitute the phenomenon of life. With a view of ascertaining the fact as to whether the nervous centres were capable of resuming their function if they were supplied by living blood, and also with a desire to benefit an otherwise hopeless case, I transferred about eight ounces of blood from a sheep into the vein of a man laboring under severe shock. He had not lost much blood before or during the amputation of his thigh. Before the transfusion this man was pale, sunken, cold, pulseless, and bedewed with the sweat of death, evidently his time was short: no air entered with the blood but the immediate effect was the production of a violent spasm and insensibility, the pupils dilated widely, the eyes stared upwards, the head was thrown back, the limbs straightened, and he took a deep inspiration. He remained motionless for about what seemed to me to be two or three minutes when gentle respiration began and, in a very short time consciousness returned and the muscular system became relaxed. He then expressed surprise at the tumult, looked around and asked "what is the matter?" The pulse returned to the wrist in good volume, the countenance resumed a natural appearance and fullness, his extremities got warm and the perspiration left his body. He expressed himself as well, said he had no pain, and was wholly unaware of what had just happened; he entertained hopes of his recovery and said that he felt better than at any time since he was hurt. Complete reaction was established and we were all sanguine of his recovery. Excitement prevailed to such an extent that time was not noted, but I think it was about twenty minutes

or half an hour when he was overtaken with a like spasm to the one described, except that he died, leaving only the satisfaction that this unhappy termination did not result immediately after the experiment.

The important deductions derived from this case are: That the nerve centres are capable of renewing their function if supplied by living blood, and that the state of the pulse and circulation is not due to *debility* of the heart, but to an insufficiency of blood flowing to it from the veins. The cause of the convulsions is not clear, but they resembled very closely the inspiratory convulsive movements in the first stage of asphyxia, produced by tying the trachea or opening both pleura of an animal.

We will now pass to a consideration of the treatment of shock. It is evident that, if the above observations are correct, in order to restore the circulation a *cardiac* stimulant is not so much indicated as some means of restoring the tone of the vascular system, the unloading of the congested capillaries of the internal organs of the body, which by containing most of the blood removes it from the influence of the heart. If, now, we turn our attention to the physiological action of stimulants, such as alcohol, opium, etc., we will find that they differ only in a degree with those of shock itself. There is a primary stage of contraction of the vessels accompanied by acceleration of the circulation, and a secondary stage of dilatation of the capillaries and depression, which if carried to excess produces unconsciousness and congestions. These primary and secondary stages vary in extent and duration according to the medicine and the dose which is administered. It appears to me that the benefit to be derived from these medicines is included in their primary action only, that they should be given in small and repeated doses, and that any excess is attended with injury by increasing the condition which they are intended to alleviate. I think I have observed many instances, especially in the administration of alcohol in large draughts, where positive injury was done, and here let me quote a few cases in illustration. Case 1.—Carpenter, aged 55 years, badly injured about the hip, and thigh crushed. I saw him ten minutes after the accident, shock was not as great as would have been expected from so serious an injury; pulse was full, and about 100. I im-

mediately injected hypodermically about  $\frac{1}{2}$  gr. morphia. Half an hour after, he was cheerful, had a good pulse, and no increase in the symptoms of shock. He then got about half a glass of brandy with a little water, directly after which he complained of feeling sick and shortly vomited; he expressed the opinion that the liquor made him worse. The condition after amputation was that of severe shock; he was freely stimulated, and continuously vomited notwithstanding champagne and other anti-emetics, until he died, which was on the 5th day after the injury.

Case 2.—Shunter, healthy, aged 32 years, had his knee crushed into a space between two rails of a frog by a wheel which fractured the bones and lacerated the soft parts. The night was exceedingly cold, and it was about three-quarters of an hour before he could be extricated. I found him lying in a shanty, cold but with a fair pulse. There was no stimulants at hand. I gave him half a grain of morphia, by the mouth. His condition remained about the same for three hours, until we got him into a suitable place and assistance to amputate. Shortly before the amputation he drank about three-quarters of a glass of brandy, which, as in the last case, made him immediately sick, and he vomited for the first time. He also expressed the belief that the brandy hurt him, though he was accustomed to its daily use. The sequel was, as in the case before described, he died in thirty-six hours after the operation, under severe shock. He had suffered very little loss of blood.

Case 3.—Shunter, healthy, aged 32 years, suffered a crush of the ankle and foot: shock moderate. Got half a grain of morphia, about half an hour after the accident. Had some nausea, but did not vomit. Got no alcoholic stimulant either before or after amputation of the leg. Reaction was early established, without any of the most distressing symptoms observed in the previous case, though by comparison of constitution and condition after the accident, the cases were apparently alike.

Case 4.—Locomotive superintendent, aged 50 years. Both thighs and legs horribly mangled by the wheels of a locomotive. Shock very great, and referred all his pain and distress to the pit of the stomach; refused stimulants; did not vomit. Died in two hours during an agonizing pain. In two other cases of very

severe injuries, of which the persons died in a few hours from shock, both refused stimulants, and neither vomited. Again, in minor injuries, though the patients are generally faint and pale, yet they do not vomit, at least seldom.

I may be laboring under a misapprehension, but I am inclined to believe that the most distressing symptom of shock, that is, vomiting, is frequently due to the administration of large draughts of alcohol, and, according to my experience, as a stimulating agent, it is far inferior to opium, the effect of which is slower, more steady, and permanent. It soothes instead of excites the nervous system. Its special action is to dilate the vessels leading to the brain, so that the nerve-centres at least receive their share of what blood is in circulation. It is given on the same principle as in profuse diarrhoea or after hæmorrhages. It tones up the vessels of the internal organs, if not by direct action upon their coats, it does so by dilating other vessels, as those of the head, acting the part of a derivative, and thus allowing them to contract slowly upon their contents and expel the stagnant blood into the circulation. Opium probably has a direct influence upon unstriated muscular fibre, as most of us must have observed strong uterine action produced at a certain stage of labor as its effect upon the pains which were weak and ineffectual before its administration. Again, in tympanitis, which is a paralyzed condition of the muscular coat of the bowels, under the influence of opium they slowly regain their tone, the abdominal walls become flaccid, and the bowels move during the continued action of the medicine.

The sleep produced by opium is placid, refreshing, and lasts for several hours. That produced by alcohol is bloated, interrupted, and unrefreshing. The advantage of opium is that its action is gentle, gradual, and lasting, so that the nervous system is enabled to recover itself before the secondary action of the medicine takes effect, and the first difficulty thus is tided over. Beside medicine, external stimulants, frictions, heat to the epigastrium, and warm drinks, if they are acceptable, are useful. Quietude is a necessity. Reaction, it must be remembered, is a slow process, patience is required, for, when the fire of life is very low and the flame flickering, we must not blow too hard or too suddenly, for fear of blowing it out. Com-

men sense, in these matters is better than a code of fixed rules.

And now let us deal with the most important consideration of all, that is, the question of amputation; and here, again, let us call into requisition the experiments in the physiological laboratory before mentioned.

Excitation of the cerebro-spinal system causes the symptoms of shock. Continued or repeated violent excitement completely exhausts the nervous centres beyond the capability of renewed nutrition and function—hence the great danger accruing from the repeated shock of an amputation.

In a former paper, read before this Society, to which this is a supplement, I presented to your notice cases to shew—and others were related by gentlemen who took part in the discussion—that the dangers resulting from the sloughing of a limb were not so great as is generally apprehended, provided measures were adopted to insure complete external drainage, by removing the parts as close to the living tissue as possible, as soon as death was declared in them by loss of sensation. I pointed out that, contrary to the received opinion, sloughing does not extend above tissues actually crushed and killed in the injury, and that a slough, extending through the whole substance of a limb, was no more grave a condition than sloughing of the flaps after amputation, many cases of which recover. I contended that the danger resulting from the repeated shock of the operation was greater than the dangers from blood contamination, and that of two evils we should choose the least.

The very high mortality after major operations for railway injuries forces upon my mind the necessity of a trial of some other means; and, while I am bound to treat with all respect the opinions and practice universally acknowledged by the profession, yet we are each alive to the fact that our science is not perfect, and that many opinions which, at different times have held sway as dogmas in medical belief, are now obsolete.

However extensive, it is yet a narrow experience which knows only one aspect of a question. When, however, this is attended with great success, we are not justified in departing from what is proved to be good; but, if the record is dark, it is otherwise.

As physicians we are now often mere spectators of the interesting processes of recovery directed by nature's methods; and, as surgeons, we are learning to withhold a violent hand in many cases where active interference can only be productive of injury.

531 Wellington Street.

*Vaginismus.* By FRANCIS W. CAMPBELL, M.A., M.D., L.R.C.P., London. Professor of Physiology, University of Bishop's College.

Read before the Medico-Chirurgical Society of Montreal, February 16, 1877.

Vaginismus, as described by Dr. J. Marion Simms, in his work on Uterine Diseases, is an excessive hyperæsthesia of the hymen and vulvar outlet, associated with such involuntary spasmodic contraction of the sphincter vaginae as to prevent coition. This irritable spasmodic action is produced by the gentlest touch; often the touch of a camel's hair pencil or fine feather will produce such agony as to cause the patient to shriek out, complaining at the same time that the pain is that of thrusting a sharp knife into the sensitive part. In some this is worse than it is in others. In a very large majority, the pain and spasm combined, are so great as to preclude the possibility of sexual intercourse. The sensitiveness seems to be at all parts of the vaginal outlet. It is very great at or near the meatus urinarius, on each side, where the hymen takes its origin—greater still, near the orifice of the vulvo vaginal gland, but often the most sensitive point is at the fourchette, where the hymen projects upwards. The most perfect examples of vaginismus that Dr. Simms has met with were uncomplicated with inflammation—but he has seen cases where there was redness or erythema at the fourchette. There has been in all, or nearly all, of his cases, a terrible sensitiveness of the *outer* surface of the hymen, and in not a few, a congested and irritable condition of the cervix-uteri; with, in occasional cases, polypoid excrescences about the neighborhood of the os tincæ. The treatment recommended by Dr. Simms—who, I may observe, was the first to draw special attention to this affection—consists in the removal of the hymen—incision of the vaginal orifice and subsequent dilatation. This last, without the incision, has been tried and found useless. Such, gentlemen, is briefly the description of an affection, fortun-

ately of very rare occurrence, which is capable of producing an amount of unhappiness, between married people who are too prudish to unbosom themselves. Not a few such cases are on record, where sexual congress, being utterly impossible, married couples—joined by the law, but with the marriage never consummated—have lived a most unhappy and very unsatisfactory life. In one case which came under Dr. Simms' notice, it was the groundwork of a threatened divorce. I have said that it is fortunate such cases are rare—and yet, it would be, perhaps, more proper to say—such cases, often from prudish motives, rarely come under the surgeon's notice. In 1866, when Dr. Simms published his work on Uterine Surgery, he had had thirty-nine cases of vaginismus, every one of which resulted in a perfect cure. In my experience I have only met with one case, which can, in my opinion, be classed under the term vaginismus, and I have thought that the details would prove interesting to the members of our Society.

On the 11th of November, 1874, Mr. S. consulted me with reference to his wife. Three weeks previously he was married to a young and handsome lady, of good proportions, but he had not been able to consummate the marriage. For a week after marriage he continued to make the most vigorous efforts to enter the vagina, but without avail, and they both came to the conclusion that there must be something wrong, and decided to seek professional service. As they desired my services they awaited my return from Europe. I arrived on the 10th of November, and, on the following day, as mentioned, the husband consulted me. I informed him that an examination of his wife was necessary, and he left, promising to return with her on the following day. On the 12th of November, the lady, accompanied by her husband, came to my surgery. I placed her on her back on a couch, and having oiled my finger well, with warm oil, attempted to make a vaginal examination. I had hardly entered the labia, when she drew herself up and complained of great pain. I continued to press onward, when my finger was at once stopped by intense spasm of the sphincter of the mouth of the vagina. I used a very considerable amount of force, but was quite unable to make a digital examination. I then attempted the introduction of a small-sized bougie, well-oiled, but completely failed; and

the suffering was extreme. She was, I saw, becoming hysterical; I therefore desisted, informing her that I would require to examine her under the influence of chloroform. As she was expecting the catamenia the following day, she promised to return as soon as it was over. On the 25th of November the lady returned, accompanied by her husband. Assisted by Dr. Kennedy, (after much difficulty—fully two ounces of chloroform being used), I put her under its influence. On examination we found considerable redness at the fourchette. The hymen was obliterated, and its remains the "*carunculae myrtiforme*" presented an enlarged and inflamed appearance and were extremely sensitive, the patient requiring to be kept *completely* under the chloroform, to allow of their being touched, without pain. No difficulty was now experienced in passing the index finger into the vagina, which was found ample and capacious. On examining the os, by touch, it felt granular. A speculum bi-valve was introduced, and the following condition of things was observed:—The os and cervix presented a fungoid appearance—somewhat enlarged in its whole diameter, and was entirely denuded of its mucous membrane. It was very soft to the touch and adematous. The granules on its surface were of large size, of a deep red color, and intensely congested—bleeding freely on the slightest touch. There was not any purulent secretion observed on them, and their formation was apparently due to intense irritation, causing congestion of the capillaries and oozing of serum, which kept the surface moist. The os was small and round, but there was no secretion indicative of catarrh of the cervical canal. The solid stick of nitrate of silver was freely applied to the granules, os and cervix, and the patient allowed to return to consciousness. She was directed to syringe the vagina three times a day, with a pint of warm water containing one grain of sulphate of zinc to the ounce. A syringe with a very small nozzle was selected for her.

November 26th.—Patient has only partially succeeded in using the injection, owing to inability to get the nozzle into the vagina—very great pain following the attempt. Says, however, that she will persevere.

November 27th.—Same report as yesterday.

November 29th.—Is still unable to introduce the syringe, and will not promise to attempt it,

as the pain she experiences is frightful, and leaves her in a nervous condition for hours afterwards. To come the following day for examination.

*November 30th.*—Patient attended at my office to-day—Dr. Kennedy being with me. We attempted examination of the vagina without the æsthetic, but the spasm was so great and the pain so intense, that it was impossible. Chloroform was then administered—it taking fully half an hour to get her under its influence—and as before, examination was made with ease. A speculum being introduced, the condition of the os seemed to be much improved. The solid stick of nitrate of silver was again freely applied. As the irritability and spasm, however, seemed to have its seat chiefly at the opening of the vagina, a special examination was made of this part. The *carunculæ* were found to consist of several enlarged tubercles, thickened and congested. The slightest touch to these produced considerable reflex action, shrinkage of the patient and spasmodic contraction of the sphincter, though the patient was kept pretty thoroughly under the influence of the æsthetic. As the enlarged *carunculæ* were possibly the sole, or at all events the principal cause of her condition, it was decided to remove them at once. The vulvæ being held wide apart, they were effectually removed by a pair of curved scissors, a pair of tenaculum forceps being used to elevate them. As many as five or six large pieces were thus cut off; a few small pieces were also removed. There was considerable bleeding, which, however, was readily controlled.

*December 1st.*—Patient was very sick after the chloroform, and passed a restless night. There has been some slight hemorrhage from the cut surface. A fold of lins, wet with cold water, to be applied between the labia.

*December 3rd.*—Cut surface all but healed.

*December 7th.*—Cut surface completely healed. Patient says she can now get the pipe of the syringe half way into the vagina. Attempted a digital examination, which, after very great difficulty I accomplished—the finger being very firmly embraced by the sphincter vagina, and to a very considerable extent also by the vaginal walls. After considerable trouble I succeeded in passing into the vagina a duck-bill speculum; but the spasm was so great that I

could not possibly separate the blades, and as she besought me to withdraw the speculum I did so. To continue the injection of sulphate of zinc morning and evening; also to use two large injections daily of plain warm water.

*December 9th.*—Patient became unwell to-day.

*December 16th.*—Menstruation ceased entirely yesterday, and the patient informed me that, for the first time in her life, she had had a perfectly painless menstrual flow. This fact seemed to give her additional courage for the examination, for the relief at her monthly period had been so marked, that it amply repaid her for all she had gone through, even though nothing more should be accomplished. I assured her of the very great probability of a certain cure. I then passed—with some little pain and in spite of some spasm—the pipe or nozzle of a syringe into the vagina, and allowed it to remain for a few moments. I then took my duckbill speculum and attempted its passage. Owing to its size, the amount of spasm was greater, and the patient complained of much pain, and begged of me to desist, but I persevered, and in a moment or two had the satisfaction of finding it well into the vagina, and this time succeeded in opening the blades slightly. The condition of the os was greatly improved. The granulations had all but entirely disappeared, a few only remained which I again touched with the solid stick of nitrate of silver. The vaginal injections to be continued as before.

*December 19th.*—To-day succeeded in passing the speculum without much difficulty, and in opening the blades tolerably freely. Spasm greatly less, although some slight pain was complained of. Os almost healthy in appearance, only two or three small granulations remaining, which I lightly touched with nitrate of silver. Continue injections.

*December 21st.*—Examined patient again to-day. Not much difficulty in passing the speculum; os now looks quite healthy. To discontinue injections of sulphate of zinc, but to use warm water injections thrice daily.

*December 23rd.*—To-day passed a No. 10 rectal bougie, without much difficulty and with very little pain. Allowed the bougie to remain in for two hours.

*December 24th.*—Passed a No. 12 rectal bougie and allowed it to remain three hours.

*December 25th.*—Husband called to-day to say



that the previous night the marriage had been consummated, and that he did not anticipate further trouble, in which anticipation he was correct. On the 16th of October, 1875, I confined her of a fine healthy child.

In conclusion, I may say that Dr. Marion Simms has always been inclined to regard the affection as neuromatous. Dr. Alonza Clark, an able American pathologist, to whom Dr. Simms frequently referred the vaginismus hymen for examination, states however that he was never able to detect any enlarged nerve filaments running through it.

## Progress of Medical Science.

### LECTURES ON FEVERS.

BY ALFRED L. LOOMIS, M.D.

Professor of Pathology and Practical Medicine in the Medical Department of the University of the City of New York.

(Phonographically reported for the N.Y. Medical Record.)

#### LECTURE VII.

#### TYPHOID FEVER (CONTINUED).—TREATMENT.

GENTLEMEN: We have already considered the antipyretic power of cold applications in the treatment of typhoid fever, and I will now call your attention to the antipyretic power of the sulphate of quinine.

When quinine is employed as an antipyretic, it must be given in large doses; the administration of two grains every two hours, or a larger quantity administered in divided doses within a period of twenty-four hours, will not act as an antipyretic; but thirty or forty grains must be administered within a period of two hours.

If the stomach is irritable, and you fear that a large dose will produce vomiting, ten grains may be given every half hour until the desired quantity has been administered.

Usually from four to six hours after the antipyretic dose has been taken, the fall in temperature will begin, and in about twelve hours it will reach its minimum height; then it will remain stationary from twelve to twenty-four hours. After the temperature has once been reduced by the quinine, its administration may be discontinued until the temperature shall again rise to 105° F. As a rule the temperature rarely ranges as high as before the quinine was administered.

This mode of administering quinine in antipyretic doses to fever patients rarely produces any symptoms of cinchonism, other than a transient deafness after the first dose. In a large number of cases the temperature can be kept below 103° F. by the sulphate of quinine; but in very severe cases it will be advisable, and sometimes it will be absolutely necessary, to

employ not only the quinine, but at the same time the cold baths. My rule is, after I have reduced the temperature to 101° F., or 102° F., by a cold bath, to administer an antipyretic dose of quinine, and thus delay the recurring rise of temperature. While the cold bath more rapidly reduces temperature, the effect of the quinine is more lasting; consequently, by making use of both of these reliable antipyretics during the first two weeks, you will be able to control the temperature during that time. After this period it is not safe to resort to cold baths; but when the temperature rises above 103° F., occasionally you may use the cold pack in connection with antipyretic doses of quinine.

If, during the third and fourth weeks, you fail to reduce the temperature by these means, administer during the twenty-four hours from ten to twenty grains of powdered digitalis—unless the pulse is very frequent and irregular—when its use is contraindicated. As an antipyretic, digitalis should be administered only when quinine is given. It seems to increase the antipyretic power of the quinine, but has little or no power when administered alone.

The use of all these antipyretic remedies must be persisted in until the desired end—the reduction of temperature—is accomplished: but the peculiarities of each patient must be studied, and these agents must be so administered as to suit each individual case.

You cannot trust to the judgment of nurses and attendants, but you must determine for yourself what are the requirements in each case.

The satisfactory results obtained by the systematic use of these remedies justifies their employment; but the exact rules which are to govern one in their use, as to manner and time, can only be determined by experience.

All careful observers are aware that great danger attends the prolonged high temperature, but it is still an unsettled question whether this danger is due to parenchymatous changes in the different organs, which some claim are the result of the high temperature, or to disturbance of the nerve centres from the same cause. Whatever may be the final settlement of the question, the beneficial results which follow the antipyretic treatment of fevers are generally admitted; and my advice to each one of you is, at the onset of your professional career to make yourself perfectly familiar with the use of these most important and reliable antipyretics.

If you can keep the temperature of your patient at about 103° F., during the first two weeks of the fever, you have accomplished the *first* and perhaps the most important thing in the treatment of this disease.

Towards the end of the second or during the third week, sometimes earlier, sometimes later, signs of failure of heart power begin to manifest themselves; the pulse becomes feeble

and irregular; at times the surface is cool and moist; the patient complains of a sense of exhaustion, perhaps is unable to turn in bed; the tongue assumes a dry, brown appearance, and the necessity of supporting the patient becomes apparent. This will bring you to the *second* important question in the treatment of this fever, namely, *what means shall be employed to sustain heart power*, or, as it is sometimes said, the vital powers of the patient?

When a patient, during the second or third week of the disease, dies from capillary bronchitis, pulmonary oedema, or suddenly passes into a state of coma, failure of heart power is the real cause of death.

In those cases in which, during the early part of the fever, you have been compelled to resort to a vigorous antipyretic treatment, during the third week, although the temperature may not rise higher than 101° F., the pulse frequently becomes extremely feeble, and reaches 1±0 per minute, the first sound of the heart becomes inaudible, muscular tremors, dry tongue, and all the phenomena which indicate failure of vital power, are present. Under such circumstances the use of stimulants seems to be urgently demanded.

There are a few simple rules which may guide you in the administration of stimulants in this fever:

*First.*—They should never be administered indiscriminately—that is, never give a patient stimulants simply because he has typhoid fever.

*Second.*—When there is reasonable doubt as to the propriety of giving or withholding stimulants, it is safer to withhold them, at least until the signs which indicate their use become more marked.

*Third.*—In every case, but especially when stimulants are not clearly indicated, watch carefully the effect of the first few doses. There are few whose experience in the treatment of typhoid fever is such as to enable them to positively determine, from the appearance of the patient, when the administration of stimulants should be commenced.

Should you commence the administration of stimulants, it is necessary to see your patient every two hours, and note carefully the effect produced. If you find the tongue becoming dry, the patient more restless, the delirium more active, the temperature ranging higher, and the pulse more and more rapid, you may be certain that stimulants are contraindicated. If, on the other hand, the pulse becomes fuller and more regular, if the first sound of the heart is more distinctly heard, or, if it has been absent, it has returned, if the restlessness and delirium is less marked, the tongue more moist, and the patient more intelligent, you may be certain that the time for the administration of stimulants has arrived. When you have commenced their use, it is of the greatest importance

that you administer them at stated intervals, especially during the night.

In a severe case of typhoid fever, a free administration of stimulants, just at a critical period (which may not last more than twenty-four hours), will often be followed by a refreshing sleep, and your patient may rapidly pass from an apparently hopeless condition to one of convalescence.

The *third* important thing to be accomplished in the management of typhoid fever patients is the maintenance of nutrition. You must bear in mind that the primary and principal effects of the typhoid poison are manifested in the changes which take place in the lymphatics of the gastro-intestinal tract. Experience has taught us that the enfeeblement of the digestive and assimilative powers, due to these glandular changes, which are manifest from the very commencement of the fever, renders the digestion of solid food impossible, and for a long time it has been the rule of the profession to allow typhoid fever patients only liquid food.

There has been and still is great diversity of opinion in regard to the special articles of diet best suited to this class of patients. Most medical writers and practitioners claim that beef tea is the proper diet for fever patients; consequently it is the rule to pour into these enfeebled stomachs a decoction of beef in such quantities as a healthy stomach could hardly tolerate, and which, in itself, has little or no nutritive element.

Others claim that gruels are far superior to animal broths, and advocate the feeding of fever patients with gruel made of barley and other farinaceous substances, to the exclusion of every other article of diet; yet gruels furnish few elements essential to the nourishment of a physical organization struggling against a subtle poison, and rapidly wasting with a burning fever, and starvation is the necessary result of a restriction to gruel diet.

There is no disease in which a waste of all the tissues of the body goes on so rapidly as in typhoid fever; and milk is an article of diet which furnishes the elements of nutrition necessary to repair this rapid waste, and there are not the objections to its use which there are against animal broths and gruels. Although there have been, and still are, in some quarters strong objections against its use as an article of diet in fevers, recently it has been regarded with more favor, and those who have had extended opportunities for testing its nutritive qualities have come to regard it as the only article of diet required by fever patients. In it we not only find all the elements required for repairing the rapidly wasting tissues, but they are in a condition to be most readily assimilated by the enfeebled digestive apparatus.

In order to make the milk more digestible, it may be diluted with lime-water. The lime-

water is an antiseptic, and allays irritability of the stomach and intestines. The quantity of milk is not limited; the patient may take all his stomach will digest—usually patients will take from four to six quarts in the twenty-four hours.

After the patient has passed into the fourth week of the disease, you may find it necessary to administer cream and the yolk of eggs in connection with the milk.

Having considered the three most important things to be accomplished in the management of typhoid fever, I now come to the treatment of the accidents of the disease.

*Diarrhœa.*—I have told you that diarrhœa is one of the common symptoms of this fever; but it is one of which medical writers have taken special notice, and for the relief of which different means have been employed.

Let us for a moment notice the chain of phenomena of which diarrhœa is a link. The poison which produces this fever unquestionably has a specific action upon the intestinal glands and lymphatics. It is here that we find the characteristic lesions of the disease, and it is scarcely questioned that the typhoid poison, to a great extent, gives entrance to the system

through these glands and lymphatics, and here produces its primary irritation. Following the irritation and inflammation of the follicles, other portions of the mucous membrane become involved, and we have a catarrhal inflammation of the mucous membrane of the intestinal tract. The necessary consequence of this is a diarrhœal discharge. Is this diarrhœa to eliminate the fever poison? Certainly not. It is simply an indication that these intestinal changes are going on; it is not due to the elimination of the typhoid fever poison, but to the inflammation which the fever poison has excited in the intestinal glands, and the subsequent intestinal catarrh. When the diarrhœa is present in the earlier period of the disease, it is better to let it alone. The question may be asked, will it not exhaust the patient? During the earlier period of the fever (the first and second week) the danger is very slight. It has been proposed to treat this diarrhœa, which makes its appearance early in the disease, with alkalies, bismuth, pepsin, etc. It is claimed, if these remedies be administered, diarrhœa can be prevented, or, if it already exists, that it can be controlled. Theoretically, I see no reason for employing alkaline remedies, for the diarrhœal discharges are always strongly alkaline, and, from clinical observation, I am convinced that bismuth, pepsin, etc., have little or no effect either in controlling the diarrhœa or in preventing the intestinal changes which produce it. When diarrhœa commences late in the disease (during the latter part of the third, or during the fourth week of the fever), it is of a very different character from that which occurs during the first and second weeks.

Ulceration of the intestinal glands, and perhaps sloughing, has been established, and in addition to the extensive local changes, there is a septic element which enters into the causation of the diarrhœa at this stage. Besides, the increased peristaltic action of the intestines, which attends the diarrhœa, favors an extension of the inflammatory processes to the peritoneum, especially that portion which covers the intestine, which corresponds to Peyer's patches. In view of these facts, the diarrhœa should be arrested or held in check. For the accomplishment of this, there is but one remedy which can be relied upon—that is opium. My experience is against the use of astringents. If opium will not arrest it, you may expect little aid from astringents combined with opium as they are usually administered.

The use of opium is objected to by some, who claim that it diminishes the power of the heart's action; but in this disease, when administered in small doses, it seems to me to increase rather than diminish the heart-power. It is acknowledged that opium, more than any other drug, arrests the peristaltic action of the intestines; and that is what we wish to accomplish when diarrhœa is present during the third and fourth week of typhoid fever.

*Tympanitis.*—You will recollect that the tympanitis, which is sometimes so troublesome a symptom in typhoid fever, is due to gaseous distention of the intestines. Some assert that this gaseous accumulation is due to fermentative processes going on in the intestines; consequently, that the use of antiseptic remedies are indicated, such as muriatic acid, chlorate of potash, pepsin, etc. When this has proved a distressing symptom, I have usually found relief to be obtained by the application of turpentine stupes to the abdomen. Some claim that if turpentine be administered internally from the beginning to the end of typhoid fever, that tympanitis and the intestinal changes which lead to it and to the diarrhœa are much less severe. I am confident that the turpentine treatment, as it is called, does not have the controlling influence over this fever which has been claimed for it; but I am also certain that it is our most reliable agent for the relief of the tympanitis.

*Intestinal Hemorrhage.*—Hemorrhage from the bowels in typhoid fever (as I have already stated) is a serious accident, and may cause death by producing a fatal exhaustion.

When it occurs early in the fever, usually it requires no treatment; but when it occurs during the third or fourth week, or after convalescence is apparently fully established, it must be arrested as promptly as possible.

The occurrence of severe intestinal hemorrhages may sometimes be prevented by keeping the patient in bed. A typhoid fever patient should not be allowed to get out of bed from

the beginning of the attack until convalescence is fully established. Especially is this of importance if the case is a severe one, and attended by symptoms that indicate extensive intestinal lesions.

When hemorrhage from the intestines does occur during the third or fourth week of the fever, at once semi-narcotize your patient by the administration of opium in small doses at short intervals. Absoluterest of the body must be insisted on, the patient must not be turned on the side or moved in bed, and an ice-bag should be applied over the abdomen. I doubt if any good results can be accomplished by the use of astringents, either by enemata or by the mouth, as it is not known that they even reach the seat of the hemorrhage, although gallic acid and the persulphate of iron are usually recommended in cases of intestinal hemorrhage occurring in typhoid fever. If the hemorrhage is profuse, it may be necessary to keep your patient under the influence of the opium for a week or ten days.

*Peritonitis.*—When perforation of the intestine occurs the case may be regarded as hopeless: death takes place usually within twenty-four hours; death occurs as the result of general peritonitis; no plan of treatment avails anything. If the peritonitis occurs without perforation, from the extension of the inflammatory process from the intestinal ulcers to the peritoneum, by bringing your patient rapidly into a state of semi-narcotism and holding him there for five or six days, you may prevent the extension of the peritonitis and save the life of your patient. Such a case you are to treat in every respect as one of localized peritonitis.

After recovery from an intestinal hemorrhage or a localized peritonitis in typhoid fever, be exceedingly careful about the administration of cathartics or enemata; either may jeopardize the life of your patient. The bowels will move spontaneously after a time, even though the use of opium be continued, and no harm will follow should two or three weeks pass without a movement from them.

When the stomach is irritable, the hypodermic injection of morphine is preferable to opium administered by the mouth. This is given to paralyze the peristaltic movement of the intestines.

*Bronchitis.*—I have already stated that catarrh of the larger bronchial tubes is present in all severe cases of typhoid fever. No special treatment is required for its management; but, if the bronchitis becomes capillary, great relief will be obtained from the application of dry cups to the chest and the internal administration of carbonate of ammonia. Vapor inhalations will also be found of service in severe cases.

*Pneumonia.*—The pneumonia which complicates typhoid fever in nearly every case is lobular in character. The signs which indicate

its occurrence are sudden rise of temperature, increased frequency of respiration, and the physical signs of localized pulmonary consolidation; cough and expectoration are rarely present.

Its occurrence is always an indication that stimulants should be administered. If they are being administered, they should be increased in quantity. To prevent or relieve the hypostatic congestion of other portions of the lung, which frequently accompanies pneumonic development, the heart-power must be increased, and the position of the patient changed.

*Laryngitis.*—For the relief of the laryngitis which occasionally complicates typhoid fever, a small blister may be applied on either side below the angle of the jaw, and the whole neck enveloped in a poultice. If these measures fail, and suffocation appears imminent, tracheotomy should be resorted to without delay.

*Subacute gastric catarrh,* occurring as a complication during convalescence from the fever, can only be managed successfully by giving the stomach rest as far as possible, restricting the diet to a single tablespoonful of milk at a time, and applying hot fomentations over the epigastrium.

*Bed-sores.*—The severer forms of bed-sores are the most intractable complications we have to combat. Fortunately, the severer forms are much less frequently met with under the more recent plan of treatment; and, if they do occur, they are superficial and limited to small spots. Scrupulous cleanliness is one of the principal means for preventing their development. So long as there are no erosions, the parts should be frequently bathed in spirits of camphor, and the points of attack should be relieved from all pressure. If the sores penetrate the integument, they should be frequently washed with a weak solution of carbolic acid, and afterwards covered with lint covered with vasaline.

The most unfavorable cases are those in which the point of pressure caused by the weight of the body becomes gangrenous. In such cases, by some a continuous warm bath is recommended. As soon as sloughing takes place, and the parts separate, they should be dressed with lint saturated with balsam of Peru and carbolic acid.

As has been already stated, diarrhoea is usually present in the early period of this fever, but sometimes there is constipation. The question arises, is the administration of cathartics ever admissible in typhoid fever? If so, what cathartic shall be employed? There is great diversity of opinion upon these points. One recommends the administration of rhubarb, another advises alkaline cathartics, and another would give calomel.

I shall consider these at my next lecture, in connection with the management of convalescence and the sequelæ of this fever.

THERAPEUTIC MEANS FOR THE RELIEF OF PAIN  
IN GENITO-URINARY TROUBLES.

CATARRH OF THE BLADDER, however caused, is a disease in which the local symptoms are always more or less pronounced; these are distressing irritability, supra-pubic pain, pains in the sacrum, perinæum, and thighs. The judicious use of the catheter is one of the most effective means at the command of the surgeon; because, whenever the slightest obstruction exists to the free passage of urine, there is the risk of the secretion being slightly decomposed, and consequently irritating to the lining membrane of the bladder; and so the original evil is liable to be aggravated. To insure a regular and complete evacuation of the bladder is, therefore, an important thing to begin with. Then we may remove morbid deposits by injecting warm water and washing out the interior of the viscus. This gives the patient great comfort. Increased benefit may be sometimes obtained, says Sir H. Thompson, by cautiously impregnating the water so employed with astringent or sedative agents, such as acetate of lead, nitrate of silver, and nitric acid.

To allay much pain Sir H. Thompson uses anodyne solutions of the extracts of conium, hyoseyamus, and opium. He recommends the following formula; dissolve ʒi each of the extracts of conium and hyoseyamus and ʒss of the extract of opium in fl. ʒij of proof spirit and fl. ʒxiv of water; of this solution add a sixth or a fourth part to fl. ʒij of warm water for an injection to remain in the bladder five minutes; two thirds should be permitted to flow out, and the catheter withdrawn; the rest is retained in the bladder. On all occasions of washing out the bladder only two or three fluid ounces of liquor should be injected.

In VESICO-INTESTINAL FISTULA, to wash out the bladder occasionally with small quantities of tepid water contributes greatly to the patient's relief. Villous growths in the bladder may require a similar treatment, the injected solution being rendered slightly astringent. Cancer of the bladder may need opiate injections.

PAIN FROM VESICAL CALCULI.—Few agonies are more intolerable than those of stone in the bladder; and much investigation has been bestowed upon the local use of lithontriptics; *i. e.*, the injection into the bladder of chemical solvents of stone. Sir H. Thompson has not much praise for this method of treatment, and says that the solution, if strong enough to be of any use, endangers the coats of the bladder, and when diluted its action is extremely uncertain. Dr. W. Roberts speaks more encouragingly, but allows that the scope of the treatment is within rather narrow limits; and that it is applicable only in those cases of vesical calculi in which the urine is acid, the stone not large, and its composition known to be uric acid, or strongly

suspected to be such. However, Sir B. Brodie has shown that phosphatic calculi might be greatly reduced in size, if not dissolved, by injecting a weak solution of nitric acid. Dr. Hoskins used a weak solution of acetate of lead (gr. i ad ʒi) with a mere trace of free acid. With a phosphatic stone, double decomposition occurs. Phosphate of lead (in the form of a fine granular precipitate) and an acetate of lime and magnesia are formed. Results of high practical importance may be expected from a prosecution of the same researches; and I may here allude to a detailed account of experiments made by the Rev. W. V. Harcourt upon himself. It seems probable that the solvent treatment judiciously carried out may prove a useful adjunct to lithotripsy; and there can be no harm in the free use of plain warm water, by introducing it through a double catheter, and keeping up a continued steam for half an hour every two or three days.

The surgeon's art is, after all, the most radical in the management of the pains and perils of stone in the bladder.

PAIN FROM ACUTE GONORRHEA.—For the painful irritation of acute gonorrhœa a variety of soothing injections may be recommended. That which in my own experience seems most useful is composed of liq. plumbi diacetatis, glycerine, and lime-water. Glycerine of tannin is sometimes very efficacious. Extract of opium in solution may be added to either of these; and particular care is needful in the mode of application, as the efficacy of the lotion depends entirely upon its free and repeated application to the whole of the diseased surface.

PAIN FROM FIBROID TUMORS OF THE UTERUS is the cause of much suffering. Dr. Meadows points out that pain and hemorrhage are generally in inverse proportion to one another; and if pain predominate, the tumor will most likely prove to be subperitoneal. He recommends us to apply the anodyne remedies as nearly as we can to the seat of pain. Hence the employment of medicated vaginal pessaries, using as the basis of the pessary gelatine and glycerine in the proportion of one part of the former to four of the latter, and into this we can introduce atropia, conia, and morphia. When used per vaginam these medicines are more effective, and certainly do not produce so much constitutional disturbance as when given in other ways. Dr. Tanner used with the same object medicated pessaries, in which the butter obtained from the theobroma cacao nut was the material used for holding the drugs together; among the substances so applied were mercurial ointment, extract of belladonna, extract of conium, and iodide of potassium: and pessaries in which is incorporated the extract of opium or belladonna are employed for dysmenorrhœa and "ovarian irritation" by Dr. Barnes.

INJECTIONS IN UTERINE DISEASES.—Injec-

tions occupy an important place in the treatment of painful uterine diseases, chiefly, however, as adjuvants to a higher class of remedies. Here again we find solutions of belladonna and opium to be of most service, and to these may be added liquor plumbi diacetatis, and perhaps dilute hydrocyanic acid. As simple emollient applications for relieving irritation, milk and water, linseed tea, barley water, and thin starch or gruel are very valuable. To allay the pain of ulceration of the os and cervix uteri, Dr. Lloyd Roberts uses very weak solutions of carbolic acid, on the ground that it possesses in an equal degree with the stronger caustics the property of changing the vitality of the tissues and dissipating inflammation and hypertrophy. I find the following lotion very serviceable in these cases:

Glycerin acid. carbol..... 3 ij;  
 Liq. plumbi diacetatis..... 3 iv;  
 Liq. calcis..... ad  $\frac{3}{4}$  viij.  
 M. Ft. Lotion.

In the instance of a private patient afflicted with a soft bleeding cancer of the uterus, the assiduous use of this injection stopped for a time all pain and hemorrhage. Dr. Churchill says that he can relieve the pain of "corroding ulcer" of the uterus by the local application of such caustics as nitric acid, muriate of antimony, chloride of zinc, and iodine, even though it is impossible to get the ulcer to heal; while in "advanced cases" temporary relief may be obtained from vaginal injections of nitrate of silver.

**LOCAL USE OF VAPOR OF CHLOROFORM IN UTERINE DISORDERS.**—Dr. West has not much to say in favor of the local employment of the vapor of chloroform, even by means of Dr. Hardy's "very ingenious contrivance;" and he is equally disappointed with the effects of a stream of carbonic-acid gas. To the latter agent attention was first directed by Sir Jas. Simpson, who spoke of its results as uncertain, although in some cases the success that followed its use was striking and immediate. M. Bernard has obtained some decisively good effects in a few cases of uterine carcinoma, followed by a great improvement in the state of the womb, and by a partial cicatrization of the ulcer.

Acute inflammation of the vagina following labor should be treated with injections of tepid milk and water or of a weak solution of acetate of lead. Gonorrhœal inflammation must be treated in a similar way.

**RELIEF OF THE IRRITABLE UTERUS.**—Dr. Graily Hewitt has graphically described the condition of a patient suffering from "irritable uterus," which he believes to be nothing more or less than a retroflexion of the uterus in an aggravated form. This state of things is to be remedied by reducing the flexion, and then all the symptoms disappear which arise from engorgement of the uterus, compression of the nerves which course through its tissues, and

stretching and dragging of the peritoneum. A mechanical element of treatment here comes into play, consisting in the application of a suitable form of pessary. The literature of uterine pessaries is of appalling magnitude; and the object of this treatise is to indicate principles rather than to delineate those details which can be learnt from the proper textbooks. Pessaries of convenient shape and size relieve other painful conditions of the uterus caused by misplacement of the organ.

**NEURALGIA OF FEMALE URETHRA.**—A desperate neuralgia sometimes afflicts the female urethra and orifice of the bladder. But very often what seems to be a pure neuralgic affection depends upon minute ulcers in the urethral mucous membrane. By an ingenious contrivance Mr. Ashwell washes the whole tract of membrane with a strong solution of nitrate of silver, and by this plan he cured a very severe case of the disorder. I obtained equal success in an exceedingly obstinate case by the passage of a soft bougie every night and morning.—*From John Kent Spender's Therapeutic Means for Relief of Pain.*

#### HEAT FOR THE RELIEF OF PAIN.

**ORDINARY POULTICES** are convenient vehicles of heat and moisture; and, as such, are constantly used for allaying local pain. "Poultices should always be applied as hot as they can be borne, and frequently changed, lest they become cold and hard." They are always soothing to inflamed tissues, and have a most beneficial influence on inflamed viscera when placed on the surface over the diseased organ. An acute pneumonia or a pleurisy is always relieved by the application of a hot and large "jacket poultice;" and we may try to relieve the suffering of a peritonitis or a pericarditis by the same plan. Over the peritoneum a poultice should be light and thin, and bran is a good material to make it with.

Dr. Ringer mentions poulticing as useful for acute rheumatism, lumbago, sciatica, pleurodynia, and myalgia. When a poultice is removed the skin should be covered with a piece of flannel, and the flannel covered with oiled silk; this after-treatment promotes free perspiration, on which mainly depends the efficacy of the method. Starch poultices are extremely soothing, and may be used for lessening the pains of open cancers, as well as the heat and inflammation of certain eruptions of the skin. A potato poultice for the irritation of scabies is favorably spoken of by Dr. M'Call Anderson.

The pain of a maturing carbuncle or abscess is much diminished by hot small poultices. Linseed poultices are often applied to rheumatic and gouty joints; the heat and pain are generally mitigated thereby.

**FOMENTATIONS** with hot or tepid water (and with water medicated in various ways) are another vehicle of heat and moisture. Opium is the medicament principally employed, but solutions of many other

substances are useful. Flannel soaked in these hot fluids, and then moderately wrung out, acts like a poultice, and is much less weighty to tender parts; some impervious material should be put over the hot wet flannel. Spongio-piline is convenient for this purpose. Painful spasm of internal organs, such as intestinal, renal, and biliary colic, may be most advantageously treated by one of these methods.

The pain of phlebitis in one of the limbs is exceedingly well treated by hot water dressing, which should be covered with gutta-percha tissue, and retained by a few turns of a bandage.

The distress of an acute fit of asthma is moderated by steeping the whole chest with flannel wrung out of water as hot as can be borne. Toothache is relieved by washing out the mouth with hot water.

Many forms of headache (including those of the acute specific diseases) are considerably benefited by sponging the forehead with hot water, or by even dipping the whole head into it.

For hemorrhoids attended with irritation and pain, relief is often obtained by sitting over the steam of hot water for fifteen or twenty minutes, and immediately applying a bread and milk poultice. *Pruritus genitalium*, and so-called prurigo of any other part of the body, is alleviated by frequent fomentation with hot water.

The process called "wet-packing" is very much to be praised for its efficacy in soothing myalgia and chronic rheumatism.

The good which is effected by hot poultices and hot water is due somewhat to their properties as counter-irritants and "derivatives;" and from this point of view we may proceed to study the action of

TURPENTINE, the oil of which is often most useful in quieting nerve-pains. A flannel steeped in hot water, and then sprinkled with the oil, is an old and excellent application to the chest during a paroxysm of asthma and *angina pectoris*. Great relief is often afforded in spasmodic affections of the bowels (particularly cholera) by the use of turpentine fomentations to the abdomen. Turpentine stoups, as they are called (prepared as directed just now), notably allay the suffering of some inflammations of thoracic viscera. Some continental writers speak of turpentine as a good external application for the pain and swelling of acute rheumatism; but this use of the drug is not to be commended. An equal quantity of yolk of egg and turpentine is a convenient mixture, and should be dabbed on the skin with a piece of sponge. Dr. Ringer reminds us that as the smarting arising from the application of turpentine goes on increasing for some time after its removal, it should not be kept on longer than just sufficient to excite a moderate degree of pain.

WARM AND HOT BATHS are admirable remedies for pain. They mitigate or even take away the pain of some internal spasmodic affections—such as biliary, renal, and intestinal colic. With regard to the general object of the relief of pain, the Bath thermal waters have an immemorial value. The action of these waters, and the ingenious appliances for utilizing them, deserve a special and local study: the Bath

waters, says a writer of the last century, "are a medicine, consisting of many ingredients exquisitely united together by the inimitable chemistry of nature." Local pains of various kinds, especially lumbago and the aches of muscle-fatigue, are easily and pleasantly cured by soaking for twenty or thirty minutes in water the natural temperature of which is above 100° Fahr. Movements of the body in the water increase the therapeutic value of the bath; and its salutary effects are developed more quickly by the hot water being put in motion, *i. e.*, by a douche being directed on the painful part. As a matter of daily experience, recognized particularly by the professional staff of the Bath Mineral Water Hospital, the torments of lumbago and sciatica are often completely removed by frequent and systematic bathing, assisted by a douche at the same time. What is quaintly termed "dry pumping," or the "dry douche," consists of a stream of thermal water directed on the dry subject, *i. e.*, a person outside the bath; and this is applicable whenever there are specific reasons (such as the existence of visceral disease) why a patient should not bathe. In the last century there was no scientific discrimination of gout, rheumatism, and rheumatoid arthritis; but all sufferers from these diseases were submitted to the healing influence of the Bath waters, and generally with notable relief to pain. As a rule, no douching should be permitted on a joint which is painful from active inflammation, asthenic gout may be quickened into disagreeable activity, but there is an old consoling saying that "Bath waters often cure by exciting fevers." "Palsies from pain" and dysmenorrhea are among the diseases for which several older physicians advised the Bath waters, in the form of either external or internal use.

The Buxton thermal water (the temperature of which does not exceed 82° Fahr.) has a considerable repute in the treatment of some painful varieties of rheumatism. Many foreign spas owe their fame to a natural thermal property.

Used judiciously as means of health and not of luxury, hot and warm baths may greatly relieve the suffering of colica pictonum, and we may recommend the same means for the pains and dangers of irritative affections of the kidneys and bladder, of inflamed and strangulated hernia, of spasmodic stricture of the urethra, and of inflammation of the uterus and uterine appendages. The irritation of general small-pox is alleviated by tepid bathing.

The distress of prurigo is much ameliorated by the daily employment of the tepid bath, plain or medicated.

The local thermal bath is used for a variety of purposes. The sitz-bath can be resorted to for any of the local pains just specified; and Dr. Graves ordered the feet and legs to be plunged in hot water for the removal of headache.

VAPOR BATHS are beneficial under proper circumstances; the torments of itch, of lineen ruber, and of prurigo are signally soothed thereby. Dr. Martney prescribed the topical use of vapor as a soothing application for painful wounds, contusions,



and fractures. A stream of warm aqueous vapor relieves otalgia; a funnel should be inverted over a vessel of hot water, and the external ear-passage applied to the orifice of the funnel. Vapor baths can be impregnated with sulphur.

The Turkish bath has been described as combining many of the properties of the hot and cold bath; and it is used for lessening the pain of rheumatism, gout, and sciatica. Dr. Ringer claims the superiority of the Turkish bath in cases of the following kind: a patient complains of slight and fugitive pains; the joints, but little swelled, are merely stiff, and somewhat red and hot. The gout often affects many external and internal parts in succession; and in spite of careful diet and abundant exercise the patient may be seldom free from some evidence of gout. After a few baths the pains and swelling disappear, the joints become supple, and the general health improves. As a prophylactic against gout, I am delighted with the occasional effect of the Turkish bath.

When the regular Turkish bath is not available, a domestic modification may be substituted which is equally potent in promoting sweating. Dr. Nevins uses a form of steam bath for the treatment of acute rheumatism, and I know nothing more efficacious for the painful pyæmic complications of scarlet fever.

DRY HEAT is applicable in many ways. Natural warmth and dryness of the atmosphere relieve a host of pains in some people, and it is unfortunate that we have so often to supply these qualities in our climate by artificial means. Hot dry flannel or sand is part of the armamentarium of every nursery, and is often tried for neuralgia and spasmodic pain. Bottles of hot water may be applied to the abdomen to relieve spasmodic pain, and hot bran and hot bricks are used for a similar purpose. Dry wadding or cotton wool is a simple method for preventing or curing rheumatism by maintaining an even temperature of external parts.—*John Kent Spender's Therapeutic Means for the Relief of Pain.*

#### DIPHTHERIA.

By DR. ROBERT BELL, F.F.P.S.G., &c., Glasgow.

Perhaps the most difficult problem in medical science which remains to be solved is that which relates to the causation of zymotic disease. All are certainly agreed that each infectious disease is due to a specific poison which, by one way or another, gains access into the body of its victim; but what the nature of the entity is, and in what manner it enters and attacks the human subject, is still a mystery. I say, in what manner it enters the system of the patient is still not understood. I feel convinced that too much has been taken for granted, and accepted as fact on this point; and I am certain it will not be until this question has been satisfactorily settled that we shall arrive at correct conclusions as to the nature of the different poisons which we call contagia. It is all very well for us to assert that the disease-producing essence is inhaled by the breath, and thus gains access into, and produces its baneful effects upon, the individual. I hold that

we have no proof of this theory being correct. It was at one time thought that typhoid fever was infectious; that it was by inhaling the poison in the process of breathing the disorder was contracted. I feel that those who have had most to do with the treatment of this malady will agree with me that typhoid is not infectious in this sense. Other instances might be cited, showing that our opinions on this important subject have recently undergone considerable change. In diphtheria especially, it appears to me that our conceptions with regard to the mode of ingress of the poison are very far from correct, and will not yield the fruit which we must desire to reap; viz., an effectual means of destroying the disease, and thus saving the lives of our patients. Some years ago, it struck me that, when diphtheria attacked a patient, the *modus operandi* was the following. The germs of the disease become so located on a surface which provides a favorable soil for their development and multiplication, just in the same way as the germs of typhoid select the mucous membrane of the bowels. In this disease under discussion, the locality chosen by the poisonous particles is the throat and the neighbouring mucous surfaces. Here these *materies morbi* implant themselves, becoming attached by the tenacious and viscid secretion of the tonsils, the warmth and moisture of the part favouring their further development and progress. A dense fungoid growth is the result, at first of limited extent, but gradually encroaching upon the surrounding healthy mucous membrane. The very presence of this deposit—I refrain from calling it an exudation—results in inflammation of the subjacent and surrounding tissue. We may, and often have, a diphtheritic deposit without the slightest constitutional disturbance. I have often seen diphtheria in its early stage without the general system having apparently been affected in the slightest degree; and I venture to say that diphtheria, in its incipient stage, rarely affects the general health. Moreover, if the patient be strong and robust, some time will elapse before constitutional symptoms will manifest themselves. On the other hand, if the victim be weakly and in feeble health, or if his vital energies have been laid low by breathing foul gases the disease will run a rapid, and in general a fatal course. From what has been said, it will be perceived that I conclude diphtheria to be, in its first stage, purely a local disease, exactly as a chancre, as its commencement, is syphilis in the part only, not having yet affected the general system; or, to take another example, just as vaccinia, in its primary stage, is purely a local lesion. Another example may be cited: viz., the snakebite, which, if caught in time, may have its venom limited to the part bitten. It is, therefore, in this stage of the disease that an effectual and speedy cure can be guaranteed. When, however, the disease has for some time established itself on the tonsils; poisonous matter from the film becomes absorbed, first by the lymphatics, as indicated by the hardening and enlarging of the neighbouring glands, and then the general system becomes impregnated, and it is at this time that the



greatest danger threatens the patient; the vitality becomes reduced, and the poisonous film spreads with increased rapidity, the poison becoming multiplied with most deadly speed within the body. The above conclusions have been gradually arrived at after carefully observing a large number of cases of this dreadful disease. It is now time to say a word or two on the nature of the deposit, which is the principal feature of diphtheria. This always begins in one or more minute specks or points. These gradually enlarge to such an extent, and coalesce so, as sometimes to cover the whole area of the throat, and often the palate, posterior nares, and larynx. On its first appearance, it most closely resembles an aphthous spot, and indeed the aphthous and diphtheritic diseases bear a very close resemblance to each other in many ways. They both attack the mucous membrane of the mouth and throat; their appearance to the eye is similar; they both indicate a weakened condition of the general health; they are both fungoid in their nature; and I am not sure whether the one may not degenerate or merge into the other. Bearing these points in mind, it is always a safe plan of treatment to destroy in the early stages any deposit of a suspicious appearance on the tonsils or other surface of the throat; and it now remains to be seen how this can be accomplished. If what has been said anent the nature of the film, and the portal by which the disease enters the circulation, be correct, it follows that, if we can destroy the poisonous quality of the film while the disease is yet local, we keep it in that condition, and prevent its further effect on the health of the patient.

I may premise my remarks on treatment by stating that, since I have adopted my present method, I have only lost two cases from this disease; and these were children who resisted me to such an extent, that it was absolutely impossible to apply the treatment at all. It has been my lot to treat a large number of patients suffering from this disease, and it is with gratitude that I say with almost uniform success. My first consideration is to view the disease as one entailing rapid and severe prostration. This thought impels me to insist on free stimulation and plenty of nourishment; in the shape of soups, jellies, and milk, and this from the very onset of the disease, so as to assist the *vis medicatrix nature* to combat successfully the disease, and, if possible, expel it from the system. The grand aim is to endeavour to prevent the vital energies from succumbing to the fearfully prostrating effect of the poison. This dietetic treatment must be simultaneous with local and general medical treatment; but the most important, in my opinion, is the local application of substances which destroy the poisonous properties of the deposit on the throat. This consists of carbolic and sulphurous acids along with the liquor ferri perchloridi. My application generally consists of carbolic acid, one part: sulphurous acid three parts, solution of perchloride of iron and glycerine, of each four parts. This is either applied with a large camel-hair pencil, or by means

of the spray-apparatus, at intervals of two hours. The mouth should also be frequently rinsed out with a weak solution of Condy's fluid in water, and the following mixture taken in dessert-spoonful doses every two hours:—R. Potassæ chloratis ʒij; acid. sulphurosi ʒijss; tincturæ ferri perchloridi ʒij; glycerini ʒi; aquæ q. s. ad ʒvi. M. In this way, a medicament is applied to the throat every hour, and, to be successful in curing the disease, this energetic treatment is absolutely necessary. Of course if the patient be sleeping, the usual rule must be observed; viz., never disturb a patient if asleep.

In conclusion, I may remark that the presence of albumen in the urine must not be looked upon as a necessary symptom of diphtheria, as it often does not manifest itself till far on in the disease; and, on the other hand, I have often observed albuminuria as a concomitant of ordinary sore-throat. It should also be remembered that, at certain periods of the day during the progress of digestion, albumen can often be detected in the urine when no disease is present.—*British Medical Journal*, Jan. 29, 1876, p. 131.

#### TRACHEOTOMY IN DIPHTHERIA AND CROUP.

Whatever may be the outcome of the investigation instituted by the Royal Medical and Chirurgical Society as to the identity or non-identity of membranous croup and diphtheria, there will remain the fact that each of these diseases, or each of the varieties of the same disease, as the case may be decided, tends to kill rapidly by suffocation; and that this suffocation is due to two causes—first, to the mechanical obstruction offered by the diseased state of the mucous membrane; and secondly, to the laryngeal spasm excited by this diseased membrane.

In this respect, at least, the membranous croup of Home and Cheyne is identical with the tracheal *diphthêrite* of Bretonneau, albeit the former is sporadic, and the latter epidemic—a point of difference upon which much stress has been laid. While, however, it is certain that membranous croup in the great majority of cases is a sthenic disease, which kills by suffocation, and not by the vital depression it produces, diphtheria, though it often resembles croup in its sthenic character, is, it must be confessed, frequently asthenic, and kills by its own intensity and virulence. In such cases, tracheotomy is out of the question, for no one would think of performing the operation when danger to life lies in a general infection of the system and not in the local lesion of the air-passages. Excluding, therefore, from our consideration those cases of croup and diphtheria in which death is threatened by exhaustion, it ought, we think, to be regarded as a rule that the physician should advise, and the surgeon encourage, the performance of tracheotomy in these diseases when it is seen that medical treatment alone is clearly failing.

There are some—perhaps not a few—who would object to this on the grounds—first, that apparently hopeless cases do sometimes recover; and, secondly, that death is sure to follow tracheotomy, either from an extension of the disease itself, or as the result of the operation, which has dangers of its own. Indeed, it is well known that some surgeons affirm the operation to be unjustifiable; while others, without going so far as this, deny the validity of any favorable arguments drawn from statistics, because, as they aver, the operation in the successful cases was performed so early that it cannot be said that recovery would not have occurred without it; or they dispute the nature of the disease, and declare that the successful cases were not membranous croup at all, but laryngitic or laryngo-tracheitis.

With regard to the first objection, it is pretty certain that whatever may be the case on the Continent, and especially in France, where the operation is performed at a much earlier stage in the disease than elsewhere, English practice is entirely against it; for, as the result of our own inquiries, it is clear that the operation is not often, if ever, had recourse to in this country until all hope of recovery without it has been abandoned.

The time at which the operation ought to be performed is when the voice is extinct, and the difficulty of respiration continues and increases, when the skin is becoming livid, the extremities are cold, and the anterior thoracic wall, especially the lower end of the sternum, sinks in on inspiration. It has been asserted by some of the advocates of tracheotomy that, in the absence or stridor, and when the chest-wall remains puffed out and the lungs seem full and distended, the operation is undesirable, as these signs, they say, indicate the extension of false membrane along the small bronchial tubes.

It may be questioned, however, whether these symptoms ought to contraindicate interference, for they may arise from an œdema or congestion of the lungs, the result of long-continued obstruction to respiration—a condition which, doubtless, impairs the chances of the operation, but does not render it useless, although it does suggest that the operation ought to have been earlier entertained. But the existence of congestion is no real contraindication; for its relief is facilitated by the increased freedom of breathing after tracheotomy.

Nor can the second objection be any longer supported, for many of the successful cases have occurred where undoubtedly there was false membrane present; and there are now numerous proofs that the false membrane can sometimes be removed by the surgeon, and sometimes expelled by the patient after tracheotomy has been performed. Indeed, it seems obvious, granting the presence of the membrane, that the best chance of getting it expelled is to open

the windpipe—for is not this the recognized practice with other foreign bodies in the air-passages?

Some months ago we instituted an inquiry, by which we acquired sufficient information to show that there is a fair proportion of recoveries after the operation, whether we look to metropolitan or provincial, English or Scotch practice. We collected altogether from hospital and private practice eighty-nine cases of unmistakable croup and diphtheria, in all of which tracheotomy was performed, and out of these thirty-six recovered, and fifty-three died: which means that two patients out of every five operated upon recovered—a success by no means insignificant when it is remembered that the operation does not cure the disease for which it is done, but only affords a chance of life by postponing or averting death.

In several of these successful cases the true nature of the disease was shown by the escape or removal of false membrane. Last year we published (*Medical Times and Gazette*, July 17) a successful case by Dr. W. Richardson, of great value and importance, in which this occurred; quite recently another case, illustrating the same fact, was brought before the Medical Society of London; and in another column will be found the detailed reports of two similar cases, which have been recently under treatment in the Middlesex Hospital, in each of which tracheotomy was followed by the expulsion of false membrane and recovery.—*Medical Times and Gaz.*, Nov. 25, 1876.

#### ON SLEEPLESSNESS,

By DR. J. MILLER FOTHERGILL, Assistant Physician to the West London Hospital;

[After reviewing the different forms of sleeplessness, Dr. Fothergill passes on to consider the chief forms of hypnotics in common use.]

To take opium first. Its use is rather indicated in conditions of insomnia which take their origin in pain. When there is vascular excitement present it is desirable to combine with it direct depressants of the circulation, as aconite or antimony. The subsequent cerebral anæmia induced by the resort to opium is not so pronounced as is that induced by chloral.

Hyoseyamus takes its place alongside of opium, and may be resorted to in cases where opium or morphia disagrees, as in cases of chronic renal disease. For this last class of patients the tincture of hop is often very serviceable, though now rarely prescribed; it is a very satisfactory agent in such cases.

Hydrate of chloral is comparatively valueless in sleeplessness due to pain, and is inferior, in this respect, it is said, to the croton-chloral-hydrate. It is, however, very useful in conditions of vascular excitement, either alone or in combination with opium. In the delirium of acute pyrexia in children it may be usefully combined with the bromide of

potassium. In cases of sleeplessness where there is a sustained high blood pressure, or where there is distinct pyrexia, chloral hydrate is the hypnotic *par excellence*. It is, however, decidedly to be avoided in cases where the inability to sleep is due to worry and to brain exhaustion. In such cases, as in melancholia, the cerebral anæmia which follows its use is most objectionable and mischievous. It amounts to brain starvation," in fact, and the persons so affected are reduced to a pitiable condition. The persistent resort to chloral hydrate is most disastrous in its consequences, and the temporary relief afforded by it is not to be set against its after effects.

Bromide of potassium has a decidedly sedative effect upon the brain cells; and the cerebral anæmia produced by its administration is rather due to its sedative action upon the cerebral cells, by which they attract less blood to themselves, than to its effects upon the circulation; though doubtless to some extent it does diminish the activity of the heart. Its special advantage lies in its utility, where cerebral activity is kept up by far away peripheral irritation, especially when that irritation lies in the pelvic viscera. It may be given alone, or with opium, or with chloral, according to circumstances; and may often be usefully combined with hyoscyamus in cases where opium is contra-indicated. Its constant use, however, leads to diminished brain activity, and to intellectual lethargy.

Chloroform is a most potent agent, and is rarely resorted to as an hypnotic until other means of attaining the desired end have failed. The dangers attendant upon its use are so great that it is only resorted to in dire necessity. It is, however, occasionally used as a narcotic by the profession, but more frequently by persons upon their own responsibility. This chiefly occurs in those subject to sudden and unendurable pain when nothing but the narcosis of chloroform would be effective. Probably indeed in these cases, all other and less objectionable means of attaining relief have been tried and have failed. According to Claude Bernard, by combining opium, or rather morphia with chloroform, the sensory nerves and centres are affected ere the intelligence and the motor powers are much influenced. But with chloroform alone all are equally and alike affected. The danger of chloroform inhalation lies chiefly in the risk of an overdose being taken; as unconsciousness creeps on the motor power is involved, and then the amount taken may be, and too often is, far beyond what was intended. In another communication in the Practitioner will be found some account of a most ingenious apparatus, by which the supply of chloroform is cut off as soon as the motor power is impaired. If resort to chloroform inhalation cannot be avoided by certain sufferers, surely it is not objectionable from any point of view that the danger attendant thereupon be reduced to a minimum.

There is another hypnotic agent of undoubted potency, which cannot be overlooked in the present inquiry, and that is—alcohol. If there be any use of alcohol that is free from objection it is its use as

a narcotic in certain conditions. With many persons a dose of alcohol at bedtime is the very best nightcap they could possibly resort to. The cases best adapted to its use are those where there is mental worry and anxiety. In such states the first effect of alcohol in removing gloom and substituting pleasing sensations for unpleasant thoughts is eminently useful. A series of pleasant mental images are brought up on the mental horizon by its means, in place of the triste and sombre subjects which before its use occupied the foreground of the con- sciousness; and with such agreeable objects upper, most, the secondary effects come on, and the patient is wrapt in a refreshing renovating sleep. Probably the evil after effects of alcohol, so used, are less than those of any other agent which would achieve the same end. Unfortunately, however, commonly the very persons for whom alcohol would form the best hypnotic are those most opposed to its use; and where a full dose of alcohol would constitute the best remedy that could be resorted to, prejudice prevents its employment.

So much for the ordinary narcotic agents in common use.—*Practitioner, Feb. 1876.*

#### LACERATION OF THE PERINEUM.

By Dr. JAMES YOUNG, Vice-President of the Obstetrical Society of Edinburgh.

The treatment of laceration of the perineum is one of the most important questions that can come under the notice of the obstetric surgeon. I propose to cite two cases, illustrative of the benefit of treatment by the interrupted suture, more to elicit discussion than for the purpose of bringing forward any new matter. The second case is almost unique in regard to the extent of the rupture, and likewise the result.

*Case 1.*—Some twelve months ago I was in attendance upon a lady in Maitland Street. It was her first confinement. The labour was protracted and difficult, requiring the use of the short forceps. I used very considerable strength in traction, but without the pendulum movement, and failed to extract the head. I sent for my friend, Dr. Charles Bell, who kindly came to my assistance. The forceps were again applied, and the pendulum motion, with powerful traction, was successful in delivering the patient of a fine, large, healthy boy; the perineum was torn, but not through the sphincter ani. The wound was carefully sponged, and brought together with the interrupted suture in three places in less than half an hour after the accident. The result was most satisfactory, and the patient made an excellent recovery. The ligatures came away in four days, and the wound was absolutely healed in ten, at every point. The usual rules were enforced.

*Case 2.*—To this one I would direct attention. On the 28th of June, 1875, I was summoned to see Mrs. M., æt. 35, a primipara. At 6 p.m. the os uteri was small (size of a shilling), although the patient had been in labour for twelve hours. I was again called at 6 a.m. next day, when I found the

first stage almost over, and the head presenting in the occipito-anterior position. The woman had been twenty-four hours in labour, and, as I considered it unjustifiable to leave her longer, I sent for the forceps. The vagina was hot, and the pains were becoming feeble. While under chloroform, I used steady traction during each pain, allowing the external parts time to dilate slowly. Notwithstanding every care, the perineum ruptured right along through the sphincter ani, and into bowel three inches, my whole index finger easily passing from bowel into vagina. When the placenta was expelled, and the uterus contracted, the wound was carefully sponged. The anaesthesia being maintained, the torn parts were brought together with the interrupted suture. Seven ligatures were used, which had been dipped in carbolic oil, and the wound was left in perfect approximation. The urine was drawn off every twelve hours. The thighs were tied together, and, by the administration of opium, the bowels were confined for six days. No local dressings were used. The patient made a perfect recovery; the wound healed throughout at every point; and on the fourteenth day she was left to her own care. Several weeks ago, I examined the patient by placing one index finger in the bowel, and the other in the vagina, and found the recto-vaginal septum complete. Let me here mention, in connection with history, that when Mrs. M. was married, I understood that perfect sexual intercourse was precluded for some months in consequence of the extreme rigidity of the vagina, and four years elapsed ere this child was born.

*Remarks.*—1st, Causes of laceration of the perineum; 2nd, Means of prevention; 3rd, General rules of treatment. Many obstetricians will agree with me in saying that, in numerous primiparous cases, the perineal portion of the vaginal mucous membrane is frequently ruptured, and only heals by leaving a sulcus, which rather favours than hinders future labours. Among the causes of perineal rupture might be enumerated, 1st, When the age exceeds thirty years; 2nd, Cases where the head of the child is very large; 3rd, Malpresentations; 4th, A small or deformed pelvis; 5th, The use of forceps; 6th, A rigid perineum; each cause operating more especially in primiparous women.

*Prevention.*—I generally adopt the plan of having lard, butter, or cold cream, rubbed over the perineum during the extrusion of the head forwards. 2nd, Gentle dilatation of the external parts with the finger may be adopted during each pain; 3rd, Slow traction, when the forceps are used, and only during each consecutive pain; 4th, The application of the hand in supporting the perineum during strong expulsive pains; and when forceps are employed, during the delivery of the head, the left hand may be spread over the distended surface of the perineum.

*Treatment.*—In simple cases of laceration of the mucous membrane of the vagina, or even where the margin of the sphincter vaginae is torn, the only treatment necessary is mere cleanliness and sponging. I extremely deprecate, in any case, the use of

bandages, pads or plasters, as being more irksome to the patient than useful. In severe perineal rupture, as in Case 2, the immediate closing of the wound is of paramount importance, so as to secure healing by the first intention. The interrupted suture of carbolic catgut should be used; and the entire rupture must be brought into exact approximation. Careful and frequent sponging must be attended to by the nurse, to avoid any irritation from the lochial discharge. The urine must be drawn off every twelve hours; no dressings applied; the patient kept in the horizontal position; the thighs kept together; and the bowels must not be allowed to move for six days.—*Edinburgh Medical Journal.*

#### EXTERNAL USES OF BISULPHIDE OF CARBON.

In the October number of the *Pacific Med. and Surg. Jour.*, E. J. Dorrington, M.D., gives the following directions for the use of bisulphide of carbon in the treatment of atonic ulcers.

"As a general rule it is not until several applications have been made that a change in the character of the ulcer becomes visible. It is best applied by means of camel's hair pencil, or a piece of charpie may be soaked in the liquid and squeezed upon the mouth of the bottle to expel any excess of the drug; then the charpie is lightly brushed over the surface of the ulcer, which is then covered with some mild unirritating powder, as sub-nitrate of bismuth or starch. It generally produces severe pain, which, however, lasts only a few seconds."

The writer also gives the following summary of the results obtained by him after an extensive use of the drug:

1. Bisulphide of carbon is particularly useful in all ulcers showing a tendency to spread, especially if of a syphilitic nature. It ought to be applied freely twice a day.
2. If no beneficial effect is observed after a trial with this drug for a week, in any class of ulcer, it will be useless to continue its further application.
3. It is by far the best local application thus far presented to the profession in the treatment of that large class of ulcers termed indolent or chronic.

#### A FORMULA OF ERGOTIN.

The following formula is offered by Mr. Charles L. Mitchell. He states that after numerous trials he can say that it yields a result in every way satisfactory:

R. Ergot, in fine powder..... ℥ viij.  
Acetic acid..... ℥ ʒ ij.  
Alcohol..... f. ℥ iv.

Moisten the ergot with a mixture of the acid and eight fluid ounces of water; let it stand twenty-four hours; pack in percolator, and exhaust with water; evaporate to four fluid ounces, add the alcohol, let it stand several hours, filter and evaporate to an extract. Result about 480 grains; one grain is equal to eight grains of ergot.

## DIGITALIS IN SCARLATINA.

By DANIEL LEWIS, M.D.

NEW YORK.

The following suggestions on the use of digitalis in the treatment of scarlet fever, are offered at the present time, because of the prevalence of the disease in this city, as well as in many other portions of the country.

My attention was first especially directed to this subject by reading the clinical lecture on "The Principle of Physiological Antagonism as applied to the Treatment of the Febriæ State," by Prof. Roberts Bartholow of Cincinnati. (American Clin. Lectures, Vol II., No. 1.)

His theory is based upon the demonstrated effect of the drug upon the pneumogastric nerve, which action he arranges as follows:

1. Contraction of arterioles and diminished blood supply.
2. Exudation checked or prevented by the heightened tonicity of the vessels.
3. Depression of the temperature.
4. Lessened action of the heart and increased power.
5. Arterial tension raised.

Since the pulse is very rapid in scarlatina, with high temperature, low arterial tension, and embarrassed secretion by the kidneys, the range of antagonism is complete.

Prof. Bartholow declares that, in a consideration in the treatment of scarlatina, he has found digitalis uniformly successful, and, taking in a group the ordinary cases of scarlatin simplex and scarlatina anginosa, it is the most efficient remedy we possess.

The chief dangers in such cases are the pyrexia and the consequent degeneration of tissues, and the catarrhal or parenchymatous nephritis, by which elimination by the kidneys is diminished or arrested. Digitalis obviates both these sources of danger by lessening the blood supply to the tissues, and increasing the water in the urine by raising the blood-pressure, and also by its direct action on the Malpighian tufts.

This particular effect of digitalis, in preventing nephritis and other glandular inflammations, has rarely been mentioned by other writers; but an article appeared in the *London Lancet*, January 23, 1869, by Dr. Sydney Fennel, in which he recommended it very highly for lessening inflammation by its effect in reducing arterial tension.

He has used it largely in scarlatina, and says that, when administered early in the fever, the inflammatory action in the glands of the neck subsides gradually. The fever leaves the patient in the usual time, desquamation is very slight, and the chances of chronic nephritis are reduced to a minimum. He also confidently asserts that the infectious character of the disease is lessened by the remedy, if not destroyed.

Thomas, in his article on Scarlatina in Ziemssen's *Cyclopædia* (Vol. II., p. 306), recommends

digitalis for reducing the frequency of the pulse, in doses of seven to thirty grains daily, according to the age of the patient.

I have used this remedy in thirteen consecutive cases of scarlatina.

The age of the youngest patient was ten months, of the oldest twelve years.

There was an abundant eruption in ten of the thirteen cases. Four patients had severe inflammation of the throat, with ulceration, diphtheritic exudation, and considerable glandular enlargement.

The temperature, when the treatment was begun, ranged from 103° to 106½°; pulse 120 to 148.

No suppuration of glands occurred in any case; the temperature was promptly reduced to 102°, or below; the pulse fell to 110-130, and there were no symptoms of nephritis except in a single case. In that one the digitalis had been discontinued, and on the fifteenth day there was a sudden rise in temperature, convulsive movements in the muscles of the left side, and a trace of albumen in the urine.

The digitalis was resumed, and in twenty-four hours all bad symptoms subsided, and the patient made a good recovery.

Four of the patients died; one on the second day, in which eruption was hemorrhagic; two with scarlatina anginosa, on the fourteenth and seventeenth days respectively, in which no physician was called till the fifth day, the immediate cause of death being asthenia; and one after four weeks, who, as I was told, had acute diarrhœa, although I was not again called to attend it.

I may add that otitis followed in three cases, but was so slight as to require little treatment.

The infusion of digitalis was the preparation used in all these cases, in doses of ʒss. to ʒj. every four to six hours. The state of the pulse and temperature being the guides to the dose and period of administration, Prof. Bartholow insists that the genuine English digitalis should be used, and prefers the *infusion*, although a *thoroughly trustworthy tincture* may be employed.

The results of the digitalis treatment in my own cases have satisfied me that it is worthy of a thorough trial; and these notes are published with the hope that others may be induced to use the remedy, and, in due time, report their success or failure to the profession.—*N. Y. Med. Record Feb., 1877.*

## PATHOLOGY AND THERAPEUTICS IN MEDICAL PRACTICE.

The following is from a late editorial in the *Lancet* :—

"The development in recent years, of the study of pathology, including morbid anatomy, has given a new turn to medical thought, and one which does not always tend to advantage as

regards the great purpose of medicine—the healing of disease. It is easy to see in many practitioners the pathologist rather than the therapist. They are so impressed with the belief that every symptom must have a physical basis, if not a basis in organic change of structure, that their enthusiasm spends itself in finding this out, or rather in looking for it. It is not at all inopportune, at the beginning of the work of another session, that we should examine a little this tendency of medical thought. It admits of such regulation as to be made serviceable to medicine, whereas, uncontrolled it is apt to be unfavorable in its influence on the practitioner. We may, in a preliminary way, glance at the explanation of this fact. As we have said, it is greatly due to the development of the study of pathology, which has resulted in the discovery of a physical basis in many diseases which it is difficult to alter or remove. The older physicians were not let and hindered as we are by considerations about the physical basis of disease.

“Besides the enormous development of the study of anatomy, healthy and morbid, one other discovery tended for a time greatly to discourage the therapeutical tendency of medical thought: we mean the discovery of much error in old methods of practice. The collapse of old theories of disease was naturally followed by the collapse of old theories of treatment. And, what made matters worse, before a new and rational system of treatment had time to be formulated, a system of therapeutics was advocated for the acceptance of the profession, or rather of the public, at once absurd and baseless. Add to this the prevalence of a sceptical habit of thought in regard to every department of belief, and we have ample explanation of the loss of interest in therapeutics which is sometimes charged against recent medicine.

“It is high time, however, to rebuke and discourage this quality in practitioners, whether general or consultant. It is the error of consultants rather than of general practitioners. The general practitioner has more human and permanent association with his patient than the consultant, who is apt to regard him as a collection of symptoms. The general practitioner, too, naturally puts a lighter and more functional construction upon symptoms than the consultant. But, to do consultants justice, interest in therapeutics is reviving again, and claiming the attention it demands. What makes indifference in this matter more inexcusable is the fact of the wonderful additions to our list of remedies and remedial resources in recent years, and to our knowledge of etiology, so that in scores of ways unknown to our forefathers disease may be prevented, controlled, or absolutely cured. So true is this, that of two men, one of whom has a little less faith in therapeutics and more knowledge of pathology, and the other

a little less knowledge of pathology and more faith in the resources of his art, the latter will be the more useful and successful practitioner. There need be no such distinction. There is nothing to prevent the best pathologist being the best physician. But the chief end of our studies is that we should be physicians.”

#### TREATMENT OF BOILS.

Dr. Ory (*La France Méd.*, 1876, p. 807) gives a summary of the various forms of treatment recommended by different authorities for furuncles. M. Savignac, besides mild purgatives, orders the following:

℞ Sodii arsenait., 10 cent. (grs. 1.6);  
Aquæ dest., 200 grms. (f̄ ʒ vj, f̄ ʒ iij. M.)

Of this one dessertspoonful is to be taken before breakfast and tea, in a little water.

Furuncles are frequently observed in dyspeptics. In these cases alkalies are to be recommended: the waters of Vichy, Vals, etc., the bitters calumba and quinine, nux vomica and the like, are also of use, and plenty of outdoor exercise is advisable. Dr. Hardy has great faith in the prolonged use of tar-water (“goudron de Guyot”) in the dose of a dessertspoonful in a glass of water. Dr. Bulkley, of New York, has proposed the following as a prophylactic: hyposulphite of sodium grs. 25, three times a day in plenty of water. To be taken at meal-time. Dr. B. also recommends large doses of sulphate of quinine. Dr. Hall, of Cincinnati, suggests—

℞ Tinct. arnicæ flores, 2 pts.;  
Acid. tannic., 1 pt.;  
Pulv. acaciæ, 1 pt.

A fragment of lint wet with this mixture to be placed upon the boil and changed every fifteen minutes until a coating is formed. This causes the throbbing pain to disappear, diminishes the tension of the integuments, causes the abortion of the boil, or, if too late for that, hastens the separation of the core.

#### PAIN PRODUCED BY CHLORAL HYDRATE.

Herbert M. Morgan writes to the *British Medical Journal*: “I have so frequently observed a peculiarity following the use of chloral which I have not yet seen recorded in any medical book or periodical, that I feel sure that it will be interesting for others, to describe it. In several cases where I had given chloral hydrate in ordinary doses (generally where it has been continued for several days at least), a feeling of pain is experienced all over the body, sharper than that of chronic rheumatism, and often so sharp as to make the patient beg for relief. In each case I have found no relief obtained until the chloral was discontinued. It seems to me to be a general hyperæsthesia of the cutaneous nerves, but sometimes localized in one particular spot. Tincture of gelsemium gives relief to the pain sooner than other remedies.”

## MILK DIET IN BLADDER DISEASE.

Dr. George Johnson, of King's College Hospital, in a recent lecture, alluding to the use of an exclusive milk diet in various forms of disease, such as chronic diarrhoea and dysentery, typhoid, and acute albuminuria, instanced some cases of bladder trouble in which amelioration followed rapidly after the free and almost exclusive use of milk. A young lady of seventeen had suffered for many months from severe attacks of pain over the bladder, so that during a period ranging from two to five hours, she would pass water every two, three, or five minutes. Opium pills and hot hip-baths afforded only temporary relief. Oysters or fish always brought on an attack. Her urine was acid, and contained pus. She was advised to try a milk diet exclusively, the use of hot hip-baths at night, and occasional opiates, which thus far were the only remedies that had given her relief. She also took some pills containing camphor and the extract of henbane. About nine months afterward she was fully restored to health, and the urine was perfectly normal, though she was liable to relapses, and then, upon resuming the exclusively milk diet for twenty-four hours, was again restored to her usual good health. Two other instances are given in which milk alone was given for chronic cystitis, and no other medicine whatever. In each case the cure recorded is absolute; and, after one case, the patient was able to resume ordinary plain fare and drink his wine at dinner as usual. The milk is to be taken cold or tepid, and not more than a pint at a time. With some persons the milk agrees better after it has been boiled. If the milk be rich in cream and cause heartburn, headache, diarrhoea, etc., the cream may be partially removed by skimming. The cream, however, overcomes the tendency to constipation. Dr. Johnson thinks that the milk diet will be made use of by surgeons who are contemplating lithotomy or lithotripsy, so as to lessen, as much as possible, the inflammation and catarrh resulting from the mechanical irritation of the mucous membrane of the bladder.—*Lancet*, Dec. 6, 1876.

## FOR THE TROUBLESOME COUGH OF PHTHISIS.

The following prescriptions are in use for the cough of chronic pulmonary affections, in the Charity Hospital, New York:

1. R. potassii brom., potassæ chlor., ammon. mur., of each  $1\frac{1}{2}$  dr.; syrup tolu 4 ounces. A table-spoonful every 2 or 3 hours.

2. R. tinc. opii camph. 1 oz.; tinc. hyoseyami 2 dr.; tinc. belladonnæ, spt. lavend. comp., of each 1 dr. Ten drops on a lump of sugar every hour till relieved.

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MONTREAL, FEBRUARY, 1877.

## DR. HINGSTON, THE RETIRING MAYOR.

In a day or two His Worship the Mayor will lay aside the insignia of office which he assumed two years ago. As Dr. Hingston had, on several occasions previously, declined nomination to the Mayoralty, but yielded at length to the united request of the members of the medical profession, it would not be amiss that we should take a retrospective glance at his manner of discharging his public duties. The two years which have elapsed have been remarkable in the city's history. Montreal will not soon forget the intense anxiety which reigned during the several weeks that preceded the Guibord funeral. The citizens of Montreal of all classes, save those who gloat over riot and bloodshed, will ever remain grateful to Dr. Hingston for the tact, prudence, wisdom and loyalty with which he averted a terrible calamity at a most critical juncture. No man was ever placed in a position of greater difficulty or danger, or was hampered by more legal and sectional difficulties; but our worthy Mayor, by pursuing a straightforward but conciliatory course, regardless of political or party issues, carried out a measure in a way which left no sting in any breast, no exultation of triumph on the one side, no heart-burning on the other. The press of the country has already sufficiently chronicled his success. His personal influence was again tested last winter, when several thousands gathered at the City Hall—where they had smashed the windows a few months before—to demand bread or . . . . The Riot Act was about to be read, when the Mayor appeared on the scene; went alone into the midst of the crowd; addressed to them a few words which evinced much sympathy but no fear, and ere his voice had died away the crowd quietly dispersed; a few hundred remained in the neighborhood, who craved permission to accompany him home, to prevent, as they said, wicked persons doing him harm.

The social duties pertaining to the Mayoralty are onerous and expensive, yet few visitors, entitled to that courtesy, passed through the city without being



invited to partake of our chief magistrate's hospitality. He was punctual in his attendance in Council, and never has there been greater decorum than during his period of occupancy. The unseemly brawls between Councillors themselves, and sometimes between them and the Mayor, never took place during his term, and in the one or two instances in which there was an appeal to the Council, the Council unanimously supported the decision of the Chair. He carries away with him the respect of the entire body over which he presided. The labor pertaining to the office seemed to be performed with ease, without sacrificing the claims of an extensive practice. Even the hospital received his daily visit as usual. But that for which Dr. Hingston accepted the Mayoralty, and for which he labored most energetically, was the establishment of a *Board of Health*; and of this *The Public Health Journal* thus speaks, Vol. II, p. 93 :

"When Dr. Hingston was elected Mayor, the health of the city was totally neglected (except what was done by ex-Aldermen Kennedy and Alexander). The Board of Health existed only on paper, and its by-laws have been only enforced a few times since its formation. After Dr. Hingston's election (which, by the way, was principally on sanitary grounds), he at once re-organized the Board. The health officers now know their duty, and are made to do it. The meat inspectors are made to make returns of the amount of meat confiscated, from whom taken, and what was the reason of such action; also all diseased animals are seized. The Sanitary Police are also compelled to make daily reports of the places visited. The Sanitary Inspector submits his report also, with the foregoing, to the Board of Health, at its weekly meetings. These meetings are held at 4.30 p.m., on every Wednesday, and are presided over by the Mayor. The business is gone through in an orderly and satisfactory manner, which other committees of the corporation should endeavor to imitate.

"There is a weekly mortality table also submitted; it is very complete. The diseases are all properly classified according to age, nationality and district. In fact, it is in such a form that scientific statisticians can, at a glance, compare it with documents of a similar character in other parts of the world. The citizens well know and appreciate Dr. Hingston's exertions as Chief Magistrate, but as President of the Board of Health, he has rendered services infinitely more valuable though not of so public a nature. While all our press in Ontario, and the Medical Associations on this continent are talking of the necessity of establishing Boards of Health for each state and province, Dr. Hingston has succeeded in establishing the Board of Health in this city upon a permanent basis. The work that is done weekly is of incalculable benefit, and the manner in which it is done is a model for others elsewhere. Besides the examining of reports, the Board has acted with a strong and vigorous will in a manner not before attempted. We refer to the ordering of drains through private property, when the interest of health demands it, and without any reference to expropriation. In this way work has, in some instances, been commenced within twenty-four hours of the time from the issuing of the order. Some may think that the Mayor has stretched his authority a little too far, but the citizens, knowing it is for the public good, are quite prepared to support him in his actions."

When a small-pox epidemic reigned in the city, and when the anti-vaccinators continued their mischievous teachings, Dr. Hingston, under cover of "A Few Instructions to Vaccinators," wrote a paper on

the disputed points in controversy, which effectually silenced his opponents. The paper was quoted all over this continent, and attracted notice in Europe.

Last autumn he was unanimously chosen by the Philadelphia International Medical Association—the largest and most important medical gathering the world has, perhaps, ever seen—representative for Canada, and Dr. Hingston attracted notice in the debates which took place. We copy from one of our October Exchanges, the following:—"The field-day in the surgical section was that which gave us the discussion on Coxalgia. Fancy a test between Gross and Agnew, of Philadelphia; Lister, of Edinburgh; Adams, of London; Hingston, of Montreal; Moore, of Rochester, and Sayre, of New York, and other less able, but not less earnest men! These gentlemen used no buttons on their foils."

At the Annual Meeting of the Canadian Medical Association in Toronto, in August last, our mayor was unanimously chosen president, and, at the meeting to be held here in September, will preside.

It has been a matter of surprise to many, how Dr. Hingston could attend to so many duties without appearing to neglect any of them. By utilizing the minutes and half minutes which so many throw away, and by punctuality in his every appointment.

Dr. Hingston at his first election received ten votes for his opponents one, and, at the second election, he was chosen unanimously. He had but to yield to the wishes of his friends to occupy again the civic chair; but, in his reply to the deputation headed by Sir Francis Hincks, he stated he had succeeded in doing his duty without sacrificing the interests of his patients, but could not hope to continue to do so without making calls on his strength and energy and purse which he thought unwarranted.

Montreal has had many efficient mayors, but, we say it without fear of contradiction, in education, gentlemanly manner, dignity of bearing, social standing, honesty of purpose and thorough business habits, the raps of our profession have, in Dr. Hingston, furnished one who, in those qualities requisite for the discharge of important public duties, will compare favourably with any who have preceded or may hereafter follow him.

DEATH OF SIR WILLIAM FERGUSSON, BART.—Sir William Ferguson, President of the Royal College of Surgeons and Sergeant-Surgeon to the Queen, died February 10, in London, at the age of 69. He was born at Prestonpans, East Lothian, Scotland, March 20, 1808. He received



his early education at Lochmaben Grammar School, and continued his studies in the High School and University of Edinburgh. He began his professional studies at the age of eighteen, under the noted anatomists Drs. Knox and Turner, the latter of whom occupied the chair of Surgery in the Royal College of Surgeons, Edinburgh. His progress was so rapid that in less than a year he became the confidential assistant of his learned and skilful preceptors in the preparation of their "subjects." He continued his intimate professional relations with Dr. Knox for nine years, and thus enjoyed opportunities for pursuing his favorite study—*anatomy*—rarely presented to the medical students of his day. He became a licentiate of the Royal College of Surgeons in 1828, and a Fellow of that corporation the year following, and in 1831 he began to lecture on the principles and practice of surgery. In 1836 he was appointed Assistant Surgeon to the Royal Infirmary, and was chosen a Fellow of the Royal Society of Edinburgh in 1839. A year later he removed to London, where he was made Professor of Surgery in King's College and Surgeon to King's College Hospital. He was chosen a member of the Council of the Royal College of Surgeons, London, and for some time was Professor of Surgery and Human Anatomy in that institution. For five years he was Examiner in Surgery at the University of London, and was chosen member of most of the medical and scientific societies of Great Britain, being a Fellow of the Royal Society of Great Britain, Vice-President of the Royal Medico-Chirurgical Society, a Fellow of the Obstetrical Society, and President of the Pathological Society. At the time of his death he was President of the Royal College of Surgeons. He was also Consulting Surgeon to the Hospital for Consumption and Diseases of the Chest, to the British Home for Incurables, to the Hospital for Diseases of the Throat, to the Scottish Hospital, to the Caledonian Asylum, and Honorary-Surgeon to the St. George's Hospital. He was also Surgeon Extraordinary to the Queen. Among his works he has left *A System of Practical Surgery*, and *Progress of Anatomy and Surgery in the Nineteenth Century*, which was published in 1867; besides special papers on Cleft Palate, Lithotomy, Lithotripsy, Excision of Joints, Aneurism, and other subjects.

Table prepared at the Health-Office, showing total number of deaths from small-pox in the City of Montreal (exclusive of the civic hospitals) from January 1st to February 10th, 1877.

Under 6 months.....	12
Above 6 months under 1 year.....	12
1 year.....	34
2 ".....	14
3 ".....	20
4 ".....	11
5 ".....	14
10 ".....	4
20 ".....	3
30 ".....	1
40 ".....	2

Total..... 127

*Nationality.*

French Canadians.....	115
British ".....	9
English.....	1
Irish.....	1
United States.....	1

Total..... 127

*Vaccinated and Otherwise.*

Vaccinated.....	11
Unknown and doubtful.....	43
Not vaccinated.....	73

Total..... 127

Refused vaccination from public vaccinator. 25

*Sex.*

Males, 56; Females, 71. Total, 127.

*Re-vaccinations.*

Not a single case could be traced in which revaccination had taken place.

NITRIC ACID FOR HOARSENESS.

Dr. W. Handsell Griffiths says that a few drops of nitric acid in a glass of sweetened water, a couple of times daily, will be found an excellent remedy for the hoarseness of singers. One of the largest fees ever received by him—so he says—was for this prescription.

UNIVERSITY OF VERMONT, MEDICAL DEPARTMENT, AT BURLINGTON, VERMONT.—Miss Fletcher, of Burlington, has recently donated \$75,000 for the building of a hospital, and \$100,000 for the endowment of the same. The hospital will be the first institution of that kind in that State. This will give an opportunity for clinical study in connection with the College course, not enjoyed by any similar institution outside of our large cities.

CHLORAL FOR REMOVING WARTS.—A solution, containing about twenty grains of chloral hydrate to the ounce of water, is recommended by Dr. Craig, as being effectual for the removal of warts. The operation is said to be painless.