June 1st, 1886, when he was treated for cystitis. In a short time abscesses in the perineum, scrotum, and penis appeared.

He was admitted as an in-patient to the Newark Hospital on September 2nd, and was treated with "fixation of catheter" and "washing out the bladder with warm boracic lotion." He was discharged September 10th, 1886, feeling much better.

On October 12th he was readmitted, suffering from a large perineal abscess, which was opened on October 13th. He was treated by fixation of a catheter and washing out the bladder as before, and was discharged on November 4th. He came at intervals as an out-patient to have the bladder washed out and the catheter cleaned until the latter end of November, when he found that he could not pass the catheter, and that the urine, instead of coming down the urethra, escaped in three places, namely, scrotum, perineum, and penis, at the sites of the abscesses above referred to. A catheter was passed after some difficulty, and fixed in the bladder.

On January 6th, 1887, he was again admitted into the hospital with five fistulae, one on either side of the penis, two in the raphe of the scrotum, one in the perineum. He improved slightly under catheterism and washing out the bladder, and was discharged on March 15th. On leaving the hospital, the penis and scrotum were very much indurated owing to the callous state of the fistulae, and the patient expressed himself as feeling "matted together."

On April 18th I commenced electrolysis; the bougie electrode (No. 7) attached to the negative pole was passed down the urethra for about three inches, where a stricture was encountered; the pad attached to the positive pole was applied to the inner side of the thigh and abdomen, being moved from time to time. No pressure was used, the bougie simply resting on the stricture; after five or six minutes the bougie glided through the constricting band; no pain was caused. Another stricture in the bulbous portion was encountered, but further treatment was discontinued for that day. The strength of the current employed was from 8 to 9 milliamperes.

April 21st. The electro-bougie passed easily down to the bulbous portion of the urethra, where the last-mentioned stricture was felt. After five or six minutes' application, the bougie glided into the bladder.

April 23rd. The Bougie again passed into the bladder.

April 25th. I examined him again, and found that the discharge from the fistulae had lessened very much, and that a hard substance about the size of a large almond on the side of the penis had rapidly decreased in size since the electrolysis had been applied (this was an inflammatory exudation, the remains of an old abscess track). The patient said the parts felt "much looser."

Encouraged by this absorptive action set up, I continued to pass the bougie with the idea of removing the induration in the penis and scrotum. By passing the electro-bougie down the urethra attached to the negative pole, and applying a sponge connected with the positive pole to the external orifices of the fistulae, I thus passed the current from one end of the sinuses to the other. This had a most striking effect, causing the discharge to lessen very considerably, and at the same time removing a great deal of the induration.

April 28th. The electrolysis was again applied.

April 29th. He again presented himself. A current of 12 milliamperes was employed, which, however, proved too strong, as it set up slight inflammation in the scrotum and penis, which, however, subsided rapidly on the application of evaporating lotion.

The next application was made on May 5th, and in a few days all the fistulae had completely healed up, and scarcely any induration remained.

For a few weeks he drew off his urine with a soft catheter. He now passes it in the usual way.

What I consider the most interesting feature of the case is the great absorptive action of electrolysis in inflammatory thickening and induration. The exact method of its action is disputed; my own opinion is that it acts through the trophic nerves, and sets up an increased vital action in the tissues.

In conclusion, I have to thank Mr. R. T. Matterson (the surgeon on duty) for his great kindness in putting the patient under my care.

NEUROLOGY AND ALIENISM AT THE WESTMINSTER HOSPITAL.—In the approaching winter session Dr. Mercier will deliver at the Westminster Hospital Medical School, a course of lectures on Neurology and Alienism. The course, which will be post-graduate in character, will include a review of the general functions of the nervous system, setting forth the nature and varieties of co-ordination, inhibition, etc., an account of the manner in which conduct is affected by the action of the higher nerve centres, and a description of the ways in which the mind may become disordered. The lectures will be given at four o'clock on Friday afternoons from October to Christmas.

COLLINSONIA CANADENSIS.

Read before the Section of Therapeutics of the International Medical Congress.

By JOHN V. SHOEMAKER, A.M., M.D., Philadelphia.

COLLINSONIA Canadensis, commonly known as "stone root" or "[knob root," is one of the most valuable of indigenous American [medicinal plants. It is widely distributed, being found in richly-wooded soils from April to October in all sections of the United States. It possesses a rank aromatic odour, and is hot and somewhat pungent to the taste. Its principal medicinal constituent appears to be a volatile oil, which is driven off by boiling or drying.

All parts of the plant may be used in medicine; but the root is the most powerful, and the portion usually employed. As it yields its virtues to water and alcohol, it may be administered in the form of a powder, or as the tincture, the fluid extract, or the infusion. The dose of the powdered root varies from 10 to 60 grains; that of the tincture from 20 drops to 2 drachms; the fluid extract from 15 minims to a drachm; the infusion from 1 to 4 ounces.

The physiological action of *collinsonia* has not been accurately studied. Small doses do not appear to produce any effect upon healthy persons, except a sensation of warmth in the stomach and bowels; large doses produce diaphoresis and nausea, followed in some cases by repeated but painless vomiting.

Collinsonia is highly esteemed in many sections of the country as a domestic remedy for gravel and other urinary affections. Clinical observation indicates that its power is not limited by any means to this class of disorders. It appears to be especially valuable as a sedative and anti-spasmodic. It is also possessed of considerable astringent and tonic properties. The popular belief in its efficacy in promoting the expulsion of urinary calculi is well founded. It relaxes the spasm of the ureters or of the urethra, and, by increasing the flow of urine and by lessening the sensitiveness of the genito-urinary membrane, facilitates the expulsion of small concretions. When they are of large size, *collinsonia* is powerless to either dissolve or expel them; but it will alleviate the sufferings of the patient by diminishing the irritability of the bladder and urinary canal until complete relief is afforded by surgical methods.

Acute cystitis can be more quickly relieved by *collinsonia* combined with aconite and morphia than by the administration of any other remedial agents. In two cases of this painful affection treated by me during the last four months in this manner, the patients were free from pain and fever on the fourth day, and discharged cured, one on the eighth and the other on the eleventh day. Cases previously treated without *collinsonia* invariably lingered from two to three weeks, and suffered for six or eight days from pain or vesical tenesmus.

I have not had an opportunity to try this remedy in chronic cystitis; but, reasoning from analogy, it should be similarly efficacious in that tedious and troublesome affection. Incontinence of urine in children, due to spasmodic contraction of the bladder, can be permanently relieved by the administration of one drachm of the tincture of *collinsonia* after supper and at bedtime for several nights in succession.

Nervous individuals, who may or may not have suffered from gonorrhoea, not infrequently complain that, one or two minutes after having urinated and readjusted their clothing, several drops of urine will involuntarily ooze out, staining their clothing and producing an unpleasant odour, which they imagine everyone around them can perceive. This trivial but annoying affection is due to hyperæsthesia of the prostatic urethra or of the neck of the bladder, and can be effectually removed by the persistent use of the fluid extract of *collinsonia* in 20 drop doses four times a day. In chronic gonorrhoea, when cupaiba cubebs and oil of sandalwood have failed to arrest the discharge, or have been rejected by the patient's stomach, drachm doses of the fluid extract of *collinsonia* given every four hours will not infrequently effect a cure. Leucorrhoea and prostaticorrhoea may be relieved or cured in the same manner.

Constipation, hæmorrhoids, rectal neuralgia, and vague pelvic or abdominal symptoms are due more frequently than is generally supposed to spasm of the sphincter ani. Dr. J. M. Matthews, of Louisville, Kentucky, has shown that prompt relief can be obtained in such cases from division or forcible dilation of the refractory muscle. My experience, though limited to three cases, leads me to believe that the persevering employment every night of suppositories containing from

forty to ninety grains of the powdered collinsonia root will, in many cases, render any operative procedure unnecessary.

The first patient was a woman, aged 45, who suffered for years from darting pains in the rectum, especially severe just before defecation. She has visited numerous celebrated springs, and consulted several regular and irregular physicians without obtaining marked relief. When she placed herself under my care I instituted a general tonic, anti-neuralgic treatment, combined with suitable laxatives. Her general health improved almost immediately, but the local disorder remained stubborn. Finally, suspecting the existence of an anal fissure or ulcer, I made an examination of the rectum, but discovered nothing abnormal but the vice-like grasp in which the finger or the speculum was held by the sphincter muscle.

Suppositories composed of opium, opium and belladonna, opium and quinine were then ordered in succession, and successively failed to more than temporarily relieve. I then decided to either divide or incise the sphincter; but, being desirous to ascertain the relative merits of the operations, I ordered her as a placebo four suppositories, each containing thirty grains of powdered collinsonia, with instructions to use one every night as usual. To my surprise and gratification the patient appeared at my office two days afterwards, and informed me that "the last cartridges which I had ordered for her had given her so much ease, that she used two a day instead of one, and wanted more of the same kind, as she was convinced that I had found the right cure at last." I questioned her closely, and found that her relief was genuine and not assumed, and that it began within an hour after using the first suppository. I then ordered eight more, containing forty grains each instead of thirty, and directed her to use one night and morning. She returned on the sixth day, and told me that after having used five, she felt so well that she did not think it necessary to finish the rest. The improvement was complete and permanent. During the year and a half that has elapsed since then, she has consulted me twice for other troubles, but the rectal pain has never reappeared.

The second case was a woman, aged 35, and was similar to the preceding one, and was cured in a week by collinsonia suppositories.

The third case was that of a young man, aged 19, who suffered from violent headache every second day. Inquiry revealed the fact that the headache was almost invariably accompanied by a feeling of weight in the abdomen, and a desire to defæcate, which could only be accomplished by much straining and repeated efforts, extending sometimes over a period of from twenty to forty minutes; at the expiration of that time a large evacuation of the bowels usually occurred, followed by the immediate disappearance of the sense of weight in the abdomen, and the gradual cessation of the headache. The patient had taken all the varieties of pills in the market without any appreciable benefit, except when they left his stools thin and watery.

As defæcation was not preceded or accompanied by pain, and usually relieved the other symptoms, I concluded that there was no ulceration or fissure present, and that the trouble was due solely to spasmodic stricture of the sphincter ani. I ordered him four suppositories, containing one drachm each of powdered collinsonia, one to be used each night at bedtime. He returned in four days as bad as ever, and inclined to doubt the value of "those things." I encouraged him to try again, and ordered six more, each containing seventy-five grains. I did not see him again for two weeks, when he came back and stated that when he had used four he had felt so good that he threw the other two away, but that the trouble had returned, and was now worse than ever. I then ordered eight suppositories with ninety grains of collinsonia in each, and directed him to use one every second night, regardless of how well he might be. He obeyed these instructions faithfully, and during the five months which have since passed by he has not had any symptoms of his former troubles.

It is more than probable that vaginismus or spasms of the sphincter vaginae can be readily and safely relieved without resorting to the ludicrous or painful methods narrated in the text-books, by the continued employment of vaginal suppositories of collinsonia; opium, belladonna, chloral, conium, hyoscyamus, or stramonium may be added if advisable.

The anti-spasmodic properties of collinsonia render it of value in flatulent colic, infantile colic, and biliary colic. It is especially serviceable in the latter affection, if given in the form of warm infusions so as to thoroughly relax the biliary passages and facilitate the onward movement of the irritative calculi.

The most available preparation in colic is the tincture, the dose of which ranges from ten drops to half a drachm for children, and from one to two drachms frequently repeated for adults. Collinsonia alone will be found quickly curative in many cases of colic when unaccompanied by rise of temperature. It will not relieve lead colic, or the pain of peritonitis or entero-colitis.

Collinsonia has proved curative in my hands in two cases of gastralgia, in which morphine, cannabis indica, belladonna, and various other remedies only gave temporary relief. I also obtained markedly beneficial results from its use in five cases of dysmenorrhœa. Each patient was directed to take half a drachm of the fluid extract three times a day for a week before the appearance of the menses, and two drachms of the tincture every four hours during their continuance. In the first and fifth cases the pain though previously severe was not noticeable, in the remaining cases it was so much lessened that the patients pursued their daily avocations as usual, one as a seamstress, one as a saleswoman, and the other as a telegraph operator, instead of being compelled to stay in bed for two or more days.

Ordinary colds and mild attacks of lumbago can be quickly broken up by taking a cupful of a hot infusion of collinsonia at bedtime. Spasmodic cramp can be immediately relieved by the same means.

Collinsonia is an effective remedy in relaxation of the uvula, chronic pharyngitis and hoarseness dependent upon a lack of tonic of the vocal chords. The fluid extract may be given in these affections in half-drachm doses four times daily, and employed also as a gargle when diluted with four times its volume of water. It is also of value in gastro-intestinal catarrh and the catarrhal gastritis of beer and alcohol drinkers. It lessens the desire for liquor, restrains the secretion of mucus, and restores the normal tone of the alimentary canal, and reinvigorates the depressed nervous system.

Collinsonia is equal, if not superior, to cinicifuga in the treatment of chorea, and may be substituted for arsenic with advantage in many cases of that disease occurring in infancy and early childhood. In three cases recently treated with collinsonia, all traces of the disease disappeared in from two to four weeks. It is but fair to state that the same remedy failed to make any impression on two previous cases.

Collinsonia will be found palliative, if not curative, in whooping-cough, and may safely be given in that affection without the dread of disordering the stomach, or producing any other unpleasant symptoms. It may also be given with confidence in nervous cough, and the irritative cough of pharyngeal catarrh.

Collinsonia is also of value in moderate doses as a mild but certain general tonic, increasing the appetite, promoting digestion, and gently stimulating all the organs of excretion. It may be given with decided benefit in anæmia, chlorosis, incipient phthisis, and convalescence from the various eruptive fevers.

Externally, it constitutes an excellent application to contused and incised wounds. Indolent ulcers may be stimulated to healthy action by an ointment consisting of one drachm of powdered collinsonia and one ounce of fresh lard. Ascarides may be effectually destroyed by rectal injection composed of the fluid extract diluted with four parts of water.

A PRELIMINARY REPORT OF EXPERIMENTAL RESEARCHES CONCERNING THE INFECTIOUS NATURE OF TRAUMATIC TETANUS.

Read in the Section of Pathology of the Ninth International Medical Congress, September 6th, 1887.

By EDWARD O. SHAKESPEARE, A.M., M.D.,
Pathologist to the Philadelphia Hospital, etc.

THE author reported in detail a long series of experiments which are still in progress, and announced the results already obtained. Upwards of fifty inoculations have already been made. Two methods of inoculation have been employed. Intra-cranial inoculations after the method of Pasteur in the case of rabies, and subcutaneous or inter-muscular injections by means of hypodermic syringes. The inoculations were always made with thorough antiseptic precautions and with sterilised instruments. In none of the experiments was there any sign of accidental infection, such as suppuration, etc. The material used for inoculation was in general obtained from the medulla or the spinal cord, and cultures in neutral or slightly alkaline flesh-glycerine-agar recommended by Roux for the culture of tubercle bacilli. The tetanus material was taken, under aseptic precautions, from a horse and a mule dead of traumatic tetanus in the Veterinary Department of the University of Pennsylvania, the brain, medulla, and cord being removed one and three hours respectively after death, and immediately kept on ice until used. The inoculation material was in general prepared in the following manner: A small piece of the medulla or cord was thoroughly rubbed up in sterilised distilled water; after, the solid particles were allowed for a few minutes to subside to the bottom of the vessel; the opalescent emulsion thus obtained was drawn off by