first indication of increasing weakness the alcoholic stimulants are given; the best of these is good whisky—the wines are not active enough. The whisky must be given in large and frequent doses. Where the prostration is very great, French brandy should be substituted for whisky.

If the disease extends into the larynx and the stenosis is such as to threaten suffocation, tracheotomy is the only remedy that offers any hope. The operation is indicated by the persistent obstruction of the larynx. The operation will fail of success if the exudation has already extended into the bronchi, or the system is overwhelmed by the infection, and incipient paralysis of the heart exists. The result of tracheotomy in this condition is not very encouraging, but it is a forlorn hope and should be done.

DR. JENKS, Keokuk, Iowa—The majority of the profession agree with the doctor in believing that diphtheria is a disease which is primarily local. In a majority of cases the germ finds lodgment in suitable soil in the tonsil; from there it excites inflammation and probably the toxalbumin is absorbed. I wish to emphasize the importance of local treatment. The first thing I do when called to a case of diphtheria is to make an application of Smith's solution of persulphate of iron and carbolic acid; I frequently make the solution of pure persulphate of iron. I make the application with a piece of absorbent cotton, saturating the cotton in the solution, then pressing it firmly on one side, then on the other, touching the membrane firmly. I have used a great many other preparations but I prefer this. It coagulates the albuminous exudate and if applied early it contracts the dilated and enlarged blood vessels and in that way prevents absorption. If this application is made early, little constitutional treatment is needed. This application should be repeated two or three times a day or more. The constitutional treatment should be, calomel given freely for a day or two, then the tincture of chloride of iron, and if you choose the chloride of potash; in mild cases, give liquid diet, keep patient in bed. Give plenty of whisky towards the close of the disease if there is evidence of asthenia, or the disease invades the larynx.

AN INSTRUMENT FOR APPLYING MEDICAMENTS TO THE URETHRAL, UTERINE AND RECTAL CANALS.

Read before the Section on Surgery and Anatomy at the Forty-fourth Annual Meeting of the American Medical Association.

BY A. B. KIRKPATRICK, M.D.

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In October, 1891, I showed this instrument to the Philadelphia County Medical Society, and read a brief paper on the subject. But the applicator has been so much improved and has been used so successfully since then that I think the subject merits further consideration.

The applicator is made in different sizes, the largest eight inches long with a caliber of half an inch, and the smallest of the same length and caliber of one-eighth of an inch. The medium sized one, three-sixteenths of an inch in diameter is best for general use. The tube is made straight or slightly curved at the distal extremity. It is composed of a seamless aluminium, silver or hard rubber tube. On the upper end of the tube is screwed a collar, on each side of which is fastened a ring for the first and second fingers. There is a steel rod or piston, on the upper end of which is a ring for the thumb, and just

below it is a spiral spring which withdraws the aluminium tip which screws on the other end of the piston rod. This tip which is two inches long, is for the absorbent cotton when the instrument is used for liquid applications. When used for powder this tip is unscrewed and replaced by an aluminium plunger one-half of an inch long, which fits the tube accurately.

The parts of the applicator which come in contact with the liquid or powders being made of aluminium or vulcanized rubber, are not oxidized or corroded. It is so simple in construction that it is easily cleaned and kept aseptic, and is very light yet strong, and it cannot get out of order. It is very easily manipulated with one hand.

The instrument was designed primarily for the introduction of a slightly compressed pencil of powder into the uterine cervix, in the treatment of endocervicitis, endometritis, etc. Almost any power can be used, such as iodoform, iodol, aristol, boric acid, salol, sulphate of zinc or tannic acid, or a combination of them with sedatives such as cocaine, morphine, atropine, etc.

In using aristol, salol, iodoform, iodol, or sulphate of zinc, I have found it best to use an equal quantity of powdered boric acid; otherwise, they pack too solidly in the applicator and are rather hard to push out and not so readily soluble. The different powders or combinations should be in screw top bottles, about an inch in diameter and two or three inches long, and the powder should be moderately loose in the bottles, so that it will not pack too firmly in the tube.

To fill the applicator, remove the piston and press the tube down into the powder several times according to the length of the pencil desired. It can be made from one to four inches long.

After filling the instrument, before introducing it I cover the end with carbolized cosmoline, or round it out with a small piece of cocoa butter, and dip it in a solution of iodoform or aristol in liquid alboline.

If the tube is passed into the cervix half an inch to an inch, and supported while the pencil is forced gently out it will follow the canal, even to the fundus of the uterus. Several pencils can be thus introduced in rapid succession, if desired.

In introducing powders into the male urethra, the instrument should be passed in in the same way as a catheter or steel bougie, and even the straight instrument will pass nearly to the prostatic portion of the urethra. If the prostatic portion of the urethra is to be medicated support the instrument in that position, and press the pencil gently out and it will follow the urethra. If the part of the urethra anterior to the prostatic portion, is to be medicated, gently withdraw the instrument while pushing out the pencil. It is well to force a piece of absorbent cotton through the tube before sterilizing, to cleanse it and make the piston work freely.

When used as a liquid applicator, the plunger is replaced by the roughened tip on which is wrapped the absorbent cotton. This is dipped into a solution of nitrate of silver, iodine, carbolic acid or peroxide of hydrogen, and then passed into the tube and the end filled with a little piece of cocoa butter and oil. Filling the end with cocoa butter prevents any of the solution from passing out before the part intended to be medicated is reached and protects the

healthy urethra, and also facilitates its introduction.

I do not use the liquid applicator for uterine applications as it has no particular advantage over the ordinary aluminium applicator if the speculum is used. Though, if one is dextrous, and it is necessary, the application can be made easily without a speculum in the same way as a catheter or sound is introduced without inspection.

In my experience the amount of iodine or other liquid that can be passed into the uterine cavity on a cotton wrapped applicator is so small, unless the cervix has recently been dilated, as to be useless. I get much more satisfactory results when introduced with a syringe. Nitrate of silver can be dissolved and deposited on the aluminium tip, and introduced into the male urethra after the manner of Lallemand's *porte caustique*; though I have never done so; for I have been satisfied with the use of a compressed pencil of powder.

Those who have used suppositories, medicated gelatin or cocoa butter, intra-uterine pencils, urethral and prostatic bougies and fistula crayons will appreciate this instrument, as it can be used more successfully whenever these or suppositories are required.

The result of my experience is that the excipient in suppositories and medicated bougies defeats the object aimed at, in that it coats the mucous membrane and prevents the absorption of the medication, is soon liquified and is drained away from the location where placed and needed. The cocoa butter passes out and carries the medicine with it and they are deposited on the patient's clothing, which is soiled and stained.

Suppositories and bougies are expensive, are hard to keep and carry, and disagreeable to use in hot weather; moreover, they are not always at hand when most needed.

With this instrument and three or four bottles of different combinations of powders—antiseptic, sedative and astringent, an application can be made in a moment without touching the medicine or soiling the fingers. No skill is required to fill the applicator. The expense is normal, being only the first cost of the powders.

The pencil of powder dissolves slowly, liquifying and passing through the tenacious mucus, producing the full, continuous, medicinal effect on the part.

A pencil placed in the male urethra after urination, and before going to bed, will be nearly dissolved next morning, and what little remains will be carried out at the first urination. The larger sized pencil, composed of equal parts by weight of iodoform or iodol and boric acid, and moderately compressed, will require at least twenty-four hours to be completely dissolved in the uterine canal. A continuous medication can thus be maintained by one application daily. I have found it very beneficial in endocervicitis, endometritis and subinvolution; also in inflammatory and irritable conditions of the male and female urethra.

In most of the severe cases of menorrhagia and metrorrhagia that I have treated within the past year, I have first dilated the cervix and curetted and then made applications of powder. These cases have recovered promptly and permanently—much more promptly than when I have made liquid applications or used none.

With our present knowledge of bacteriology and antisepsis it does not seem rational to attempt to

medicate six or eight inches of the urethra and destroy the gonococcus by giving sandal, cubebs and copaiba or even salol by the mouth. The medication is so changed and diluted by the time it reaches the urethra, the antiseptic and even sedative effects are so infinitesimal that they do not compensate for the disgust for medicine and disordered digestion which usually results.

Treatment by injection is more reasonable, but the effects are very transient, and likely to irritate the urethra if strong enough to be of any benefit. Their use must be intrusted to the patient, which is not only a pecuniary loss to the physician, but often a misfortune to the patient, as he gets his prescription and syringe and then thinks he can finish his case himself, thus losing the necessary subsequent care and advice of the physician.

The usual result of such treatment is a protracted case of gleet and one or more strictures. I think it may be safely said that 90 per cent. of the cases of gonorrhœa are treated by druggists or their clerks; the patient, if he has not had personal experience, goes to some friend who has had for "points," and if then in doubt goes to the nearest apothecary, who gives him medicines which he renews regularly for weeks and months. This increases the druggist's profits, but the physician gets only a fee for the first consultation, often not even that.

With the use of the applicator, an acute attack of gonorrhœa can be permanently cured in from six to twelve treatments. The physician then gets his fee, and the patient realizes that he is getting scientific treatment that neither himself or the apothecary can safely employ.

I have found the daily application of a pencil of powder of iodoform and boric acid with cocaine and atropine a specific in gonorrhœa and gleet, the cases all recovering permanently in from one to three weeks, and without the usual tendency to stricture. The pencil of powder allays irritation, keeps the urethra patulous, and promotes healing without the usual tendency to contraction.

In acute cases of gonorrhœa, if the urethra is very sensitive I inject half a drachm to a drachm of a 5 per cent. solution of cocaine, which is passed back past the ulcerated part of the urethra and retained for a few minutes by compressing the meatus. The application is then absolutely painless, and by the time the effect of the cocaine has passed off the urethra has become accustomed to the powder so that it gives no pain or irritation. The powder should be placed in the urethra at the seat of ulceration or irritation. This is usually determined by a bulbous bougie.

The best results in gonorrhœa have resulted from the use of a powder composed of equal parts by weight, of iodoform and boric acid. Rarely has it been necessary to add a local anæsthetic to the powder when the injection of cocaine is used before. The effect of the iodoform has been sufficient to overcome the pain and irritation. The odor of the iodoform is the only objection to its use, but this can be largely obviated if care is used in the application, and if the patient is careful in changing the dressings. After the application the foreskin is retracted and a piece of borated cotton is placed over the meatus. This will be retained usually by the prepuce, and the patient can replace it when soiled after urination. To still further protect the patient's clothing,

it is well to wrap a piece of lint or lintine over the end of the organ and retain it with a suspensory or rubber band placed over the lint not too tightly.

In most of my cases I use no internal treatment. Should the urine be very acid causing ardor urinæ, it should be rendered neutral by the use of citrate or acetate of potash. If there is a tendency to chordee I have found minute doses of hyoscine hydrobromate very useful. But there has been little trouble from this symptom after beginning the local treatment. The best time to treat a gonorrhea patient is just before going to bed, and applications should be made every night if possible. I will report a few cases to show the length of time, number of treatments, etc.:

Case 1.—J. S., aged 22, waiter; first attack began three weeks before; characteristic gonorrheal discharge; had used cubebs, copaiba, etc., internally, and nitrate of silver injections for two weeks without any benefit. He received eight treatments in fourteen days. After five treatments the discharge ceased, and at the end of fourteen days I passed a No. 30 French scale, bulbous bougie, without pain and there was no evidence of a stricture. The bougie was passed again in two weeks with the same result. There has been no return of symptoms since treatment five months ago.

Case 2.—C. C., aged 32; special officer; attack began six months before; had had skillful treatment internally, with injections, and finally by steel bougies passed every other day for three weeks. He had improved at different times, the discharge becoming gleety and nearly ceasing; but it had each time returned, resuming the purulent character. There was a slight stricture one inch from meatus, and a tighter one five inches below through which it was difficult to pass a No. 12 French bulbous bougie. These were dilated under cocaine anesthesia. He received fifteen treatments in thirty days, at the end of which time he was discharged. Twice in the following month, a No. 32 French bougie was passed without any evidence of stricture or local irritation. He has remained well up to this date, four months after treatment. In this case the patient was not able to get the benefit of rest in bed after treatment, as he went on duty directly after each application.

Case 3.—C. L., aged 24; wholesale druggist; had an attack of gonorrhœa one year ago followed by orchitis and stricture, which I had treated by this method. I was consulted first for the orchitis. He was under treatment four weeks, but I am unable to give the number of treatments. In the present attack treatment was begun during the first week and he was discharged cured after ten daily treatments.

I could multiply these cases by the dozen from a large dispensary practice, as well as from my private case book; but it would be needless waste of valuable time.

In this treatment I have had no toxic effect, nor disagreeable symptoms from the use of iodoform or cocaine, though I have used both freely in hundreds of cases. I feel confident, if surgeons would thoroughly investigate this mode of treating gonorrhœa and apply it carefully and aseptically, that very satisfactory results will follow. I have had the same favorable results after dilating the male urethra with the Otis urethrotome for old strictures.

The irritable condition of the urethra and bladder arising from enlarged prostate is readily relieved by this form of medication, as are also prostatorrhea and spermatorrhea, if supplemented with the necessary moral and constitutional treatment. There has

been apparent reduction in the size of the gland. When, for any reason, it is undesirable or impracticable to treat sinuses or fistulas, either rectal or strumous, by incision, if they have an external opening they can be treated successfully by the powder applicator. The formation of pus can be checked and healing facilitated, and a continuous medicinal effect secured; while with injections of peroxide of hydrogen or solutions of iodoform in oil the effect is only transient. I use the injection of peroxide of hydrogen first to destroy the pus and cleanse the cavity, and then pack with powder. I have had uniformly good results unless the sinuses are very small and tortuous.

I hope to see this method of treatment thoroughly tested by older, more experienced surgeons, and trust they will report their results.

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APPENDICITIS: WHAT IT IS AND WHAT IT IS NOT—FROM A SURGICAL STANDPOINT.

Read before the Section on Surgery and Anatomy at the Forty-fourth Annual Meeting of the American Medical Association.

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Among many with the fear of surgery before their eyes, there is a widespread and possibly a growing opinion that the advanced surgeon of to-day rushes upon every so-called case of appendicitis knife in hand, something after the manner in which our English friends fearfully dread the wild onslaught of the murderous Comanche in Chicago. To the surgeon holding in his mind the dangers and complexities of all serious abdominal work, most of all that in which the integrity of the vital organs is involved, the eagerness with which this operation is supposed to be sought is amusing. With those to whom the abdomen is as yet a fairyland of surgery, where reputation may be speedily got, and mistakes hastily veiled in the coroner's office by death from heart failure and exhaustion, the fair field is enticing. But woe to the untrained explorer who anchors his tray beside the siren, "Appendix," floating dreamily in a puddle of pus. The electricians are happier than he, and rather to be desired. With a view of insisting rather that surgery and surgeons shall not be held responsible for every vagary of the imagination by which operation is justified, whether cause exist or not, some of the determinate conditions and considerations belonging to the operation are here briefly presented. First of all, the anatomical relations of the appendix must be considered as settled finally within the peritoneum and therefore any inflammation of the organ is necessarily within the peritoneum; and inflammation outside the peritoneum, associated with the appendix, is the result of extension of the disease from within, outward. Advancing along in the anatomical conception of the disease, we must remember that no matter what the cause of irritation or inflammation in the organ, we must not expect a common symptomatology or a fixed locality by which the disease is infallibly to be recognized or located. This opinion, in view of the somewhat general belief in the McBurney point, must be explained anatomically. In another paper I have