one or two teaspoonfuls in sweetened water. The fluid extract is better, in half-teaspoon- to teaspoonful doses hot, the oleoresin in capsules, perhaps best in the dose of 0.5 to 1 gramme (8 to 15 minims) (1 to 2 capsules).

Wintergreen oil, or its synthetic substitute the salicylate of methyl, in 0.75 gramme (10-minim) capsules, 1 or more at a dose, seems helpful in some cases of subacute or chronic posterior urethritis, particularly if the prostate be engorged, and especially in rheumatic subjects, and *eucalyptol* in 5-minim capsules, 1 or 2 at a dose, if there be much debility and headache, especially for chronic malarial cases. *Matico* seems a sort of a fancy, and is generally used in combination with something else, while *pichi*, at one time fashionable and seemingly astringent, appears to have been lost in the shuffle of late years. By ringing the changes upon these various drugs, all of which possess some degree of merit, the requirements of every case may be reached in any stage of urethral inflammation.

Towards the end of the attack, in the remote gleety stage, the *oil of turpentine* has a place as a stimulating balsamic in 5-minim capsules, 1 to 3 at a dose, and the tincture of *cantharides* for the same conditions in from 0.05 to 0.25 gramme (1- to 5-minim) doses. Too much cantharides is, of course, irritating.

Fluid extract of *kava-kava* in 0.5- to 2-gramme doses is suitable, and apparently sometimes helpful towards the end of a gleet.

The *tincture of the chlorid of iron* has a certain value for atonic cases, especially in very chronic mild posterior urethritis, in doses of from 0.5 to 1 gramme well diluted. Its effect upon the teeth and its constipating tendency must be remembered.

Tonics and *cod-liver oil* find their proper place along general lines of indication, with change of habitat, sea air, etc.

The balsamic remedies have been found ineffective when administered locally. They undergo a change in passing through the kidney. Most of them give an especial odour to the urine.

The excreted urine exercises a local action[1] upon the inflamed surface of the urethra, consequently the balsams are useless in female gonorrhea, unless the urethra or bladder be involved.

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[1] As has been proved when large fistula in the floor of the urethra permitted the urine to be turned off, the part behind the opening getting well first, and the anterior urethra being subsequently cured by injection with the patient's own urine, freshly passed and full of modified copaiba. I do not know that this has been demonstrated except for copaiba; and yet, strangely enough, Steinschneider and Schaeffer (cited by Sée) found that the urine of patients who had taken copaiba or salicylate of soda did not show bactericidal qualities—while iodid of potassium possessed more merit in this respect—which only goes to prove that, for practical purposes, the conclusions of the bedside are sometimes wiser than those of the laboratory.

LOCAL TREATMENT

Choice of Treatment.—The hygienic and medicinal measures just detailed may suffice to conduct a case of urethral inflammation to a happy termination, and many excellent practitioners prefer to use only these means, electing rather to allow the patient to work through the slow course of his malady—six weeks and more—in what they believe to be security against complications (of prostate, seminal vesicles, epididymis) rather than take the responsibility of local treatment with its possible attendant risks.

That this judgment is in error is attested by the consensus of opinion of practically all the serious workers in this field, and to this opinion the lay public gives its consent for whatever it may be worth.

If complications never followed unless the urethra was handled locally an opinion could easily be rendered, but this is by no means true. On the contrary, cases not treated locally habitually run a fiercer course in my opinion than those judiciously handled by local measures. But in acute gonorrheal inflammation, if local measures are carelessly or intemperately administered they are worse than useless. Woe to the man who wishes to get well in a hurry by using very strong injections upon himself!

Without a shadow of a doubt local treatment is desirable, the main questions being what local treatment and when to begin.

Excellent and reliable authorities sometimes prefer to use no injections whatsoever, when the early acute inflammatory symptoms run high, reserving their trump card for the hour when the enemy shall show signs of weakening, and then endeavouring to speed the parting guest. Such a course is prudent and usually the best when a patient is forced to rely upon his own resources for topical treatment even under direction. I now allude to true specific gonorrhea, and not to simple urethritis, a malady frequently controlled from the start by a few well-directed injections given to the patient by himself. Not so a true gonorrhea. This enemy laughs at such paltry weapons, and will acquire by their use new strength rather than any discouragement.

When the surgeon is consulted in a case of urethral discharge let him first make his diagnosis. If the case be one of simple urethritis he may order some gentle astringent lotion as an injection to be used by the patient (p. 124). If the discharge be due to recent gonorrheal infection the patient should use no astringent injection, but may use a bactericidal lotion, but only as an adjuvant to the sur-

geon's irrigations—until the purulent flow shows signs of subsiding under internal treatment.

But—and this is the strongest of *buts*—if the patient can visit his surgeon daily he may save himself much time, much trouble, and many complications.

In former editions I have not advocated the irrigation treatment. I had lived through the hot-water period and the efforts of Drs. Halstead and Brewer, of New York, to establish it, and I had seen serious mischief in the way of inflammatory complications of the prostate, the bladder, and the epididymis follow its use—perhaps its careless use. I personally tried all shades of weak bichlorid-of-mercury irrigations and found them wanting, and just as I was about to renounce irrigation of any sort the method of Janet, of Paris, appeared.

This was eagerly taken up by my professional associate, Dr. Chetwood, modified, of course, by his American ingenuity, and to-day the results are so much better than ever before in my thirty-five years of professional experience that I adopt the method without protest, recognising its obvious superiority.

In the description of this method I shall borrow without stint from the writings of Dr. Chetwood,[1] to whom I here make personal acknowledgment.

The local treatment of non-virulent urethritis is by astringent injections as ordered for the declining stage of gonorrhea (p. 125). And these may always be used from the start when no gonococcus is found in the discharge; but always, even in such non-gonorrheal cases, if the discharge be free, frank, and abundant, it is better to commence at once with permanganate irrigation. But if the gonococcus be present astringents are not suitable, only bactericidal injections and irrigations are allowable, and every minute lost in commencing the treatment is to the patient's detriment. Yet even if the discharge be already forty-eight or seventy-two hours old there need be no hesitation in commencing local measures, nor does any intensity of discharge prohibit such measures, provided they be commenced mildly and administered with gentleness.

Local Treatment of Acute Gonorrhea

The Janet Method.—For the effective performance of the irrigation method of Janet, as modified by Chetwood, are required a receptacle of glass or a fountain-syringe, hung upon a hook, which latter, suspended over a pulley, may be raised or lowered at will to

[1] Venereal Diseases. Keyes and Chetwood, 1900, p. 28 *et seq.*

vary the pressure of the column of fluid; a conical glass, two-way nozzle (Fig 23); some small, soft-rubber catheters (8 to 12 French) with carefully bevelled eyes and the scissors-like shut-off (Fig. 24).

The alternating shut-off instrument clasps the rubber tubes attached to the nozzle, and by a scissors-like motion controls the inflow and the outflow alternately (Fig. 25), impeding the outflow as the fluid enters the urethra, and thus securing an even distention of the canal (Fig. 26), arresting the inflow when the urethra is full, thus allowing the canal to evacuate itself entirely. A proper distention of the urethra is secured by raising the reservoir 4 or 5 feet. Such elevation will not force the membranous urethra, and what pressure there is may be moderated in case of pain by partially closing the inflow tube.

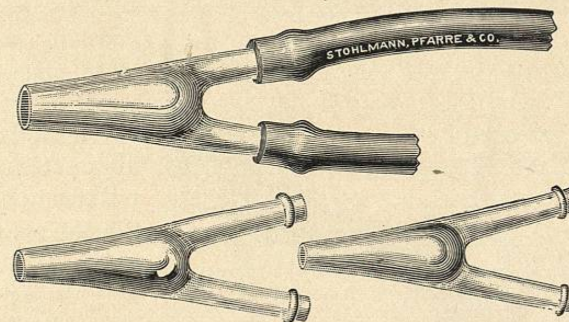

Fig. 23.—Chetwood's Two-way Urethral Nozzles.

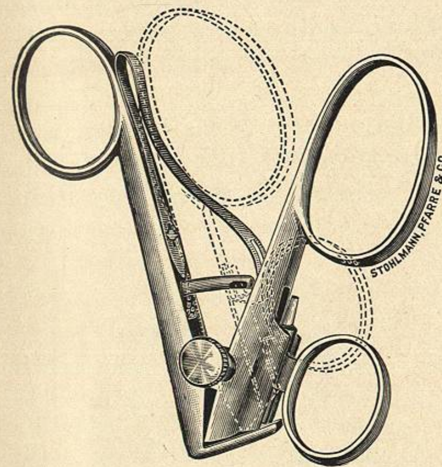

Fig. 24.—Chetwood's Scissors Shut-off.

The advantages of the alternating shut-off are obvious. Both cleanliness and effective distention of the urethra are better secured by it than by other means. If a one-way nozzle is used the urethra may be properly distended, but in order to effect irrigation this nozzle must be constantly withdrawn and reinserted—a dirty expedient. If a catheter is introduced to the bulb for the anterior irrigation (retro-irrigation) the urethra is not properly distended, and many gonococci in the sinuses and the urethral folds escape.

About one quart of liquid is needed for efficient anterior irrigation, the time required being about five minutes.

If the surgeon prefers he may irrigate the posterior urethra with this apparatus, simply raising the reservoir; but it is better, after

having first thoroughly irrigated the anterior urethra, to use a catheter for posterior work.

For this purpose a soft-rubber catheter with perfectly bevelled eye is used. The size of the catheter should be from 12 to 15 French. It must be anointed with a lubricant that will dissolve in water. Vaselin or oil will not suffice. A saponaceous lubricant or that made with Irish moss and called lubrichondrin is entirely suitable. The catheter must be introduced slowly and with the utmost gentleness, eye upward, until urine flows, showing that the bladder has been reached. The bladder is now emptied through the catheter, and then the latter is withdrawn a full inch, so that its eye may lie just behind the membranous urethra. Now from the irrigator from 4 to 12 ounces of fluid, according to the tolerance of the bladder, are thrown in, washing backward in its course the entire prostatic sinus, after which the catheter is gently withdrawn.

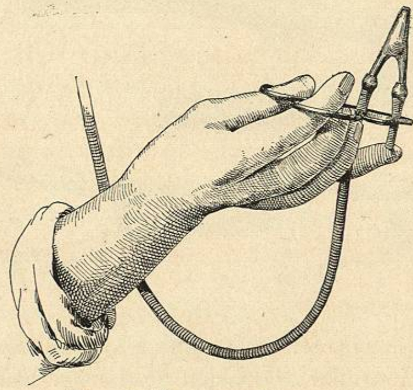

Fig. 25.—Chetwood Irrigator.
Filling the tube with fluid before applying it to the meatus.

The patient now urinates out the contents of his bladder, thus giving himself a very efficient final retrojection.

If Treatment is begun at the Onset of the Disease.—If the patient is seen at the onset, within three days of the beginning of his discharge, anterior irrigation alone (not forgetting the internal administration of sandal-wood oil) may suffice. If the discharge is free the urethra should be irrigated twice a day, otherwise only once, for the first few days. Within four days of the beginning of treatment the discharge ought to be well under control. In

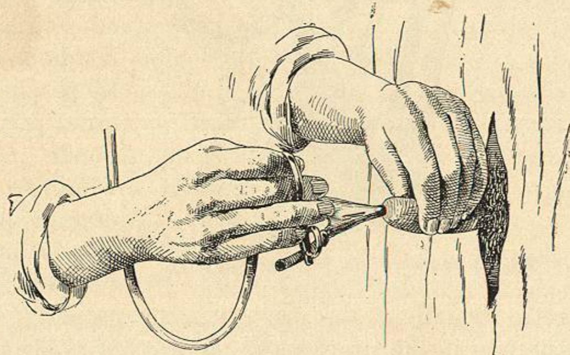

Fig. 26.—Chetwood Irrigator.
The fluid entering the urethra.

favourable cases it will have ceased entirely; in any case it should be slight. Now we look for evidence of posterior urethritis. As a matter of routine before irrigation the patient urinates in two glasses. Any slightest turbidity of the second flow (even if the discharge is profuse), any uneasiness in the perineum, any pain at the neck of the bladder during urination, is evidence of posterior urethritis. To establish the fact the anterior urethra is fully irrigated. The patient is then made to urinate, and the first flow now contains the washings of the posterior urethra only; if it is hazy there is posterior urethritis. As soon as the existence of this complication is ascertained—or, I might say, as soon as it is suspected, for it is far safer to err on the side of overcaution—the posterior irrigations are begun, the anterior canal being always washed first as long as there is any evidence of anterior urethritis. Thus we go well into the second week with daily anterior and posterior irrigations. If the case is progressing satisfactorily the discharge will have ceased completely, the patient will exhibit no symptoms whatever, and the urine will grow clearer daily.

Now comes the most difficult part of the treatment. It is a mere question of precision in detail to get the patient under control; but to polish off the case neatly, to have the patient absolutely sound at the earliest possible moment is a matter demanding judgment, experience, and skill. Many a case goes along well enough for the first two weeks or so and then drags on and on, no better, no worse, until the patience of surgeon and patient is exhausted. In some cases this cannot be prevented. A first attack is especially difficult to abort, while the infection of a urethra with a sorry past, a history of previous prolonged attacks, or of relapsing urethritis, is also likely to give trouble. To prevent the disease thus dragging on nothing is so potent as frequent change of treatment. If no progress is made under permanganate, instillations of protargol (1%) may be substituted, or a mixture of permanganate (1:4,000) and silver nitrate (1:20,000) by irrigation, or the silver salt alone by instillation (1:1,000) or irrigation. No two cases can be treated alike. The strength as well as the nature of the solution must be varied to suit the individual. The only test is the patient's urine. If it grows clearer, the treatment is succeeding; if not, something is wrong. But in acute cases I have not found anything comparable to permanganate in the anterior urethra.

Finally the urine becomes clear. As soon as it has remained so for forty-eight hours the patient may be allowed to go a day without treatment. Then two days, then three or four, and he is well. But in order to insure the cure he must remain well for two weeks

before sexual intercourse or drinking is allowed, or he may be tested by a bacterial examination.

If Treatment is begun during the Course of the Disease.—Although I always urge the advantages of the irrigation treatment, even though the patient comes with an acute attack in full blast, I recognise the fact that many sage authorities are against me in this. Time only can decide the merits of the question; but I have found that in such cases the discharge can be conquered in a week or less, though the final cure will be delayed beyond what one would look for had the treatment been begun in the first days.

Prognosis.—The advantages of the irrigation treatment of gonorrhea are twofold—viz., the abolition of symptoms (discharge, chordee, dysuria, etc.) and the curtailment of the attack. The former is almost certain, the latter only probable. Against these advantages may be set the trouble and expense of the treatment, which count not a little, for the patient must be absolutely faithful; untimely remission of an irrigation may postpone the cure for days. Yet the strongest argument I can urge is the fact that of all the patients who have returned for the treatment of a new attack after once experiencing the irrigation treatment, not one has hesitated in preferring to be treated this way a second time.

The best results will be obtained with patients who, having had a previous attack, are in good general health and free from any chronic lesion or tendency to simple urethritis. Such cases are curable within two or three weeks. Others require the anterior irrigation no longer than four weeks. If not well then they merit the treatment of chronic urethritis.

Other Methods of Irrigation.—With the many other methods of irrigation for acute gonorrhea, whether by permanganate of potash or by protargol, I have had little experience; but since the method outlined above has been the development of four years of constant practice rather than the following of any preconceived plan, I must accord it pre-eminence. The frequent and prolonged injections so commonly recommended, and especially the routine employment of protargol in the anterior urethra, have not proved advantageous at my hands.

Injections.—In acute anterior gonorrhea injections are far more likely to do harm than good. If strong solutions are used, they irritate; while weak solutions have no appreciable effect, good or bad. Astringent injections, so useful in chronic urethritis, are harmful. Permanganate of potash is not strong enough. Nitrate of silver is irritating. Of the newer remedies only protargol and mercurol are useful, the former in 0.25% to 0.5% solutions, the latter at

twice the strength. These may be employed once a day by the patient as an adjunct to the surgeon's permanganate irrigations when daily visits are impossible. Yet this is a poor compromise, and, as a rule, unsatisfactory in its results.

The method of employing injections is described below.

LOCAL TREATMENT OF THE DECLINING STAGE OF GONORRHEA IN THE ANTERIOR URETHRA, AND OF ALL SUBACUTE AND CHRONIC CASES OF ANTERIOR URETHRITIS, WHETHER SIMPLE OR FOLLOWING AS A SEQUENCE UPON GONORRHEA

Here irrigations are no longer necessary. The urethra may be more conveniently treated by injections, which the patient himself may apply.

In using injections upon himself the patient must be dispossessed of the idea that he needs a strong injection. He will generally, if he has suffered long, demand a strong lotion to kill the disease, and in such case may be gently reminded that while a club in the hands of an athlete would doubtless be able to kill a mosquito upon his nose, still, to advise its employment for that purpose would be of doubtful propriety. More effect will be obtained by using an injection just strong enough to be of definite service than by using one as strong as the urethra will tolerate.

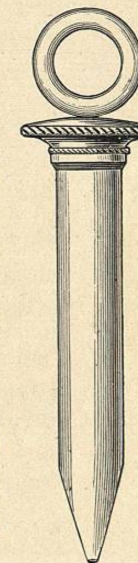

FIG. 27.

Another precaution, never to be forgotten, is that a discharge, at first checked by injections, may come to be perpetuated by them. This is especially likely to occur in mild simple urethritis. The patient checks his discharge by an injection, but if he omits it for a day or two a morning drop reappears to frighten him into renewed reliance upon it. Thus he will continue indefinitely, until the surgeon persuades him to let himself alone for a week or so, and his cure is accomplished.

The Method.—*To inject* the urethra several things must be remembered. Air must be expelled from the syringe. The solution must never be very cold —if warmed each time it is all the better; or, better still, the solution may be prescribed in twice the required concentration, to be diluted with an equal amount of hot water. No force should ever be used in making an injection, and too much fluid must not be forced in. Neglect of these last two precautions is responsible for many a case of posterior urethritis and many a swelled testicle. Only sufficient fluid to distend the anterior urethra moderately should be used.

The syringe should have a blunt nozzle (Fig. 27). It may be of vulcanite, or of glass, or may have a soft-rubber or cork tip. It should hold not less than 7.5 c. c. and not more than 12 c. c. The piston should run very smoothly, not in jerks. Injection should be made by slowly depressing the piston while crowding the blunt nozzle into the meatus, and the fluid should be retained by holding the nozzle there, or by pressure of thumb and finger as the syringe is being withdrawn. The fluid should never be restrained from penetrating too deeply by making perineal pressure with the finger. An astringent injection should be retained in the urethra for fifteen seconds, a bactericidal injection much longer.

Among injections—and their name is legion—the following are useful. The first ones are soothing—more or less—the next astringent, and the last antiseptic:

Soothing Injections

℞ Sol. cocain hydrochlorat.............................. 2%.

℞ Sol. extr. fl. hydrastis—non-alcoholic............ 4% to 8%.

℞ Morphiæ acetat.................... 00.20 grammes gr. iij
Liq. plumbi subacetat. dil........ad 100.00 " ℥ iij.
M.

Astringent Injections

℞ Zinci sulph.................. 00.10–00.40 grammes gr. ii–vj
Liq. plumbi subacetat. dil..ad 100.00 " ℥ iij.
M. Shake.

℞ Sol. zinci sulph................................ 1% to 4%.

℞ Sol. zinci permanganat................. 1 : 4,000 to 1 : 1,000.

℞ Sol. zinci sulphocarbolat...................... 0.5% to 1%.

℞ Zinci sulph.............. 00.20–00.40 grammes gr. iij–vj
Bismuth subnitrat., } āā 4.00 " ʒ j
Pulv. acaciæ, }
Aquæ...............ad 100.00 " ℥ iij.
M. Shake.

Antiseptic Injections

℞ Sol. protargol.............................. 0.25% to 1%.

℞ Sol. potass. permanganat..................... 1 : 4,000.

℞ Sol. mercurol.............................. 0.25% to 1%.

With these may be met the indications of any case, from the most mild irritative urethritis up to the most tenacious chronic anterior urethritis; not that the injection will always cure—far from it—but it meets the indications and often renders valuable service.

The soothing injections are the least important. An astringent injection will reduce congestion, and pain with it, quite satisfactorily, unless the pain be neuralgic, in which case no injection serves.

The antiseptic injections are more serviceable as adjuvants to the irrigation treatment than when used alone. Indeed, in the declining and the chronic stages injections should be employed chiefly for the purpose of controlling the discharge and thereby keeping the patient clean. If perchance they also succeed in effecting a cure, so much the better. But in most cases a cure cannot be expected from them alone. They only hold the inflammation of the anterior urethra in abeyance, while the posterior urethra, which is almost always the real centre of trouble, is attacked by other measures or intrusted to the healing agency of time.

The Local Treatment of Chronic Anterior Urethritis

When astringent injections added to proper internal and hygienic means fail, and there is no stricture, follicular abscess, granulation, nor polyp, the light application of a 10% solution of nitrate of silver through the urethroscope upon the congested and granular surfaces may be made twice a week with advantage, or a few drops of a solution of nitrate of silver, 1 : 500 even up to 1 : 100, trickled along the canal with the deep urethral syringe at intervals of two to four days. This sometimes starts the reparative process, the astringent injection being kept up between times.

Massage of the urethra I have not found of any value, except such as is afforded by the gentle introduction of a warmed, full-sized double taper steel sound (Fig. 13) perhaps twice or three times a week, preferably just before an irrigation or an instillation. This stimulates circulation and empties the lacunæ and follicles of accumulated pus. If stricture exists it must be overdilated (p. 216) or cut.

I have found the steel sound admirably adapted by its solidity and smoothness to the needs of those cases that required stretching (and they are the ones that no longer harbour gonococci, whose urine is practically clear of free pus, and whose posterior urethræ are not irritable), while those chronic purulent cases that require irrigation bear stretching so ill that I have never seen the indication for the use of Kollmann's dilators (p. 197), nor have the results of this method of treatment at the hands of others shaken my unbelief.

It must be borne in mind that an astringent injection, especially if strong, is capable of maintaining enough surface congestion to keep up a discharge.