

the urethra, attended with frequent micturition, chordee, and sympathetic fever, after eating largely of asparagus.¹

It is also claimed that arsenic, when producing a toxic effect either in consequence of the amount of the dose or the peculiar susceptibility of the patient, will act upon the urethral mucous membrane in a similar manner as it does upon the digestive tract and upon the skin, and cause urethritis. Two such cases are reported by M. Saint-Philippe.²

Among other causes of urethritis are free indulgence in fermented liquors, terebinthinate medicines, paraplegia inducing changes in the urine, the use of bougies, stricture, masturbation, prolonged excitement of the genitals, cancer of the womb, vegetations within the urethra, ascarides in the rectum, dentition, epidemic influences, etc. The internal use of cantharides is peculiarly liable to excite gonorrhœa, which, in this case, commences in the deeper portion of the canal.

M. Latour, editor of the *Union Médicale*, vouches for the truth of the following story: A physician, thirty years of age, had been continent for more than six weeks, when he passed an entire day in the presence of a woman whose virtue he vainly attempted to overcome, but who resisted all his approaches. From ten o'clock in the morning until seven in the evening, his genital organs were in a constant state of excitement. Three days afterwards he was seized with a very severe attack of gonorrhœa, which lasted for forty days.

A chancre within the urethra is attended with more or less thin and often bloody discharge, which will be more particularly described in a subsequent portion of this work.

Again, urethral discharges are sometimes due to changes in the mucous membrane lining the canal, induced by infection of the constitution with the syphilitic virus. In several instances I have observed a muco-purulent discharge coinciding with the first outbreak or a relapse of secondary symptoms, and so long after the last sexual act that it could not be attributed to the ordinary causes of gonorrhœa. Bassereau speaks of similar cases.³ There is no more frequent seat of early general manifestations than the mucous membranes in general; and in the cases referred to changes probably take place in the urethral walls similar to the erythema, mucous patches, and superficial ulcerations which are found within the buccal and nasal cavities. These cases are very rare, and can only be distinguished from ordinary gonorrhœa by the previous history and coexisting symptoms of the patient. For instance, if there has been no exposure for a long period, and especially if secondary symptoms have recently made their appearance upon other mucous membranes, the urethral discharge is probably symptomatic of the constitutional disease. Since the secretions of secondary lesions are now known to be contagious, the discharge in these cases is doubtless so also; it is not readily in-

¹ Lancet, London, Am. ed., Jan., 1860.

² Lond. M. Record, May 15, 1878, from the Gaz. méd. de Bordeaux.

³ Affections-syphilitiques de la peau, p. 356.

oculated upon the person from whom it is derived nor upon any other affected with syphilis, but, if communicated to a healthy individual under the requisite conditions, it may give rise to a chancre.

Ricord's receipt for catching the clap may show how to avoid it: "Do you want to catch a clap? I will tell you how to do it. Select some woman of a pale lymphatic temperament—a blonde is better than a brunette—and the more 'whites' she has the better. Take her out to dine; order oysters first, and don't forget asparagus afterwards. Drink often and freely—white wines, champagne, coffee, liqueurs, they are all good. After dinner dance awhile, and have your friend dance with you. Get well heated during the evening, and quench your thirst without stint with beer. At night play your part valiantly; two or three times are not too much, but more would be better. The next morning do not forget to take a prolonged hot bath; moreover, do not omit an injection. This programme having been conscientiously followed out, if you don't have a clap some good deity must have saved you."

Fournier's statistics as to the class of women from whom gonorrhœa is most frequently derived are interesting:

Public prostitutes,	12
Clandestine prostitutes,	44
Kept women, actresses,	138
Shop girls,	126
Domestics,	41
Married women,	26
	—
	387

This table simply shows what daily observation corroborates, that there is not so much safety in what fast young men call "a good thing," as they believe; in other words, that more claps are caught in "nice little arrangements" than in brothels.

The inferences from what has now been said of the etiology of gonorrhœa, relative to its nature, are so obvious that they require little more than mere mention. If in a large proportion of cases the disease can be traced to no other cause than leucorrhœa, the menstrual fluid, to excessive coitus, intercourse under circumstances of special excitement, inattention to cleanliness, the abuse of stimulants, etc., and if, when thus originating, it is undistinguishable, either by its symptoms, course, complications, or termination, from the same affection due to contagion, it is evident that it should be ranked among the ordinary catarrhal inflammations of mucous membranes, or, in other words, that it is a simple urethritis, the connection of which with sexual intercourse is a merely accidental, or at all events, not a necessary circumstance.

But—it may be asserted—the possibility of contagion proves the presence of a poison. Granted; but it does not follow that it is a *specific* poison, or one incapable of being produced by simple inflammation. Such a conclusion would be contrary to the facts adduced in

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the preceding pages, and, moreover, is not required by the analogy of inflammations of other mucous membranes; since, in muco-purulent conjunctivitis—the true analogue of gonorrhœa—we have precisely the same order of events, viz., inflammation originating in simple causes, and giving rise to a secretion which is contagious and capable of transmission through an indefinite series of individuals. The discharge from the two mucous surfaces just mentioned would even appear to be transferable, since that from the urethra applied to the eye gives rise to purulent ophthalmia, the secretion of which, if we may rely upon a few experiments by Thiry, of Brussels, will, when brought into contact with the lining membrane of the urethra, produce urethritis.

Based upon the fact that patches of granulations exist upon the urethral mucous membrane in most old cases of gonorrhœa, a theory has been offered by M. Thiry¹ to the effect that these excrescences are the essential element of contagion;—without granulations, no contagion. This view is, apparently, indorsed by Désormeaux, but is untenable.

Lesions.—The pathological changes which take place in a case of gonorrhœa consist chiefly in hyperæmia of the urethral mucous membrane, with its attendant swelling and increased sensibility. The disease travels from the outer to the deeper parts of the canal, and, according to Désormeaux, has by the eighth day involved the anterior half, over which the mucous membrane is found to be reddened, roughened, and presenting the appearance of superficial ulcerations, like those observed upon the glans in cases of balanitis. These changes remain the same at a more advanced stage, but involve the deeper parts of the passage, as the membranous and even prostatic portions. True ulcerations involving the whole thickness of the mucous membrane are not met with.

The follicles opening into the urethra are often attacked as well as the glands themselves, and are found filled with pus. In old cases, the mucous membrane becomes thickened and of greater density. The subjacent tissues do not escape, and the areolæ of the spongy tissue are filled up and effaced. With the lapse of time the inflammation disappears from a great portion of the canal and limits itself to certain points, of which the most frequent is the bulbo-membranous region. This presents a granular surface or even fungous elevations, and in rare instances, sessile or pediculated vegetations. The mucous membrane may be several times its normal thickness, firm, hard, and horny. Bands are sometimes found, stretching from one side to the other. The orifices of the glands may be obliterated, or, in other cases, markedly dilated. To these changes should be added those which take place in the neighborhood of any stricture that may have formed, and which will be considered hereafter.

¹ M. Thiry's views have been published in a series of lectures in the *Presse méd. belge*. Brux., and are also advocated by Guyomar, *Thèse de Paris*, 1858 (No. 282).

Since granulations of the mucous membrane are one of the chief things sought for in examinations with the endoscope, and since so much stress has been laid upon their presence, a fuller account of them is desirable.

The following is from Désormeaux,¹ being the result of his endoscopic examinations: "We have seen that gonorrhœa, when passing into the chronic stage, limits itself to the bulbo-membranous portion of the urethra, and the mucous membrane of this part, at first simply deprived of its lustre, soon becomes uneven. These inequalities increase, multiply, and finally form rounded hemispherical projections (granulations). Then the diseased portion presents a surface of a deep red color, uneven, scattered over with round granulations, which are sometimes a little removed from each other and at other times closely apposed. The mucous membrane in the affected portion looks like a mulberry, both in its color, and its granular surface.

"The granulations vary in size from that of mustard-seed to a millet- or even hemp-seed. The smallest appear to be of newest formation. This lesion is a perfect resemblance of the granulations found on the uterine neck and on the ocular conjunctiva. The granulations are almost always of a more or less deep red, and often of a dregs-of-wine color; but in some cases I have found in the midst of them other granulations, less numerous, small, and of a grayish color.

"These granulations may occupy a greater or less extent of the canal, most frequently about an inch to an inch and a half. Sometimes they involve the whole of the posterior portion, from the end of the spongy urethra to the vesical neck. An almost constant character is that the lesion is unique; it does not spread; there is no interruption between its two extremities; we do not find isolated patches, separated by portions of sound membrane. There is only one patch, before and behind which there is some inflammatory redness gradually shading off into sound tissue."

Désormeaux, Tarnowski, and others also describe herpetic patches in the canal, which are to be distinguished from the foregoing. "These patches of herpes correspond exactly to those observed on the skin, on the lips, and on the neck of the uterus. They are generally multiple and are found at different points of the canal. They have the same fugacious and mobile character as the ulcerations of the same nature met with in the mouth. A patch found to-day may be absent to-morrow, when others may be found in other places. They again differ from granulations in that they occupy generally a much less extent. Finally, their aspect is quite different; their surface is not granular, it is often merely deprived of its ordinary lustre (*dépolie*), like the aphthæ on the internal surface of the cheeks, or like the patches denuded of epithelium that are frequently met with on the buccal mucous membrane of smokers.

¹ *De l'endoscope*, etc., 1865, p. 40.

"We meet with still another form of herpetic urethritis, apparently of a deeper character. The ulcerations which it presents are less variable in their seat; they are uneven in their outline, and were it not for accessory circumstances, one would be tempted, on superficial examination, to regard them as gonorrhœal ulcerations in the reparative stage; but, with a little attention, we find, that instead of projections, the inequalities of the surface are due to depressions. Hence, while a granular surface may be compared to that of a mulberry, the former resembles the depressions on the skin of an orange or the head of a thimble.

"Granular urethritis pursues an essentially chronic course and leads finally to stricture. Herpetic urethritis is more under the influence of changes in the season, which control the evolution of rheumatic affections. The persistence of granulations on the one hand and the liability to herpetic eruptions on the other will explain why so many men have repeated attacks of gonorrhœa upon the slightest exposure."

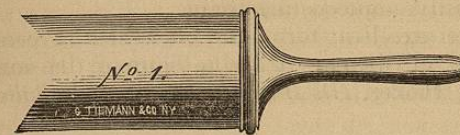
TREATMENT.—The treatment of gonorrhœa must be adapted to the general condition of the patient, and especially to the stage of his disease. In the great majority of cases met with in practice, acute inflammatory symptoms have already set in at the time the patient first applies to the surgeon; but in those exceptional cases which are seen at an early period, and *in those only*, we may often succeed in cutting short the disease by means of the treatment termed abortive.

Abortive Treatment of the First Stage.—During the first few days after exposure, varying in number from one to five in different cases, before the symptoms have become acute, when the discharge is but slight and chiefly mucus, and while as yet there is no severe scalding in passing water, we may resort to caustic injections with a view of exciting artificial inflammation, which will tend to subside in a few days, and supplanting the existing morbid action, which is liable to continue for an indefinite period and is exposed to various complications. This is known as the "substitutive," or more commonly as the "abortive treatment" of gonorrhœa. This method has been inordinately praised and as violently attacked; its true merit is probably to be found between these two extremes. It is certainly liable to be greatly abused, and, if so, is both unsuccessful and capable of producing the most unpleasant consequences; but when limited to the early stage of gonorrhœa and used with proper caution, it is a highly valuable method of treatment, unattended with danger, and undeserving the censure sometimes cast upon it.

In employing the abortive treatment, there are several points which it is important to recollect: 1. The disease, in the stage to which this treatment is applicable, is limited to the anterior portion of the urethra, known as the fossa navicularis, or extends but a short distance beyond it; it is not necessary, therefore, that the injection

should reach the deeper portions of the canal. 2. For the treatment to be successful, the whole diseased surface should receive

FIG. 1.



a thorough application of the injection, for if any portion remain untouched, it will secrete matter that will again light up the disease. 3. When once a sufficient degree of artificial inflammation is excited, the caustic has accomplished all that can be expected of it and should be suspended.

Since a solution of nitrate of silver, which is commonly used in the abortive

FIG. 2.



treatment, is readily decomposed by contact with metallic substances, metal syringes should be avoided. Glass syringes, if well made, answer every purpose; but, as found in the shops, they are apt to be unequal in calibre in different parts of the cylinder, the wadding of the piston contracts in drying and a portion of the fluid fails to be thrown out, as is seen by its overflow when the syr-

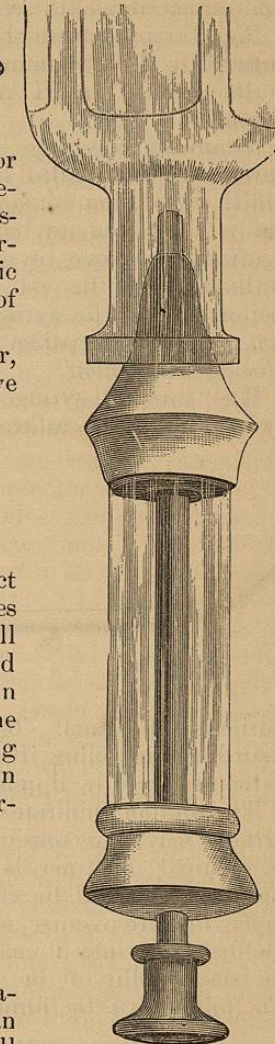
FIG. 3.



inge is filled a second time. For these reasons, I never advise a patient to purchase an ordinary glass syringe, knowing that it will probably give him much annoyance, and perhaps prevent his deriving benefit from treatment. We have an excellent substitute in the hard-rubber syringes, which can be obtained at the druggists'.

"No. 1" (Fig. 1) is the one generally sold when no special form is directed by the surgeon, but its nozzle is objectionable; it is unneces-

FIG. 4.



Actual size, No. 1.

sarily long, its point is apt to irritate the internal wall of the canal, and it is not well adapted to fully distend the meatus.

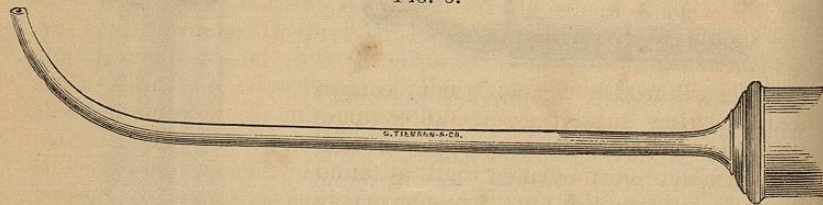
"No. 1, A" (Fig. 2), is preferable. The abrupt shoulder near the point is well adapted to fill the meatus, and the short and rounded end cannot abrade the sensitive mucous membrane.

Fig. 3 represents another excellent form, and one which is recommended by Prof. Sigmund, of Vienna. I find a figure of the same in the work of Dr. H. A. Hacker, *Die Blennorrhœen der Genitalien*, Erlangen, 1850.

I know of no syringe, however, equally convenient to one recently introduced, and called by its inventor¹ "The Peerless Syringe," which, in addition to a good nozzle has the special advantage that it can be filled from any bottle. It is made of glass, and provided with a soft-rubber sleeve, by means of which it can be inserted like a cork in the mouth of the vial. This having been done, the vial is turned bottom up, and the syringe is filled by simply withdrawing the piston. A facetious patient has called it the "Commercial Traveller's Pocket Companion."

The "urethral syringe with extra long pipe" (Fig. 5) is, in fact a syringe united to a catheter, and is adapted for injections of the deeper

FIG. 5.



portions of the canal. The catheter portion may be bent to any curve desired by first oiling it and heating it over a spirit-lamp; its form is then retained by dipping it in cold water.

The solution of nitrate of silver, in the abortive treatment of gonorrhœa, may be of considerable strength, when only one injection will be required; or it may be weak, and in that case should be repeated at short intervals until the effect produced be deemed sufficient. I much prefer the latter course, especially with patients who apply to me for the first time, since it enables me to graduate the effect according to the susceptibility of the urethra, which varies in different persons. The following is the formula for the weak form of injection:

R. Argenti Nitratis, gr. j—iiss 0.06—0.09
 Aquæ destillatæ, ℥vj 180.00
 M.

With this, as with all injections in gonorrhœa, it is essential to success that the surgeon should administer the injections to his pa-

¹ R. Van der Emde, Apothecary, 323 Bowery, N. Y.

tients, or see, by actual observation, that they know how to use them. Verbal directions cannot be relied upon.

The patient should be made to pass his water immediately before injecting, or, better still, a quarter of an hour before. We wish to clear the urethra of matter, and to have the bladder empty, so that the injection may have some time to act before it is washed away by another passage of the urine, and yet a short interval between the last act of micturition and injection is advisable, in order that as much of the urine as possible may have drained from the canal and little be left to decompose the nitrate of silver. The prepuce should now be fully retracted, and the glans penis exposed. The latter should be wiped dry, so as to afford a firm hold to the thumb and forefinger of the left hand, applied laterally, *not from above downwards*, and firmly compressing it around the point of the syringe. Call the patient's attention to the fact that the opening of the urethra is a vertical slit; that compressing the glans from above downwards makes this opening gape while the compression from side to side closes it; hence the importance of exercising the compression in the latter way while taking the injection. If the pressure be properly made, not a drop of the solution will be lost, as the piston of the syringe is slowly forced down by the forefinger of the right hand holding the instrument, and the whole contents will be discharged into the canal. The syringe should now be withdrawn, and the fluid still retained for a few seconds by continuing the compression of the glans. When the injection is allowed to escape, it will be found to be of a milky-white color. This is due to the partial decomposition of the contained salt by the remains of the urine and the muco-pus in the canal. As this decomposition has prevented the application of the injection in its full strength to the urethral walls, a second syringe-full should be thrown in, and retained for two or three minutes. During this time a finger of the disengaged hand should be run along the under surface of the penis *from behind forwards*, so as to distend the portion of the canal occupied by the injection, and insure the thorough application of the fluid to the whole mucous surface.

This description of the method of using the syringe is, in the main, applicable to all the injections which may be required in the course of a gonorrhœa; but we are now speaking of the abortive treatment, by means of weak injections of nitrate of silver. We will suppose that this first injection has been administered by the surgeon, who, at the same time, has explained the various steps of the operation to the patient. The directions with regard to diet, etc., that will presently be mentioned in speaking of the second stage, should now be given; the patient should be ordered to repeat the injection every three hours, and, for the present, it is best that he should be seen by the surgeon twice a day. It is also well at this time to prescribe an active purge.

The first effect of the caustic injections is manifested in a few hours; the discharge becomes copious and purulent, and considera-

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ble scalding is felt in passing water. In the course of twenty-four to forty-eight hours, however, the discharge grows thin and watery, and, very likely, is tinged with blood. It is now time to stop the injection and omit all medication for a few days, until we see how much good has been accomplished. If the treatment meets with success the discharge will gradually diminish, and finally disappear in from three to five days. Sometimes, however, after growing less, it again increases, showing a tendency to relapse. In this case, I usually advise weak injections of acetate of zinc, as recommended in the third stage of the disease. Some surgeons prefer to resume the caustic injections in the same manner as at first if, after a week has elapsed, any traces of the discharge remain.

The chief objection to this modification of the abortive treatment is, that it is necessary to leave the administration of most of the injections to the patient, who may be prevented by ignorance, or the requirements of his occupation, from using them as thoroughly or as often as is necessary. If we have reason to fear this, we may resort to a stronger solution, and inject it once for all, with our own hands, but I have found the effect decidedly less satisfactory. It was this method of employing the abortive treatment that was recommended by Debeney of France, and Carmichael of England, by whom this treatment was first introduced to the profession. The same method is also still employed and highly recommended by many surgeons, and especially by M. Diday of Lyons. The strong injection should not contain less than ten grains (0.65) of the nitrate of silver to the ounce (30.00) of distilled water, and more than fifteen grains are objectionable, unless with patients who have been under treatment before, and in whom the urethra has been found to be quite insensible.

R. Argenti Nitratis, gr. x-xv . . . 0.65—1.00
Aque destillatæ, ℥j 30.00
M.

The mode of using this injection is identical with that already described. Two small syringefuls should be thrown in; the first to clear the urethra of urine and muco-pus, the second to exercise a curative effect; and the surgeon should feel that the success of the treatment depends, in a great measure, on the thoroughness of its application. As an additional precaution against the fluid extending further back than is necessary, the patient may compress the penis anteriorly to the scrotum, while the surgeon is administering the injection; or the same result may be accomplished by making him sit astride the arm of a chair, and thus compressing the urethra in the perinæum.

There is still another mode of employing a strong solution of nitrate of silver, by means of an instrument introduced by Dr. F. Campbell Stewart, and called by his name. This instrument consists of a straight canula inclosing a sponge, which can be made to protrude from its extremity. This sponge is first soaked in a solu-

tion of nitrate of silver, and concealed within the canula. The instrument is then introduced for about two inches within the urethra, when the canula is to be partially withdrawn; the sponge is thus exposed to the contact of the urethral walls, in which position it is to be allowed to remain for a minute or two, and then withdrawn by slowly twisting it on its long axis. By the use of Dr. Stewart's instrument, the extent of the application can be limited at will, and it is perhaps owing to this fact that we can employ with safety a much stronger solution than when using a syringe. I have thus applied a solution of twenty, and even thirty grains to the ounce, without exciting an undue amount of inflammation, or other unpleasant symptoms. Care should be taken that the instrument be of sufficient size. Some of those found in the shops are too small, not exceeding a No. 7 bougie in diameter. I have had one manufactured for my own use of the size of No. 10.

I cannot leave this subject of the abortive treatment of gonorrhœa without again expressly stating that I recommend it only in the first stage of the disease, and not after acute inflammatory symptoms have set in, or while the patient suffers from scalding in passing water. Taking the usual run of cases as met with in practice, probably not more than one out of a hundred is seen at a sufficiently early period to admit of the abortive treatment. Its employment in the acute stage, as recommended by its inventors, is generally unsuccessful, and dangerous and even fatal results have been known to ensue. Prudent practitioners have limited the use of caustic injections to the early stage of gonorrhœa, except in some instances in the decline of the disease; but in the latter case, the mode of injecting must be modified, so that the fluid may reach the deeper portions of the canal.

Treatment of the Acute Stage.—The proper regulation of the diet, exercise, and mode of life of the patient, is of the first importance in every stage of gonorrhœa. In the treatment of the inflammatory stage, as well as in the abortive treatment of the first stage, if the patient can keep his bed for a few days the battle is half won. The advantages of absolute repose and quiet should be placed prominently before him, and every inducement be offered to lead him to avail himself of them. Yet in practice we find that very few will submit to this constraint. It is very well to say that every patient that puts himself under the care of a physician, should follow his advice implicitly in all things; but we must take the world as we find it, and the calls of business, or the necessity of secrecy, often render the insistence upon such stringent rules impossible. When life is in danger men absorbed in business will stay at home, but not merely for an attack of gonorrhœa. This, indeed, should not prevent our doing our best to persuade them, but we shall succeed in but a small minority of cases.

Exercise of all kinds should be avoided as much as possible, walking, dancing, riding on horseback, and standing—in the street, at the desk, at a party—are all injurious. Riding is certainly less objec-