CHAPTER V.

GONORRHEA AND CHANCROID.

GONORRHEA.

Bacteriology of Gonorrhea. According to N. P. Rathbun and T. H. Dexter,[1] the accepted characteristics of the gonococcus are that it is a biscuit shaped diplococcus, which is Gram-negative. It never occurs in chains, which is another characteristic, but occurs in groups, especially in groups of fours. It takes basic stains, but is readily decolorized by alcohol and acids. Finger says that a Gram-negative diplococcus, which is not the gonococcus, is found in the urethra of normal individuals and in individuals infected with gonorrhea in 4.6% of cases, but that the presence of a Gram negative diplococcus in the urethra is positive proof of gonorrhea in 95.35% of cases. There is also a Gram-positive diplococcus which may be recovered from the normal or gonorrheal urethra in a fairly large percentage of cases. Finger, Neisser, Bumm and others have for several years succeeded in obtaining pure cultures from the organisms, usually from the pus of acute gonorrhea, using human placental blood serum as a medium. The growth has taken place in from 24 to 36 hours, appearing in surface growth as gray-white, slightly shining, dew drops, and after 72 hours presenting irregular margins, and these cultures have been successfully transplanted to simple nutrient agar, beef and pig serum agar, ascitic and cystic fluids and peptone agar. They will grow only between the temperatures of 25 degrees C. and 39 degrees C., with an optimum of 36 degrees C. In room temperature they will grow from 24 to 36 hours. They are very sensitive to heat and are destroyed absolutely by an exposure of 12 hours to a temperature of 39 degrees C., and 6 hours to a temperature of 40 degrees C. They will live and remain active in pus at the ordinary room temperature till the pus becomes thoroughly dry. They lose their virulence in water in from 4 to 6 hours.

(1) N. Y. Med. Jour., Aug. 7, 1909.

The Gonococcus, according to T. Watabiko,[1] on carbohydrate media ferments only mannite, dextrose, dextrin and levulose.

Gonorrhea Septicemia. Gonorrhea, according to J. Dieulafoy,[2] is not a mere local affection but may become a septicemia rapidly fatal or may induce acute and chronic joint affections, ulcerative and proliferating endocarditis, pericarditis, bronchopneumonia, meningitis, infarcts in the lungs, peritonitis, pleurisy, phlebitis, etc. The urethral process may have been long healed or it may vanish as the other symptoms appear. Barbiani has reported a case in which gonococci were cultivated from the blood in what was apparently a case of acute articular rheumatism. Profuse sweats seem to be characteristic of gonococcus septicemia; other symptoms may suggest typhoid. Dieulafoy reports a typhoid syndrome fatal in one week, which proved to be solely a gonococcus septicemia. In two other cases patients were convalescing from gonococcus septicemia when typhoid fever developed. They had been treated with gonococcus vaccine. The results have impressed Dieulafoy with the value of opsonin vaccination.

Gonorrheal Arthritic Iritis. W. C. Posey[3] reports the case of a male gonorrheic with a family history of gout, who had repeated attacks of iritis and arthritis of great virulency. Normal vision remained, although there were synechiæ. According to Posey a very much attenuated virus remains for years in some parts of the genital organs, which gives no local trouble, but from time to time sets up local irritation in the synovial and serous cavities. Gonorrheal arthritis often occurs in gouty families.

In Chordee and Erections in Gonorrhea the Practioner[4] advises the following:

(1) Jour. of Med. Research, April, 1909.
(2) La Presse Med., May 19, 1909.
(3) Medical Record, Aug. 29, 1909.
(4) April 1, 1909.

℞.
Camphor monobrom. 3i.
M. et ft. pulvis No. X. Sig.: One thrice daily.
℞.
Kalii bromid. 3iii,
Lupulin,
Camph. āā gr. XVI.
M. et ft. pulvis No. X. Sig.: One thrice daily.

Antigonococcie Serum according to R. Hersey[1] is without effect on acute gonorrheal infections, whether they exist in the lower urinary tract or in any other part of the body. Its value in subacute and chronic cases is also very doubtful. The value in toxemic gonorrheal joints is without question. In the past these painful joints accompanying and following gonorrhea have been most resistant to treatment, both local and general. This remedy will give rapid, permanent relief. [See also PRACTICAL MEDICINE SERIES, Vol. VIII, 1908.]

In Chordee M. Haber recommends the following prescription of R. W. Taylor:[2]

℞.
Ex. belladonnæ ..... 2 gr.
Ex. opii aq..... 6 gr.
M. et fiat suppos. No. 6.

Huber instructs his patients to insert one in the rectum about 3 or 4 hours before retiring, one just before retiring, and one if awakened by the chordee during the night. This prescription generally acts like magic. The pain either does not appear, or if it does it is much less severe. If so treated the chordee generally entirely disappears by the third night. The suppositories are only used symptomatically and not curatively, and are reduced in frequency or dispensed with entirely as the chordee gets less and disappears. The suppositories may be used with excellent results in acute prostatitis and acute cystitis with marked tenesmus and frequency of urination.

Urethritis With Stricture. Discussing gonorrhea complicated by stricture, A. G. Rytina[1] remarks: For the successful treatment of stricture, various methods have

(1) Ill. Med. Jour., June, 1909.
(2) Medical Record, Jan. 22, 1909.
(3) Amer. Jour. of Derm., March, 1909.

been devised, but as all of these have to be supplemented by the gradual dilatation treatment if permanency of cure is to be expected it seems only rational to try this in the beginning, and resort to one of the others only when it is contraindicated or ineffectual. The dilatation treatment is always begun with a filiform, and followers, unless the stricture is of such caliber as to admit of the easy introduction of ordinary sounds larger than 18 F. The French follower known as Guyon's with Janet's modification is preferable, because it corresponds the more nearly to the natural curve of the urethra, and because it comes in more frequent numbers and in larger size than ordinary Le Fort followers. The sounds should be passed about twice a week, although this will vary according to the individual, the character of the stricture and the reaction following.

At such treatment not more than two or three numbers' increase of the French scale will be advisable. In some cases we may have to use the same number at two or three seances before an increase is permissible. As the caliber increases and the tendency to recontraction diminishes, the interval of passing the sounds may be increased to a week, then two weeks, finally it may be necessary to pass them but once a month. The dilatation should be carried up to at least 34 or 36 F. In some cases it may be advisable to dilate up to 40 F. or even higher.

As the meatus is the narrowest part of the canal, and it is manifestly impossible to pass through it instruments of such large caliber, formerly a meatotomy had to be done. To overcome this necessity, and reach a caliber of 34, 36 or 40 F., the Kollmann dilator is an invaluable instrument. The ordinary steel sound is used up to 25 to 28 F., then the Kollmann dilator is substituted and the dilation continued up to the limit desirable. While the sound is in the urethra, the strictured area over the sound is massaged. Dilation acts mechanically by stretching the strictured area. It also produces congestion, a softening and resorption of the scar tissue.

The other methods of treating stricture are by divulsion, electrolysis, internal and external urethrotomy, and resection of the urethra.

The treatment of leucoplasia is by the deposition of ½% carbolic acid or ½ to 1% salicylic acid, lanolin ointment by means of an anterior ointment applicator, high dilatations, irrigations, etc.

Chronic posterior urethritis without prostatic or vesicular involvement is treated by irrigations, high dilatations with the Kollmann dilator, and instillations by means of the Keyes-Ultzman syringe of various irritating solutions. The one usually employed is $AgNO_3$ in strength varying from ¼ to 5 or 10%. The idea of using these solutions is to replace an active for a chronic inflammation, and in that way hasten the absorption of the inflammatory products. When the prostate and seminal vesicles are involved they must be energetically treated. The most effective treatment of chronic prostatitis and vesiculitis is by massage per rectum. Hot and cold irrigations, electrical applications, ichthyol suppositories, etc., all play but a minor rôle in comparison with massage. The massage should not be performed blindly, but the massaging finger should begin at the periphery of the upper pole of the prostate, and gradually pass over the entire gland, paying particular attention to areas of induration, and to periprostatic and perivesicular adhesions, if present. The pressure must be vigorous and firm, and the infectious material always massaged in the direction of the urethra. If the vesicles are also involved, they should be massaged and perivesicular adhesions should receive especial attention.

The gland is massaged about 2 or 3 minutes, and the procedure must be performed about 2 or 3 times per week. After each massage give an irrigation to wash out the infectious material and prevent cystitis, urethritis, etc. If irrigation is impossible, instruct the patient to come to the office with a full bladder and the urine is voided after the massage. The patient should also be ordered to take hexamethylenetetramine and to drink plenty of water.

Many of these cases develop what is called an irritability of the prostatic urethra, characterized by pain in the prostatic urethra, frequency of urination, etc. In these cases, the deposition of 2% carbolic acid in lanolin in the prostatic urethra by means of Young's posterior ointment applicator often acts like magic.

Gonorrheal Epididymitis is, according to A. Ravogli,[1] as a complication of gonorrheal urethritis not so frequent at present as it was in the past. The modern treatment of gonorrheal urethritis has certainly diminished the period and the intensity of this disease, and of its consequences. If we examine the statistics of the hospitals, of the public clinics, and afterward those of private practice we find a great difference in the relation between urethritis and epididymitis. Zeissl referred to his hospital practice and from November, 1869, to November, 1870, in his *Abtheilung und Klinik* in K. K. allgemeinen Krankenhause, he had under treatment 114 cases of gonorrheal urethritis in males, mostly in a torpid condition, among them 76 cases of epididymitis. This large number of cases of epididymitis does not represent a creditable statistical datum for the reason that the majority of the patients came from the working people, and before repairing to the hospital had been treated by different physicians or had treated themselves, and when they could no longer keep on their feet on account of their suffering, went to the hospital.

Burnett stated also that epididymitis in his private practice was of relative infrequency, but in the out-clinic among gonorrheal patients it had reached 12.2%. In 1862 Rollet reported 678 cases of epididymitis among 2,425 cases of gonorrheal urethritis, 27.9%. Jullien in 1886, among 2,500 cases of gonorrheal urethritis, found 381 cases of epididymitis, or 15%. Tarnowski in 1872, out of 5,203 cases of gonorrheal urethritis, found 637 cases of epididymitis, or about 12%. Finger, during 5 years' service in the hospital, out of 1,844 cases of urethritis found 548 of epididymitis, or 29.9%. Jordan (1904) among 812 cases of gonorrheal urethritis between private practice and clinics found 91 of epididymitis, or 11.7%.

In these past years the number of cases of epididymitis in proportion to those of urethritis has been somewhat decreasing, so much so that we find that Finger brings the number of cases of epididymitis coming from gon-

(1) Amer. Jour. of Derm., March, 1909.

orrhea down to 12.5%; LeClerc Daudry to 12%, Tanaka 11.1%. The proportion of epididymitis to gonorrheal urethritis diminishes, when we go to private practice. The above given data are taken from the out-clinics, where many working people go for treatment, but in private practice it is still less. Wagapow in his practice found epididymitis 8.4% and Berg 7.5%. Ravogli, in his private practice has reduced epididymitis to 6.5%, as he had 26 cases of epididymitis in 5 years among 420 cases of gonorrheal urethritis.

The principal factors in the reduction of epididymitis are the obedience of the hygienic rules by the patient, and the treatment given by the physician.

The percentage of epididymitis in Cincinnati hospital practice is very large, as shown by the following table:

	Gonorrheal Urethritis.	Epididymitis.
1904	29	50
1905	27	44
1906	37	26
1907	61	26
1908	50	28
Total	204	174

This is due to the class of patients who apply for treatment at the hospitals, and to the rules of the hospital. In Cincinnati, hospital cases of gonorrheal urethritis are not admitted for treatment unless complicated with other troubles which render the patient entirely disabled. The patients who apply to the hospital are usually of the working class and have entirely neglected the urethritis, or they have used some internal remedies, or injections with patented mixtures advised by a friendly druggist; and although they were suffering with posterior urethritis, and with some inflammation of the vas deferens, they have continued their work until they could no longer endure the sufferings and were compelled to repair to the hospital.

The *causa proxima* of the epididymitis is the gonococcus,

which after having affected the posterior urethra, affected the caput gallinaginis, and spreading in the prostate through the ejaculatory ducts and through the vas deferens reached the epididymis, causing the inflammation of this organ.

As an accessory cause great importance has been given to trauma; but it was found somewhat difficult to explain how, after an insignificant blow, an infiltration and a swelling of the epididymis could follow in so short a time, when the patient had suffered from gonorrhea for a long time. This contingency was explained by Oppenheim and Löw through some antiperistaltic motions of the vas deferens. They claimed to have artificially produced streptococcic epididymitis by depositing streptococcic culture on the colliculus seminalis, and by electric irritation of the hypogastric nerve to have caused antiperistaltic motions of the vas deferens.

Schindler, however, repeating the experiments, could not succeed in producing a streptococcic epididymitis in the rabbit, nor could he reproduce an antiperistaltic motion of the vas deferens with electricity, but he succeeded in obtaining these motions by irritating the colliculus seminalis after it had been previously injured.

An irritation applied to the testicle by a blow, or by some injury produced on the colliculus seminalis with a bougie or catheter may favor the aggregression of the gonococci and determine epididymitis.

Tanaka referred to long statistical tables of the different occupations of his patients, and he came to the conclusion that individuals who by their occupations remained sitting, as students, painters and tailors, are more rarely affected with epididymitis, than those who must remain on their feet or are exposed to trauma, such as pressers, stone-masons, manual laborers, and occupations of a similar nature.

Tanaka greatly praises the Japanese habit of wearing constantly a suspensory or bandage to hold and protect the generative organs, and we must say that the use of a suspensory or of a bandage to hold and protect the testicles is of a great advantage in preventing epididymitis.

Epididymitis usually affects one of the testicles, sometimes it is the right, at other times it is the left, but it seems that the right is more frequently affected. In fact Castelnau observed that of gonorrheal epdidymitis 47.6% affected the right and 47.2% the left testicle, and in 5.2% both sides were affected. In the 76 cases of epididymitis reported by Zeissl 36 affected the right side and 33 the left. In 7 patients both sides were affected, not both at the same time, but in an alternating way. Of the 93 patients observed by Tanaka less had the left testicle affected than the right. Seven suffered on both sides, but some time apart. It seems that epididymitis of both testicles at the same time is extremely rare. In Ravogli's experience, also, among 174 cases of epididymitis, we find that the right testicle was involved in 92 cases, and the left in 82. It is difficult to explain this litle difference between the two sides. Some believe it to be attributable to a certain difference in the length of the testicles, that one which hangs lower down being more exposed to injuries.

Ravogli cannot find any connection of seasons with epididymitis, although Finger believes that in very hot and dry weather epididymitis is somewhat more frequent. Tanaka's statistical tables claim that epididymitis is more frequent in March, June and November, when the temperature from cold becomes warmer, or from warm passes to the colder. Ravogli accepts the opinion of Jordan that more gonorrhea means more epididymitis, and as a consequence of more vacations and feasting, the more gonorrhea, and afterwards the more epididymitis.

The difference in the number of cases of epididymitis in private practice, public clinics and hospital practice shows that well directed treatment has greatly diminished this complication. In Ravogli's private practice he has not had more than 6.3% of epididymitis, while in the hospital epididymitis cases are frequent. Le Fort refers to 576 cases of gonorrheal epididymitis, of which 264 had never had any medical treatment for their urethritis. In 93 cases observed by Tanaka 19 had never had any treatment, 47 had received treatment by a friendly druggist,

mostly balsam without any injection; 27 had received injections but often had discontinued and used them by themselves without good medical direction. On the other hand, it cannot be denied that an attempt to force the injection into the posterior urethra by the Janet method in an anterior urethritis has been the cause of much epididymitis. In the same way, the attempt to introduce a sound or a catheter for treatment, when an acute gonorrheal posterior urethritis is going on, may have the disagreeable result of causing the process to spread from the colliculus seminalis to the vas deferens and produce epididymitis.

Epididymitis is liable to come very early, after the gonorrheal process has affected the urethra for only a few days, and also very late after the gonorrheal process has been many months in the chronic stage. In general, Ravogli agrees with Finger, R. Bergh, Jordan and others that epididymitis occurs when the process from an acute stage becomes subacute or epididymitis occurs when anterior urethritis has affected the posterior urethra. Indeed the patient after the fourth week is rejoicing that the discharge has nearly subsided, he thinks himself well; the only trouble is a frequent urination and some tenesmus in squeezing out the last drops of urine, in a word his urethritis has affected the posterior urethra. This is usually after the fourth week; the time when epididymitis occurs can be said to be at the end of the fourth and at the beginning of the sixth week.

Complications of Acquired Gonorrhea in Children. In an article of a special pleading nature which denies that syphilographers recognize innocently acquired gonorrhea, Flora Pollack[1] states, rather in conflict with other observers, that Bartholinitis rarely occurs. Pelvic abscess is never found. Although pelvic peritonitis is rather common, it is of a low degree, and in this series of 189 cases has never reached the suppurative stage. The symptoms of peritonitis in a child who has a gonorrheal vaginitis or urethritis are fever, abdominal tenderness usually with retraction, at times distention, vomiting and constipation.

(1) Johns Hopkins Bull., July, 1909.

In 10% of this series none of the children developed abscess. Although the child looks ill it does not lie down, but throws itself over a chair, lying on its abdomen until the paroxysm is over (for the pain is paroxysmal), and then resumes its play; the child loses weight, is pale and fretful, but cannot be induced to remain quiet, proving that its condition is not as grave as in the adult.

Bartholin's abscess occurred but three times or in 1.6%. The youngest in the series also had mastitis. Buboes are rather frequent, not quite 15%, developing large, tender glands, though even here suppuration is rare, occurring but twice in the series.

Arthritis is rare, occurring but three times. Involvement of the rectum is rather more frequent and occurs as a proctitis as well as an ischiorectal abscess, being present 7 times, about 4 per cent. The cases referred to had definite gonorrheal infection of the rectum. Urethritis is the most frequent complication, as would be expected, occurring at all ages. One child had rhinitis; one a scarlatiniform rash over the entire trunk; one a cardiac lesion and peritonitis; one chorea, and one mastitis.

The extensive and very painful excoriations due to the gonorrheal discharge must be regarded as one of the symptoms rather than a complication of the disease, as they are always present, even though proper treatment soon relieves the condition, and if continued prevents its recurrence; it is a curious fact that in exacerbations of the disease redness is apt to occur with the discharge, when this is gleety, as well as when purulent.

Gonorrheal Periurethral Folliculitis. According to N. E. Armstrong,[1] among complications of gonococcic urethritis, periurethral folliculitis with subsequent abscess formation holds a very important place. If the contents of the abscess cavity are evacuated into the urethra, healing may be delayed for an indefinite period, but the prognosis as a general rule is favorable as regards a perfect restoration of the parts to their normal. If, however, the pus makes its appearance on the surface, the abscess rupturing from without, and especially when this unfavorable complication ensues in the posterior perineal region, a urethral fistula is invariably established, which is very obstinate and protracted, and may resist all attempts at therapeutic interference. In such a state of affairs one must continually be on his guard against urinary infiltration and endeavor to forestall this serious sequela by timely intervention.

(1) Amer. Jour. of Derm., July, 1909.

Gonorrheal Ulcero-Membranous Stomatitis has been so repeatedly reported in the adult[1] that the following editorial statements of the *Lancet-Clinic* are rather surprising. A German of some note, Wilhelm Karo,[2] calls attention to "Stomatitis Gonorrhoica," a hitherto almost unknown form of gonorrheal infection. Syphilitic diseases of the oral cavity, as the writer says, "are generally well known, but gonorrheal stomatitis is unfamiliar even to a great many genitourinary specialists and dental surgeons."

"As a rule, it occurs a few days after birth. After this period, the mucous membrane of the mouth presents circumscribed yellowish deposits, especially in places where the mucosa overlaps the edges of the palate bone, and where the bony and cartilaginous parts show their white color through the tissues. There is no sign of a widespread involvement of the mucous membrane; the lips and cheeks are always free from any lesions. The disease always appears typically in the neighborhood of the posterior palatine process and on the back of the tongue, while the lower parts remain intact.

"Wherever these yellowish deposits appear, a layer of sticky, purulent matter can be easily scraped off, beneath which a white base will be noticed. Such parts of the mucous membrane as are unaffected are also free from swelling. When the sticky material is examined, typical gonococci can be easily found. These deposits are never in the form of membranes, such as, for instance, are found in diphtheria; the entire mass simply represents a superficial imbibition of the upper layers of epithelium. This, however, generally disappears after the third day, and in its place a deposit of thick pus will be observed,

(1) Practical Medicine Series, X, 1904.
(2) Int. Jour. Surg., June, 1909.

which is gradually dissolved by the saliva without becoming fetid.

"In contrast to syphilitic disease of the mouth, stomatitis gonorrhoica is always confined to the upper layers of the epithelium, and even in its later stages it extends only to the papillary bodies."

The cool way in which the *Lancet-Clinic* and Karo ignore the work of French observers like Menard, and American observers like Tuttle,[1] Morrow,[1] Phillips,[2] Cutler[3] and Larsen[4] is rather surprising, even in these days of assimilation without credit. The condition has more serious results than those pictured by Karo.

Gonorrheal Phlebitis. The origin of gonorrheal phlebitis is discussed by D. G. Zesas.[5]. It is not certain whether the gonococcus is carried from the veins of the penis or the vagina to the hypogastric, external iliac, femoral and external saphenous veins, or whether it gains entrance into the general circulation[6] and is arrested in the vasa vasorum at some favorable point, there to exert a pathogenic action. The phlebitis has never been observed to become suppurative, and the cases usually end in recovery, but such complications as epididymitis and still more frequently arthropathies, especially of the knee, have been observed. The phlebitis oftener arises during the acute than during the chronic stage of the urethral affection, though in the case reported by the author the gonorrhea had persisted for more than a year. The local manifestations are apt to predominate over the general symptoms, but sometimes there is an initial chill followed by a considerable elevation of temperature. The average duration of the phlebitis is from 4 to 6 weeks, but it may be more than 4 months. It is most apt to attack persons who are engaged in laborious occupations. It is not unusual for the urethral affection to subside when phlebitis appears, and not to return on the subsidence of the venous inflammation. Gonorrheal phlebitis does not call for

(1) System of Dermatology and Venereal Diseases.
(2) Amer. Jour. of Derm., 1908.
(3) N. Y. Med. Jour., April 11, 1889.
(4) St. Louis Med. and Surg. Jour., April 18, 1896.
(5) Arch. gén. de Chir., June, 1909.
(6) N. Y. Med. Jour., Aug. 28, 1909.

treatment in any wise different from that of the commoner forms of phlebitis.

Penis Teratology and Gonorrhea. E. A. Ruggles[1] points out that the penis is subject to many abnormalities. In size it varies greatly. The prepuce may be absent or enormously developed. The organ itself and the opening thereof may be contracted to the caliber of a fine needle, or it may even be imperforate. The meatus may be located at any point in the median line extending from the penoscrotal junction on the lower surface along the raphé and frenum to the apex of the glans and from this point along the dorsum to the pubis, while its size varies from a pin hole to a slit occupying the major portion of the glans. It may also be double or triple or completely absent. The urethra also manifests the most amazing complexity of form and branching in various subjects. In so-called hermaphroditism, the outline of the penis recedes, losing more and more its distinctive character, until the walls of a hypospadiac urethra come to correspond to the labia majora and the rudimentary penis to a clitoris, and an almost perfect imitation of the external female genitals is produced. The most simple and frequent abnormality is the contracted meatus. The normal meatus, in an average-sized penis, has a length of about $\frac{3}{8}$ inch and should let pass a No. 30 Fr. sound with ease. There are, however, many meatuses which are apparently contracted, i. e., their length is a third or more less than that above stated, which in reality are not functionally contracted, since they permit the passage of a large stream of urine without effort and admit a 30 Fr. sound easily.

At the other extreme is the "pin-hole" meatus, sometimes not larger than a fine needle. Such a meatus has in gonorrhea a similar effect to that of an insufficient opening of an abscess. The secretion is dammed up and while the apparent discharge may be slight, there is an unusual amount of pus within the urethra and the gonococci are very much more likely to penetrate the mucous membrane deeply, to enter the urethral follicles and to migrate to the posterior urethra and to the prostate and

(1) Medical Record, Jan. 9, 1909.

seminal vesicles. Of course such a patient may recover promptly, but this is due to the greater resistance of the tissues, which is not caused by their anatomic structure, the mucous membrane being less permeable and the mouths of the follicles and the ejaculatory and prostatic ducts smaller or at least less pervious for the germs than in the severer cases. That such idiosyncrasy exists in these cases is demonstrated by the fact that patients who suffer from severe or obstinate complications or from gonorrheal rheumatism during their first attack of gonorrhea, generally are affected by the same complications at subsequent attacks. In either acute or chronic gonorrhea, such a meatus should be enlarged at once, if the individual will consent.

In the moderately contracted meatus, if the course of the disease is favorable, especially if it remains confined to the anterior urethra, it should be let alone. In many cases of long standing, instrumentation is necessary, and a meatus which cannot be dilated above 25 Fr. will not admit an instrument large enough to be effective.

General Treatment of Gonorrhea. In this certain principles must be recognized. Among these are a fair amount of bodily rest during the acute stage, a bland condition of the urine secured by great moderation in diet and the ingestion of large quantities of water, the avoidance of sexual excitement and alcohol. Many practitioners now believe that there need be struck from the diet none of the wholesome articles ordinarily taken, such, for instance, as red meat, but that the food should be taken in very limited quantities, should be chewed thoroughly, and should be selected with due regard to the idiosyncracy of the individual stomach. Regularity of the bowels and the avoidance of chilling are also regarded as of prime importance.

As to the use of medicaments, alkaline diuretics are almost universally accepted as serviceable, to the point of rendering the urine almost neutral. Further, it is regarded as desirable that the patient should empty his bladder as soon as he experiences the desire to do so.

The moment the question as to the choice of drugs supposed to have a specific action arises, there is a wide divergency of opinion. Perhaps salol as a urine antiseptic and urotropin receive most universal acceptance. Of balsams, sandalwood oil or its derivatives is undoubtedly the most efficient, copaiba following next in order, and cubebs being not only the most expensive but the least serviceable.

French has tried in 15 years most known methods amongst 5,000 in-patients. In the initial stage there is a tendency to dispense with chemical irrigations and injections in favor of more conservative methods, with the best results. His method is as follows: For about 7 to 10 days the patients are put to bed on a milk or farinaceous diet with 5 pints of barley-water, porridge and cocoa as extras. During this period free saline purgatives are administered every morning and an alkaline mixture containing potassium nitrate 1 ounce, potassium bicarbonate 10 drachms, tincture of hyoscyamus 10 drachms, and infusion of buchu 2 pints. No injections or irrigations are given. After 10 days on an average the previously creamy, yellow, purulent discharge becomes thinner, whiter and mucopurulent. The patient is then allowed to get out of bed and is given a convalescent diet. When the two-glass test shows that the inflammation is both anterior and posterior, irrigation is usually not practiced for 4 weeks, and it is at once discontinued if the posterior symptoms become suddenly acute. Anterior irrigations commence in the average case about the sixth day, a pint at a time being applied 2 or 3 times daily. The posterior irrigations are used never more than once a day, preferably in the morning. It is usual in posterior cases to give a second anterior irrigation in the afternoon. A solution of potassium permanganate 2 grains to the ounce, and one ounce of this to every pint of lukewarm water (98° F.), is ordinarily used as an irrigation. The strength is greatly increased. The pressure is about 8 feet, and a double-channel irrigating nozzle employed. After the urethral discharge has ceased, the urine gradually becomes clear, and threads, in average cases, are no longer visible after 6 weeks. The man is then placed on beer for 3 days, when if the urine still remains clear and the gonococcus is not demonstrated with the microscope, he is dismissed from the

hospital when 10 to 14 days free from suppuration; but never under 6 or 7 weeks if admitted with acute gonorrhea.

The only treatment which curtails the gleet stage in chronic cases is to illuminate the urethra by the electric urethroscope any time after the twentieth day of disease, and use local applications of silver nitrate to the granular patch, which is present at some time in some degree in every case of freshly contracted gonorrhea. It is usually exquisitely tender, is readily seen, and is mostly situated within 4 inches of the meatus urinarius on the floor of the urethra. When the gleet is due to chronic inflammation, examination should be made for stricture and for enlarged prostate. If the latter condition exists massage of the prostate has been suggested and iodid of potassium is sometimes of benefit.

Even though there be no obvious discharge, if the meatus be red and glazed, discharge is present. A large number of gonorrhea cases get well after 5 to 7 weeks without local treatment. French was astonished at several hundreds in India, where no injection or irrigation whatsoever was used. The ordinary duration of the urethral discharge was about 6 weeks.

According to Finger 6 weeks is the average period of gonorrheal discharge. Injections do not curtail this period.

In so far as relapses are concerned French proves the necessity of prolonged observation and the continued treatment of patients apparently cured. Of 195 cases admitted to the hospital in 1907 there were but two relapses, although most of the troops were mounted.

Vaccines in Gonorrhea. Gonococcus vaccine, according to J. H. W. Eyre and B. H. Stewart,[1] in acute gonorrhea is markedly toxic and exerts a profound influence over the disease. For routine work (hospital, out patients, etc.) vaccine treatment is not devoid of danger and requires the exercise of conservative caution. A stock vaccine comprising a dozen different strains gives results only slightly inferior to those observed when using a vaccine prepared from the patient's own organism. This is not the rule

(1) Lancet, July 10, 1909.

in most other diseases. Small doses, repeated at short intervals, are more effective than large doses at lengthened intervals. Small doses of vaccine (from 1,000,000 to 10,000,000) are safer and more satisfactory than the large doses (from 50,000,000 to 100,000,000) which are often prescribed. After an injection of from 500,000 to 2,000,000 the negative phase is either absent or extremely transient. An inoculation of from 5,000,000 to 10,000,000 causes a negative phase of usually not longer than 48 hours' duration, followed by a positive phase of from 3 to 5 days. Vaccines in small doses serve the double purpose of raising and steadying the opsonic index. A steady index just above normal is found to be the most favorable condition for rapid recovery. Simple chronic gonorrheal cases, where the gonococcus has ceased to be the infecting organism, are on a par with other chronic inflammatory states, but are frequently more difficult to cure owing to environment and local conditions. Chronic cases where the gonococcus is the sole infecting organism have a better prognosis from the point of view of treatment by vaccine than a mixed infection or one of staphylococcus only. In chronic gonorrhea with complications the estimation of the opsonic index is helpful to diagnosis and is a useful means of determining approximately the opsonic state of the blood. Chronic gonococcus infections, however, present clinical features which themselves afford valuable indications during the course of vaccine treatment. Where the gonococcus alone is the infecting organism, if the opsonic index cannot be obtained as frequently as is desirable, routine injections of from 1,000,000 to 2,000,000 doses every 3 to 5 days are safe and satisfactory; a lapse of 5 to 7 days after doses of 5,000,000; an interval of 8 to 10 days after inoculation of 10,000,000. Larger doses than these are seldom desirable. Treatment by small and gradually increasing doses at frequent intervals should at all times be observed; the use of large doses is even more dangerous than in acute cases, and may be followed by disastrous consequences. In orchitis small doses of vaccine quickly relieve pain and cause a more rapid abatement of symptoms than are obtained by the usual routine treatment alone. In iritis the severe pain, which is a

marked and obstinate feature, is relieved in 48 hours after an injection, and disappears in from 3 to 4 days; cure is much hastened. In arthritis the treatment is of considerable value.

Antigonococcic Serum, according to B. N. Dunbrant,[1] is of distinct value in infection of the prostate and epididymis and in acute gonorrheal arthritis.

Suppurating Bubo. J. A. Murtagh[2] says that the points upon which success in suppurating bubo depend are: Thorough application of the actual cautery to the infected ulcer. Incision into healthy skin usually in an area one to one and one-half inches covering the bubo. Thorough removal of the diseased glandular tissue and complete irrigation of the cavity by the method as described. Thorough drying of the cavity as nearly as possible by pressure, before introducing the emulsion, and rest in bed for a few days after the operation. The advantages of this method of treatment may be summed up as follows: Immediate relief from pain and discomfort. Rapid healing of the skin incision and of the diseased glandular cavity. Absence of a painful and disfiguring scar. Avoidance of the long tedious period of recovery usually experienced by other methods.

Gonorrhea and Genital Maldevelopment. A. J. Love[3] claims that the gonococcus arrests the uterus at the infantile period, produces long, thin, imperforate tubes and ovaries that do not mature an ovum. The fact that all things considered, defectives are most likely to have both gonorrhea and the conditions described is not taken into account by Love.

Chancroid.

Chancroid Ulceration G. K. Swinburne[4] reports the case of a 26-year-old man who consulted him November 16, 1908, for a chancroid of the glans 11 months old, during which he had been under constant treatment. All ordinary means had been used. One physician had employed daily

(1) Memphis Med. Monthly, September, 1909.
(2) N. Y. Med. Jour., Sept. 4, 1909.
(3) Medical Record, April 17, 1909.
(4) Med. Record, Feb. 27, 1909.

injections in the buttock of a 2% solution of bichlorid of mercury for 30 days for an underlying lues. During that time there had been a steady extension of the disease, comprising an extensive ulceration on the under surface and side of penis and glans; the urethra had been perforated and the patient passed all of the urine through the wound. The pain was worse on urination, so that he passed urine only twice in 24 hours. After a week of ineffectual treatment, Swinburne painted the surface with equal parts of ichthyol and an organic silver salt, first applying a cocain solution. The application was made after urination, so that he could go as long as possible without removing the dressing. From that time pain diminished and the ulcer began to heal, at first rapidly, then more slowly. The applications were frequently repeated. The ulcer showed a tendency to break down at the angles when the applications were stopped or when any other preparation was substituted. The ulceration finally healed entirely but the urine still passed through the gap. The patient was now anxious to have something done to repair the condition. Behind the false opening, in the spongy body and the corpora cavernosa, was a thick indurated mass which interfered with erection, the glans penis remaining soft. The patient had a chronic urethral discharge without gonococci. Swinburne's advice was to let the condition alone or else amputate the penis behind the indurated mass.

V. C. Pedersen[1] reports the case of a 30-year-old man in whom 2 weeks after coitus a painful sore appeared on the glans. A physician applied a wet bichlorid dressing. In spite of this rapid extension followed, and when Pedersen saw him the ulcer involved the foreskin of the meatus. Numerous pockets exuded pus. The depths and angles of the pockets were filled with a necrotic tissue of jelly-like consistence, closely resembling soft boiled cartilage. No definite organisms were in the pus. Part of the slough suggested syphilis, part tuberculosis. September 12, 1907, under ether, the foreskin was divided, the sinuses and pockets exposed and the entire area cauterized with a weak solution of bromin water. All sloughing and edematous tissue was cut away as far as possible and a wet dressing

(1) Therap. Gazette, February, 1909.

of black wash applied. At the end of 6 days no great improvement had taken place, and it was then decided to cauterize the sloughs lightly with nitric acid and open the sinus passing around the urethra by a transverse incision at its base. This was done, and iodoform powder was then liberally applied. Five days after the cauterization a slough was cast, opening into the urethra. With the exception of this the patient made an uneventful recovery. Except for the loss of the skin sheath of the penis, the only deformity of the organ occurred at the terminal part of the urethra, where the glans had been largely eaten away, causing a peculiar doubling of the canal upon itself toward the left. This defect in the urethra persisted. To repair this a plastic operation was necessary.

CHAPTER VI.

SYPHILIS AND ALLIED DISEASES.

Syphilis in Physicians, C. Waelsch[1] claims, can be obviated by reasonable care. He ignores, however, obstetric syphilis and the syphilis from prostatectomy, where dangers cannot always be obviated by prophylactic antiseptics.

Syphilis and Dementia Precox. J. Roubinovitch and F. Levaduti[2] have tested the existence of syphilis in dementia precox by the Wassermann reaction and claim that the failure of cephalorachidian fluid reaction demonstrates that the cerebral changes which characterize dementia precox cannot be attributed to treponemic infection. This conclusion, if tested by similar failures in the tertiary stage of indubitable lues, is too strongly put. The type of the psychosis here comprehended under that *omnium gatherum,* dementia precox, is not given. It is not stated whether the cases tested are paranoid dementia, katatonia or hebephrenia, although the last seems most probable. Paranoia and hebephrenia are indubitably arrests of development and even in cases with luetic ancestry might not show any reaction. The congenital and acquired types of non-specific lues are ignored. Three cases gave the reaction but other luetic antecedents were lacking.

Syphilis in Locomotor Ataxia. W. A. Pusey[3] reports a case of locomotor ataxia with later syphilides. The patient, a 43-year-old cabinet maker, denied any infection. In 1894 he complained of "rheumatism" pains. In 1904 he began to have lancinating pains and soon after a girdle sensation; difficulty in walking in the dark and in telling the position of the limbs appeared. In 1908 slow urination

(1) München. med. Woch., April 13, 1909.
(2) Gaz. des Hôp., June 3, 1909.
(3) Jour. of Nerv. and Ment. Dis., July, 1909.