One or two hard, knotty cords are felt under the skin of the penis, usually at the side. They commence at the chancroid (or other lesion), extend for a greater or less distance up the penis, sometimes up to the glands in the groin. Occasionally they can be felt only toward the root of the penis. The integument over them, in mild cases, is unaltered; in severer cases their course is marked by a red line. They are painful to the touch, and during erection. The penis is often red, erysipelatous, swollen, œdematous, and, in severe cases, there are fever, sleeplessness, etc.

Lymphitis terminates in resolution or suppuration. In virulent lymphitis, the latter is inevitable. In the simple form suppuration may occur in one or more spots, resulting in abscesses, which discharge and get well. In virulent lymphitis similar abscesses form along the line of the vessel, open, furnish auto-inoculable pus, and remain as chancroidal ulcerations.

Either form may exist without bubo, with simple bubo, or with virulent bubo. The affection is not common, and bubo is most frequently encountered without it.

Treatment.—Rest, cooling lead-water or spirit lotions, collodion for excessive œdema, perhaps puncture, poultice for severe pain, and opening abscesses, when they form, comprise the treatment. Simple abscesses are best treated with water-dressings; virulent abscesses exactly like chancroids, which indeed they are. Internal treatment has no influence over lymphitis.

CHAPTER III.

SYPHILIS.

Nature.—Unity and Duality.—Length of Time required for Absorption of Virus.—Analogy with Vaccine Virus.—Second Attacks of True Syphilis.—Transmissibility to Animals.—Incubation of Syphilitic Chancre.—Induration, parchment-like, split-pea, diffuse.—Ulceration.—Secretion.—Pain.—Nature of Scar.—Auto- and Hetero-Inoculation.—Vaccinal Syphilis.—Multiple Inoculation.—Fluids capable of transmitting Syphilis by Inoculation.—Methods of Transmission of Syphilis.—Duration of Chancre.—Number.—Size.—Situation.—Form.—Symptoms of Urethral Chancre.—Course of Chancre.—Complications.—"Mixed Chancre."—Transformation into Mucous Patch.—Phagedena and Gangrene.—Treatment of Chancre.—Syphilitic Bubo.—Lymphitis.

Syphilis is a general dyscrasial blood-disease caused by the absorption of a peculiar virus into the circulation, manifesting itself primarily by the appearance of a poisonous sore at the point where the virus entered, and afterward by a succession of morbid manifestations occurring at longer or shorter intervals—manifestations which, in their totality, interest every organ and tissue in the body.

The virus is only known by its effects. Exactly what it is, has not yet been determined, either by the microscopist or chemist. Different

observers have claimed to have discovered certain vegetable spores in the secretion of syphilitic chancre and in syphilitic blood, but their investigations and conclusions have been disproved, and cannot be accepted. The last effort in this direction is the discovery in syphilitic blood, by Losdorfer, of certain peculiar microscopic bodies, which he believed to represent the syphilitic poison. Further investigation, however, showed that the blood of any cachectic hospital patient would furnish the same bodies, whether the individual had syphilis or not, proving it to have been a cachectic and not a syphilitic corpuscle, and thus ending a charming delusion.

Diday [1] has called attention to the fact of an apparent antagonism between the syphilitic virus and cancer. Numerous inoculations in one case of syphilitic chancre, in others of secondary lesions, made upon patients with cancer by Diday, Rodet, and Rollet, have failed invariably [2] (Rollet).

Syphilis has been happily compared by Hutchinson [3] to the contagious exanthemata, small-pox, measles, scarlet fever, as possessing all the peculiar characters common to this group of diseases, namely: it is communicated only from one diseased person to another healthy one; it has a stage of incubation before any sign of the disease appears; it has a stage of efflorescence, which indeed in syphilis is prolonged and marked by relapses; it has a period of decline, and sequelæ—the later tertiary lesions—which do not always occur, and during which the disease often ceases to be communicable. Again, most of the various efflorescences of syphilis, like those of the other exanthemata, tend to pass away spontaneously after a time; thus, as Fournier aptly puts it, affording a triumph to every method of treatment. One attack confers immunity from another often for life, always for a long period. The disease is transmissible by inheritance, as in the case of the other exanthemata when the child is born before the mother recovers from disease. Finally the sequelæ do not constitute transmissible disease, even by inheritance. As in the other zymotic diseases, a portion of the virus, however small, is capable of infecting the whole body, as if by fermentation. Thus the analogy of syphilis with the contagious exanthemata is clear, only its febrile symptoms are less marked, its efflorescences more varied, and its course much more protracted—counted by months instead of days—and more subject to variation, as well as more amenable to treatment. Syphilis is fortunately only contagious, it is not infectious; its poison is not volatile, is not diffused in the air; direct contact of the virus with a surface capable of absorption is essential to the production of the disease.

[1] "Histoire naturelle de la Syphilis."

[2] Although this antagonism may exist, still cases of undoubted cancer have been encountered by the authors upon patients, who, at an earlier period of life, were certainly affected with syphilis.

[3] Reynolds's "System of Medicine."

The arguments and theories concerning the unity or duality of the syphilitic virus are out of place in a text-book. What syphilis is will be shown in the following pages—what it is not has been already set forth. In the early part of this century measles was not distinguished from scarlet fever, and the best pathologists set down chancroid, gonorrhœa, and vegetations, all as syphilitic. But truth has appeared, though slowly, and at the present day the great majority of the most reliable authorities on syphilis are in accord. Old writers are dangerous guides, for they had no aid from the light of experimentation furnished to the present generation by Ricord, Bassereau, Clerc, and a host of others. Few at the present day can be found who could fall into the error of Hunter, and consider as gonorrhœa a urethral discharge producing syphilitic chancre by hetero-inoculation, since urethral chancre is so well known; but many still look upon vegetations as indicating syphilis, and there are some distinguished names still laboring to preserve the identity of chancroid with syphilis—and that, mainly, because exceptional examples or obscure cases, not thoroughly well marked, seem sometimes to give the symptoms of syphilis after an apparent chancroid, and no syphilis after a seeming chancre. Rollet [1] has ably dealt with these cases, about which something will be said farther on; suffice it now to remark that the fight is based upon exceptions. In the vast majority of reasonably well-marked cases, syphilis is as different from chancroid as night from day. A patient may have malignant scarlet fever and die in a day without a sign of eruption, but still he has scarlet fever, as no one denies. Even if one syphilitic chancre out of twenty were not indurated, the other nineteen would be amply sufficient to establish a rule. But the proportion is far larger, and there is, perhaps, no symptom of any disease more constant than is the induration of syphilitic chancre, yet the patient does not have syphilis because his chancre indurates—as was formerly taught—on the contrary, he already has syphilis before his chancre appears. If he did not have it, he could have no chancre at all, and the induration of that chancre is just as much one of its symptoms as is ulceration, of a chancroid. If a patient is exposed to measles, and dies during the period of incubation, before he is at all sick, he cannot be said not to have the measles; the same of a patient who has absorbed syphilitic virus: he has syphilis at once, and because he has syphilis he gets a sore at the point of entrance of the poison, after a period of incubation, as the first symptom of the disease. This chancre may be destroyed by caustic, but the disease will run its course unaltered.

Interval before Absorption.—Clerc [2] tells of a medical student who washed himself immediately after sexual intercourse, and on careful examination for several days subsequently detected absolutely nothing; twenty-eight days afterward chancre appeared, followed by general syphilis.

[1] "Traité des Maladies vénériennes," Paris, 1866.
[2] "Traité pratique des Maladies vénériennes," Paris, 1866.

Hill [1] relates a very important case, bearing upon this point. A man in sexual intercourse tore his frænum at 4 A. M. The wound bled freely. Fearing possible infection, he called upon Hill during the same day, within twelve hours after the accident. To quiet his fears, although there was no lesion evident except the abrasion, Hill cauterized the surface freely at once, with fuming nitric acid. The slough separated in due time, leaving a healthy surface, which cicatrized promptly. About one month afterward, the scar indurated. It never ulcerated again, but the regular manifestations of true syphilis came on at the usual interval.

What more striking evidence could there be of the inability of any local cauterization to interfere with the regular development of this blood-disease, after it has once been acquired?

Diday [2] cauterized a syphilitic chancre within six hours after its appearance; but, although the sore healed promptly, general syphilis followed.

No attempts have been made experimentally to destroy the point where true syphilis has been inoculated upon healthy subjects, but the experience furnished by the known action of other poisons may be used to form a conclusion by analogy. The rapidity of absorption of the poison of a snake-bite is well known, as is also that of rabies and the poison of a dissecting wound, and there is no reason why that of syphilis should be less so. The French veterinary surgeons have inoculated horses with the poison of glanders, cutting out the seat of inoculation one minute after insertion, but the disease followed just as surely as if nothing had been done. Similar experiments have been performed on sheep, with the same result. Clerc [3] vaccinated some children, destroying the inoculated point one hour afterward with nitrate of silver; vaccinia followed, and a second vaccination failed to take. Seven children were vaccinated by Aimé Martin,[4] and the spot destroyed with Vienna paste, at intervals varying from one to twenty-four hours, after insertion of the virus. None of the children had vaccinia, but that the vaccination was protective is proved by the fact that in only one out of the seven cases could vaccinia be produced by subsequent insertion of vaccine lymph under the skin.

This analogy seems perfect. The spot, even during the period of incubation, may be destroyed so thoroughly that no evidence of the entrance of the poison will be manifested by a subsequent characteristic sore; yet, that the protective power of the poison (vaccine virus) operates as well as if the characteristic sore had appeared, is shown by the failure of subsequent attempts at vaccination.

[1] "On Venereal Diseases," London, 1868.
[2] "Annuaire de la Syphilis," 1858.
[3] Quoted by Hill.
[4] "Thèse de Paris," 1863.

How different with chancroid! Here there is no period of incubation as there is with vaccine and syphilitic poison. When the virus touches a denuded portion of tissue, changes commence at once. If our eyes were microscopic, we could probably appreciate those changes; as it is, we have to wait some hours before the first signs appear. Chancroid can be aborted by applying certain fluids to the inoculated spot within a few hours, and destroyed totally by caustic after it has appeared.

Syphilitic chancre is the first symptom which indicates that syphilis has taken possession of the patient. It is an abrasion or an ulcer something like chancroid; but, unlike the latter, it and the syphilitic manifestations following it only appear once in a lifetime. This rule, like all others, has its exceptions.

Second Attack of True Syphilis.—Hutchinson[1] saw a well-marked case, in a physician, of two attacks of syphilis, each preceded by its characteristic syphilitic chancre. The same patient had had small-pox twice. Many other cases are found scattered through the literature of syphilis, and they go to prove that syphilis gets well, for, until one attack is recovered from, another cannot be acquired. Diday[2] has collected twenty-five cases, of which he personally saw twenty. All had had syphilitic symptoms, which had disappeared, except in a few, where some late (tertiary) symptoms remained. In all of these cases there was syphilitic chancre with characteristic induration, occurring a second time after a previous syphilis. In fourteen, the inguinal glands were not indurated, and there was no further sign of syphilis. In nine, general syphilitic symptoms appeared, but they were less intense than during the first attack. In two, the second attack was more severe than the first.

In analyzing these cases, Diday found that in none did the second chancre appear until all signs of previous syphilis had passed away, or, in some cases, where tertiary (non-transmissible sequelæ) symptoms alone remained. The nearer the second attack came to the first, the more feeble was the effect of (second) infection, yielding only chancre; the greater the interval, the more marked the effect. The two severe cases followed their predecessors after more than nineteen years. The lighter attacks followed severe ones, and *vice versa*. Diday concludes that the minimum time for the cure of syphilis is twenty-two months, and that, where syphilitic chancre appears twice in the lifetime of an individual, the second attack should not be treated until symptoms of secondary syphilis appear, as these may never come on, the whole attack consisting simply in syphilitic chancre.

Heinrich Koebner[3] has recently again collated the evidence on this

[1] *Loc. cit.*

[2] "De la Réinfection syphilitique, de ses Degrés et de ses Modes divers," *Archives Générales de Médecine*," July and August, 1863.

[3] "Berliner klinische Wochenschrift," 46, p. 549, 72. "Ueber Reinfection mit constitutioneller Syphilis."

subject. He has collected into a table over forty cases of supposed reinfection; but that these cases of syphlilis, reoccurring in an individual, are still very exceptional, and not as common even as we might be led to suppose from finding mention of nearly half a hundred in the same essay, is shown by a careful perusal of the article in question. Several of the cases detailed by Koebner were certainly tertiary ulcerations of the penis, mistaken for syphilitic chancre, as indeed Sigmund has already pointed out in regard to some of these very cases,[1] and Case VIII., on which Koebner lays most stress, is, of all, most clearly one of tertiary ulceration. The facts of this case are briefly these: A man of forty-five has syphilis in 1866, and his wife an ulcerated tubercular syphilide in 1867. In 1871 the man applied for treatment of a very hard, flat ulcer, quite large, and with sharp-cut edges, saying that it had ulcerated within the previous twenty-four hours. Inguinal glands intact. His last periods of sexual intercourse were ten weeks previously with a prostitute; nine and nineteen days before date, with his wife. The wife was examined, found healthy, and remained so; the patient still bore evidences of tertiary syphilis upon his person. His ulcer on the penis got well under iodide of potassium, and he had no eruption or other evidence of syphilis after it. Such a case requires no comment.

While, then, a second true syphilitic infection is possible even while the subject bears the marks of late tertiary disease, yet such infection is eminently exceptional, and allowance must be made in the reported cases for (1) chancroid accompanied by some eruption, as a coincidence; (2) ecthyma mistaken for syphilis, after which the first true syphilitic infection might pass for a second; (3) false chancre, indurated mucous patch; and (4) cases of tertiary ulcer faultily diagnosticated.

Transmissibility to Animals.—Besides this peculiarity of only appearing once in a given individual, syphilis differs from chancroid in not being transmissible to animals. Lancereaux,[2] quoting Ruiz Diaz de Isla, mentions fancifully that even plants have been accused of having syphilis transmitted to them by sprinkling them with water which had been used to wash syphilitic ulcers. Horses and asses suffer sometimes from a disease, the "doury," perhaps remotely analogous to syphilis, which is transmitted only by sexual intercourse. It comes on, after an incubation of four to six weeks, with fever and cutaneous tumors (not the subcutaneous tumors of farcy). The mucous membranes, glands, eyes, and bones, take part in the disease. Atrophies and paralyses follow. It lasts from two months to three years, and is not transmissible by inoculation. These animals also have a local contagious, venereal affection (Lancereaux). Cows are said to have somewhat similar affections, but it has been found impossible or very difficult to propagate any of these maladies by inoculation, and their comparison with syphilis is at best fanciful.

[1] Pitha und Billroth, Handbuch.

[2] "La Syphilis."

Depaul speaks of a syphilitic monkey, and Vernois [1] of a cat with syphilitic cachexia; but these badly-defined examples cannot stand against the innumerable efforts which have been made, without success, to transmit syphilis in any form to any animal by inoculation. All such efforts have failed absolutely, and authority speaks plainly on this point, that the sad privilege of having true syphilis belongs alone to mankind.

Incubation of Syphilis.—After the poison of syphilis has been absorbed, the break in the epithelium, through which it entered, heals, and the virus ferments, as it were, in the blood, until it is ready to give itself local expression, first at the point of entrance, in the form of syphilitic chancre. Such an abraded point may be kept open by dirt or local irritation, but usually nothing at first evinces to the patient that he is infected. This period of incubation, or hatching, has been critically studied by many authors, both by inoculation upon healthy subjects, and, clinically, by close observation of patients. The results arrived at are in the main identical. The usual period after contact, or inoculation, at which a chancre first appears, is about the end of the third week. It is not unusually at four, and may, in exceptional cases, be much later, reaching ten weeks. Fournier [2] gives one case of seventy-five days, quoting A. Guérin for another of seventy-one. During all this interval of incubation, the patient bears no sign of disease. The shortest limit of incubation, clinically, has not been absolutely decided upon, but rarely, if ever, does true syphilitic chancre appear before the tenth day; chancroid, as already shown, rarely appears as late as the tenth day.

This is, perhaps, the most valuable mark of a syphilitic chancre, and practically all sores appearing later than ten days after suspicious contact must be regarded with distrust, while those coming sooner may be more lightly considered.

In establishing a period of incubation for syphilitic chancre, Rollet gives a table of twenty-six collated cases, where inoculation was practised upon healthy subjects. The inoculating fluid was derived in eleven cases from syphilitic chancre, in the rest from mucous patches, syphilitic pustules, ulcer of tonsils, blood, pustules of inherited syphilis. In all a positive result is reported. The shortest period of incubation before the appearance of chancre was ten days (from ulcer of tonsils), the longest thirty-nine days (from chancre), the mean twenty-five days. The mean from inoculation of chancre was twenty-four days; blood, thirty; mucous patch, twenty-two; pustule, thirty.

Induration of Syphilitic Chancre.—The period of incubation of a chancre cannot, clinically, be always obtained with accuracy. Induration can always be felt, when present, and in well-marked cases it is absolutely pathognomonic. It consists in an infiltration of the tissues underlying the chancre with small round or oval and spindle cells, some granular matter, and free nuclei. It may only partially underlie the ulceration in exceptional cases. It exists in three varieties:

1. A thin superficial layer of induration, aptly called "parchment-like," exactly underlying the ulceration. This may escape notice, unless the sore be pinched up carefully with the thumb and finger, placed on either side, and lightly pressed upon, so as not to be bent or folded by the pressure. This is the commonest form.

2. The induration may resemble a split pea, situated exactly beneath the ulcer, which is upon its flat surface. This induration is easily felt and is unmistakable when present. It is little or not at all sensitive, freely movable over the parts beneath, hard, like bone or wood, or like cartilage, having indeed a certain springy, elastic feel. It is sharply defined, clean cut as it were, ends abruptly, and does not shade off into the surrounding tissues, like inflammatory induration.

3. The induration may be very extensive, far surpassing the bounds of the ulceration placed upon it, excavated or convex upon its surface, but here all the characters and qualities of the induration are the same as those detailed above for the split-pea variety, only there is more of it. The skin over it is not usually red, and the feel is far different from the boggy, inelastic sensation given to the fingers by pressure on an inflammatory induration.

Induration is greater or less, according to the tissue in which it is formed. It is usually greatest in chancres of the skin, lips, nipples, behind the corona glandis, and near the frænum of the penis. In spongy tissues like the glans penis, the induration is often very slight. In certain very rare cases, it appears to be altogether absent, probably sometimes because it had not yet appeared at the moment of examination, or had passed away, and undoubtedly sometimes because the true syphilitic lesion was not detected, but some chancroid, existing simultaneously, was discovered, found soft, and believed to be the origin of the syphilis that followed. Again, when a syphilitic chancre becomes phagedenic, it loses its induration at once.

The induration of a syphilitic chancre may precede the ulceration, or may follow it. In the latter case it comes on during the first week. The parchment-like variety disappears the soonest. It has been observed to last only twelve days (Clerc). Usually, however, any form of induration will outlast the ulceration — remaining, indeed, for two or three months. More rarely it lasts for years, as a cicatricial hardness similar in feel to the true syphilitic induration. Ricord records one case of thirty years' standing. Fading induration may suddenly reappear, and increase on the outcropping of general symptoms. Fournier [1] first described certain indurations which occasionally appear in the neighborhood of a syphilitic chancre, though not immediately connected with it.

[1] *Bul. de l'Acad.*, 1864.

[2] "Sur la Syphilis," Paris, 1873.

[1] "Étude clinique sur l'Induration syphilitique primitive," *Arch. Gén.*, 1858.

They are formed in and around the lymphatic vessels, and may very rarely also ulcerate.

Ulceration of Syphilitic Chancre.—Properly, syphilitic chancre does not ulcerate. It consists, in more than half the cases, simply of an excoriated surface, looking red and bloody, perhaps pultaceous, very superficial, not infrequently scabbed when exposed to the air. Indeed, it may never even excoriate, although this is exceedingly rare, the lesion consisting in a simple indurated tubercle which scales off a little at the top, but from which the epithelium is never absent, in other words, which is never even moist. Chancre, however, especially of the genitals, rarely escapes more or less inflammation, hence it is the rule to find some shallow, occasionally deep, ulceration. When shallow, the ulcer is round or oval, with slanting borders, often a red base, sometimes partly covered with a pultaceous deposit. When deep, the borders are never abrupt, as in chancroid, but always sloped off. The cavity is funnel-shaped. The borders of the ulcer are adherent all around, never by any chance undermined, as they occasionally are in chancroid. Sometimes the induration, left behind on the healing of a chancre, reulcerates.

Character of the Discharge.—Pus does not form as such on true syphilitic chancre, unless it be inflamed, when the thickness of the pus will vary with the degree of the inflammation. Ordinarily the discharge is sero-purulent, or purely serous in appearance, often bloody, and sometimes, on the dry, indurated papule, there is absolutely no discharge at all.

Pain.—In unirritated syphilitic chancre as a rule there is absolutely no pain. A patient often carries a chancre for a considerable time without suspecting its existence, and sometimes, undoubtedly, it comes and goes without being discovered at all. In this way may be explained many singular cases of undoubted syphilis, apparently not preceded by any primary lesion.

Case XLV.—A young girl of sixteen entered the hospital covered with a roseola, with sore-throat, etc., evidently syphilitic. She denied any sexual intercourse. On examination she was found to be a virgin; no ulceration could be discovered about the genitals, the mouth or throat, or upon any part of the body. The only evidence of any previous lesion upon her skin was a small cicatrix of purplish color, slightly hard, upon the radial aspect of the right arm. When the girl's attention was called to it she expressed entire ignorance of the presence of any ulceration or other lesion upon the part; in fact, seemed to see the little discolored cicatrix for the first time. Upon close investigation it was found that the girl was a nurse, that she took care of a young baby, and carried it frequently, often without a napkin, upon her bare right arm. Examination of the child proved that its anus was surrounded by mucous patches. Here was a case of chancre of the arm innocently produced, utterly ignored by the patient, and so small as to have easily passed unnoticed.

Many other equally curious and instructive cases have been recorded. If this girl had been a prostitute, and had happened at about the same time to have chancroid, acquired in sexual intercourse, how naturally

would the most conscientious surgeon have deceived himself in attributing the syphilis to the chancroid! An inflamed chancre does pain more or less, but usually far less than chancroid.

Cicatrix.—The scar left by chancre varies. In the majority of cases where there is only a slight excoriation or exulceration, no scar whatever is left behind. In other cases the scar is proportionate to the depth of the ulcer. These scars are occasionally pigmented. At first they are discolored—of a dark, vinous hue, like the ordinary syphilitic tubercle, of a color aptly compared by Fallopius to the flesh of raw ham. This color may be followed by the true copper-colored (Swediaur) or bronzed pigmentation. The latter sometimes approaches a black. It clears off gradually from the centre, to leave the scar finally whiter than the surrounding skin.

Inoculation.—Hetero-inoculation of syphilitic virus upon healthy individuals was first performed by Wallace in 1835, with virus derived from mucous patches. It has since been very thoroughly studied by the few experimenters who have practised it, aided by the light of chancroid inoculation. Clinically vaccinal syphilis has furnished ample opportunities to study the effects of hetero-inoculation—accidental it is true.

Auto-inoculations have been performed without number, the result (with some little exception to be mentioned below) having been invariably negative, unless the chancre had been previously irritated by friction, savin-powder, tartar-emetic, or other irritant, or was itself in a state of inflammation, producing pus. Under such circumstances auto-inoculation will often produce a pustule, followed by a small ulcer, remaining open, perhaps, for some time, furnishing pus, also auto-inoculable, but this ulcer has not the rapid march nor the characteristic appearance of chancroid, and has never been proved to be such, by being inoculated upon a healthy individual and there producing a characteristic chancroid not followed by syphilis. This may be and has been done by inoculation from a mixed chancre, but never from pure syphilitic chancre. The pustule and ulceration produced by auto-inoculation of chancre is similar to what may also be produced by inoculation of pus of other syphilitic lesions, or sometimes with that of gonorrhœa or abscess; in other words, it is the pustule and ulceration of simple inflammatory irritation, not the special poisonous sore known as chancroid, which is so freely inoculable, and as simple dirt and irritation may call out a mucous patch or pustule upon a syphilitic subject, so may also auto-inoculation of some of the syphilitic products.

The difference between the inoculation of chancroid and syphilitic chancre has been strikingly illustrated not a few times. The three famous cases of Lindmann, Warnery, and Danielssen, are perhaps the most conclusive. Lindmann inoculated himself a number of times with chancroidal pus, always with success, but with no syphilis; finally, as the