As we shall see hereafter, this constitutes one important means of diagnosis between the chancroid and the true chancre.

In practice we do not often see the initial pustule of the chancroid, which has usually been ruptured before the patient comes under observation, or the virus may have inoculated some previous solution of continuity; and in such cases we find at the outset either a scab formed by concreted pus when the ulcer is situated upon the external integument, or an open sore when it occupies some moist surface, as the balano-preputial fold or the mucous membrane of the vulva. A rent or abrasion is not necessarily inoculated at once to its full extent; a single point may at first exhibit the characteristic appearance of a chancroid, and the remaining portions be only gradually involved.

Period of Progress.—A chancroid, when fully formed, is usually circular in outline; its edges are abrupt and sharply cut; its floor is uneven and covered with a grayish secretion; the discharge is abundant and purulent; its base presents to the touch the normal suppleness of the underlying tissues; the tendency of the sore is to extend and enlarge its area.

Several circumstances may render the outline of a chancroid other than circular. If a rent or abrasion has been inoculated, the resulting ulcer will naturally at first assume a corresponding shape. If two or more contiguous ulcers have united, the outline may be quite irregular. Certain situations may modify the form of the chancroid; thus, those met with in the furrow at the base of the glans are more oval than circular, probably owing to the facility with which the virus flows along this groove, and macerates and inoculates the tissues in the transverse direction; for a similar reason, chancroids at the margin of the anus and prepuce tend to follow the folds of these orifices. Moreover, the ulcer would appear to extend in whatever direction the tissues are most lax and most readily permeated by the virus; thus, if a chancroid be seated in part upon the glans and in part upon the prepuce, its increase is the more rapid upon the latter, and its outline loses the circular form.

The edges of a chancroid are abrupt and sharply cut simply because the ulcer penetrates the whole thickness of the skin or mucous membrane. The sore is, as it were, punched out of the integumental layer; and as the ulceration readily encroaches upon the lax cellular tissue beneath, the edges are often undermined, and consequently slightly elevated or even everted: during the period of progress they are also somewhat jagged, as if gnawed by the erosion, and are surrounded by an areola which varies in width and depth of color according to the degree of the attendant inflammation.

The floor of the ulcer is uneven, studded with minute elevations, "worm-eaten," and covered, especially at the centre, with a pseudo-membranous secretion of a grayish-yellow color, which cannot be removed without violence. This layer is made up of the disorganized tissues. Under the microscope, it is found to consist: "1, of the elastic fibres of the derma; 2, of the other elements of the integument or mucous membrane, more or less changed, and reduced, for the most part, to an amorphous and granular mass; 3, of numerous pus-globules." (Cusco.)

The discharge from a chancroid is somewhat abundant, and decidedly purulent; not the pure, creamy pus, however, which we see in the acute stage of gonorrhœa, and from which it may be readily distinguished, but thinner, and often mixed with organic detritus or streaked with blood. Mr. Henry Lee, of London, regards the presence of pus-globules, as shown by microscopical examination, in the secretion of a venereal ulcer free from irritation, as diagnostic of the chancroid. As previously stated, the pus-globules are the vehicle of the chancroidal poison, and the secretion often gives rise by inoculation to successive chancroids in the neighborhood. The condition of the tissues around and beneath a chancroid is one of the most important elements of diagnosis between it and a true chancre. In the former the parts preserve their normal softness and suppleness, unless subjected to some irritant, or attacked by simple inflammation. Inflammatory engorgement, however, is not well defined like the specific induration of the initial lesion of syphilis, but gradually subsides into the normal suppleness of the neighboring tissues; it is also less firm, and of a more doughy feel, and disappears shortly after the cessation of the inflammation which occasioned it. The application of any astringent lotion, or caustic, as nitrate of silver, potassa fusa, nitric acid, and especially corrosive sublimate or chromate of potash, may cause hardness which so closely resembles specific induration, that it cannot be distinguished from it, except by its shorter duration; and, for the time being, the diagnosis must be founded upon other symptoms. In short, as regards the condition of its base, the chancroid does not differ from any simple wound, which, when free from irritation, is soft and supple, but which may become engorged from any of the ordinary sources of inflammation. The fictitious hardness which sometimes surrounds a chancroid is often found after the application of caustics or astringents to mere vegetations, herpetic exulcerations, or other solutions of continuity.

The pain and uneasiness occasioned by a chancroid are usually only moderate, though greater than those attending the true chancre. They are the more severe the more rapidly the ulcer extends, and are heightened by any stretching and laceration of the tissues, or by the application of irritant dressings or lotions. They diminish and disappear as the reparative stage sets in.

The duration of the progressive stage of the chancroid is very variable, and depends very much upon the mode of treatment, the faithfulness of the patient in attending to the sore, and also upon his general condition. It is rarely less than four or five weeks, unless cut short by treatment, and it may be prolonged for months or years by the causes alluded to, or especially by the supervention of phagedæna. The size which the ulcer may attain is subject to equal variations, and dependent upon the same causes; it rarely exceeds that of a twenty-five cent piece, in the absence of phagedæna, which has no limit to its action.

Stationary Period.—The progress of a chancroid gradually slackens and finally becomes imperceptible. For awhile the ulcer appears to be stationary. It makes little difference whether this period of inactivity is real, or whether it is merely apparent, as some authors would have us believe; the fact remains the same, that the progressive force of the virus seems to be spent, and the ulcer remains for awhile *in statu quo*, prior to any signs of healing. It is evident that this, like the progressive stage, must be variable in its duration in different cases, and subject to the same influences.

Reparative Stage.—This stage is marked by several changes in the appearance of the ulcer. The inflammatory areola, if such has existed, disappears, and the neighboring tissues assume a healthy aspect. The floor of the ulcer also "clears up;" its grayish covering becomes thinner, and is soon replaced by florid granulations, which spring up over certain portions of the sore, generally towards the circumference. The edges lose their reddish color, and are less prominent; they can no longer be everted, but become adherent to the subjacent tissues; and their margin, which was "sharply cut," becomes sloping. No decided diminution in the area of the ulceration can be expected until the loss of substance is supplied by granulations. The patient often complains that his sore is no smaller, while the surgeon can see that its floor is approaching the level of the surrounding surface, and that its progress is all that could have been anticipated. But at last, a fine and delicate cicatricial membrane, which is best seen with a magnifying glass, extends from the margin upon the surface of the ulcer. Or, in exceptional cases, this membrane first shows itself at some point within the circumference. Macerated by the discharge, it has a whitish look, and resembles a fragment of lint which has not been removed at the last dressing; but at the subsequent visits of the patient it is found to be still present, gradually increasing in size until it becomes continuous at some portion of its periphery with the margin of the sore, and it thus contributes towards the final closure of the wound.

It was at one time supposed that a chancroid was contagious only during its progressive and stationary periods, and that its virulence ceased either with or soon after the commencement of the reparative stage. Fournier's experiments, however, have shown that such is not the case, and that even when the ulcer is already far advanced towards cicatrization, the thin and barely purulent secretion from its surface may sometimes be inoculated with success, as shown by the following table:

Fournier's inoculations during the reparative stage.	Result positive.	Result negative.
1. This stage fairly established,	9	3
2. This stage well advanced,	3	0
3. This stage nearly completed,	2	5

It is thus evident that it is never safe to allow patients with chancroids to indulge in sexual intercourse until the ulcer has completely closed.

The work of cicatrization being once accomplished, however, the chancroid is at an end; without a fresh contagion there can be no subsequent relapse or reopening of the sore with its former virulence, as is sometimes seen with the true chancre. The cicatrix may be torn or abraded at will, only a simple wound can be reproduced, and not a virulent ulcer, and this simply for the reason that there is no constitutional infection behind the local sore to regenerate the virus.

The scar left by a chancroid varies in its character and its permanency according to the extent and depth of the ulceration, and also, in a measure, according to its situation. As a chancroid is usually more destructive in its action than the chancre, so the former is much more likely than the latter to be followed by a cicatrix. Upon the external integument this cicatrix is often permanent; upon a moist mucous membrane it frequently fades away and soon becomes effaced, unless the ulceration has produced a loss of substance which has not been filled up during the reparative stage.

Number of Chancroids.—Patients are much more frequently affected with several than with a single chancroid. Thus, in 327 cases, observed chiefly at the Hôpital du Midi, only 63 patients had a single ulcer, or about one in five. Of the remaining 266, there were—

Presenting two,	50
" from three to six,	152
" from six to ten,	45
" from ten to fifteen,	8
" from fifteen to twenty,	5
" from twenty to twenty-four,	6
Total,	266

Of 118 men who were admitted at the Antiquaille Hospital, Lyons, M. Debauge found—

Presenting a single ulcer,	50
" two,	22
" four,	11
" five,	11
" from six to ten,	17
" from eleven to fifteen,	6
" twenty,	1
Total,	118

Sometimes the chancroid is multiple from the first; more frequently it becomes so by successive inoculation of points in the neighborhood of its original site. The first ulcer pours out an abundant secretion, and its presence confers no immunity against others. We shall see hereafter how opposite is the case with the true chancre, the initial lesion of syphilis.

The chancroid is multiple from the outset only when several points have been inoculated at the time of contagion. It is evident that certain regions will militate either for or against successive inoculation. Thus, if the sore be situated upon the external integument, as the sheath of the penis, the virus is not likely to find a door of entrance

within the hardened epidermis of the surrounding surface. On the other hand, if it be seated at the base of the glans, its secretion will extend along the furrow, macerate the thin epithelium, and will generally occasion successive inoculations, especially in cases complicated with phimosis.

M. Clerc[1] states that successive chancroids are generally mild in their character compared with the original sore; that they usually occupy a less extent of surface, and that they tend to heal more speedily; and I think, judging from my own observation, that this rule will be found to be true generally, although not invariably.

Condition of the neighboring Ganglia.—In the majority of cases of chancroid, or, as nearly as we can determine by statistics, in about two cases out of three, the neighboring lymphatic ganglia remain intact throughout the whole course of the disease. In the remaining minority, these bodies take on inflammatory action, either *first*, as the result of the extension of simple inflammation from the local ulcer along the course of the lymphatics, or *secondly*, in consequence of the absorption and conveyance to the ganglion of the chancroidal virus. In the former case (inflammatory or simple bubo), resolution is possible without suppuration; in the latter (virulent bubo), suppuration is inevitable. Of 207 cases of chancroid observed at the Hôpital du Midi in one year, 65 were attended with bubo, and 142 were not.[2] Of 140 patients in the service of M. Rollet, at Lyons, 57 were free from inguinal reaction, while 83 had buboes, of which 60 were virulent.[3] We shall see hereafter that the initial lesion of syphilis is always attended with *induration* of the nearest lymphatic ganglia, which rarely become inflamed and suppurate, and it cannot be too often impressed upon the mind of the student that an examination of the ganglia in the neighborhood of a venereal ulcer affords assistance of the highest value in distinguishing a chancroid from primary syphilis.

Varieties of the Chancroid.—There is a form of the chancroid called by M. Clerc the *exulcerous*. In this variety, the sore is little, if at all, depressed below the level of the surrounding surface, and consequently its edges are not perpendicular and sharply cut. Otherwise its appearance is the same as already described; its floor is irregular, and covered with a grayish secretion; its discharge abundant and purulent, and its base soft. This variety is sometimes observed on the margin of the prepuce, in cases of phimosis with concealed chancroids at the base of the glans.

Again, the chancroids may vegetate above the surface, and constitute one form of what has been described as the *ulcus elevatum*.

When the virus has gained entrance within a follicle, and inoculated its internal surface, the chancroid may at first appear like a pustule of acne indurata. Ulceration soon commences at a minute point upon the surface, and gradually extends until it lays open a sore presenting the usual characteristics of a chancroid. This variety

[1] Traité pratique, p. 182.
[2] Fournier, op. cit., p. 34.
[3] Debauge, op. cit., p. 72.

is known as the *follicular form*. Cullerier depicts a number of such sores upon the external surface of the labia majora and inner surface of the thighs.[1] This is an important variety of the chancroid, liable to be overlooked, and should be borne in mind by the student.

The *ecthymatous* form is nothing more than a chancroid, which, from exposure to the air, has become covered with a scab, composed of its dried secretion. It is evident that this form is not likely to be met with except upon the external integument.

The form of the chancroid may be modified by its seat, as will be described in the next chapter.

Diagnosis of the Chancroid.—In the great majority of cases a chancroid is readily recognized by a practiced eye, from its various symptoms already described; yet there is not a single one of these symptoms which may not be found in lesions of an entirely different nature.

It was formerly supposed that an unfailing and absolute test of a chancroid was to be found in its experimental inoculation upon the person bearing it; if autoinoculation properly performed was successful, it was inferred that the sore *must be* a chancroid; if unsuccessful, it could not be. We cannot now rely upon this test so implicitly, for reasons that will be obvious to the reader of the preceding pages; at the same time the *ready* autoinoculation of any sore affords a strong ground of probability that it is of this nature.

The method of performing artificial inoculation has already been given, and I have only to add a few precautions concerning it. In the first place, while this experiment is of great practical value, and, if properly performed, usually devoid of danger, yet it should not be rashly resorted to, and should only be employed either for the benefit of the patient or the interests of science. In careless hands very troublesome and even serious results have been known to follow. I have myself seen two such cases; one in the New York Hospital, in which artificial inoculation, performed before the patient's entrance, had given rise to an extensive ulcer upon the thigh of several years' duration; and another similar case in the Pennsylvania Hospital, Philadelphia. Other cases are reported in works on venereal. Such evil results may, I believe, be avoided by observing the following simple rules:

1. Avoid artificial inoculation in all cases of phagedenic ulcers, and in all persons of a broken-down constitution, for fear that the inoculated point may take on ulcerative action which will be beyond the control of caustics.

2. Avoid artificial inoculation, unless you are reasonably certain of having the patient under your continued observation. Hence this method of diagnosis may be used much more freely in hospitals than in private practice.

3. Select as a site for the inoculation some portion of the integu-

[1] Cullerier and Bumstead's Atlas, Pl. ix., Fig. 1.

ment, as the chest, where experience proves the occurrence of phagedæna to be rare.

4. Make your incision no deeper than the surface of the vascular layer of the skin, for a reason previously given.

5. Thoroughly cauterize the inoculated point with a strong caustic, as nitric acid or the carbosulphuric paste, as soon as the diagnosis of a resulting chancroid can be made.

The value of this test depends, of course, upon the thoroughness of its application. Unless the matter be implanted under the requisite conditions it cannot take effect.

Other points of distinction between the chancroid and those lesions most apt to be mistaken for it now claim our attention.

An abrasion due to violence during coitus will be recognized by the patient himself—unless intoxicated—either at the time of its occurrence, or during those reflective moments which follow the exposure.[1] Independently of its history, an abrasion may often be recognized by the jagged outline of its edges, and by the appearance of its surface and its secretion, differing, as they do, from those of a chancroid already described. Subsequent neglect, a low condition of the general system, the accumulation of filth, or even of the natural secretion of the part, may perpetuate the solution of continuity thus made, and transform it into an ulcer which can with difficulty be distinguished from a chancroid; and the diagnosis can only be made either by artificial inoculation or by waiting for farther developments, at the same time paying attention to cleanliness and to general hygiene. "But," it may be said, "an abrasion occurring at the time of coitus may have served as the door of entrance either to the chancroidal or syphilitic poison." Very true; and consequently, when a patient seeks advice, a few days after coitus, with a solution of continuity evidently due to violence, the surgeon can only estimate its present but not its future character. Under such circumstances, a guarded opinion only should be given, as for instance, "You have torn yourself in the sexual act; but whether you have been inoculated or not through the rent, I cannot say; time will determine." A mere abrasion or tear in a healthy constitution, and under conditions of cleanliness, will heal in the course of a few days; while an abrasion inoculated with the chancroidal virus will extend and assume the character of a chancroid.

An eruption of herpes usually appears on the first or second day after exposure, is attended with itching, and consists of a number of small vesicles, which are arranged in one or more groups affecting the form of a circle. The contained fluid soon becomes turbid, and if the epidermis be ruptured or removed, a superficial ulceration is found beneath. With attention to cleanliness, and the interposition

[1] There is an old adage bearing on this point commencing "*Omne animal post coitum triste est*," etc., which the able reviewer of the third edition of this book in the Am. Jour. Med. Sci. corrects me in having attributed to Aristotle, of whom, however, it would have been worthy. The reviewer is shocked at the allusion to this adage in a scientific book, and I will therefore refer to his own article in the Am. Jour. Med. Sci., Jan., 1871, where he gives the text in full.

of a piece of dry lint between the glans and prepuce, the vesicles or erosions will usually heal in the course of a few days. Their circular arrangment, small size, watery contents, superficial character, the pruritus which they occasion, and their speedy cicatrization, present a marked contrast to the symptoms of the chancroid. Again, in many cases, we find on inquiry that the patient has been subject to herpes, which recurs upon the slightest provocation, as after coitus with any woman however pure, or after dining out or indulgence in wine, and in some instances without apparent cause.[1] The discovery of this fact should put us upon our guard, and lead us to resort to other means of diagnosis in doubtful cases. The diagnosis between herpes and the chancroid may, therefore, be said in general to be easy; but, as noticed by Fournier, there is a rare form of herpes consisting of a single and somewhat excavated ulceration, which very closely resembles a chancroid, and which, in some instances, cannot be distinguished from it except by inoculation.

I shall defer the consideration of the diagnostic signs of the chancroid and chancre until I come to speak of syphilis.

With regard to mucous patches, which are so often seated upon the genital organs, their superficial character, the history of the case, and the coexistence of other secondary symptoms are commonly sufficient to enable us to distinguish them.

There is another class of cases, fortunately uncommon, in which the diagnosis is less easy, and which sometimes occasion much annoyance. I refer to old syphilitic patients, who have probably advanced to the tertiary stage of the disease. These men occasionally make their appearance with an ulceration closely resembling a chancroid, with sharply-cut edges, a grayish excavated floor, an abundant purulent secretion, and a soft base, which I have seen most frequently in the furrow at the base of the glans where it tends to undermine the integument of the penis. It also occurs on the surface of the glans and at the meatus. The glands of the groin are not affected. On inquiry you find that the patient has not presented any syphilitic symptoms for months or even years, and examination of other parts of the body may fail to show any evidence whatever that the poison is still active. Very likely, also, the man is of dissipated habits and has frequently been exposed of late in promiscuous intercourse, so that chancroidal contagion is highly probable. All the circumstances, therefore, except, perhaps, the fact that the sore is solitary in a region where the chancroid is almost always multiple, point to the simple chancre; and yet if you treat it as such with caustics, cleanliness, astringent lotions, etc., you fail utterly, but it heals under the mixed constitutional treatment of iodide of potassium and mercury.

I have one patient in mind, in whom these symptoms occurred some four to six times during a period of several years, the last time six months after his marriage, during which I have reason to believe that he had not been exposed to contagion. Another instance is that

[1] Dr. A. Doyon has written an interesting monograph on this form of herpes, entitled De l'herpès récidivant des parties génitales, Paris, 1868.