DERMOCHROMES - III

PORTFOLIO

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BY

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CHAPTERS ON SYPHILIS

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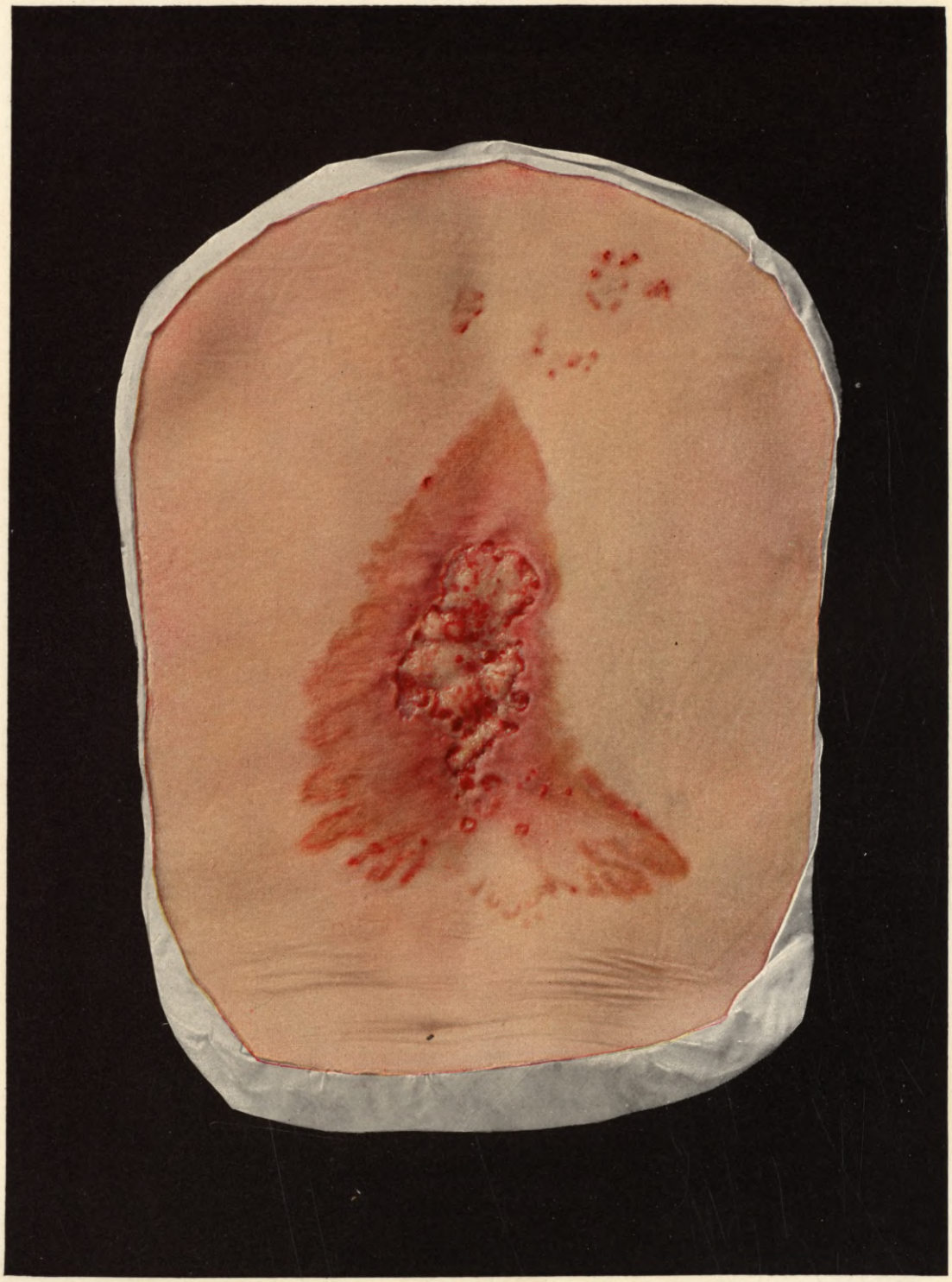


No. 178. Carcinoma cutis cicatrisans.

Carcinoma Cutis

Plate **110,** Fig. 178

Cancer of the skin may appear in several different forms. It is usually secondary to carcinoma of some other organ, often the breast. It may occur in the form of multiple shot-like (lenticular) masses, in which ulceration frequently develops or as a diffuse carcinomatosis (cancer en cuirasse), in which the skin is hard and immovable.

Another form of rare occurrence is when a carcinomatous change is dependent upon some precancerous state or when, as in Fig. 178, it develops in the apparently healed parts of one of those comparatively benign rodent ulcers which tend to cicatrize in the centre and spread at the periphery.

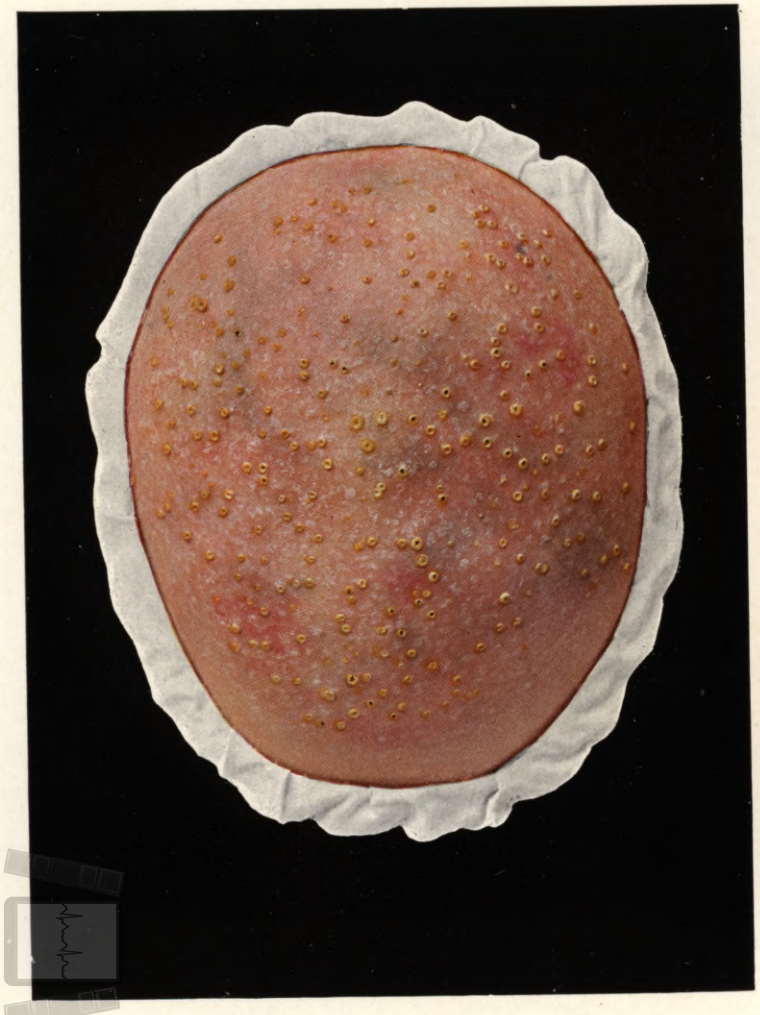
Fig. 178. Model in Neisser's Clinic in Breslau (*Kroener*).

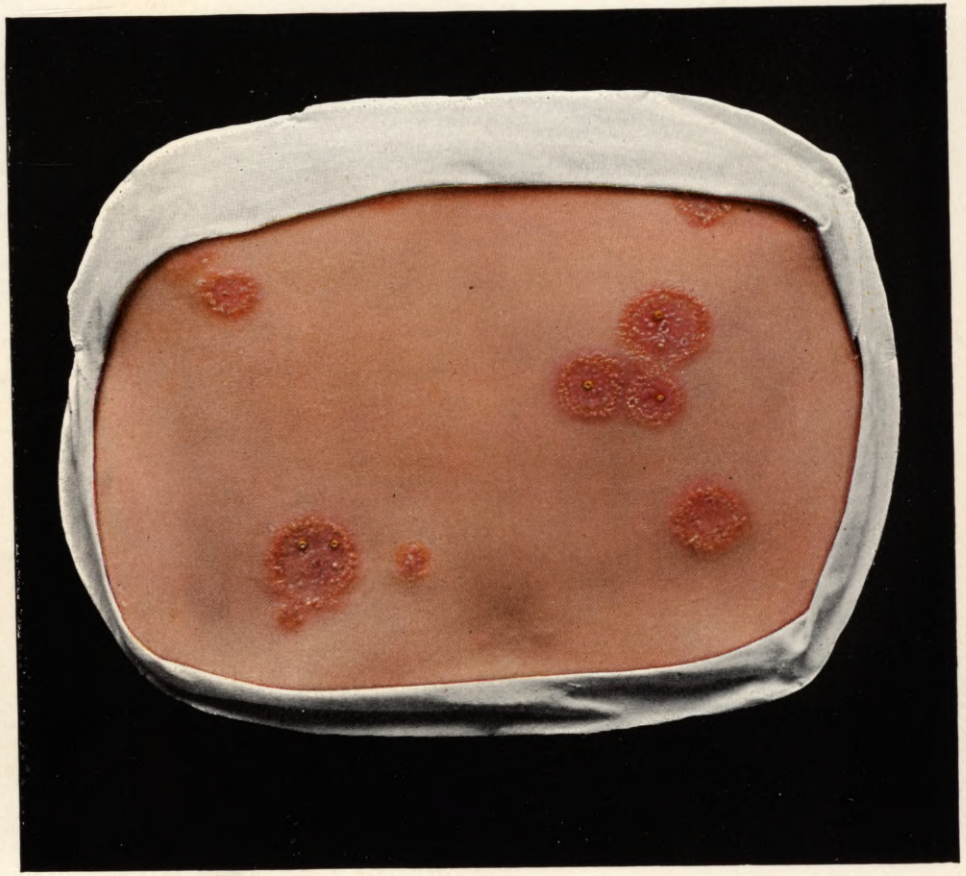
Tinea Favosa

Synonym: Favus

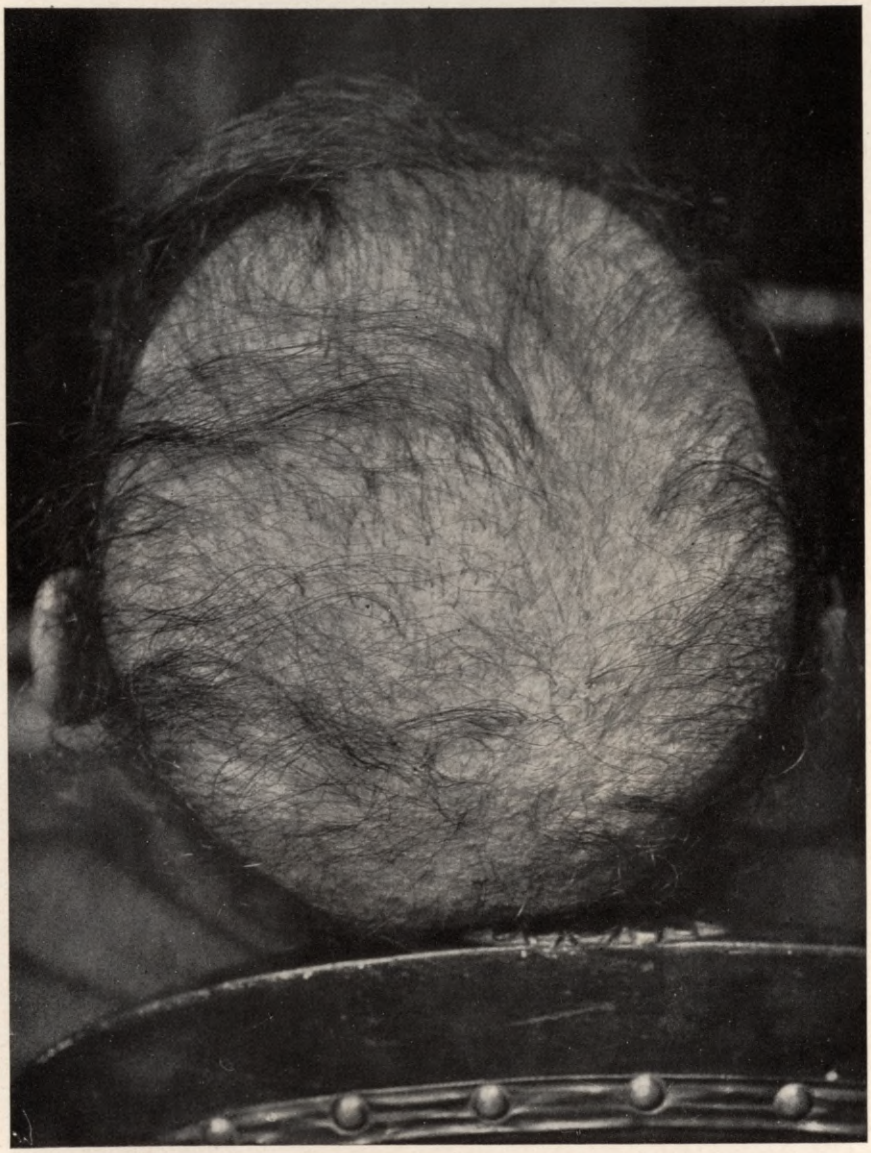
Plate **111,** Figs. 179, 180 and 181; and *Plate* **112,** Fig. 181.

This parasitic affection is most frequently seen in the scalps of children who are immigrants from certain European countries. It is eminently chronic and is one of the causes of early permanent baldness, the hair-follicles being destroyed outright. Favus, however, also attacks the smooth skin; and while the children mentioned seldom show more than a few cutaneous lesions from autoinoculation from the scalp, the disease may be generalized over a large portion of the integument. The parasitic cause of favus is a fungus having mycelium and spores, and its parasitism and pathology resemble those of the parasitic cause of ringworm. When studied on the smooth skin the fungus is seen to form peculiar sulphur-yellow crusts, from pinhead to pea size, which show a cuplike form and tend to coalesce in patches. On the integument the fungus causes superficial lesions, easily remedied; but on the hairy scalp the conditions are reversed. The same yellow cups are formed, encircling the hairs, and eventually patches are formed an inch and upward in breadth, which may involve the entire scalp. This process of crusting may be complicated by suppuration. The favus fungus, although it does not penetrate into the follicles like the tricophyton tonsurans, nevertheless does far more damage to the hairs. This appears due to the fact that the cuplike disks formed by the fungus cause in time dystrophic pressure effects on the hair papilla. The nutrition of the hairs is interfered with at an early period. They become lustreless and brittle, and are shed or break off. The growth of the favus crusts exerts pressure on the scalp and also favors pus formation, which in turn aids in detaching the crusts. In the patches of favus the slow destruction of the scalp begins in the centre, while at the periphery the disease is in its earlier stages, thus constituting a circinate process as seen in ordinary ringworm. In favus of the





No. 179. 180. Favus.



No. 181. Alopecia from favus.

smooth skin a circinate lesion may also occur. The destruction of the hair-follicles and the accompanying atrophy of the scalp do not appear to be quite clear to authors. It is assumed, however, that it is purely a matter of pressure by the growing favus disks.

Patients present themselves, young children as a rule, with manifestations varying with the duration of the malady. In the earlier stages there is a crusted condition of the scalp, which is naturally of a yellow hue, but usually much darker from various impurities. There may be one or several patches. Upon inspection, it may be possible to see small cupped elevations, each transfixed by a hair. The latter are loose, and readily come away. There is a peculiar musty odor to favus crusts.

At a more advanced stage, after the affection has persisted for years, the scalp, especially if it has been cleansed, has a peculiar worm-eaten appearance, due to irregular areas of baldness alternating with others which show normal hair-growth. In the bald areas the follicles are no longer visible, the scalp having also a cicatricial aspect. Between these early and late manifestations there are all degrees of transition.

Etiology

The parasitic cause is probably a group of closely related species of fungi which are derived originally from some of the domestic animals. Young boys make up most of the victims. It is mildly contagious from one child to another. It is so exclusively a disease of the miserable that it is seldom encountered outside of a certain social stratum. Like all affections due to fungi, the general resistance is a factor of some importance.

Diagnosis

The peculiar cuplike crusts are made up chiefly of the fungus, and hence their nature is readily recognized. An epilated hair, previously treated with liquor potassæ and glycerin, shows characteristic mycelium and spores. If isolated cutaneous lesions cause confusion, a study of the scalp will sometimes show that favus is present in that locality.

Prognosis

The disease, after years of persistence, may exhaust itself by using up all the suitable soil, the patient being left almost bald. There is no other type of self-limitation. With proper treatment a

comparatively recent case is curable, but if treatment is neglected recurrence is common.

Treatment

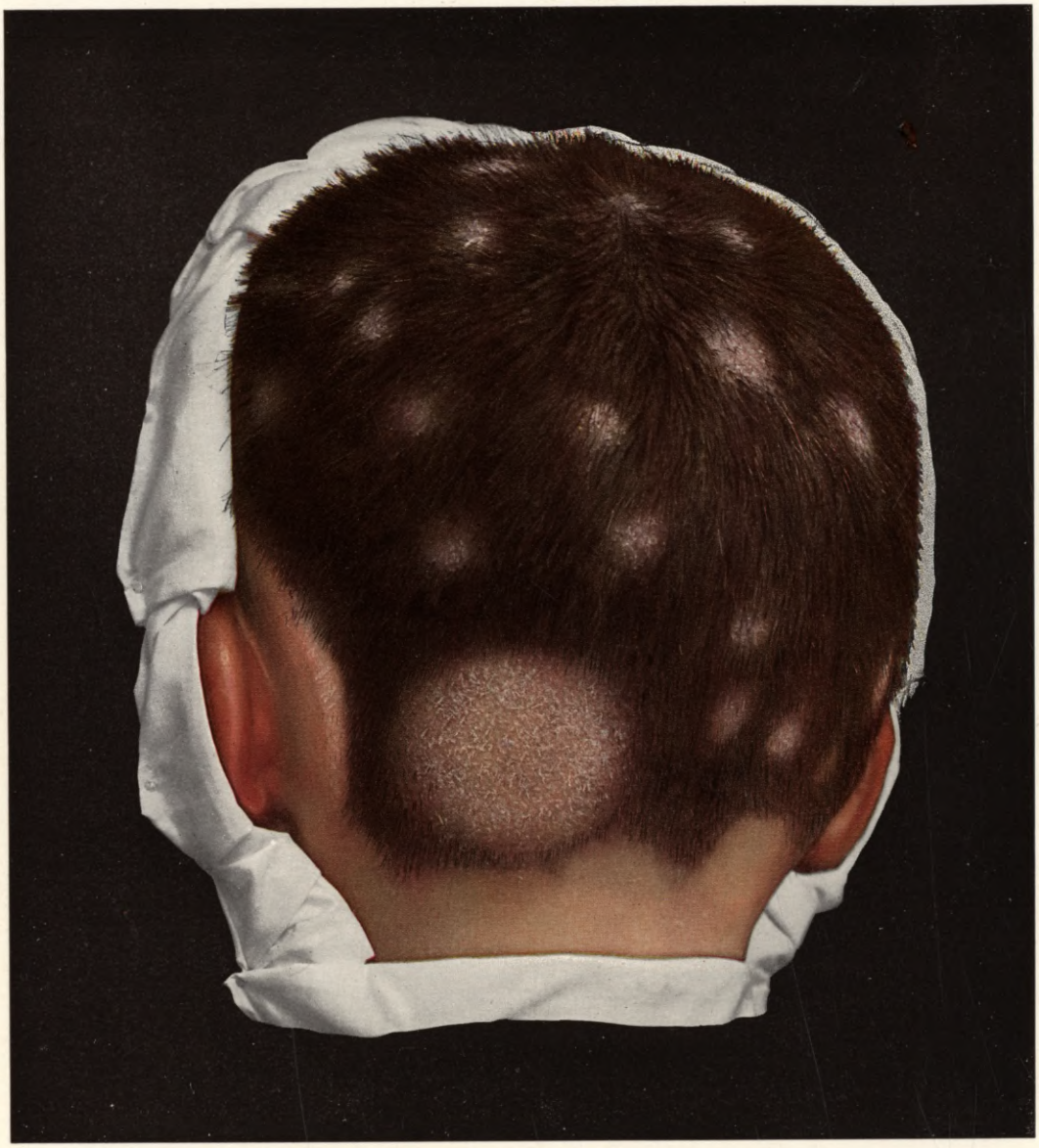
The first indication in the management of this intractable disease is the removal of all crusts and scales; this can be accomplished with oily applications and soap and water washings. The next essential step is the removal of all the diseased hairs by means of epilation. The scalp is then ready for the remedial application, which may consist of an ointment containing any of the parasiticides, the most valuable being sulphur, mercury, and chrysarobin.

The X-rays are curative in this condition, and should always be used in extensive cases. Favus, unlike ringworm, frequently causes marked scarring and permanent alopecia, therefore in using the X-rays undue caution should not be allowed to conflict with their efficient application. So successful has been the employment of the rays that many authorities, particularly abroad, have discarded all other methods of treatment. While moderate cases do get well with other treatment, the fact remains, that in extensive cases, the X-rays in the hands of an expert have proved our best remedy for this disease. Favus of the body can be promptly cured by means of any parasiticide ointment or lotion.

Fig. 179. Model in St. Louis Hospital in Paris, No. 548 (*Baretta*). Besnier's case.

Fig. 180. Model in Neisser's Clinic in Breslau (*Kroener*).

Fig. 181. Half-tone, Dr. Kingsbury, New York.



No. 182. Trichophytia capillitii (Mikrosporia).

Tinea Trichophytina Capitis

Plates **113** and **114,** Figs. 182 and 183

This affection is almost peculiar to children. Occurring in subjects with short or scanty hair and in young infants, in all of which it can be watched, it sufficiently resembles tinea circinata in its evolution. Sometimes it behaves exactly like the latter, in that scaly macules assume the form of rings, which are clear in the centre. Such a course naturally implies that at first the follicles are spared. In typical cases, however, after the first spot or spots appear, the follicles are invaded, so that instead of rings we have circular patches in which the scalp and follicles are continuously involved. The parasite enters the hair-shaft and the hairs then break off close to the scalp, producing an affection entirely characteristic.

When a child presents itself with ringworm, we see one or several rounded areas upon the scalp which are more or less denuded of hairs. Some of these have fallen out while others are broken off. On passing the fingers over the patches the hair stumps are readily felt and also readily come away when pulled upon. The patches are the seat of considerable scurfy desquamation. There are usually two or three spots, and these may attain such dimensions as to cause a notable amount of alopecia from coalescence. In beginning lesions, where there is merely a small, itching, irritated focus, the testing of the hairs, not yet broken off, may reveal a loose one; if not at first, perhaps in a day or two afterward. A special clinical form, of infrequent occurrence, is made up of a number of these spots. Whenever the hairs are broken flush off with the skin the stumps appear as black specks. Another unusual variety is characterized by the uniform shedding of the hair on the patches, producing a parasitic alopecia areata. Finally there is a deep-seated folliculitis analogous to the condition sometimes seen on the smooth skin, in which there is a great deal of infiltration of a soft boggy character. These lesions, known as kerion, may give exit to a good deal of discharge. The hairs come away and the severe reaction may prove curative. The fungi in this

situation seem able to cause a granuloma, such as are produced by other fungi and other microorganisms. The kerion does not always discharge freely. In some cases the granulomata break down in their centres and form abscesses.

Etiology

In most cases tinea capitis is due to the microsporon Audouini, although the larger form is also pathogenic, and in some countries the chief cause. That in the United States the small spored fungus causes most of the tinea capitis, and the large spored kind, typical tinea circinata readily explains why the two clinical forms so seldom coexist. It is probable, too, that the small spored parasite is limited to mankind.

Diagnosis

Although the clinical evidence is often conclusive, it is always the custom to examine some of the broken hairs under the microscope. If the patch is smooth, hairs over the border are tested, and if not yet loose, scrapings from the skin may reveal the parasite. Kerion has been confused with carbuncle, but is a thoroughly benign local condition.

Prognosis

The prognosis is favorable, because there is some natural tendency to recover, and because new hairs replace the shed ones. These may have some immunity. As the disease is peculiar to children, another prognostic feature is added. Naturally, when untreated, the outlook for immediate improvement is very poor, but with proper treatment, involving considerable time, it is good. The time required is from six weeks to six months or more. The obstinate character is often due to persistence at some one focus. And when this is cured another has appeared elsewhere.

Treatment

As a rule, but little attention is paid to the internal treatment of ringworm of the scalp, and wrongly so, for it is a clinical fact that the affection is always more stubborn in anemic and poorly nourished children than it is in the strong and robust. Tonics are always indicated when the child's general health and nutrition is not up to the standard. Cod-liver oil and the hypophosphites are probably the most valuable remedies.

No. 183. Trichophytia profunda capillitii (Kerion Celsi).

In the external treatment, our efforts toward a cure should be directed into two channels, namely, general treatment of the scalp, to prevent the spread of the disease either in the same individual, or to others; and local treatment of the diseased areas. To prevent autoinoculation, the hair must be clipped short, the scalp shampooed every other day with sapo viridis, containing some antiseptic, and a general daily inunction made of some parasiticide ointment, such as five per cent. ammoniated mercury. A cap of several thicknesses of gauze should be worn constantly. It should be either washed daily or destroyed. The child should sleep alone, and special attention should be paid to the towels and pillow-cases used by the patient. In the treatment of the diseased spots, it must be kept in mind that success is not attained through the use of any particular parasiticide, but is due entirely to the thoroughness of its application, it must be rubbed in, not applied. The rubbing-in process should take at least five minutes for each spot morning and night. The parasiticides recommended are legion, but the most effective are sulphur, iodine, chrysarobin and mercury. A salve frequently used at the New York Skin and Cancer Hospital is the following:

℞	Ungt. hydrargyri oxidi rub.	ʒiss
	Ungt. sulphur	ʒiii
	Ungt. aquæ rosæ ad	ʒi

M. et ft. ungt.

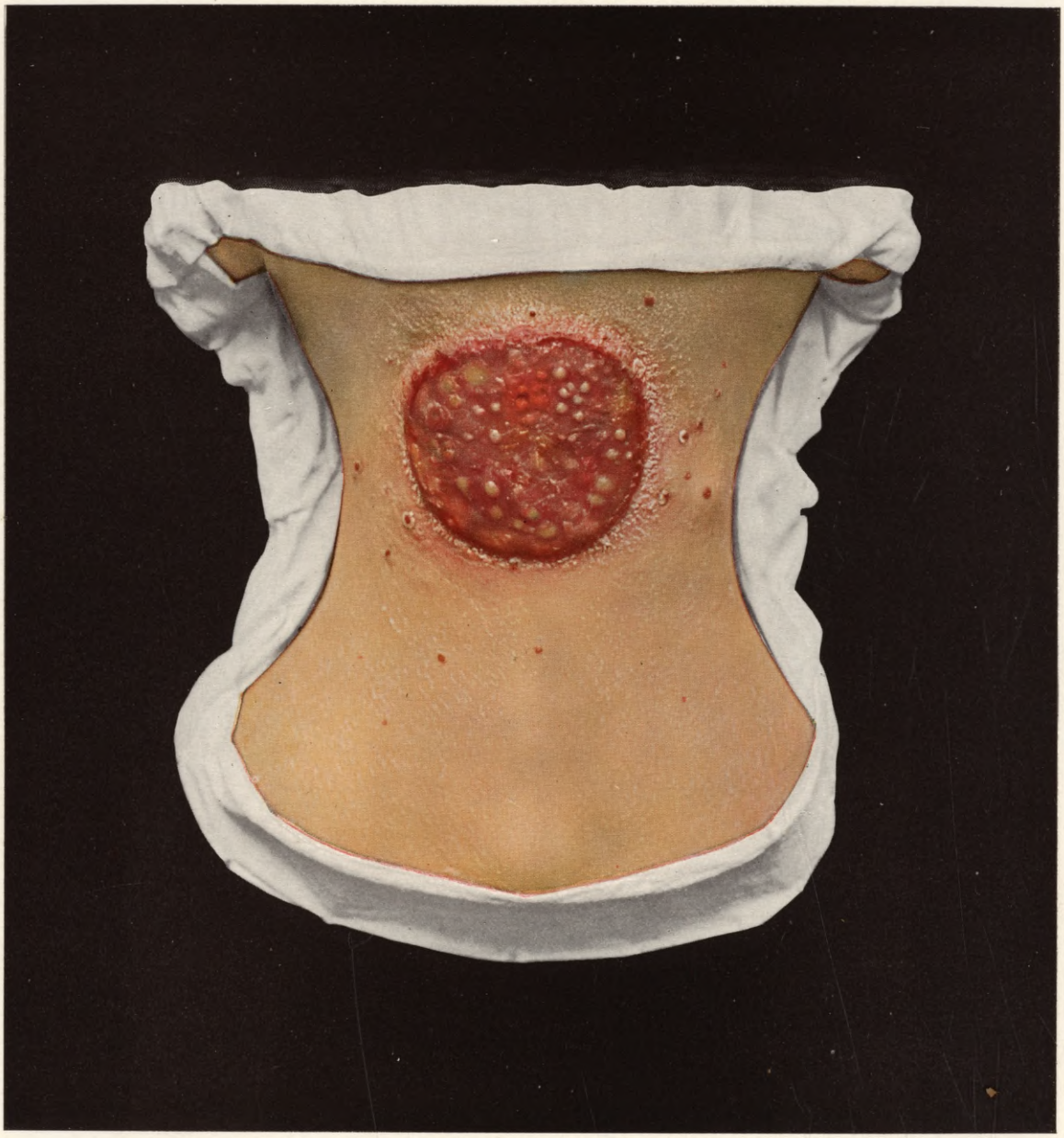
Jackson strongly recommends the tincture of iodine in goose-grease. Mercury in the form of the official ten per cent. white precipitate ointment is very useful. Chrysarobin is applied as a saturated solution in chloroform. The area affected is painted with this solution, the chloroform evaporates, leaving the film of chrysarobin in place. This is then covered with several layers of collodion. When the spots are small and few, epilation thoroughly done and carried well into the border of healthy hairs is an invaluable measure. An artificial kerion may be induced by needling each follicle with croton oil, as recommended by Aldersmith. The method is a severe one, and should not be used in young children, or over a lesion larger than an inch in diameter. Larger patches can be treated at subsequent sittings. Kerion may be treated with applications of a ten per cent. ichthyol ointment or with wet dressings of bichloride solution. Care should be taken not to bring about too rapid a cure of the kerion, as the inflammatory process frequently proves destructive to the fungus.

The use of the X-rays have supplanted all other measures in the

hands of Sabouraud and Noire of Paris and Fox, Adamson and Sequeira of London. These workers have reported hundreds of cures. In this country, for various reasons, the results following radiotherapy have not been so uniformly favorable. The massive-dose method has its dangers, and it should be employed only by an expert.

Fig. 182. Model in Freiburg Clinic (*Vogelbacher*).

Fig. 183. Model in Neisser's Clinic in Breslau (*Kroener*).



No. 184. Trichophytia profunda nuchae.

Tinea Trichophytina Corporis

Synonyms: Tinea circinata, Ringworm of the body

Plate **115,** Fig. 184; and *Plate* **116,** Figs. 185 and 186

This affection represents the parasitism of the tricophyton upon the smooth skin, as distinguished from the scalp and bearded face. As a general proposition, whenever a patient, usually a child, presents a ringed eruption which shows no tendency to symmetry, and is sharply localized, the chances are that it is a ringworm in the popular sense of the term, due entirely to a cause operating from without. Other circinate eruptions seem to be determined by causes chiefly internal, and show a tendency to symmetry. The lesions, however, do not begin as rings, but simply as flat, scaly spots, which clear up in the centre. They extend at the periphery, and at the same time clear up in the inner aspect. The ring shows some elevation, due to inflammatory infiltration, and in extreme cases vesicopustules may be produced. There may be but a single lesion, but as a rule a small number of the rings occur side by side in some particular locality. There may, of course, be coincidental lesions at some other focus, or associated lesions on the hairy portions, but this is quite exceptional.

If it were common we would hardly be justified in making separate clinical affections of the three forms. The rings attain a variable growth limit, from half an inch up to three inches in diameter. After this they remain stationary and have some eventual tendency to spontaneous recovery. As with all circinate affections, the rings may coalesce to form gyrate figures, and may even coalesce to form a continuous sheet of inflammation. Both these phenomena are seen in the folds, notably in the inguino-scrotal, where the affection may appear as the so-called eczema marginatum, with a sinuous, sharply defined, parasitic border. Occasionally a new ring forms within an old one.

The patients present themselves with what is evidently a localized affection. There should be one or more lesions seated somewhere on the hand or forearm, the face or neck. These are the classical loca-

tions. The lesions will be found at some particular stage of development, and if there are a number the eruption should be multiform. The various stages would be first the macular, the spots being small and red with fine scaling; then a ring undergoing evolution, and finally a larger ring, better outlined and showing perhaps some infiltration. The lesions usually itch considerably. Exceptionally lesions appear about the feet, the genitals and buttocks. In some instances the parasite appears to be able to penetrate into the hair-follicles, whereupon, instead of a ring, a solid patch is formed, composed wholly of suppurating follicles. There is a great deal of thickening, and the numerous openings discharging pus suggest a carbuncle. These lesions do not differ radically from those normally present in tricophytosis of the hairy regions.

Etiology

Tinea circinata occurs chiefiy in children or young adults, and is now known to be due to the ectothrix form of the trichophyton, or large-spored fungus, which is able to cause all the clinical types. The other type of the large-spored fungus and the small-spored forms do not form ringed lesions. The extent of their pathogenicity is the production of small, faintly colored scaly patches. The parasite, derived from another patient through toilet articles, etc., or from some animal, makes its abode in the horny layer of the epidermis, and exceptionally finds its way into the rete, corium and follicles, causing clinical variations in the lesions.

Diagnosis

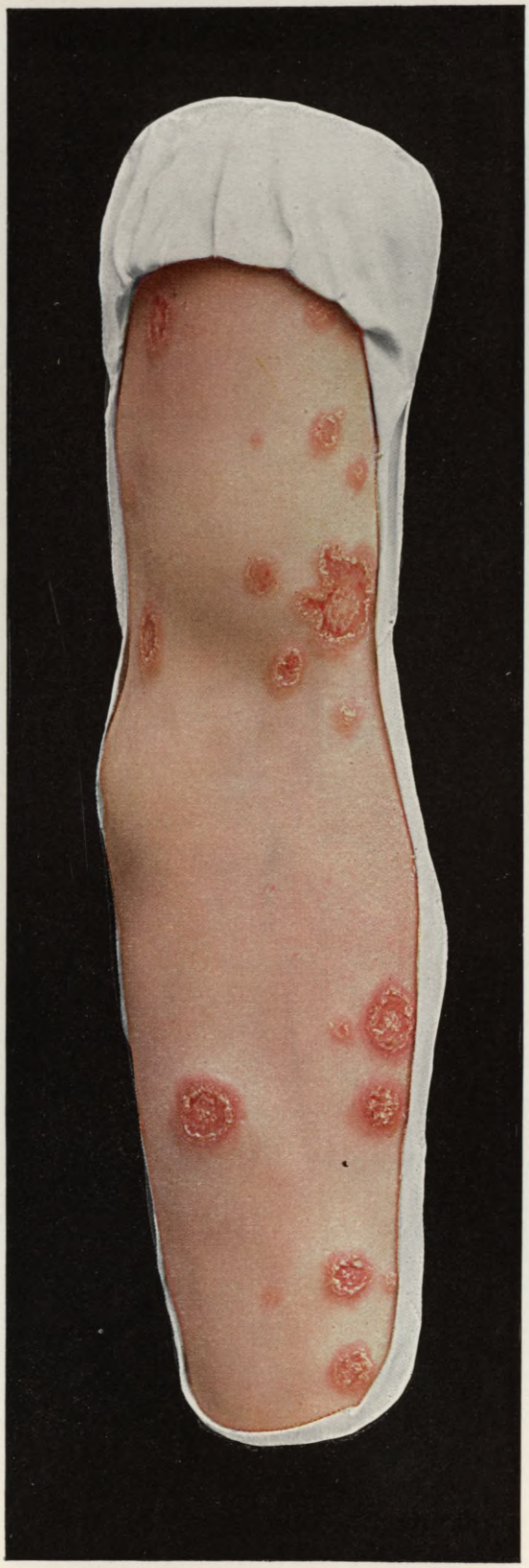
In spite of the sharply defined clinical characteristics, the diagnosis should always be made with the microscope. Scrapings of the skin or epilated hairs, should the follicles have been involved, will, when properly prepared with liquor potassæ and glycerin, show the presence of the trichophyton.

Prognosis

Ringworm of the smooth surface has a good prognosis, and might even terminate spontaneously in time.

Treatment

This is very simple, as the fungus is superficial and easily reached, any of the well-known antiseptic applications, in proper strength, proving efficacious. If the dark stain of tincture of iodine is not ob-



No. 185. Trichophytia annularis (iris).

No. 186. Trichophytia profunda.

jected to, it makes a very useful application. Sodium hyposulphite, one dram to the ounce, fresh sulphurous acid, and mercuric chlorid solution, ¼ to ½ of 1%, are all very useful. Ointments of ammoniated mercury or sulphur can be used with success. Whatever remedial agent is used, care must be taken to apply it in weaker strengths at first, so as to avoid a dermatitis. It is surprising to see the rapid disappearance of the disease, which occurs at times, after the use of very mild local measures. The treatment of ringworm of the genitocrural region (eczema marginatum) is the same as that of the general surface, with the exception that at times it assumes an eczematous character, and requires at first mild soothing applications. The sodium hyposulphite solution and fresh sulphurous acid are the best local measures in this variety of ringworm.

Fig. 184. Model in St. Louis Hospital in Paris, No. 1051. Vidal's case.

Fig. 185. Model in Neisser's Clinic in Breslau (*Kroener*).

Fig. 186. Model in Neisser's Clinic in Breslau (*Kroener*).

Tinea Trichophytina Unguium

Synonyms: Onychomycosis, Ringworm of the nails

Plate **117,** Fig. 187

This affection is chiefly confined to a few of the finger nails, and is manifested first by changes in the nail itself, principally the free margins. The disease may or may not extend along the nail, and when it does there is an accumulation of débris beneath the same. The tendency with the advance of the disease is for the nail to be detached. The process may extend along the sides of the nail, and exceptionally the fungus seems only to stimulate the overgrowth of the nails, which become thickened, discolored and horny.

Etiology

The various forms of the ringworm fungus may attack either the nail itself or the nail bed, they having a special affinity for the horny epidermal tissues. The nails may be the only structures involved, but may be the means of conveying the disease to other patients. That the trichophyton should gather and flourish in and about the nails is not surprising when we bear in mind that here is a favorite rallying-place for microbic life of all kinds.

Diagnosis

The direct diagnosis is made by products scraped or otherwise obtained from the nails.

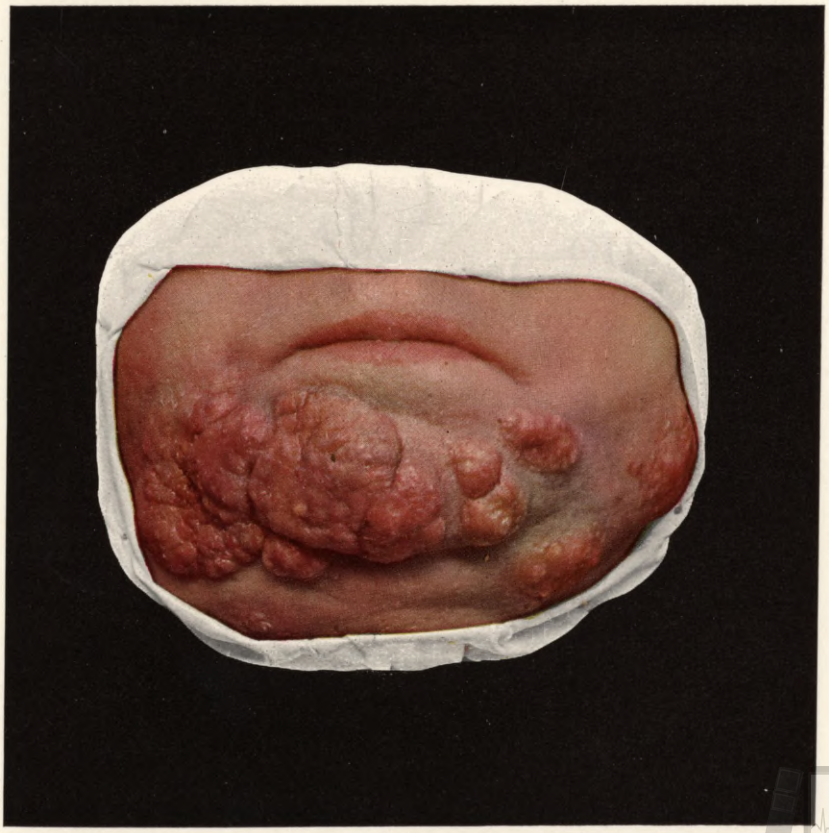
Prognosis

Onychomycosis is an extremely obstinate affection, because the nail itself interposes an obstacle to remedies. There is no tendency for the disease to exhaust itself, as is seen elsewhere. Despite all pains, the affection has been known to persist for decades.

Treatment

The nails may be softened in various ways—by salicylic acid, caustic alkalies, soapsuds, etc., and as much as possible should be pared

No. 187. Trichophytia unguium.



No. 188. Trichophytia profunda barbae.

away. The nail may also be scrubbed with pumice stone or even avulsed under local anesthesia. Parasiticides should be used freely and alternated. Tincture of iodine is as efficacious as anything. Wet dressings may be applied under finger stalls, using bichloride of mercury, hyposulphite of sodium, etc.

Fig. 187. Model in Lassar's Clinic in Berlin (*Kasten*).

Tinea Barbae

Plate **117,** Fig. 188

When this affection occurs on the bearded area of a man who shaves regularly and who is of cleanly habits it is clinically an insignificant affection so far as appearances go, although it may be very obstinate. It may behave much like tinea circinata; or it may give rise to hardly any symptoms beyond loosening of a few hairs (this behavior is common in cases which have received a good deal of treatment). On the other hand, when the beard is abundant or in persons who shave but seldom, the affection proceeds unchecked and the parasite sets up deep-seated folliculitis and perifolliculitis and the skin becomes irregularly nodulated. As in folliculitis in the scalp and on the smooth skin, the openings may discharge freely, so that crusts are produced. Sometimes beneath the latter we find a raw granulating surface.

In the superficial type already mentioned we may see multiple lesions—macules and rings—which differ but slightly from those of tinea circinata. The hairs loosen, but the same thing occurs to the lanugo hairs in the latter form. If the patient had been shaving himself when the disease was contracted, he is compelled to discontinue the custom and so presents himself with a growth of beard. As soon as he is told to have it closely clipped, the phases of the disease may readily be studied. The hairs are by no means always involved at the outset, and it may be difficult to find a loose one for microscopic study. There is a steady tendency, however, to involve the follicles and develop the deep-seated phase of the disease. The latter usually develops from the superficial form and doubtless as a result of neglect. The subject, quite unable to shave, goes about with a beard of more or less growth, and the stubble on the face acts as a constant irritant. In a few cases only a sharply circumscribed patch of folliculitis is formed, the rest of the bearded face and neck being normal. As a rule, however, a large part of the bearded area participates, and there may be a tract of nodules reaching from ear to ear. The deeper the follicles

the larger the nodules; hence these may be relatively small above the jaw line and attain their greatest dimensions at the lower border of the beard. The latter becomes matted with dried secretion and a condition results highly favorable to secondary infection. However, the tendency of the hairs to loosen and come away acts as a corrective; and while spontaneous recovery is hardly possible, the unfavorable disposition is antagonized in this manner.

Etiology

This affection is limited to men, and its familiar name of barber's itch appears to be justified, as it is largely contracted from the common shaving-brush. The large spored trichophyton which causes tinea circinata is usually responsible. There is no special mechanism involved, as kerion-like lesions occur in all localities.

Diagnosis

This, if not self-evident, is easily made with the microscope.

Prognosis

The prognosis is about the same as in tinea capitis, as several months may be required to eradicate the disease.

Treatment

Epilation of the affected hairs is of the greatest importance, and greatly shortens the duration of the disease. Frequent shaving should be practised, and the spread of the disease checked by the inunction of the salve used, in the non-affected as well as the diseased areas. Any of the parasiticide ointments are useful, but ammoniated mercury in from 5% to 10% strength, is by far the best local application. Precipitated sulphur in the form of a 10% ointment is also very useful. Norman Walker uses a 10% oleate of copper ointment. The parts should be frequently washed with soap and hot water. Whatever ointment is used should be well rubbed in twice daily, and more frequently in severer cases. The treatment should be persisted in for several weeks after apparent cure, as recurrences often occur. The X-rays are very seldom indicated, as the disease is much more amenable to treatment than is ringworm of the scalp.

Fig. 188. Model in Neisser's Clinic in Breslau (*Kroener*).

Tinea Versicolor

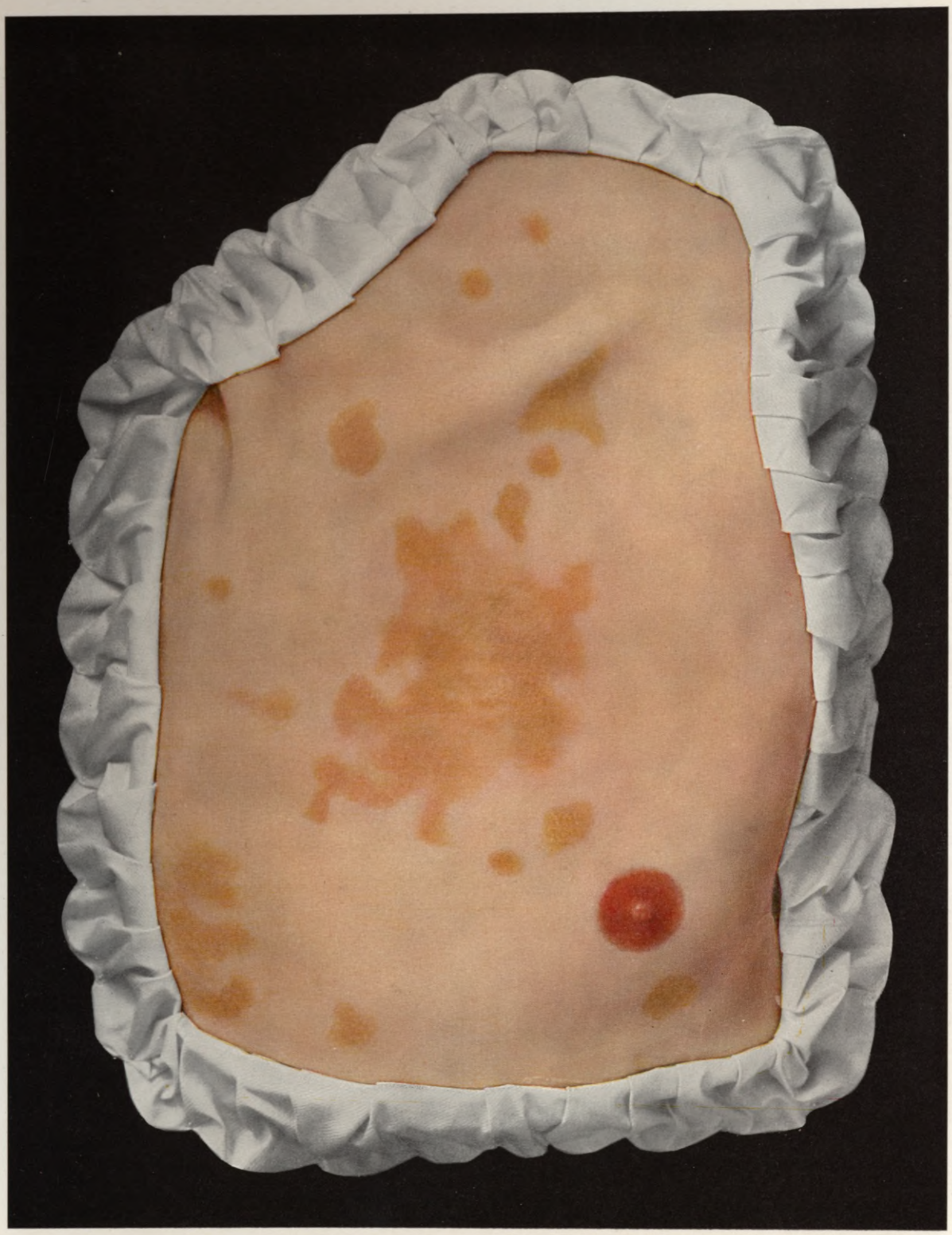
Synonyms: Pityriasis versicolor; Chromophytosis

Plate **118,** Fig. 189

This parasitic disease is one of the most typical local dermatoses because of its tendency to begin over the thorax, and especially in front, and its characteristic range of colors, which vary from yellow to brown. As it seldom produces sensations, it is often overlooked, especially among those who have little opportunity to undress or see themselves in the glass. The affection thus often has the opportunity of extending down the arms or down the trunk to its lower limits. The lower extremities are usually exempt, as is also the face. The lesions are originally macules, small and very irregular as to size and shape. The latter, however, is almost invariably polyhedral or angular. Unlike most parasitic affections, there is absolutely no tendency here to form rings. These initial blotches quickly join together to form sheets, in which all semblance of the originals is lost. This feature is chiefly in evidence in the region of selection, to wit, the anterior thorax. All the outlying territory is occupied by the separate blotches, which, however, communicate in part, leaving a reticulum, the meshes of which are represented by normal integument. There is more or less desquamation of the branny sort, hence the synonym pityriasis versicolor—two terms which have a diagnostic significance. The disease has a marked tendency to attain a certain degree of growth, but none whatever to spontaneous retrogression.

Etiology

This disease simply represents the parasitism of a fungus, the microsporon furfur, which is easily seen through microscopes of low powers. Aside from neglect of its presence by the patient, which is decidedly contributory to its progress, certain predisposing factors no



No. 189. Pityriasis versicolor.

doubt exist. It presumably flourishes more readily on consumptives on account of their night-sweats. It is mildly contagious.

Diagnosis

This is readily made with the microscope. Skin-scrapings should be mounted in a mixture of equal parts of liquor potassæ and glycerin, and after a brief interval the mycelium and spores are readily seen. In the absence of a microscopic test, it must be remembered that chloasma and vitiligo may be simulated by the disease when it appears on the forearm and hands. Mistakes of this sort are always prevented if the patients disrobe.

Prognosis and Treatment

These are the same for both tinea versicolor and its congener erythrasma; for the two may be said to form a group disease. With no tendency whatever to recover spontaneously, both are readily amenable to treatment, which, however, must be persistent if a permanent cure is expected. The parasite is readily destroyed by a number of mild preparations; and, as in the case of scabies, it is the technique rather than the particular remedy which counts. The integument should first be prepared by a warm bath and soap frictions; after which a white precipitate, sulphur or naphthol ointment should be rubbed thoroughly into the skin. Bulkley regards hyposulphite of soda in water (℥i—℥ii to ℥i) as one of the best remedies for this affection. It may be well to use the same measures to prevent reinfection as obtain in scabies; also, to rectify any constitutional peculiarity.

Fig. 189. Model in Dermatological Department of the Municipal Hospital in Cologne on Rhine. Prof. Zinsser.

Erythrasma

Plate **119,** Fig. 190

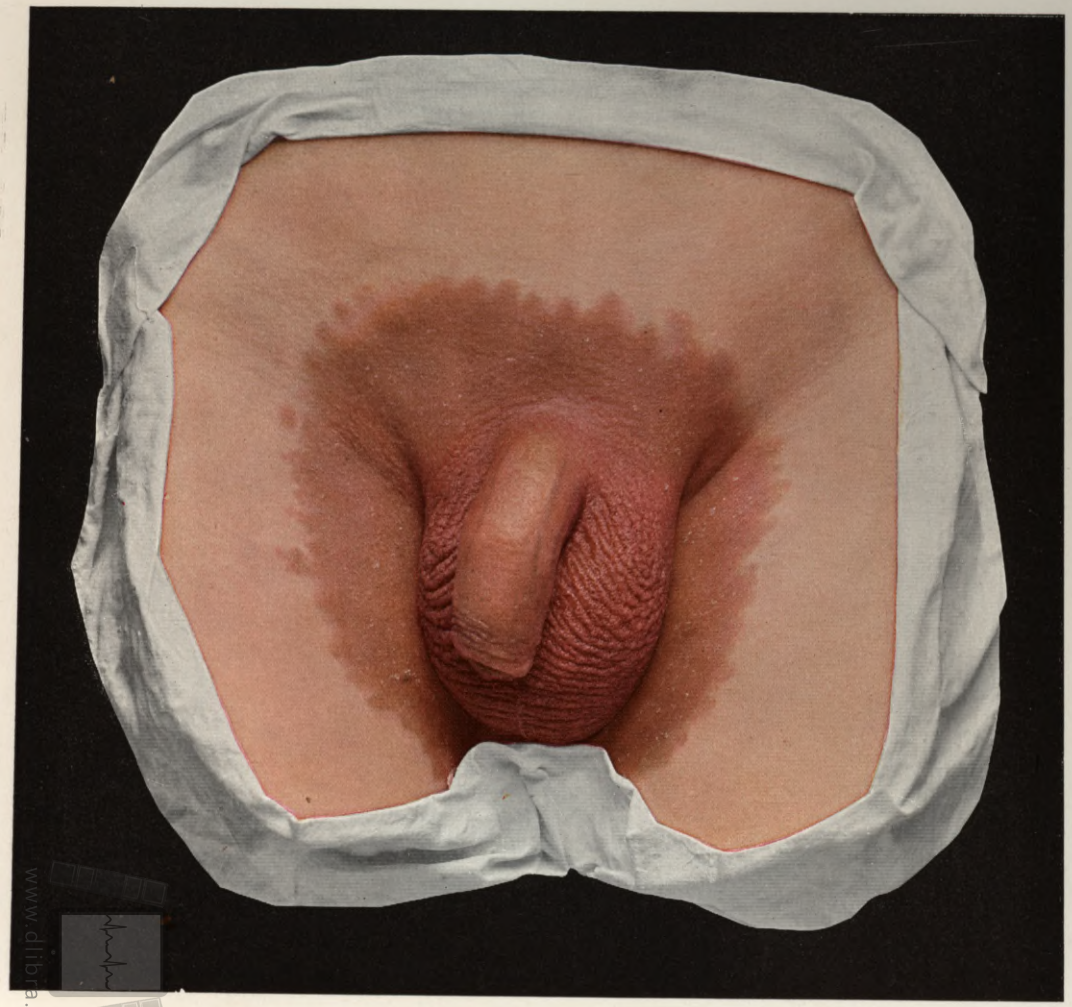
This is an obscure parasitic disease, which is limited largely to the genitocrural folds and axillæ. It may, of course, be simulated by a variety of affections which attack the same localities; and as the parasite which has been isolated from its lesions is difficult to recognize and as its status when found is by no means fixed, it is readily apparent that a positive diagnosis of erythrasma is not always made. Some experienced men have never seen a case in which they felt called upon to make such a diagnosis, although several other affections when fading out may answer the description of erythrasma.

The disease has been known since 1859, but years elapsed before it became universally recognized as an entity; and even now a few authorities regard it as an aberrant local form of one of the more prevalent parasitic diseases.

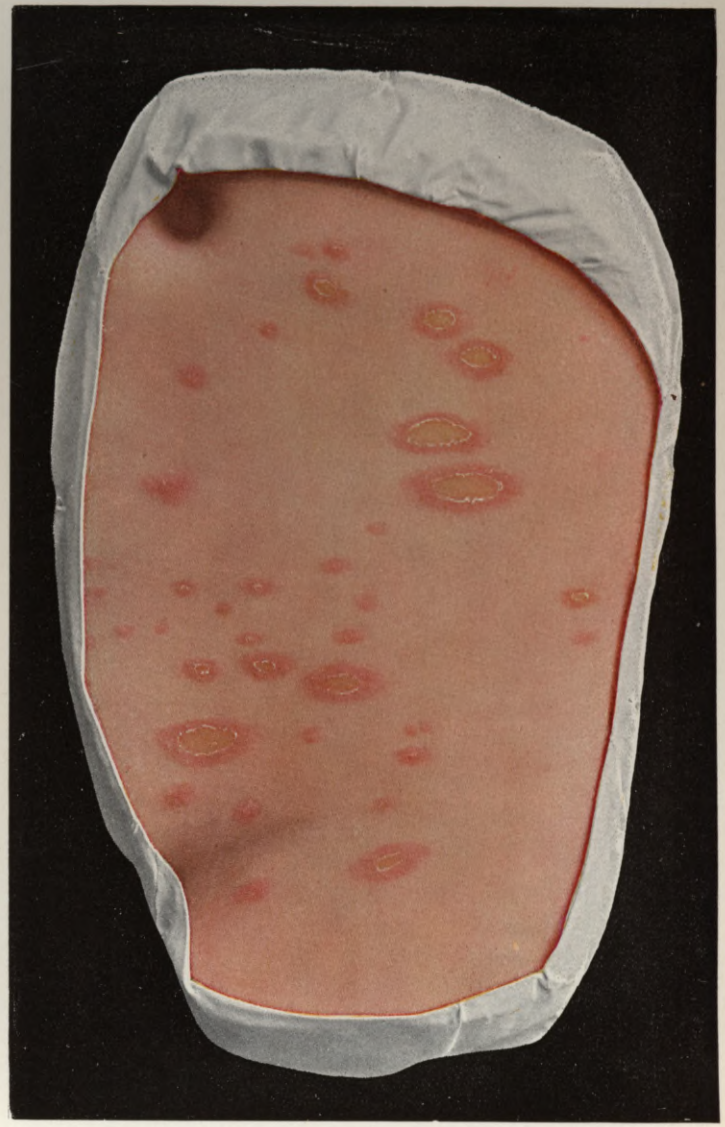
At its very outset the disease presents a unique appearance, so that if seen early the diagnosis might present no obscurity. Thus copper-colored or orange spots begin to appear in the selective areas, which greatly resemble, save in the tint, the earliest manifestations of tinea versicolor. These soon fuse together, producing a continuous discoloration. In certain cases the eruption extends from the original foci upon the trunk; but as a rule separate plaques do not appear in the outlying area. Instead, the entire patch at the armpits or inguino pubic border extends en masse. This is somewhat unusual, and adds to the difficulty of diagnosis. The parasite of the disease seems to settle down to life upon its host; for while the eruption reaches a certain limit there is no tendency whatever toward resolution. The same behavior is also seen in other parasitic diseases.

Etiology

There appears to be no doubt that this affection represents the parasitism of the microsporon minutissimum, whose nearest congener is the parasitic cause of tinea versicolor. Its status is much less as-



No. 190. Erythrasma.



No. 191. Pityriasis rosea.

sured, however, than that of the more familiar fungi. It is also alleged that the minutissimum may exist in the epidermis as a mere saprophyte.

Diagnosis

Two classes of affections have to be borne in mind in diagnosis: first, those due to other fungi, and second, affections which elect the same localities as erythrasma. Among the former, tinea versicolor alone need be considered. It is quite conceivable that the two affections could simulate each other, and as a matter of fact they have done so. The presence or absence of the fungus of tinea versicolor should determine the diagnosis. On the other hand, a half-cured ringworm of the body or seborrheic dermatitis readily simulate erythrasma. If a satisfactory history cannot be obtained, it might not be possible to make a diagnosis, as the fungus of erythrasma is generally demonstrated with considerable difficulty.

Prognosis and Treatment

These coincide so thoroughly with those of tinea versicolor that a separate account will not be necessary.

Fig. 190. Model in Riehl's Clinic in Vienna (*Henning*).

Pityriasis Rosea

Synonyms: Gibert's disease, Pityriasis maculata et circinata

Plate **119,** Fig. 191

This somewhat rare affection possesses a well-marked clinical individuality, but there has always been a doubt as to whether it is an independent affection. First isolated, described and named by Gibert in 1860, it was pronounced by Hebra to be only a mitigated form of ringworm, herpes tonsurans maculosus, in which the parasite, for some reason, eludes discovery. Bazin emphasized the fact that it occurs in two principal types of efflorescence, and termed it pityriasis maculata et circinata. It is assumed that the rings develop from the macules. In more recent years a close resemblance has been noted in this and other respects to seborrheic dermatitis. The element of uncertainty about pityriasis rosea lies wholly in the fact that a number of superficial dermatoses may either regularly or incidentally appear in the double form of macules and rings.

In order to be entitled to the name pityriasis, the affection necessarily appears as a superficial reddish area, which affords a fine branny desquamation. So slight is the erythema that the lesions are usually of a pink or rose hue, such as is presented by some eruptions when they first appear or before their disappearance. This peculiar shade serves largely to characterize the affection. Aside from a fawn tint seen as the lesions pale out, and which is also characteristic, there is little of the play of colors shown at times in the majority of dermatoses.

The affection begins as a macular or maculopapular efflorescence over the body, which may be thickly or sparsely disseminated, and either generalized or limited to certain members. Some observers have noted a slight constitutional reaction in advance of the efflorescence—slight fever, malaise—and during the evolution of the disease the superficial lymph-nodes may become enlarged and tender. This does not necessarily imply that the eruption is an expression of a constitutional or internal affection.

In rare instances the eruption may remain macular throughout. Under these circumstances some lesions may sometimes attain a diameter of three-fourths of an inch, and may pale out without any attempt to clear up in the centre, although a few rings may be discovered. The affection may even appear almost wholly as small maculopapular lesions, in which case attempts at diagnosis will prove disconcerting.

In the great majority of cases the macules, as they broaden, promptly assume the circinate form, so that the efflorescence consists chiefly of rings. These are at first small, but, like other circinate lesions, tend to increase at the periphery as they undergo an involution within. The limit of growth attained is seldom over an inch in diameter. The ring, upon attaining its growth, undergoes involution, paling out immediately or after first breaking up into macules. Rings frequently coalesce, forming gyrate figures, which in turn pale out. As the pink lesions undergo involution, a fawn color appears before the normal hue of the skin is restored.

The clinical picture is much complicated by the fact that, as a rule, the efflorescences appear in crops, so that all the forms of early and late lesions may be seen side by side.

The areas of preference to be involved are the anterior aspect of the trunk, especially the abdomen, the sides of the neck and the buttocks. It may occur on the arms and thighs, but is almost never seen on the exposed parts or on the lower legs and feet. It seldom rnns its course in less than a fortnight, and may last for weeks and even months, depending on the number of crops of eruption. The affection, rare though it be, has even occurred a second time. Practically there is no itching, so that scratch lesions are absent. The spots sometimes show a deeper hue, suggestive of irritation.

Etiology

No parasite has ever been found, and until one is isolated we cannot feel sure of the nature of the affection. The evidences of parasitism are, aside from its grosser clinical features, first, an alleged initial plaque, a mother lesion, said by some authors to occur low down upon the abdomen. The existence of this is open to dispute. Second, occasional multiple incidence in families. Third, the reported claims that cases diagnosticated as pityriasis rosea might have been called with equal propriety mild forms of ringworm or seborrheic dermatitis. This confusion is much more likely to arise in sharply localized forms; and it has even arisen between pityriasis rosea and eczema marginatum, the

latter a form of ringworm. On the other hand, there is, in the widely disseminated form, especially when maculopapular throughout, a considerable resemblance to erythema multiforme of the mildest type. The microscope reveals only a very slight inflammation of the skin, not even severe enough to cause transudation, and hardly more than a hyperemia. It is therefore at present almost impossible to formulate any theory of the nature and causation of the disease.

Diagnosis

Despite the above-mentioned confusion as to the nature of the disease, its diagnosis is very easy, and its great benignity makes an infallible diagnosis of no practical value. Like any affection of its type, it could be mistaken, as it sometimes is, for syphilis. Its absence from the face and hands, and the absence of other evidences of syphilis, should prove conclusive, and its extremely superficial character should differentiate it not only from syphilis, but from psoriasis, seborrhea, and ringworm. Failure to find a fungus does not absolutely exclude the latter.

Treatment

In a self-limited disease, which presents neither disfigurement nor itching, there is little interference called for. If it continue to reappear in successive crops only constitutional treatment will be indicated. None has ever been suggested, save antirheumatic remedies used in erythema multiforme. The usual management for a pronounced case is an alkaline or antiseptic bath, followed by salicylic ointment dressings, the success of which in some cases suggests a parasitic factor.

Fig. 191. Model in Neisser's Clinic in Breslau (*Kroener*).

No. 192. Anthrax (Pustula maligna).

No. 193. Actinomycosis.

Anthrax

Synonym: Pustula maligna

Plate **120,** Fig. 192

This affection must be carefully distinguished from ordinary carbuncle. Both are termed anthrax and carbuncle, and both can be malignant. Malignant pustule is one of the local expressions of a general disease—which, however, is localized at first—caused by the anthrax bacillus. The pustule, which results from direct inoculation, is usually single, but if the abraded surface which becomes inoculated is extensive, a number of pustules may result. The lesion is at first a papule or tubercle and undergoes central necrosis, a bleb forming at the apex. An indurated areola forms about the pustule, and the central necrosis may increase in size. New vesicles may form at the periphery. The classic descriptions of a mature malignant pustule have mentioned a depressed black gangrenous centre surrounded by a ring of bullæ, and beyond this an inflamed indurated zone. The lymphatics and nearest lymph-nodes are involved, and there is often a marked constitutional reaction. This lesion, however, represents an extreme type, and in some cases the pustules are relatively small, the gangrenous centre is not marked, there is no systemic reaction, and the general appearance does not differ greatly from that of an erythema pustule or boil.

Etiology

The affection is enumerated among the diseases of occupation—wool sorters, dealers and handlers of hides, butchers, etc. The occupation is often an aid to diagnosis. The disease is either self-transmitted by the contaminated fingers or is inoculated by insects. The pustules usually appear on the exposed regions, and in most cases the affection remains localized. General infection may be due to the bacillus anthracis, or perhaps also to the germs of ordinary septicemia. The bacillus, however, sets up other forms of disease without reference

to the pustule. One is malignant edema, which affects exposed parts and tends to become gangrenous. The other is splenic fever, the results of general infection from within. The pustular form may pass quickly into malignant edema before the pustule can develop.

Prognosis

It was formerly taught that this affection was highly fatal. At present we know that the reverse is true. Most cases, perhaps, recover, even irrespective of the treatment used. It is probable that the older writers knew only the more malignant forms.

Diagnosis

The milder and initial forms naturally may escape diagnosis, which if not evident from the history and occupation (the incubation period is very brief, one to three days) may be clinched by a bacteriologic study of the serum of the blebs.

Treatment

It was once believed that heroic measures were imperative, such as free incision with immediate application of pure carbolic acid or injections of strong antiseptics or the free use of the thermocautery. At present excellent results are obtained with constitutional measures and mild antiseptic dressings. The internal remedies are much the same as those used in erysipelas and gangrene.

Fig. 192. Model in Neisser's Clinic in Breslau (*Kroener*). The patient was a shepherd, whose case was published in full by Dr. Hermann in the *Arch. f. Dermatol.*, vol. lxii, No. 213. Eight days before the eruption appeared he had scratched his skin on a piece of bone while cutting up a dead cow. Most of the pustules corresponded to the scratch-mark. There was extreme swelling of the axillary gland. He died in 3 days.

Actinomycosis Cutis

Plate **120,** Fig. 193

The ray fungus, which enters the system through the mouth and may cause deposits in almost every region of the body, commonly produces its manifestations about the lower jaw, face and neck, due to the fact that it lodges in carious teeth. In this cervicofacial area there may be cutaneous lesions, usually associated with and secondary to lesions in the more deeply seated structures. Even when superficial, the deposits which form are really subcutaneous, and the skin proper is not involved until softening, rupture and discharge have occurred.

Firm, nodular formations appear beneath the skin, which becomes red or livid. After a time the lumps show softening, the skin is broken, and a purulent discharge begins, and this may often be seen to contain masses of fungi, even with the naked eye. In the meantime new nodules continue to appear, new openings result, and sometimes exuberant granulations are produced. Considerable loss of substance may occur as ulcers and sinuses. Some authors distinguish two clinical types of the mature disease, one of which resembles a carbuncle in having a number of small openings, while the other tends to ulceration and fungoid proliferation.

Authors mention no tendency to spontaneous recovery, although the area finally involved may attain only a limited size.

Etiology

The ray fungus is believed to come from grain, hay, straw, etc., so that the affection it causes is, roughly speaking, an occupational disease which occurs in stablemen, bakers, millers and the like. Cattle and horses are much more frequently attacked than man, from obvious reasons. Since the fungus must lurk in the mouth, at times it is possible that it may be transferred by kissing, or by pipes, etc.

Diagnosis

Actinomycosis naturally resembles malignant growths and granu-

lomata, but the external conditions, location and presence of the fungus should be sufficient to prevent confusion.

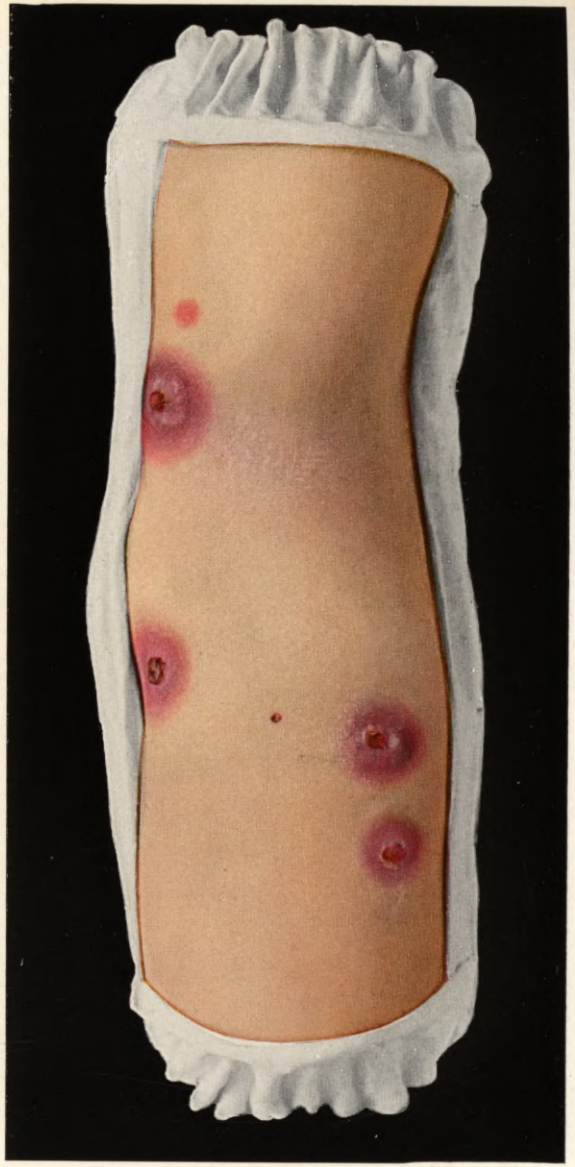
Prognosis

Aside from having no tendency to self cure, the disease may terminate in pyemia from secondary pyogenic infection.

Treatment

Iodide of potassium with symptomatic surgical treatment sums up the management. The drug is believed to be surely curative only in pure cases; should the lesions become infected with pyogenic cocci, not much should be expected of it.

Fig. 193. Model in Neisser's Clinic in Breslau (*Kroener*).



No. 194. 195. Sporotrichosis.

Sporotrichosis

Plate **121,** Figs. 194 and 195; *Plate* **122,** Figs. 196 and 197

This parasitic granulomatous disease occurs both in mankind and domestic animals, and in the horse is known by some as pseudo-farcy. Belonging as it does to the infectious granulomata, it bears considerable resemblance to other members of the group, notably tuberculosis and syphilis. The affection has only been isolated since 1898, but is undoubtedly old, and hitherto described erroneously under some other name. In so far as it has been contracted by stablemen, it may have imposed itself as farcy. We have the assurance of veterinarians that in the horse it frequently passes for farcy. The fact that it responds to potassium iodide would readily cause it to be recorded as syphilis. It is potentially at least a general affection, attacking many kinds of tissue. Over one hundred cases have been described, and as these show a high degree of polymorphism, attempts have been made to group them into types. Of these the first to be named is the localized type. This begins as a local inoculation lesion comparable with a chancre, but often too slight to be visible. The characteristic lesion of this type is a nodular lymphangitis in which the lymph vessel becomes the seat of a series of subcutaneous nodules. The lymph nodes participate but slightly. The initial lesion may appear on the hand, or some less exposed locality. A single dermic nodule may appear, and may or may not undergo softening and ulceration; in some cases the initial lesion may be multiple, consisting of a group of small nodules. In other cases, as when an inoculation wound has been made, the latter heals up as usual so that no local lesion develops. The first evidence of the disease is now a subcutaneous nodule on the forearm. In numerous cases in which inoculation has doubtless occurred no trace of a lesion or port of entry is found. The lymphatic vessels usually show induration to the touch. In reference to the nodules which appear along the lymphatic vessel or vessels, these succeed one another until a series of two, three, four, five or more have formed. While as a rule these are not large and show some uniformity in size, in certain cases one or more of the nodules may

grow to a notable size, forming large tumors. Either these nodules do not soften or they behave much like cold abscesses. This local type is evidently only an abortive phase of the disease. In most cases the affection is disseminated over the limbs and trunk in such a manner that the process of distribution is obscure. In the exceptions it seems to have originated in some particular locality from which it becomes generalized.

There appear to be two, perhaps three separate types of the disseminated form, one of which may be regarded as a combination of the other two. In the first there is no ulceration, which implies that the lesions are very indolent and relatively deep-seated. The nodules are developed in the course of the lymphatics. In the second or ulcerated type, the lesions may be both superficial and deep, the granulomatous infiltration involving the skin alone or in association with the subcutaneous tissues. When ulceration appears there results a great polymorphism of lesion, due largely to the depth of the process. The most superficial may be no more than vesicopustules suggesting ringworm; next in severity come ecthyma-like lesions, then superficial ulcerated gummata and deep ulcers. In some cases there is an acute element present—an erysipelatous lymphangitis, hot abscesses instead of cold ones, and in very rare cases burrowing abscesses. It is this location in the lymph vessels, with occasional implication of the skin and subcutaneous tissues, which agrees so closely with farcy. The mixed form is simply the association of the non-ulcerous and ulcerous forms. In rare cases there are lesions of the mucosæ, bones and viscera.

In addition to what has already been said of the manifestations, it may be stated that the average patient presents himself with multiple ulcerated nodules scattered well over the surface to a number which may be as high as fifty and upwards, but in the earlier stages may be much less. The ulcers depend upon the size of the nodules and represent the softened centres; there is no constant tendency to spread nor to heal, but in certain cases, corresponding to what we see in syphilis and tubercle, the ulcers may be undermined or fungating. If the affection is known to have begun as a particular lesion in the hand, for example, this lesion may present a vegetating surface, and when this occurs the secondary ulcers may show a similar tendency.

A certain number of ulcers seem able to cicatrize, while others undergo a certain amount of involution, but are unable to cicatrize. Despite the great polymorphism of lesions and the atypical forms, all authors agree that the disease as a whole is of unusual uniformity.

No. 196. Sporotrichosis verrucosa.

No. 197. Sporotrichosis epidermica.

Etiology

The disease is known to be caused by the parasitism of a sporothrix. The lesions contain both spores and mycelium, which after an incubation period of from six to twelve days in the host produces typical tissue of infectious grannloma. The fungus is known to exist on fruits and vegetables, and since it attacks many species of animals it may be transmitted from them directly or through the medium of insects. It is quite likely that eating uncooked fruit, etc., may cause general infection. Those with diminished general resistance are more likely to be attacked than the robust.

Diagnosis

A large number of lesions in a subject in fairly good health should suggest the possibility of sporotrichosis. A narrow ulcer in a relatively large amount of granulomatous tissue is mentioned as a diagnostic criterion; also a double ulcer in a single nodule—for the bridge between the two does not melt away as in some similar affections. It is also stated that the pus is readily inoculable. Since a living cause is actually known to exist, it is incumbent to demonstrate its presence, which may be done both by culture and sero-diagnosis. The latter is an agglutinating test. Both these methods are trustworthy and check each other.

Prognosis

In but two in over one hundred cases have patients died of the disease, which in its most virulent form is fatal. But there is absolutely no tendency to spontaneous recovery at any stage. Despite the fact that patients are not usually robust when attacked, their general health does not seem to suffer much.

Treatment

This may be summed up in one word, iodine, an excellent example perhaps of selective chemotropic action of an element upon a parasite, or upon the tissues which it attacks. Iodide of potassium is given internally in full doses, while the ulcers are treated with the tincture of iodine.

Figs. 194 and 195. Models in the St. Louis Hospital in Paris (*Baretta*). Nos. 2531 and 2557. De Beurmann's case.

Figs. 196 and 197. Models in St. Louis Hospital in Paris (*Baretta*). No. 2589. De Beurmann and Gougerot's case.

Scabies

Plate **123,** Fig. 198; *Plate* **124,** Figs. 199 and 200

This affection represents the effects of the parasitism of the itch mite (acarus scabiei), and is highly transmissible. The essential lesions are due to the burrowing of the parasite, which causes papules and vesicles, and to these are added all the consequences of scratching, including secondary infections. The distribution of the lesions does not seem to be due to any decided preference on the part of the acarus, which is equally at home on any part of the surface save the head and face, but rather to the fact that it is passively carried by the patient on his clothing from one region to another. The burrows first appear as a rule on the hands, fingers and wrists, and from this locality are carried to others, and also to other individuals. Thus if an infected woman has a young baby, the eruption may first appear about its feet and nates, the exposed parts which come most in contact with the mother's hands as she carries it. The hands of patients readily transfer the parasite to the penis, nipple and other parts regularly handled, and also to towels and various utensils from which others are contaminated. These and similar acts of transmission, however, are usually overshadowed by the fact that in a majority of cases transmission appears to have occurred from sleeping on infected bedding or with infected subjects. As a result, lesions are equally prone to appear on the lower portion of the body, the buttocks, thighs, feet and ankles. The common occurrence of lesions on the elbows and anterior folds of the axillæ is not so readily explained, but as already implied there appears to be no evidence that the parasite deliberately seeks out particular localities for breeding.

There is no predisposition to scabies, but the habits and status of the patient answer in this respect. In very uncleanly subjects the parasitism flourishes unchecked, for the organism puts up no defense. The more cleanly the patient and the oftener the clothing and bedding are changed the smaller the inroads of the disease. In anesthetic

No. 198. Scabies.

lepers who cannot itch the latter is said to make far greater headway than in any other class of individuals, so that the patients may be literally covered with lesions and the skin completely riddled with burrows. This would seem to show that the incessant scratching of the ordinary subject and the resulting reaction do exert considerable influence in holding the eruption in check. The mites on the surface are brushed off, burrows torn open, etc.

In ordinary scabies reinfection is constantly going on from the bedding and clothing. Were it not for this fact, ordinary care and cleanliness might prevent the parasite from gaining a foothold. The reinfection explains why patients are seldom or never able to cure themselves with proprietary applications or remedies furnished by apothecaries for the itching.

Etiology

The cause of the affection is single, there being but one known species of parasite. As already stated there is no natural predisposition or immunity. Other species of acari from domestic animals sometimes gain access to the human skin, but do not thrive therein. The female is the only parasite, although males are of course hatched in the burrows. The latter are made by the female to deposit her ova which is done throughout the act of burrowing. When the process is complete the female dies. The mite simply penetrates the horny layer and does not go through the rete. Its presence sets up intense itching and independently of any scratch lesions there occurs an inflammatory reaction usually expressed as a vesicle or small bleb which readily becomes purulent. The ova first deposited hatch first; a larval stage is reached in less than a week and about two weeks more are requisite before the young females are able to leave the burrows and begin new ones.

Scabies has an epidemiology whenever men are closely crowded together into sleeping quarters. Barracks and camps readily become infected, and local designations are sometimes applied to these small pandemics.

Diagnosis

Many diagnostic features have already been touched upon. The burrow, which in theory should be conspicuous and pathognomonic, is, as a matter of fact very seldom encountered. The individual burrow may not exhibit any inflammatory reaction and when one is present it is in the wake of the parasite. If no vesicles or pustules form in

its course the burrow has nothing to render it visible save the feces of the mite, which appear as dark dots, and perhaps some specks of dirt adherent to the roughened epidermis. The burrow varies greatly in length. Some present one of a quarter of an inch, but it is not common to see them much longer. As a rule they present a broken or wavy line. That so few burrows are seen is due chiefly because scratching tears them open while the vesicles and pustules tend to efface them.

In practice the eruption of scabies is highly polymorphous, resembling a scratched eczema, especially on the hands, where it may greatly resemble some trade eczema. On stripping the patient the tendency to be localized in certain areas is unmistakable—the folds of the wrists, webs of the fingers (elbows, front folds of axillæ, nipples), dorsum penis, buttocks—especially the cleft,—ankles, etc. In very mild and very severe cases alike the diagnosis may be somewhat difficult. A few isolated papulo-vesicular formations on the hands, with some other preferred location and the occupation (actor, commercial traveller, etc.), or history of sleeping in a strange, unclean bed will at once suggest scabies. In the absence of absolute proof (recognition of burrows, etc.) the effects of treatment which should cure scabies in a few days, will leave no possible doubt as to the nature of the affection. In a very severe case in a careless subject, in which large flattened crusts of dried pus, resembling impetigo contagiosa, may be present, with stains of older lesions, it may be necessary to exclude a variety of affections, including syphilis, which of course may coexist.

When authorities speak of making diagnosis from the presence of the burrows, they state an ideal rather than that which actually occurs in practice. After the diagnosis has been made from the distribution, etc., a search may be made for burrows for the sake of completeness; but in the majority of cases no typical ones are found—only dubious remnants. Failure to find them does not weaken the diagnosis.

Prognosis

Despite the familiar expression, "seven years' itch," scabies has no tendency to spontaneous recovery. When intelligently treated the prognosis is of the best. It is not known that any cases have ever refused to recover promptly under proper treatment and prophylaxis.

Treatment

Under ideal conditions it is possible to cure scabies in twenty-four

No. 199. 200. Scabies.

hours, although a somewhat longer time should perhaps be devoted to the task even under the most favorable conditions. Treatment of this sort can only be carried out in hospitals with the aid of trained nurses and attendants. The patient enters the hospital, taking with him clean underclothing. He is stripped and bathed and scrubbed from head to foot with hot soapsuds, which soften the cuticle. Green soap is often used for this purpose and common kitchen or laundry soap answers well. Simple mechanical treatment of the skin is of great value, for it aids in breaking up the burrows. This is carried out with the flesh brush. After this preliminary treatment, which in itself may suffice for cure, a parasiticide is applied, usually a sulphur ointment, which is rubbed into every portion of the surface, even if no lesions or itching are present, with the exception of the head and face. A second treatment is usually given on the following day, despite the fact that the first session is sufficient to cure most cases. In very old, obstinate, extensive cases, or when for any reason the treatment cannot be carried out with necessary rigor, the treatment is repeated a third or fourth time. Throughout the period of treatment, the patient wears a special suit of underwear, day and night, removing it only for treatment. This prevents reinfection from the bedding and clothing. The benefit is first apparent in the cessation of itching. The eruption cannot show any improvement, and may even appear to be aggravated if secondary eczema is present, while sulphur itself may set up a slight dermatitis. Hence it is sometimes advisable to apply soothing measures suitable to eczema and dermatitis as soon as the necessity for sulphur is past.

All treatment of scabies when these favorable conditions do not obtain must be an approximation of the preceding. A patient who must be treated at home will first seek to prevent reinfection by providing special bedding and underwear. The applications he can make himself or have made by a relative or attendant. To make up for the technical shortcomings, he can eke out the treatment by taking sulphur baths at home. Or he can have one or more sulphur vapor baths, preferably at a regular medicated bath establishment.

If conveniences or opportunities to use them are wanting, or if the case is a very mild one, it may be necessary or advisable to depend on ointments. In such cases it is best to use some parasiticide other than sulphur, which is by no means the most effective but is used largely because expedient. Storax, Peruvian balsam and betanaphthol are all serviceable for the purpose and may be given alone or in combination.

Here is the formula for the Ungt. Contra Scabiem used at the New York Skin and Cancer Hospital:

℞	Styracis	3iv
	Saponis viridis	3iv
	Ungt. picis	3ii
	Zinci oxidi	3ii
	Ceræ	3iii
	Sulphuris sublim.	3v
	Cretæ preparatæ	3iv
	Adipis	℥iiss

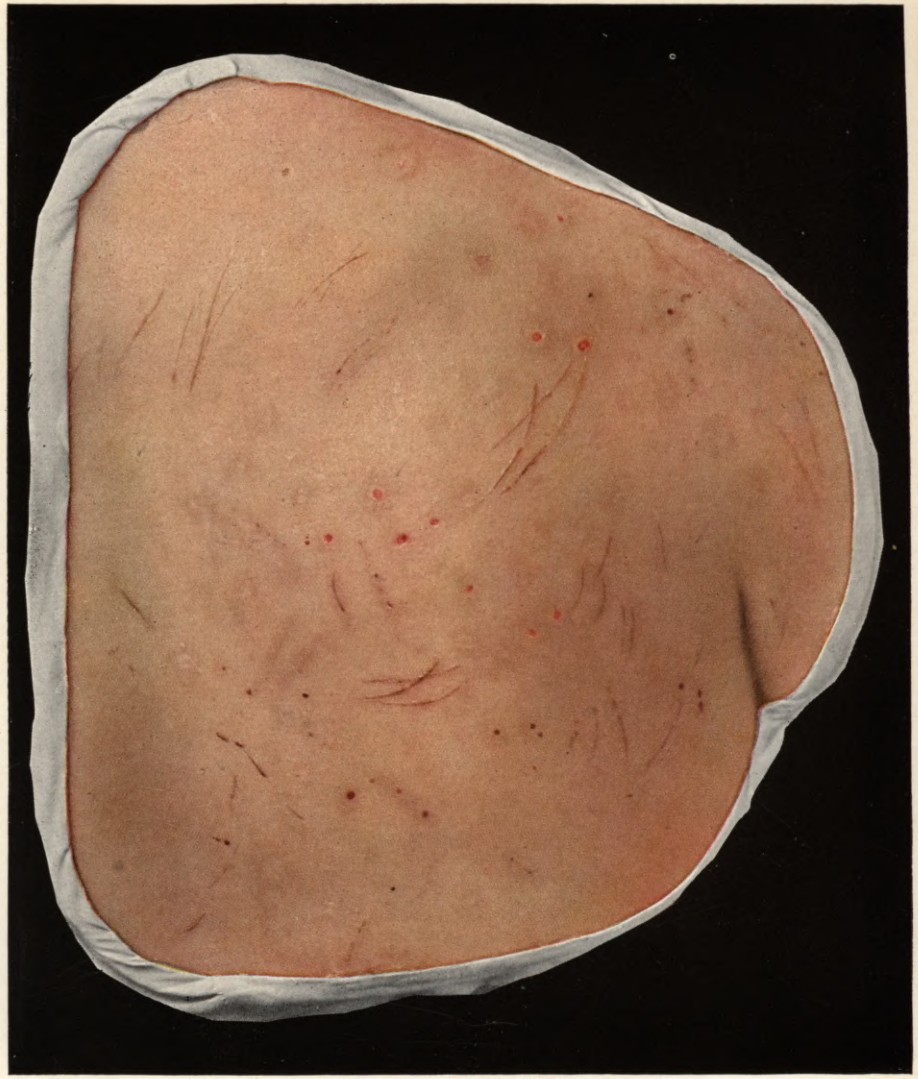
M. et ft. ungt.

Sherwell recommends the employment of powdered sulphur and directs his patients, after taking a warm bath, to distribute a spoonful of flowers of sulphur between the bed sheets. This treatment is convenient, cleanly, and in certain cases quite effective.

Fig. 198. Model in Freiburg Clinic (*Vogelbacher*). Extraordinary, numerous and very characteristic burrows in a child, five years of age. Typical pustules in children's itch.

Figs. 199 and 200. Models in Freiburg Clinic (*Johnsen*).

No. 201. Pediculosis capitis; Eczema impetiginosum.



No. 202. Pediculosis vestimentorum.

Pediculosis Capitis

Synonym: Phthisiasis capitis

Plate **125,** Fig. 201

The parasitism of the head louse may exhibit nothing more than pediculi and nits in the hair, itching and perhaps scratch marks. This may be termed the mild form of the disease; the severer types, however, are quite different. Very often we see especially in children a grouping of lesions, at the occiput especially and a secondary infection of the scratch marks with ordinary cocci of suppuration which leads to the formation of thick crusts at the occiput and nuchal region, and enlargement of cutaneous lymph nodes. Both these forms are sufficiently common. There is however a third form, seen only where overcrowding, misery and absence of all sanitation are coexistent. This type of pediculosis is, at times, hardly recognizable as such even though it be the most cumulative form. The hairs may be saturated with serum or pus and the condition of long hair, matted into a sort of straight half rigid queue and abounding with lice and nits has been known for ages as plica polonica.

Etiology

It is enough to know that a special type of pediculi is parasitic in the human head hair upon which it breeds, its ova being found on the hairs while the louse travels over the scalp and readily passes, directly or indirectly, to the scalp of others. The subject of the phylogeny of the head louse has not been much studied; we do not know why it is parasitic to the scalp-hair only. It may be found in the hair or head-covering of any subject, however select in their habits and associations.

Diagnosis

Suspects are readily recognized—usually young girls or young women. Diagnosis must be proved by finding lice or nits in the back of the head or behind the ears. The former will be attached to hairs at

Pediculosis Capitis

Synonym: Phthisiasis capitis

Plate **125,** Fig. 201

The parasitism of the head louse may exhibit nothing more than pediculi and nits in the hair, itching and perhaps scratch marks. This may be termed the mild form of the disease; the severer types, however, are quite different. Very often we see especially in children a grouping of lesions, at the occiput especially and a secondary infection of the scratch marks with ordinary cocci of suppuration which leads to the formation of thick crusts at the occiput and nuchal region, and enlargement of cutaneous lymph nodes. Both these forms are sufficiently common. There is however a third form, seen only where overcrowding, misery and absence of all sanitation are coexistent. This type of pediculosis is, at times, hardly recognizable as such even though it be the most cumulative form. The hairs may be saturated with serum or pus and the condition of long hair, matted into a sort of straight half rigid queue and abounding with lice and nits has been known for ages as plica polonica.

Etiology

It is enough to know that a special type of pediculi is parasitic in the human head hair upon which it breeds, its ova being found on the hairs while the louse travels over the scalp and readily passes, directly or indirectly, to the scalp of others. The subject of the phylogeny of the head louse has not been much studied; we do not know why it is parasitic to the scalp-hair only. It may be found in the hair or head-covering of any subject, however select in their habits and associations.

Diagnosis

Suspects are readily recognized—usually young girls or young women. Diagnosis must be proved by finding lice or nits in the back of the head or behind the ears. The former will be attached to hairs at

considerable distance, perhaps, from the roots. The lens must at times be used freely to distinguish lice from epithelial products.

Treatment

All pediculi and ova must be destroyed or removed en masse. Simple cleansing alone does not suffice. Some agent must be employed which is directly a parasiticide. White precipitate ointment, solution of bichloride of mercury, larkspur, or kerosene oil are all effective. If the latter is used it should be diluted with linseed oil and the head thoroughly soaked with it two or three times during the day and left wrapped in a towel for at least twenty-four hours. The head should then be washed and the crusts removed. For excoriations of the scalp a boric acid ointment may be used. An important part of the treatment is the removal of the nits. Acetic acid should first be applied to the hair, as this dissolves the glutinous material fixing the nit to the hair. When no longer adherent, the nits are readily removed with a fine tooth comb. The hair should be held by the ends and combed toward the scalp. In severe cases, especially in institutions, it is best to have the hair clipped close to the scalp.

Fig. 201. Model in Freiburg Clinic (*Johnsen*).

No. 203. Melanodermia e pediculis vestimentorum.

No. 204. Maculae caeruleae (Ulcus molle elevatum, Bubo inguinalis).

Pediculosis Vestimentorum

Synonym: Vagabond's disease

Plate **126,** Figs. 202 and 203

This affection, also but not correctly termed pediculosis corporis (for pediculosis pubis also occurs on the body at times), is a form of parasitism in which the lice live and breed in the clothing, from which they go forth to feed on the skin. But for the fact that exceptionally pediculi lay their ova among the fine hairs of the body, they might almost be classed among parasites which do not dwell upon the same. Their relationship to the clothes is apparent in every connection—etiology, pathology, diagnosis, prognosis and treatment, especially in prophylaxis.

The pediculi live in the clothing, especially about the seams, where their ova are deposited. They first affect by preference the skin under the upper margin of the undershirt, or whatever garment comes nearest the skin. Hence the itching caused by the parasite is located on the upper portion of the back and shoulders. Next in order comes the region of the waist, where the lice or ova may be found in the seams in that region. Third in order come the extensor surfaces of the limbs. It is not entirely apparent just why the clothes-louse first attacks certain localities.

As long as we find the lice located in certain sites we can form some idea of how the affection was acquired. But in dirty and neglected subjects the disease may quickly spread over the body (the hands and face alone being exempt). The seams and other regions of the clothing continue to be the breeding-places, but the number of lice which must feed upon the subject is much greater, and the number of lesions formed correspondingly increased. But the amount of dermatitis, the latter being chiefly the result of scratching, is not an inevitable index of the number of lice present. The sole primary injury caused by the parasite is a hemorrhagic red dot, generally held to be due to the fact that the proboscis of the louse enters a cutaneous follicle and sucks out blood, without causing an actual wound. This little act of

feeding causes a most intense itching. It is not always easy to determine whether the louse or the scratching causes the urticaria papulosa which follows; but at least the latter is of a type not usually encountered under other circumstances. An entire area of skin may, as a result of scratching, become the seat of numerous, closely aggregated wheals. Isolated urticarial papules are, however, the rule, and these soon become more or less stable, scratched lesions. Some of these become pustules from infection. Many accessory nail-marks occur without any connection with actual lesions. These, too, may become infected. It is sufficient to state that the clothes louse may cause at times one of the severest types of artificial dermatitis.

The changes which occur in the skins of vagabonds and the like, after years of pediculosis vestimentorum, are so peculiar clinically as to constitute almost a special affection; the more so because all other evidence of pediculosis may have vanished. The secondary lesions consist of pigmentation and a sort of atrophy of the skin, the latter due in part to precocious senile changes.

There is naturally a period during which the discoloration reveals the original papules and nail-marks in the sites of predilection of the disease. Such cases are readily recognized as a rule. At a later period, however, not only have some of these detached stains coalesced to form wide sheets of pigment, extending perhaps beyond the scratch area, but pigmentation entirely separate from the scratched areas—even at times on mucous membranes—has been noted.

Prognosis

In a condition due purely to the operations of the clothes-louse, removal of the latter should in theory at least cause the disappearance of the disease picture.

Treatment

All of the patient's clothing should be destroyed outright, but if this is impracticable the garments may be disinfected by baking in an oven at a temperature of 212°. An antiseptic bath is next in order, and following this boric acid ointment may be applied to hasten the healing of excoriations and infected lesions. It has been observed at the City Hospital on Blackwell's Island that after the bath these patients will often develop a fever with a rise of temperature of from two to four degrees. Authors do not mention any resources for promoting the absorption of the pigment. Fortunately, however, the patients with this affection seldom look for cosmetic results.

Figs. 202 and 203. Models in Neisser's Clinic in Breslau (*Kroener*).

Maculae Caeruleae

Plate **126,** Fig. 204

Maculæ cæruleæ represent an artificial pigmentation caused by the pediculus pubis or crab louse. The condition is a transitory one, which disappears spontaneously after removal of the parasite. Its chief practical significance lies in the fact that it has been mistaken for serious affections, for example, the roseola of typhoid, or syphilis, which may give rise to pigment anomalies.

Although the pediculus pubis has been known for centuries, the blue spots were first mentioned by Morrison in 1868. Their nature was not understood until 1880, when Duguet found that the pigment was derived from the body of the parasite. The only conceivable way in which the pigment can be introduced would appear to be the act of feeding, but this supposition throws no light on the peculiar size, shape and distributon of the spots; nor is it at all apparent why they develop on only a certain proportion of patients.

The spots vary in size from pea to finger-nail, and, despite their designation, are not blue but steel gray. They are perfectly flat, and in some the stain is deeply placed. They are said to occur most commonly in fair skins and also in cases in which scratch marks and dermatitis are largely absent. The assertion has therefore been made that the pigment has an anesthetic effect on the skin.

The spots, if they occur there, are not visible on the hairy areas, but in the outlying localities—abdomen and thighs. They may be encountered on the sides of the thorax and arms.

Diagnosis

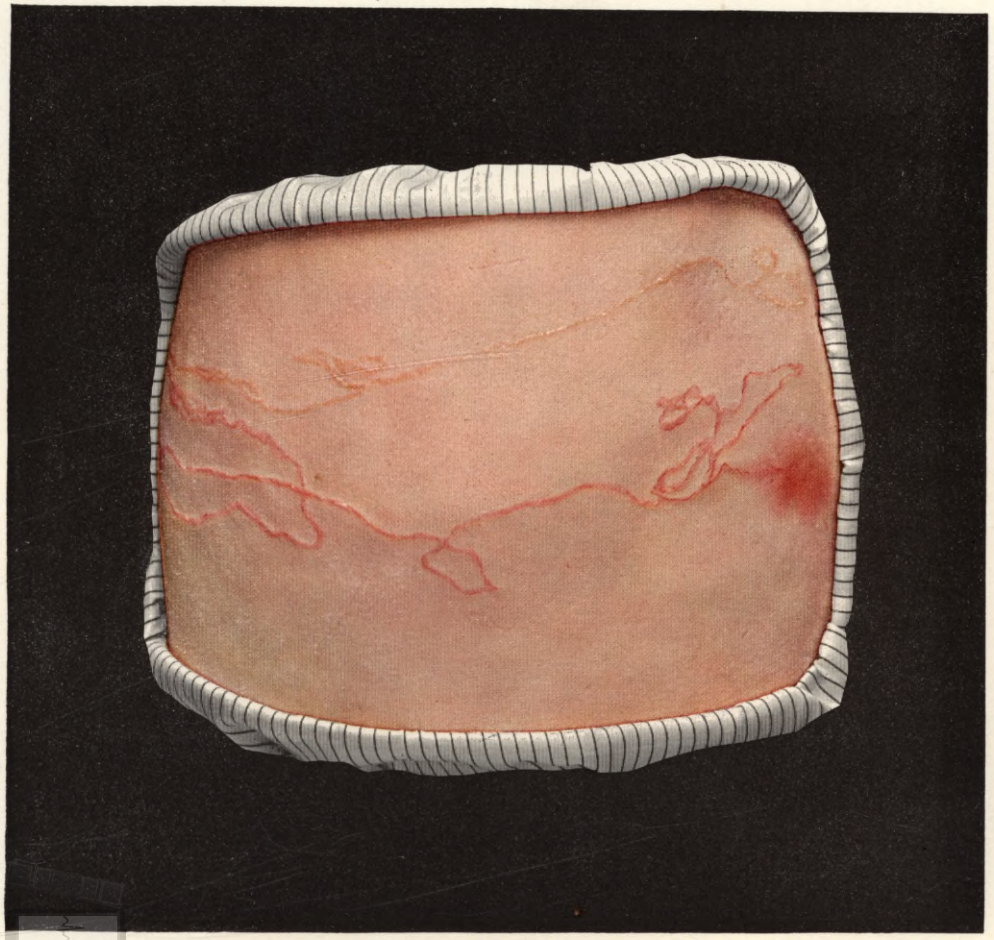
The pigmentation implies that the patient has pediculosis pubis, or has recently recovered from it. In exceptional cases the patient may not have lice in the pubic area—these may have been destroyed—but they will be found in hair on the abdomen or thorax. The parasites appear as dark spots, flat on the skin or even partly beneath it. They are sometimes in motion, but usually grasp the base of the hair

shafts, with heads buried in the follicles. With the lens, ova may be recognized attached to the hairs, while the excrement is sometimes visible as minute dark spots.

Treatment

The only management required is destruction of the parasite, for the discoloration will then vanish of itself. The number of familiar parasiticides is considerable. Nearly any essential oil will answer the purpose. The blue ointment so extensively used may set up mercurial dermatitis, but an ointment containing hydrarg. ammon., half a dram to the ounce, is equally as effective and seldom irritates the skin. If not too numerous, the parasites may be removed bodily with forceps, and the ova destroyed by washing with a weak solution of acetic acid.

Fig. 204. Model in Freiburg Clinic (*Johnsen*). The patient was also suffering from an Ulcus molle elevatum and Bubo inguinalis.



No. 205. Myiasis linearis.

No. 206. Onychogryphosis.

Myiasis Linearis

Plate **127,** Fig. 205

This affection, which presents some analogy with scabies, is due to the burrowing of a larva—probably one of the œstridæ or gadflies—in the epidermis. But while the acarus will simply make for itself a short burrow, which serves as its nest, the larva burrows on indefinitely, and has, therefore, been likened to a mole. A red line or narrow ridge results, the direction of which may be straight, curved, broken, or exquisitely sinuous. A burrow may intersect itself over and over. One line may traverse the greater portion of the integument.

The condition was first described by Lee in 1874, under the name "creeping eruption," and at a later period Crocker applied the term larva migrans to the then hypothetical parasite. The affection is said to be common in Russia.

The symptoms, in more detail, are as follows: at the terminal of the line an inflammatory focus marks the location of the parasite. The more recent portion of the line forms a slight ridge, but the older portion is merely a thin red line, which may fade out of sight or be succeeded by a slight incrustation.

While the parasite usually travels at the rate of half an inch to an inch in twenty-four hours, its rate of progress is exceptionally much more rapid. Authors do not mention the occurrence of more than one larva in a patient. There is no bifurcation or parallelism in the lines. It is not known definitely how the larva reaches the skin. The burrow usually begins at an exposed area—extremities or buttocks. The only subjective symptom is itching.

Diagnosis

No other affection could be confounded with this, unless it were some similar parasitic dermatosis.

Treatment

Since the larva is believed to be somewhat in advance of the

proximal end of the line by reason of its rapid progress, it would be a mistake to treat the inflamed area. By computing the rate of travel it may be possible to inject some strong parasiticide into the parasite. This failing, a free excision of the area should be made and the larva removed.

Fig. 205. Model in Finger's Clinic in Vienna (*Henning*).

Onychogryphosis

Plate **127,** Fig. 206

This affection represents either a special type or an extreme degree of onychauxis, or hypertrophy of the nails. The onychauxis occurs in varying degrees, and may be due to more than one cause—that is, it may represent a congenital dystrophy, either alone or in association with other deformities, or it may be dependent on inflammation of the nail-bed, on some trophic affection or on a simple mechanical causation. One or more nails may be involved, including those of both upper and lower extremities.

In onychogryphosis (the word means curved nails), the nails attain such size and shape as to resemble claws or talons. The nail becomes greatly thickened from above downward, and compressed laterally, while its curvature becomes pronounced. There may also be more or less twisting, resembling that in the horn of an animal. The texture may be firm and horny, or brittle. The characteristic appearance of nail substance is completely lost. The hue becomes dusky and longitudinal and transverse furrows appear.

The most typical cases of onychogryphosis appear to occur in elderly individuals, and to affect by preference the great toenails and perhaps, to a less extent, the contiguous toes. In some cases there appears to be no other causal element than poorly fitting shoes, while in others there is a history of onychia. These nails may attain a length of three inches. In some cases there is a fetid decomposition of accumulated epithelium beneath the nail, or secondary onychia.

Diagnosis

This affection can hardly be confounded with any other.

Treatment

This consists first in softening the nail substance by keratolytic substances like salicylic acid and strong alkalies dissolved in glycerin.

After the softened nail has been detached the exposed surface should also be treated with salicylic acid plaster to prevent the return of the onychauxis. If these measures fail the nail-bed can be eradicated with the knife.

Fig. 206. Model in Freiburg Clinic (*Johnsen*).

SYPHILIS

By WILLIAM GAYNOR STATES, M.D., New York

Introduction

From the time of its appearance in Naples in the year 1494, no subject in medicine has been the object of greater interest and speculation than syphilis, justly regarded as one of the great human scourges, while its still debatable origin and its versatile and protean characters have furnished material for an enormous literature and themes for untold volumes.

The history of syphilis, like that of other great subjects, has its dark periods, when reason and facts seem to have yielded to mere theories and fallacious doctrines. The early clinicians and writers had recognized the entity of syphilis and considered it a separate disease, which they carefully differentiated from the other venereal affections which had always been known, and from which its earliest nomenclature (the French *evil,* Neapolitan *evil,* Spanish *evil,* etc.), still further distinguished it; for it was not until some time later (1530) that the Italian physician *Frascator* wrote his famous Latin poem, in which a fictitious hero and the first victim of the new disease was named *Syphilus.* From this hero's name is derived the word *syphilis,* now universally applied to the disease. At a still later period *Fernel* termed it *lues venerea,* and popularly it was known as the pox or great pox.

The ravages of the new disease, its loathsome and fearful effects, its malignancy, which, acting upon virgin soil, can be well imagined, were portrayed in detail in the descriptions given by the early writers. The dread and horror which syphilis inspired at the time was reflected in the restrictive edicts, laws and regulations passed by the authorities of the cities and towns, whereby the unfortunate afflicted were sequestrated or banished to designated places outside of the town limits, where many succumbed.

Syphilis was impartial and respected no station in life—the rich, the poor, the exalted and the lowly were alike stricken. The gay

Francis I of France, suffering from a fetid syphilitic caries of the nasal bones and miserably spent, became an object of loathing to his courtiers. Henry III of France and many high dignitaries of the state and church were also among the sufferers.

Mercury, it is believed, was first used for the treatment of syphilis in 1514 by *Jean de Vigo,* physician to the pope Julius II. He employed his celebrated plaster (still known by his name) and also fumigations. *Carpi* advised the use of mercurial frictions with neapolitan ointment, and *Paracelsus* in 1528 advocated the internal use of mercury.

Syphilis was considered an external disease affecting the skin, mucous membranes and bones, and but little was known of its pathology or effects upon the internal organs, although *Tomitanus* in 1563 described a hepatic lesion from the autopsy of a syphilitic as a kind of distemper or pustule of the liver, and *Astruc* in the eighteenth century mentions that the liver engorged by syphilis is sometimes scirrhous and indurated. *Paracelsus* had also noted the evil effects transmitted to the offspring by syphilitic parents.

Thus the early clinicians had certain well-defined notions about syphilis which experience and time has demonstrated to be correct, but syphilis was destined to enter upon a dark era, when doctrinal beliefs and theories based upon wrong premises were to prevail against the knowledge acquired by more than two centuries of experience. *John Hunter,* the great English physiologist and surgeon (to whose classical description of the nodular primary sore the name of *Hunterian* chancre was given), as a result of an unfortunate experiment whereby he inoculated himself with a supposedly gonorrheal discharge and developed syphilis, taught, in his Treatise on the Venereal Disease (1786), that there were three kinds of venereal infection: gonorrhea, chancre and lues venerea, and that *all three* were products of the *same* poison, the only difference being the nature of the surface upon which the virus acted, that gonorrhea always proceeded from a secreting surface, that the chancre was formed on a non-secreting surface and that lues venerea arose in consequence of the poisonous matter being absorbed. Nor did he admit the action of the disease on the internal organs. The great weight of *Hunter's* name brought him many followers, and his doctrines prevailed for many years.

Many other theories found favor, and developed into various schools like the mercurialists and anti-mercurialists, who ascribed the ill-effects of syphilis to the action of the mercury administered. The theories of syphilization of *Auzias Turenne,* of Paris (1850), and his

pupil *Boeck,* of Christiania, found supporters, and many denied the possibility of hereditary syphilis.

The first glimmer of returning light came when *Ricord,* in 1838, disproved the identity of gonorrhea and syphilis, but he failed to establish the difference between the two kinds of venereal sores. *Léon Bassereau,* one of his pupils, brought out the theory of the duality of sores, but *Clerc,* also a pupil of *Ricord,* attempted to prove that it was not necessary to have two kinds of poisons, but that the soft chancre, which he was the first to designate as *chancroid,* was produced by the virus of an indurated sore acting upon an individual already syphilitic. Both theories found adherents, who were respectively known as *unicists* and *dualists.*

Finally, in 1857, *Ricord,* in his work, "Leçons sur le chancre," clearly established the difference between the simple venereal sore and the initial syphilitic lesion, which he termed the prelude of a diathesis. From that time the modern views and knowledge of syphilis may be said to date.

The study of the pathology of syphilis received a great impetus in the middle of the nineteenth century and engaged the attention of many brilliant minds, among others, *Rokitansky, Verneuil, Budd, Ricord, Cornil, Dittrich,* etc. *Virchow,* in his treatise on constitutional syphilis (1865), described the lesions of the liver and kidneys and established the structure of the gummata, which he found to be anatomically similar to granulation tissue and accordingly included them in his classification of the granulomata. Since then pathologists have demonstrated the action of syphilis on practically all the organic structures and viscera, and particularly on the blood-vessels and nervous system.

In 1876 *Fournier* expressed the opinion that syphilis was one of the most frequent causes of tabes. *Erb* was practically the only one to support *Fournier's* views, which at the time found many opponents, among whom were *Westphal, Remak, Leyden, Charcot, Julliard* and others. In 1882 Fournier again reasserted that the great majority of cases of tabes were of syphilitic origin. His conclusions were based upon the actual histories of 117 cases of tabes, of which 91.45 per cent. had syphilis. *Erb, Oppenheimer, Bernhardt* and others from independent investigations reached the same conclusions. Later *Fournier* expressed the same opinion with regard to general paresis. Further experience has demonstrated the correctness of these views, not only in tabes and paresis, but in other nervous affections. To this group of affections, the consequence of an anterior luetic infection but not

deemed to be themselves of an active syphilitic nature, *Fournier* applied the term parasyphilitic.

Jonathan Hutchinson's contributions to the knowledge of congenital and hereditary syphilis and his observations of the characteristic malformation of the teeth and other stigmata are well known.

In the treatment of syphilis many remedies had been tried, but until the introduction of salvarsan the only specific known was mercury, and this remained the therapeutic mainstay, despite the opposition of the anti-mercurialists. In 1862 *Wallace,* of Dublin, introduced the use of iodide of potassium in the treatment of syphilis.

Subcutaneous mercurial injections were used early in the nineteenth century by *Hebra, Scarenzo* and *Berkley Hill.*

Lang, of Vienna, in 1884, introduced the intramuscular injection of *gray oil* or *ol. cinereum* (a suspension of metallic mercury in lanolin and oil). Since then numerous soluble and insoluble mercurial salts have been used for subcutaneous and intramuscular injections.

This brief and necessarily imperfect review, covering a period of over four centuries, represents roughly the state of our knowledge at the beginning of the present century, and brings into greater relief the stupendous advances made since then, for beginning with the year 1903 a new era has dawned upon syphilis, and it has been robbed of its mystery through the remarkable and epoch-making discoveries which have taken place in rapid succession, while many former long-held views and beliefs have been shattered.

In 1903 *Metchnikoff* succeeded in inoculating the higher anthropoid apes with syphilis, thus opening the way to animal experimentation and at the same time disproving the former belief that syphilis was peculiar to man and incapable of transmission to animals. Since then the disease has been experimentally conveyed to monkeys, rabbits, dogs, etc.

In 1905 *Schaudinn,* in collaboration with *Hoffmann,* announced the epoch-making discovery of the spirocheta pallida now known to be the cause of syphilis. Its presence in gummata and other late lesions has dispelled the old notion that tertiary syphilitic lesions were not contagious, while its recent discovery in the brains of paretics and in tabes dorsalis disproves the view that parasyphilitic affections are not active luetic processes.

In 1906 *Wassermann, Neisser* and *Bruck,* applying the principles discovered by *Bordet* and *Gengou* to the diagnosis of syphilis, established the well-known serum test, which has since become most valuable not only for the diagnosis of syphilis but also for the control

of its treatment. It has furthermore shown that *Colle's* and *Profeta's* laws of immunity are no longer tenable.

In 1911 *Noguchi* succeeded in obtaining pure cultures of the spirocheta pallida, and by their successful inoculation into experimental animals proved the causal relation of the organism to syphilis. Shortly afterward he introduced his *luetin* cutaneous reaction test.

Ehrlich's contributions of *salvarsan* and *neo-salvarsan* to the therapy of syphilis complete the series of brilliant achievements and remarkable discoveries which have taken place in less than a decade and which it may be hoped presage at no distant future the great attenuation if not the eradication of the terrible scourge which has afflicted humanity for more than four hundred years.

Syphilis

Syphilis is a specific communicable disease caused by a definite organism, the *spirocheta pallida,* or, as now designated, the *treponema pallidum.*

The disease is conveyed from an infected to a healthy individual by actual contact (*immediate contagion*), through the instrumentality of infected objects (*mediate contagion*), or it may be transmitted to the offspring through one or both parents (*hereditary syphilis*).

The evolution of syphilis is chronic and its duration indefinite, its manifestations although following to some extent a chronological sequence, are intermittent in character and are constituted by a very numerous series of symptoms or lesions, which may, under differing forms varying in gravity, affect any tissue or part of the organism.

Etiology

It had long been surmised that syphilis, like other infectious diseases, was caused by some living organism, and a number were reported, notably the bacillus of *Lustgarten* in 1885, but it was reserved for *Schaudinn,* in collaboration with *Hoffmann,* to announce in 1905 his memorable discovery of a spiral organism which he had constantly found in syphilitic lesions, and which from its pale appearance and low refraction he named the *spirocheta pallida* and later the *treponema pallidum.*

This discovery was soon confirmed by many observers who in extending their researches, noted the presence of the organism in the various external and organic syphilitic lesions in both the acquired and hereditary forms of the disease.

The constant association of the spïrocheta pallida with syphilitic manifestations and its very evident causal relation to the disease, led to its being generally accepted as the specific cause, although positive and rigorous proof was still lacking.

The proof, however, was furnished by *Noguchi* who, in 1911-1912, succeeded in obtaining pure cultures of the *treponema pallidum* which,

when inoculated into experimental rabbits, produced in due time lesions characteristic of syphilis and containing numerous treponemata. Inoculation of the cultures in monkeys was also followed by local manifestations presenting the appearance of the initial lesions in man and those produced in monkeys by using material of human origin. Furthermore the blood of monkeys inoculated with pure cultures obtained from human lesions gave a positive Wassermann reaction, thus showing the relation of the treponema pallidum to the serum test and also the similar characters presented by the cultivated strains with the species existing in human syphilitic lesions.

The treponemata pallida belong to a rather numerous and widely distributed species of spiral organisms or spirochetæ which occur in shell fish, fowl, and to some extent in nature (fresh water). Their exact classification is still undetermined, for whether they belong to the lowest order of animal parasites or *protozoa* or to true *bacteria* is not decided ("Spirochetæ," by *Bosanquet*). *Blanchard* places them among the *trypanosomidæ,* and *Luhe* under the generic treponema includes the *treponema pallidum* and also the *treponema pertenue,* the cause of *yaws* or *frambesia tropica,* a disease resembling syphilis in some respects. The organism, however, seems to present greater analogies with the protozoa, and is so considered by the majority of authorities at the present time. The importance of the question lies in the possibility of elaborating immunizing sera or vaccines, for, as *Adami* says, "the development of toxins by the protozoa is so slight and the toxins are of so low an order that it has not yet been possible to develop antitoxins or passive immunity by experimental means."

In man several varieties of spirochetæ belonging to the genus treponema occur; some deemed saprophytic, others more or less pathogenic. The spirochetæ *buccalis, macro-dentium* and *micro-dentium* are found almost constantly in the healthy mouth. *Vincent's* spirocheta is usually found associated with the bacillus fusiformis in *Vincent's* angina. The spirocheta *refringens* occurs in smegma, in balano-posthitis, and is frequently associated with the pallidum in the ulceration of the primary sore.

The *treponema pallidum* is a fine tenuous spiral organism varying from 10 to 26 microns in length and of almost immeasurable thickness (¼ to ½ micron). It presents a number of deep, well accentuated regular spirals, ranging from 4 to 26 according to different observers, and presents finely pointed extremities. It moves to and fro by rotation on its long axis and retains its spiral form while in motion. It requires differentiation from the spirocheta refringens with which it

is frequently associated in the primary sore, and from the spiral organisms the spirochetæ buccalis, macro- and micro-dentium found normally in the mouth and in conjunction with oral syphilitic lesions. Its reaction to the Wassermann test is positive.

The spirocheta *refringens* (treponema refringens) is longer and much coarser than the pallidum, averaging from 10 to 30 microns in length by ½ to ¾ of a micron in thickness. The spirals, which may number from 3 to 15, are wider, flatter, more sinuous in character and irregular; the organism is more refractile and its movements are snake-like and more rapid than in the pallidum. Its reaction to the Wassermann test is negative.

The spirocheta *micro-dentium* (or treponema micro-dentium) most closely resembles the pallidum in its morphology, staining properties and refraction, and according to *Noguchi* it is almost indistinguishable, except culturally, from certain thin strains of the pallidum.

The *micro-dentium* is a fine delicate organism shorter and thinner than the pallidum. The spirals which may number from 4 to 20 are regular, moderately deep and closely set, while the extremities appear blunt. It moves by rotation on its long axis and retains its spiral form in motion. Its reaction to the Wassermann test is negative.

The spirocheta *macro-dentium* (treponema macro-dentium) is longer and coarser than the pallidum; the spirals which may number from 3 to 14 are not so regular, and its movements are flexuous as well as rotatory. Its reaction to the Wassermann test is negative.

The spirocheta *buccalis* is a coarse organism with rather long irregular flat curves; its movements are sinuous and snake-like. *Vincent's* spirocheta presents the general objective features of the buccalis.

The treponema pallidum has been found in practically all the lesions of acquired syphilis and in all its stages. It is most abundant in the primary sore and in the lesions of the florid period when, although difficult to find, it is also present in the blood and lymphatics. It occurs in the organic lesions of the tertiary stage, notably in aortitis and it has been found in gummata, tabes and paresis. It is present in the lesions of early and tardive hereditary syphilis, and is especially abundant in the organic lesions of children dying with congenital syphilis, particularly in the liver.

The presence of the organism in the initial lesion establishes the diagnosis of syphilis, and permits the initiation of treatment without waiting as formerly for the advent of the secondary phenomena.

The treponema pallidum can be demonstrated in the living state by using the dark-field illuminator, or in stained smears and cut sections.

The material for examination may be obtained from the primary sore or an eroded papule. The surface of the lesion should be cleaned by means of a pledget of cotton or gauze, moistened with normal salt-solution, so as to remove the superficial secretions usually containing many kinds of micro-organisms and but few treponemata. The cleaned surface is then scrubbed with a pledget of gauze or lightly curetted; this is ordinarily followed by slight bleeding, the blood is wiped away until bleeding stops. In a short time a certain amount of clear irritation serum exudes from the surface of the sore and this may be increased by gently squeezing the sides of the lesion. A loopful of this clear serum is then mixed with an equal quantity of normal solution and examined with the dark-field illuminator, or the serum may be used for smears.

Several methods for the quick staining and determination of the treponema pallidum are used. *Burri's* india ink method is simple and rapid, a loopful or more of the irritation serum is mixed with an equal quantity of *Higgin's* or *Günther's* india ink, spread on a slide and examined with an oil immersion. The treponema appear as fine colorless spirals on a dark background.

Oppenheimer and *Sachs* use a quick staining method, consisting of a 10 per cent. mixture of saturated alcoholic gentian violet in a 5 per cent. phenol solution; the organism is stained in a few seconds.

Klopstock and Kowarsky [1] describe a quick staining method using the *Giemsa* solution. The specimen is covered with the diluted *Giemsa* solution (10 drops of *Giemsa* to 10 cc of distilled water), and held over flame until it steams; after 15 seconds staining fluid is poured off; this process is repeated four times, but at fourth time the staining fluid remains on for one full minute. The slide is then washed, dried and examined. In a well-stained specimen the treponemata are stained a distinct red and the leucocytes a very dark red; if unsuccessful the coloring appears blue.

The organisms are not always numerous and it is advisable to prepare several slides, for sometimes a diligent search is necessary. The organisms are frequently seen in the vicinity of blood-cells and sometimes one is seemingly attached to another in the form of a Y. It should also be remembered that the preliminary application of mercurials, antiseptics or cauterizations will cause the disappearance of the organisms from the sore.

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[1] *Klopstock and Kowarsky:* A Manual of Clinical Chemistry, Microscopy and Bacteriology. (Illustrated with black, white and colored figures.) $3.00 Cloth. Rebman Company, New York.

The treponemata are also present in the papular lesions. The epidermal covering of a papule should be carefully shaved off, bleeding arrested and the irritation serum exuded examined as with the primary sore.

The examination of the exudate from mouth lesions requires careful differentiation between the specific organisms and those ordinarily found in that region.

Hoffmann's method of aspirating an enlarged gland in the groin or elsewhere may be employed when the treponema cannot be demonstrated in the ordinary lesions. It is also particularly useful in anal chancres owing to the difficulty of getting access to the lesion because of its situation. Under strict aseptic precautions a hypodermic needle attached to an all-glass syringe is plunged into the nearest gland (it is known that the needle is in the gland for it moves with it) and aspiration made; if no fluid appears, the needle may be pushed into an adjoining gland without its withdrawal. The aspirate may be clear or slightly sanguinolent, and may be limited in quantity to a few drops; but amply sufficient for the purpose of examination. This method is very frequently satisfactory and presents the great advantage of requiring no differentiation, as only the treponema pallidum is found.

The life cycle of the treponema pallidum is not yet determined, but the recent independent investigations of *McDonagh* (Lancet, Oct. 12, 1912) and *Ross* (British Med. Journal, Dec. 14, 1912) show that the spirochetal form of the parasite is but a single stage in the development of the organism, and that apparently the cycle begins with the entrance of granular or sporelike bodies into large mononuclear cells. From these granules (termed inclusion bodies by *Ross*), short wavy filamental processes develop which ultimately grow into spirochetæ. *Noguchi* has also observed granules in cultures from which the same filamental bodies develop. *McDonagh* believes that infection is probably conveyed by these sporozoites or infective granules and not in the spirochetal stage. This seems to be confirmed by the period of incubation required after infection during which time the parasite undergoes its development. It would further explain the failure of salvarsan or mercury to completely sterilize the infected individual although both are fatal to the spirochetal form, and also the recurrences and later manifestations of the disease resulting from the subsequent development of these resistant spores or granules. The presence of these resistant granules may also account for some examples of mediate contagion from infected objects, for the spirochetæ themselves are delicate anaërobic organisms that do not survive desiccation.

Pathology

Syphilitic lesions consist essentially of interstitial cellular infiltrations—in other words of an inflammatory hyperplasia. In the cutaneous manifestations the infiltrate varies in degree from the transient, scarcely appreciable infiltration of the macular lesions to that of the tubercular eruptions in which the entire thickness of the skin is involved. As *Darier* describes it (Traité de la syphilis. *A. Fournier*): "The cellular infiltration may be diffuse, but it is most frequently distributed around a blood-vessel, surrounding it like a perivascular cuff or else arranged as circumscribed elementary nodules.

In *all syphilitic lesions* of whatsoever nature the walls of the blood-vessels are the seat of inflammatory changes; the vessel usually forming an axis around which are grouped the infiltrative processes.

The evolution of the cellular syphilitic infiltrate may terminate in three different ways.

First: The infiltration may undergo complete absorption, leaving no traces or else insignificant ones.

Second: It may undergo a fibrous organization or sclerosis.

Third: It may undergo a gummatous or caseous transformation ending in necrobiosis.

The first termination occurs in the lesions of the primary and secondary periods.

The two last terminations belong to the tertiary period and constitute the gummatous and sclerotic processes, both of which are frequently associated or combined together. As a rule syphilitic alterations are almost exclusively interstitial as only the vascular or conjunctive tissue framework of the organs is involved. In some exceptional cases the parenchyma of certain organs appears to be primarily affected.

In the secondary period, the manifestations generally consist of lesions of the skin and mucous surfaces, disseminated adenopathy, transient affections of the periosteum and bones, occasional ocular, auricular and testicular troubles; exceptionally some disorders of the liver and kidneys, etc., all susceptible of resolution.

In the tertiary period the pathological processes may attack any organ or tissue without exception, and bring about permanent disorganization or destruction.

As already stated, the blood-vessels are affected *in all syphilitic lesions,* whether in the first, second or third stage, but in the third stage, isolated vascular lesions involving all the vascular coats and resulting in periarteritis, endarteritis, etc., occur; the arteries at the base of

the brain are particularly affected, the aorta next in frequency, the alterations taking place in it being the most frequent cause of aneurism. The veins are also involved, the syphilitic processes leading to the development of both arterio-sclerosis and phlebo-sclerosis.

The tertiary cutaneous lesions are by far the most common manifestations and are represented by tubercular and gummatous forms.

Tertiary affections of the nervous system are next in frequency to the cutaneous manifestations (not including the parasyphilitic affections) and present themselves in the various forms of cerebral syphilis, cerebro-spinal, medullary ocular paralyses, and other nerve affections."

The most salient characteristic of the pathology of syphilis is the involvement of the blood-vessels, and in consequence lesions most dissimilar in character may arise from a common origin. Thus an ulcerative syphilide is of vascular origin and, as *Fournier* aptly says, "What more different than an ulcerative syphilide and a syphilitic hemiplegia? Yet it is shown that both are derived from the same morbid affections of the vascular system; in the one an arteritis of the cerebral system, in the other an arteritis of the cutaneous vascular system."

The division into primary, secondary and tertiary periods introduced by *Ricord* and based upon the order in which the successive phenomena of the disease develop, while to a certain extent artificial, has from long usage and convenience of description been generally retained by syphilographers.

Primary Stage

In acquired syphilis (by far the most common form), the morbid phenomena observe in the beginning a certain order in their appearance, viz., infection having taken place, is followed by a silent period or primary incubation during which no evidence of the disease is presented until the initial lesion appears, and this may take place in from 15 to 40 days, exceptionally longer, but usually from the 21st to 26th day following date of exposure. The initial lesion always develops at point of contagion wherever that may be, and is always accompanied by more or less pronounced enlargement of the neighboring glands.

Secondary Stage

The initial lesion with its accompanying adenopathy constitute the *primary stage* and these remain the sole objective expression of the disease until the advent of the secondary or constitutional symptoms. These manifest themselves usually from 40 to 45 days from date of appearance of chancre. They may appear as early as the 30th day and

occasionally as late as the 60th or 70th day; this interval termed the secondary incubation by some writers is devoid of symptoms.

The manifestations of the secondary period differ from the primary, in that they are no longer local but are represented by multiple and disseminated symptoms and lesions, varying in character and degree, and consisting in various cutaneous eruptions, erosions and ulcerations of the mucous membranes, alopecia, adenopathies, affections of the nails, muscles, periosteum, bones, of the special organs, the eye, ear, testicle, disorders of the nervous system and the visceral organs, impairment of nutrition, anemia, fever, etc. Some of these various manifestations may appear or recur at more or less frequent intervals during the first two or three years of the disease, even much later. The general characteristics of the secondary lesions are that they are more superficial, more benign, less apt to destroy tissues or organs than the tertiary manifestations and that under treatment they usually resolve without leaving permanent defects or scars.

The diversity of expression manifested by the morbid phenomena of the secondary stage can be readily understood when it is remembered that the specific contagium is blood borne, and is capable of developing and manifesting itself in any and all parts of the body, wherever distributed by the circulation. But notwithstanding its protean character, syphilis usually exhibits a certain chronological order in its manifestations, for certain types appear during the early period of the disease, other types at more advanced or even remote periods; yet, while this is the general rule, it is far from being absolute.

Tertiary Stage

While the primary and secondary periods follow a certain order in the time of their appearance, the same cannot be said of the tertiary, for, as *Fournier* justly remarks, "When does it begin and when does it end?" Hence it is not susceptible of a precise definition. The differentiation between the secondary and tertiary periods rests upon the different character, mode of evolution and objective appearance of its lesions, some of which like the tubercular and gummatous manifestations are peculiar to the tertiary period, and also upon the sclerotic processes which it induces in various departments of the organism, particularly in the vascular system.

The duration of the tertiary stage is indefinite, its symptoms may appear during the first year or even months of the disease and coexist with secondary manifestations, or may not appear for five, ten, twenty, even as late as fifty years or more after disease is contracted. In very

many cases they are never observed. Their greatest incidence is from the second to the fourth year, thereafter they decline sensibly and markedly after the tenth year.

The chief character of the tertiary manifestations is their greater gravity and destructive tendency. They are represented by distinct lesions consisting principally of tubercular, gummatous and sclerotic processes. The ulcerations resulting from gummata may destroy any tissue affected, skin, bone, and parenchyma of organs, while the sclerotic and connective tissue changes, by affecting the integrity and intimate structure of the various organs, tissues, blood-vessels and particularly the nervous system, lay the foundation for the irremediable parasyphilitic affections.

The contagiousness of syphilis is greatest during the primary and secondary periods owing to the activity of the disease and the greater abundance of moist and secreting lesions; even the blood during the florid stage is capable of transmitting the disease as proven by human experimental inoculation. The contagiousness diminishes in degree with the age of the infection, but never entirely disappears as long as local manifestations are present. Authenticated instances of infection from tertiary gummatous lesions, long believed to be innocuous, have been recorded; and this has been further demonstrated by the finding of the treponema pallidum in such lesions.

In immediate contagion, syphilis is contracted from the actual contact of a receptive mucous or cutaneous surface, with either the primary sore or the moist and secreting lesions of the secondary period. A sound and unbroken skin opposes a protective barrier, but the slightest abrasion, a scratch or hangnail, may afford a point of entrance for the development of the disease. This is exemplified in the digital chancres acquired by physicians, midwives, etc., in the exercise of their professional duties.

In *mediate* contagion the disease is contracted through the use of contaminated objects, such as smoking the infected pipe of one suffering from buccal or labial mucous patches, for the same reason drinking vessels, forks, spoons, or other articles of intimate use may act as sources of infection. Contaminated dental or surgical instruments, tongue depressors, laryngoscopic mirrors, etc., have been the means of conveying the disease. Infected underclothing worn by healthy individuals may develop the disease in them. (An instance of this kind occurred in the practice of the writer in which a young man wearing the underclothing of his roommate suffering from syphilis developed a chancre on the posterior raphe of the scrotum.)

Indirect methods have also been recorded: for example, a healthy woman suckles a syphilitic child suffering from mouth lesions, and thereafter suckles a healthy child who contracts the disease from the contaminated nipple, while the woman escapes infection. In the same manner a finger inadvertently contaminated in the examination of an acute syphilitic lesion may communicate the disease in a subsequent examination to a healthy person who would thus innocently develop a syphilis of unknown and untraceable origin.

Vaccinal syphilitic infection from the use of vaccine scabs taken from syphilitic children, is fortunately of rare occurrence at present, owing to the disuse of such method of vaccination.

Hereditary syphilis results from the transmission of the disease by syphilitic parents to their offspring.

Both parents suffering from syphilis before conception, will in all probability beget a syphilitic child.

A healthy father and a syphilitic mother or vice versa may engender a child syphilitic at birth.

In the so-called conceptional syphilis: a healthy woman conceives by a syphilitic father, the syphilitic issue of the syphilitic father may infect the mother through the utero-placental circulation.

In post-conceptional syphilis: a healthy couple engender a healthy child, the mother during her pregnancy contracts syphilis, she may then infect her child through the utero-placental circulation, and give birth to a syphilitic offspring.

The course of syphilis is far from being identical in all cases, for it may vary in severity from the fortunately rare malignant form with its early destructive lesions and profound systemic involvement, to a form so mild, with limited symptoms so slight and commonplace, that it may pass unnoticed as in ignored syphilis. In some exceptional instances the disease may be abortive. Several such cases were reported by the late *R. W. Taylor* as occurring in his practice.

The majority of cases observed at the present day are of a benign type, many being limited to a roseola or slight papular eruption, some mucous patches, slight sore throat, and adenopathy, perhaps a mild alopecia, with sometimes cephalalgia and periosteal pains.

The benignity of the disease in such cases being perhaps due as generally believed to the greater degree of resistance or immunity conferred by many generations of syphilized individuals, and also to its earlier recognition and more adequate treatment.

Another possible factor is the different degrees of virulence in different strains of the treponema pallidum, for *Noguchi* has observed that

inoculations with certain malignant strains produced the large nodular lesions, and others diffuse infiltration; these results differing from those obtained with the ordinary strains (Journal A. M. A., April 12, 1912).

Syphilis also varies in type. In some cases its manifestations are chiefly external and objective, these being constituted by the various cutaneous symptoms and affections of the mucous surfaces. Their recurrences exhibiting the predilection of the disease for the cutaneous and mucous departments of the organism. In another type which might be termed the internal, the outward or objective evidences are comparatively few or absent, while certain symptoms predominate, such as headaches, ocular troubles, affections of the nervous system, periosteal and myalgic pains, anemia, functional disorders, etc., all of which may vary greatly in severity. The nervous manifestations indicate an early involvement of the nervous system, although this may take place without clinical symptoms, as shown by the results of the cytologic and serologic examination of the spinal fluid.

No deductions as to the future course of syphilis can be drawn from its early benign and mild character, for experience has shown that many such cases ultimately develop parasyphilitic affections. In that respect the external type apparently offers a better prognosis from its revealed predilection for the skin and mucous membranes and from the tendency of syphilis to reinvade the site of former lesions.

The Syphilitic Chancre

Synonyms: Hard chancre, Initial lesion, Initial sclerosis, Primary sore, Hunterian chancre, Indurated sore

The chancre is the initial lesion of an acquired syphilis, and always develops at the point of entrance of the contagium; it makes its appearance in from fifteen to forty days after infection (most frequently from the 21st to the 25th day), and, as in the majority of cases (estimated at over 90%), the disease is contracted during sexual intercourse, the resulting chancre is said to be genital; the remaining percentage, which may appear on any part of the body, constitutes the extra genital lesions.

The chancre is a neoplastic growth, seated on a cutaneous or mucous surface, and presents two general types: either a lesion with a flat surface and underlying induration or an indurated nodular mass, varying in size from a pea to a small olive.

Anatomically it consists of an infiltrative network of fine interlacing conjunctive fibres, in the meshes of which are found great numbers of cellular elements densely crowded together.. These elements consist principally of round cells which are more or less deformed and of embryonal connective tissue cells, more rarely of giant cells. The abundant cell proliferation and its density produces the characteristic induration. The blood-vessels are also involved, the arterioles particularly, their external coat or adventitia is infiltrated, thickened, and their walls compressed by the surrounding pressure; in consequence the lumen of the arterioles is diminished or may even become obliterated. This probably explains the gangrenous degeneration of some lesions—the nodular especially. The perivascular infiltration surrounding the vessels extends for some distance beyond the indurated base into apparently healthy tissues, which may also explain why excision of the chancre so rarely aborts the disease.

The chancre, as observed clinically, ordinarily presents a moist eroded surface, of a red beefy color and of variable size, depending upon the age of the lesion. When recent it consists of a small red

eroded surface, which, as the condition progresses, extends until fully developed, while at the same time the induration becomes more marked and the color deepens; in this state it remains for some time, usually two, three or more weeks, without appreciable change. It then retrogresses, the infiltration is absorbed, the surface cleans and healing takes place, ordinarily without scar, but a certain amount of induration may persist for weeks.

The fully developed chancre is usually of limited extent, most frequently of round or oval shape and the surface eroded rather than ulcerated; the floor is even and the borders are continuous with the surrounding tissues. The color is generally of a beefy red, occasionally of a grayish tint, while the secretion is slight, serous, or of a light seropurulent character.

The base is indurated, and when palpated by seizing the opposite edges of the sore with the examining fingers and making slight pressure, a sense of resistance, comparable to the folding of an underlying piece of cardboard is felt; the impression may be so slight as to simulate the resistance offered by a piece of writing paper (the so-called parchment-like induration), or so great as to resemble the interposition of a layer of cartilage. In the nodular type the induration is massive and of cartilaginous density.

The chancre pursues an indolent course, is rarely accompanied by inflammatory symptoms, and unless irritated by unwise cauterizations or applications, is seldom painful; exception must be made for certain lesions so situated as to be exposed to the irritating effect of urine, vaginal discharges, friction or complications, as in urethral, vulvar, anal and perianal chancres.

Not infrequently the initial sore may be so slight, painless and insignificant, that it may be unnoticed or else not considered. This is particularly the case in women.

The average duration of the primary lesion is from four to six weeks; it may be as short as two weeks or as long as seven or eight—exceptionally longer.

Many factors, such as the situation, local irritation, exposure to friction, complications and methods or lack of treatment, affect the duration.

Adenopathy

Within a period rarely exceeding ten days from the appearance of the chancre, some enlargement of the nearest glands takes place. The glands involved, depend upon the site of the lesion; thus in

genital, anal, and perianal chancres, the inguinal glands are affected; in lesions of the hand and fingers the epitrochlear and axillary glands; lips and tongue, the submaxillary; breast, the axillary, etc. In chancre of the penis, the penodorsal chain of lymphatics is frequently enlarged, and feels like a knotted whipcord.

The enlargement of the inguinal glands constitutes the so-called syphilitic or satellite bubo. It may be polyglandular, in which event a number of enlarged glands (on both sides usually) will be felt, and this is the most frequent form, or else it may assume a monoglandular form, in which case one gland becomes greatly enlarged; this is usually painless and indolent, sometimes slightly sensitive to pressure and, unless irritated, very rarely ends in suppuration. When this happens, the overlying skin becomes slightly red and adherent, a central soft spot develops which, incised or opening spontaneously, gives issue to a thick viscid fluid, but slightly purulent. As a rule, the adenopathy is of an indolent non-inflammatory character; it outlasts the chancre and persists for months.

The appearance of a chancre varies with its situation. When it occurs on a mucous surface, it usually presents a moist, red, smooth or eroded surface with scanty secretion. When located on the skin, it frequently forms a dark adherent scab, which if detached leaves a bleeding surface; when situated on a muco-cutaneous border, such as the lip, the affected skin is covered by a crust, whereas the affected mucous surface presents a smooth red or grayish exudative surface. See Plate **133,** Fig. 217.

In man the genital chancre may occur on any portion of the penis, and occasionally on the scrotum; in consequence it offers certain peculiarities depending upon its location.

When situated on the glans penis the lesion is usually flat, round or oval with an induration of the parchment-like type; when located on the inner surface of the prepuce, the lesion is likewise flat, more extensive and the induration much greater, sometimes like a sheet of cartilage. Upon retraction of the prepuce the lesion will appear blanched by the tension, and frequently the prepuce goes back with a jerk like the eversion of an eyelid.

The *coronal sulcus* is the most frequent site of the initial lesion (see Plate **129,** Fig. 209), and it is in this locality also that the nodular type, with massive induration, is most commonly seen. Such chancres project from the surrounding surface and form elevations varying in size from a pea to that of a small olive, and of dense cartilaginous hardness.

The small fossa on either side of the frenum is another favorite site. The lesion frequently extends to the opposite fossa, and undermines the frenum, which becomes swollen, eroded, and often ruptured.

Chancres of the *preputial margin* are generally fissural. The induration in this situation is usually dense and pronounced; it may involve all of the margin and form a cartilaginous ring. Its unyielding character and the narrowing of the preputial orifice is the reason for the phimosis and balanitis which usually complicate this variety.

Chancre of the *meatus* may involve one or both lips; the induration is pronounced. Such lesions are usually somewhat painful on account of the constriction of the urethral orifice, and the passage of urine over the eroded surfaces, while a slight sanguinolent secretion is frequently present.

Chancres on the *body of the penis* are not uncommon; they are frequently elevated above the surrounding surface and present a smooth beefy red appearance (see Plate **129,** Fig. 210), or they may be covered by a dark brown scab. Ordinarily the induration is not as dense as in the preceding varieties, and presents more the character of a hard edema.

Phimosis and *balano-posthitis* are the most common complications of the primary lesion; *paraphimosis* is more rarely seen.

The genital chancre in *woman,* while pursuing the same course and presenting the same appearance as in man, offers a greater variety of lesions, due to anatomical differences and the great extent of cutaneous and mucous surfaces open to infection.

The greater lips are by far the most common site of infection. In 239 cases observed by *Fournier,* the primary lesion was found on the

	CASES
Greater lips, in	114
Small lips, in	55
Fourchette, in	38
Cervix, in	13
Introitus vaginæ, in	9
Urinary meatus, in	7
Superior vulvar commissure, in	2
Vagina, in	1(?)

Chancre of the greater lips offers the usual type of eroded and ulcerated surface, and is most commonly round or oval; from its exposure to irritation it is sometimes surrounded by a localized hy-

peremia (this is well shown in Plate **131,** Fig. 213). The induration is distinct. Quite often when the lesion has existed for some time it becomes elevated, disklike and assumes a hypertrophied papular type; when it is seated on the cutaneous aspect it is apt to form a dark brown crust and resemble an ecthymatous lesion. Occasionally chancre of the greater lip is accompanied by a massive induration of the entire labia (the sclerous edema of the French). (See Plate **131,** Fig. 214.)

Chancre of the smaller lips may be situated on either the external or internal aspect; it usually presents the erosive type with parchment induration, but when the lesion involves the free border, the induration may be pronounced and extensive; sometimes the whole lip becomes indurated.

Chancre at the introitus vaginæ may be situated in some mucous fold or behind the caruncles; for that reason it is often unperceived and escapes notice. The lesion is ordinarily a small erosion, sometimes fissural and but slightly indurated.

Chancre of the urethral meatus is a red, eroded, and often pouting lesion; the induration is marked and at times may be felt extending along the urethra like a rigid cylinder. The lesion, irritated by the passage of urine, becomes sensitive and bleeds easily on pressure.

Chancres of the fourchette are most frequently fissural and present the usual red, elongated, eroded appearance of such lesions; the induration is slight.

The primary lesions of the external female genitals are accompanied by enlargement of the *inguinal glands.*

Chancre of the cervix is often discovered accidentally, for the lesion itself is symptomless; it is nearly always solitary and may be situated on any portion of the cervix or else at its orifice, where it may involve a part of its circumference and exceptionally extend into the canal. The lesion may consist of a smooth round or oval erosion, but more often assumes a papulo-erosive type presenting a slightly elevated surface of an opalescent grayish white color. The induration is difficult to appreciate or demonstrate owing to the situation and normal consistency of the organ; the adenopathy theoretically involves the pelvic glands, but sometimes the inguinal glands are enlarged. The evolution of cervical chancre is usually more rapid than that of lesions situated elsewhere. The differential diagnosis between the common erosions of metritis, endo-cervicitis, etc., is difficult, the more so as the two conditions may coexist.

The ordinary erosions generally radiate from the cervical orifice and extend into the canal. They more often affect the inferior lip and frequently present a red granular appearance, and are accompanied by some degree of cervical tumefaction and softening, while their duration is often chronic. Whereas the primary lesion rarely extends into the cervical canal, and may affect any part of the orificial border, it has a smooth surface, frequently opalescent, is not accompanied by softening, while its duration is comparatively short.

The differentiation from the simple venereal sore or chancroid is based upon the deeper character of the ulcer, its abrupt, sometimes undermined borders, its yellowish and uneven floor, the purulent secretion, its multiple tendency and the frequent presence of similar lesions on the external genitals.

Extra-Genital Chancres.

From his statistics *Fournier* finds that extra-genital lesions constitute about 7% of all cases, and that they occur regionally in the following order of frequency:

Lesions

	CASES
Cephalic region, in	849
Upper extremity, in	78
Anal and perianal, in	77
Breast, in	59
Trunk, in	33
Lower extremities, in	14
Cervical region, in	14
Total	1,124

The very great disproportion between the lesions occurring in the cephalic and all other regions is easily understood, for the lips are by far the most common avenue of infection, as shown by the following table, also taken from *Fournier's* statistics:

Chancre of the Mouth

	CASES
Lips, in	567
Tongue, in	75
Tonsil, in	69
Gums, in	11
Soft palate and pillars, in	4
Internal aspect of cheeks, in	1

Chin, in	54
Cheeks, in	24
Eye, in	21
Nose, in	18
Forehead, in	2
Scalp, in	3

Syphilitic infection of the mouth or lips results from direct or mediate contagion, and may be conveyed in many different ways.

Sexual perversion, as a means of contagion, need not be discussed beyond the recognition of a lamentable clinical fact.

The vast majority of direct syphilitic infections of the lips and mouth result from ignorance. The kiss of a lover, probably uninstructed and suffering from a trifling specific lesion, contaminates a young girl who, unaware of the nature of her trouble, infects a brother, sister, or mother. Whole families have been thus infected. Social gatherings of young people, ending in the promiscuous kissing of leave-taking, have been the means of starting veritable local epidemics of syphilis from the multiple infections derived from the insignificant labial lesion of one individual. Hence it is the duty of a physician to instruct and warn his syphilitic patients that the trifling mucous patch or erosion they may suffer from is contagious and a potential source of danger to others.

In mediate contagion, infected objects like glasses, forks, pipes or other articles susceptible of being held in the mouth, also medical or dental instruments, tongue depressors, laryngoscopic mirrors, etc., may all convey the disease. (In one of the writer's cases a young girl of fifteen was infected through dental instruments.) Many such instances of direct and mediate syphilitic infection are recorded in *Bulkley's* instructive work, so aptly named "Syphilis in the Innocent."

The labial chancre is usually solitary and more commonly affects the lower lip; although occasionally the lesion may be double and affect the upper lip, as shown in Plate **133,** Fig. 217. It may be situated on either the cutaneous or mucous aspect, but very frequently involves both surfaces; in consequence it presents different appearances. When situated on mucous aspect it may be limited to a simple erosion, slightly indurated and comparable to a herpetic outbreak, canker sore or smoker's patch; or it may be extensive of a deep red, sometimes of a grayish white due to exudate; the induration is pronounced and the lip thickened and everted. When situated on

the muco-cutaneous border (the saddle-shaped labial chancre), the cutaneous lesion assumes a solid rather thick brown scab, recalling the appearance of the thick crusts of the tertiary rupial lesions. Sometimes the cutaneous lesion forms a disklike elevation which occasionally, through excessive hyperplasia, becomes exuberant and forms a tumorlike mass resembling a malignant growth, from which its comparatively rapid evolution differentiates it. An ulcerative type, with rather deep excavation, is sometimes observed; it may be associated with either the rupial or exuberant form.

The primary lesions of the mouth and lips are accompanied by enlargement of the *submaxillary glands,* which are apt to become matted together and not infrequently present local inflammatory symptoms.

Chancre of the tongue is usually single, of round or oval shape and, as a rule, is situated on the superior surface of the anterior third. Occasionally the lesion is double, as shown in Plate **132,** Fig. 216. Its appearance, generally, is that of an erosion slightly indurated, but it not infrequently forms a saucerlike depression with raised borders and marked induration, well shown in Plate **132,** Fig. 215. An uncommon type is the fissural, in which the lesion is situated in one of the lingual folds. Another form rarely observed is accompanied by a very dense induration of the anterior portion of the tongue. The adenopathy is represented by enlargement of the *submaxillary glands.*

Chancre of the tonsil, first pointed out by *Diday* in 1861, is not uncommon. It is usually single, round, or oval, but not infrequently irregular in shape. Tonsillar chancres are apt to be somewhat painful, the degree of pain varying with the character of the lesion, which clinically assumes three different forms.

In an *erosive* form (the most common) which objectively presents the appearance of a red, grayish or opalescent erosion situated on the tonsil, the floor is even or else presents the irregularities of the normal gland. On palpation the tonsil will be found more or less indurated, and there is always marked enlargement of the *submaxillary glands.*

The *ulcerative* form (see Plate **134**) presents the appearance of an ulceration, frequently extensive and excavated; of a deep reddish brown, else a yellowish gray or a dirty white, due to exudate. The induration is always well marked; the adenopathy is considerable and in rare instances may involve glands of the neck. (In a case observed by the writer, in a young girl, the whole neck was involved

and tumefied, and presented the appearance of a bilateral tuberculous lymphadenitis; the swelling, which was enormous, subsided and disappeared under specific treatment.) The ulcerative form is persistently painful and deglutition difficult, from involvement of the pillars and soft palate.

The *anginal* form is the least common. It begins as a tonsillitis, the objective characters of which it presents in the red and swollen gland. The chancre may be of the erosive or slightly ulcerative type, sometimes reddish or covered by a grayish white exudate. Constitutional symptoms, fever, local pain, etc., frequently accompany this form.

Chancres of the tonsil are not infrequently accompanied by general symptoms, chills, fever, muscular pains, etc., due probably to an added element of infection. There is also a tendency to the formation of membranous exudates, but the mode of onset, the persistence of the local phenomena, the induration of the tonsil, which should always be palpated, and the pronounced adenopathy, help to distinguish it from other conditions; furthermore a positive solution is offered by the finding of the treponema pallidum in the lesion.

The local treatment should consist of emollient and soothing gargles, sprays, etc. On subsidence of acute symptoms applications of iodine preparations or light nitrate of silver cauterizations are beneficial.

Chancre of the eye is comparatively rare. Conjunctival chancres occur not infrequently in Russia from the practice the peasants have of licking the sore eyes of their children.

Chancre of the face is uncommon in the adult, and among other causes may result from the use of an infected razor. In young children it is much more common as a result of the promiscuous kissing to which they are subjected.

Chancre of the breast in women results usually from infection by syphilitic nurslings or from the mouth drawing by midwives to relieve the engorged breast. Veritable epidemics have resulted from this practice.

Mammary chancres present the characters of cutaneous lesions; occasionally they are multiple. *Fournier* mentions a case presenting twenty-three distinct lesions, seven on the left and sixteen on the right breast.

Chancre of the nipple may be fissural; it is frequently covered by a crust, and may simulate the cracked nipple so common in nursing women. This, however, is usually tender and painful, its base supple

and but little, if any, axillary engorgement exists, whereas the chancre is indolent and only slightly painful, it is, moreover, indurated and accompanied by distinct and at times marked adenopathy of the axillary glands.

Chancres of the hand and fingers occur frequently in physicians and surgeons in the exercise of their professional duties; for the same reasons, midwives, nnrses and hospital attendants are likewise exposed. The right hand and fingers are most commonly affected, the dorsal aspect of the hand and the index and medius being the most usual sites.

Digital chancres may appear on any portion of the lateral or dorsal aspect of the finger, very rarely on the volar (see Plate **133,** Fig. 218), but the extremity is the most common locality. The lesion may consist of a simple erosion of a beefy red appearance, and it may also present different characters according to its situation. In the periungual variety, it affects a part or most of the nail border and assumes a crescentic or horseshoe shape, or the lesion may become exuberant and elevated. In the form described by the late *R. W. Taylor,* as the *panaritiumlike chancre,* the finger is red, tumefied, painful, and presents the objective features of a deep felon. Exceptionally in another rare type the lesion may degenerate into a vegetating fungous mass.

Digital chancres differ in some respects from lesions situated elsewhere in that they are frequently painful, particularly when they involve the nail-bed. The induration may be very great and at times affect a whole portion of the finger; the evolution is apt to be slow and, in some cases depending upon the type, persists for months. The adenopathy of the epitrochlear and axillary glands is sometimes accompanied by a lymphangitis of the forearm. The digital chancre occasionally simulates the appearance of a felon or other local infection, but its evolution is much slower, less painful, and not accompanied by the local heat and general symptoms common to those conditions. Furthermore, the microscopical examination for the treponema pallidum will establish the diagnosis. The local treatment is important; the hand should be supported, and mercurial or calomel ointment, one part to ten, spread on lint applied to finger. Strapping with bands of mercurial plaster is often useful. Should these measures prove irritating, or if conditions are painful, recourse may be had to bland ointments or moist anodyne dressings. In the fungous type occasional touching with the solid stick is indicated, and, if need be, the thermo-cautery may be used.

Chancres of the anus or *perianal regions* are, for obvious reasons, more frequent in women; in man they are rare, and usually result from sodomy.

The anal chancre is fissural and is situated in one of the intra-anal folds, occasionally it may extend externally beyond the muco-cutaneous border, and present a little swelling resembling a sentinel pile. In woman, the lesion is most commonly anterior, whereas in man it is usually situated posteriorly. By causing the patient to bear down, and spreading out the fold with the examining fingers, the lesion is brought into view (if need be a small narrow Sims' blade may be introduced to facilitate the examination). It is usually of limited size, well defined and of a deep red color, it involves the floor and lateral sides of the fold, and is fan-shaped when spread out; the induration is not always perceptible. It differs from the common anal fissure in that the ulceration is larger, broader, much less painful and is accompanied by an *inguinal adenopathy,* which is absent in the ordinary fissure. The treponema may be found by aspirating the enlarged inguinal glands (see *Hoffman's* method).

Perianal chancres present the usual characters of the cutaneous lesions, but from their exposed situation are apt to become irritated, more or less ulcerated, and painful. They are frequently situated in a perianal fold and are then fissural, the cutaneous folds becoming swollen and indurated. The adenopathy is represented by enlargement of the inguinal glands.

General Characteristics

The initial lesion sometimes presents certain peculiarities or may vary from the usual mode of evolution. The induration, which in some cases is scarcely perceptible or even absent, may in other cases be excessive and extensive; in the nodular type it may form hard tumorlike masses the size of a large olive. The ulceration, especially in the nodular lesions, may, as a result of pressure necrosis, present a dark brown, excavated, worm-eaten appearance, or that of superficial gangrene. The loss of tissue, however, is at the expense of the neoplasm and leaves but little scar.

Subpreputial chancres, particularly of the nodular type, occurring with long redundant foreskins, are very frequently accompanied by phimosis and a balanitis, giving an abundant excoriating purulent discharge; retraction of the prepuce is painful or impossible, the chancre may, however, be felt beneath the prepuce as a hard mass, most frequently in the region of the frenum.

Multiple chancres. Usually the primary lesion is single, but not infrequently there may be two, three or more lesions (see Plate **130,** Fig. 211). As many as twenty-three have been observed. These multiple lesions may appear on any one region or in different regions.

Successive chancres. As a rule, multiple chancres make their appearance simultaneously or practically so, but exceptionally they may appear successively at more or less long intervals; *Fournier* mentions a case in which the first lesion appeared on December 26th, the second during the first days of January, and a third on January 10th, or nearly fifteen days later than the first. *Gottheil* reports a still more remarkable case (*Amer. Journ. of Surg.,* June, 1912), in which seven distinct genital and extra-genital chancres existed; three situated on penis, one on the lip and three on the chin and face. Thirty-nine days elapsed between the date of appearance of the first lesion on the genitals and that of the last on the lip.

Chancre redux (*sclerosis recidiva, chancre de retour*). Occasionally, for some unknown reason, the induration remaining after the chancre has healed relapses, its surface again ulcerates and presents a facsimile of the original sore, for which it might be readily mistaken.

Phagadenic chancre is fortunately of very rare occurrence. According to *Fournier* it presents two distinct types, the *gangrenous* and the *ulcerative.*

In the *gangrenous* type (see Plate **130,** Fig. 212), the surface of the lesion undergoes a gangrenous transformation, recognized by its dark or almost black appearance; in time this surface becomes separated and is cast off, leaving a surface and border which undergo a similar transformation, to be again cast off, and in this fashion the destructive process continues until arrested.

In the *ulcerative* type, the phagedenic process is of an inflammatory character. The lesion is of a fiery red or livid purplish color with deeply injected borders, and furnishes a sero-sanious or sanguinolent secretion. Under the influence of the process the tissues seem to melt away, the destructive action progressing both in surface and depth; hemorrhages from erosion of blood-vessels are not infrequent and occur in both forms. The destruction of tissue is more or less extensive and results in mutilations and deforming scars involving the glans, prepuce, urethral orifice, labia, etc.

The differential diagnosis between the phagedenic syphilitic lesion and the phagedenic chancroid depends upon the different objective characters and microscopic examination.

The syphilitic phagedenic chancre is limited to the region affected; its borders are raised, and not undermined or abrupt; the surface of the lesion presents a dark or fiery red color, according to the type; there is marked induration, the destructive process is not accompanied by pain, the secretion is sero-sanious, often sanguinolent, and not abundant, while the adenopathy is of an indolent character.

In phagedenic chancroid, the process may involve several regions; the borders are abrupt, often undermined, the inflammatory areola is marked and considerable swelling of adjacent tissues may exist; the floor is eroded, irregular and of a bright yellowish color; the discharge is abundant and purulent, the base is supple, while the ulcerative process is more or less painful. The swollen inguinal gland is tender and prone to suppuration, the pus is auto-inoculable and examination reveals the bacillus of *Ducrey* (see Plate **165,** Fig. 272).

Pseudo-phagedenic chancre, described by *Ricord,* is a destructive ulcerative process taking place at the expense of the indurated mass itself, and leaving but slight scars.

Pseudo-chancre (*Fournier's syphiloma of the penis*) is the name applied to a small tertiary ulcerative gummatous lesion situated on the glans or sulcus penis, which, from its objective resemblance, may be taken for the initial lesion, but from which it differs in two important particulars: the absence of the inguinal adenopathy, and the fact that the induration precedes the ulceration instead of developing afterward (see Plate **155,** Fig. 255).

Mixed chancre results from a double infection or from the grafting of a syphilitic infection upon a simple venereal sore, or vice versa. The anomalous features presented by the lesions, the union of an induration with an ulceration presenting the characters of a chancroid and other dissimilarities, will awaken suspicion which only microscopic examination and further evolution will decide.

The *diagnosis* of the primary lesion is made from the known period of incubation, from the objective characters, the induration, the adenopathy and the finding of the treponema pallidum. The serological reaction is rarely positive before the second or third week. The differential diagnosis rests chiefly between herpes, the simple venereal ulcer or chancroid and occasionally the ecthymatous ulcerative lesions of scabies.

Herpetic erosions may resemble the simple syphilitic erosions, but the onset of herpes is abrupt. It is accompanied by local stinging

and smarting, and successive crops may develop. The herpetic lesion in the beginning consists of a number of clear vesicles which coalesce at points, and upon rupture leave an irregular superficial bright red erosion, whose borders represent segments of circles, the remains of the original vesicles, no induration at base, and no adenopathy. A variety of confluent herpes, with membranous exudate, is sometimes accompanied by a slight lymphangitis and inguinal engorgement.

The chancre is usually round or oval, with regular borders, an indurated base and glandular involvement, and the treponema pallidum is found in the secretion.

The differential diagnosis between the primary lesion and chancroid:

Syphilitic Chancre.	*Chancroid.*
Incubation long, lesion most frequently single. Erosion usually.	Incubation short, two to three days; true ulcer, most frequently multiple, excavated.
Borders even and continuous with surrounding tissues.	Borders abrupt, often undermined.
Color beefy red or grayish, secretions scanty, serous or seropurulent.	Color bright yellow; secretion abundant and purulent.
Base indurated, indolent satellite bubo.	Base supple, bubo absent or else inflammatory.
Secretion non-inoculable. Treponema pallidum present.	Secretion auto-inoculable. Bacillus of *Ducrey* present.

The scabby ecthymatous lesions of genital scabies, sometimes very closely resemble the cutaneous syphilitic chancre, from which they are easily differentiated by the presence of other lesions in various stages, the irritation, itching and the finding of the itch-mite.

Local Treatment of the Primary Sore

In the local treatment of the chancre it should be remembered that the lesion is self-limited, and usually pursues a definite course, during which it progresses to a certain point, where it remains stationary and then retrogresses. The aim of treatment therefore is to protect the lesion from external irritation, and assist its normal evolution.

Local cleanliness is essential and is best carried out by bathing or immersing the organ in hot borated water, two or three times daily.

Calomel ointment, one part in ten of cold cream or mercurial ointment, half strength, spread on lint, is usually a comfortable and

beneficial dressing; in some cases strapping with strips of mercurial plaster is more efficacious. Should these measures prove irritating bland ointments like simple cerate or ungt. zinci may be used. The greasy applications have the advantage of not adhering to the sore.

Moist applications are sometimes more agreeable, especially when some local irritation exists. A piece of lint or a thin layer of absorbent cotton is applied to the part, and kept moistened with the time-honored black wash, a borated solution, or the aromatic wine of the French codex, diluted one part to two of water.

Powders have the disadvantage of caking, and are irritating during the progressive period of the lesion, but are sometimes useful in the declining stage. The bismuth subnitrate, zinc stearate, aristol, etc., may be used.

Strong cauterizations are harmful, but the occasional use of mild solutions of silver nitrate 2 to 3% or, exceptionally, the solid stick, are sometimes indicated in lesions covered by exudate or requiring stimulation.

That the primary lesion is at some time prior to the advent of the symptomatic adenopathy a purely local manifestation is generally recognized, but its excision, although performed countless times, is rarely successful in aborting the disease, for the reason that the pathological infiltration extends for some distance beyond the limits of the lesion into apparently healthy tissues, which cannot be included in the excision; a possible exception being chancre of preputial margin, where a wide circumcision may be done.

Phimosis, particularly when complicated by balanitis, requires repeated subpreputial irrigations with warm permanganate or borated solutions. A solution of silver nitrate, 1 to 10,000 or somewhat stronger, is usually preferable.

Syphiloderma

The most common symptoms of syphilis are those affecting the skin and mucous membranes. To these manifestations the name of syphilides, first proposed by *Alibert,* is generally given.

The syphilides inaugurate the secondary stage, and may, under different forms, be present during the first weeks, months, or years of the disease; those appearing during the first periods are spoken of as the early or precocious syphilides; some may appear at long intervals of even several years after infection and retain the characteristic secondary type. These are known as the late or tardive secondaries.

The tertiary syphilides may appear during the first year or they may not appear for five, ten, twenty, or even as late as fifty years after infection. They are characterized by forms peculiar to the third stage.

The early eruptive manifestations usually affect certain types corresponding to the age of the disease. They are more superficial, less destructive, but especially more generalized and disseminated than the late or tertiary forms, which are not only more profound and destructive, but also more circumscribed and apt to limit themselves to certain regions.

The syphilides have certain characters in common which serve to distinguish or differentiate them from other cutaneous affections.

First.—They are apyretic, and develop slowly. This alone serves to differentiate them from the acute exanthemata, which are always accompanied by some degree of fever and develop rapidly. (Very occasionally during the early constitutional period a slight febrile reaction may accompany the eruption.) The syphilides are not accompanied by any local inflammatory phenomena, and they may persist for weeks or months when fully developed, if untreated.

Second.—Syphilitic eruptions are essentially indolent and apruriginous, and unless complicated occasion no pain or itching. These two characters differentiate them from the skin affections accompanied by pain or itching. (The syphilides of the scalp or other hairy

parts may occasion slight itching, and also, at times, the small papular forms of a lichenoid type.) They are further distinguished from other dermatoses by their marked tendency to *polymorphism*, for different eruptive elements may be present at the same time. Side by side with a roseola may be found some papules, or papules may coexist with, moist lesions, pustular and crustaceous forms, etc., thus forming a mixture of differing lesions; whereas in the ordinary skin eruptions (with the possible exception of scabies) the tendency is to retain the basic eruptive element.

The syphilides very frequently assume a characteristic color, resembling that of cut lean ham, first described by *Fallopius*, or else the coppery tint described by *Swediaur*. Finally, they offer another characteristic in their tendency to assume certain shapes either in the eruptive elements themselves or in their mode of grouping. Thus the papules are generally round and disklike in shape, while the various elements may group themselves into circles or segments of circles, affect horseshoe shapes or describe arcs, etc.

The secondary syphilides follow no definite law in their distribution, which may take place on any part of the body; but certain forms show regional preferences, as, for instance, the forehead, the scalp, palmar and plantar surfaces, etc.; *per contra*, the extensor surfaces are more rarely affected. The eruptions may be limited and discrete, or they may be profuse, generalized, more or less confluent, and vary in intensity according to the type of lesion and character of infection.

The tertiary eruptions differ from the secondary not only in the type of lesion but also in their general characteristics. They are usually more profound, involve a greater thickness of skin, if not its totality, are more destructive, and leave permanent scars.

They are also relatively more discrete, more circumscribed, often limited to one region, and instead of the secondary polymorphism, generally consist of one type, while their eruptive grouping is more orderly than in the secondary forms.

The **secondary syphilides** may be classified, according to the type of the eruptive element they present, into:

First.—A group in which the initial eruptive elements consist of macules, as in *the erythematous* or *macular syphilides.*

Second.—A group in which the eruptive elements consist of papules, as in *the papular syphilides.*

Third.—A group in which the initial eruptive elements consist of pustules leading to the formation of more or less superficial ulcerations, as in *the pustular* or *ulcerative syphilides.*

Fourth.—A pigmentary form.

Each of these groups presents a number of varieties or subdivisions due to modifications in the original eruptive element, either in the size, shape, mode of distribution, evolution, regional preferences, depth of lesion, aspect, etc. Thus papular manifestations may be dry, or eroded and moist; if covered with scales, they are papulosquamous. They may be of large size, as in the giant papules, or diminutive, as in the miliary and punctate forms. They may assume different shapes in their arrangement, as in the circinate forms. They may become hypertrophied, and through the coalescence or fusion of the original elements form elevated plaques, as in condylomata lata, or they may form diffused eruptive patches. The papules may be crowned with diminutive vesicles or pustules, as in the herpetiform and papulo-pustular varieties, the resulting incrustations forming the papulo-crustaceous lesions, etc.

In the pustular syphilides the initial element is a pustule which desiccates with the formation of a scab and a more or less extensive underlying ulceration, as in syphilitic ecthyma.

Finally, a comparatively rare pigmented form is occasionally seen during the secondary period, which is usually described as *pigmentary syphilide* or *leucoderma syphilitica.*

First Group

The erythematous type is characterized by rose-colored spots or macules. These present no elevation above the skin, scales, or appreciable involvement of the underlying derma. Two principal varieties may be distinguished: roseola syphilitica and roseola circinata syphilitica.

Roseola syphilitica (synonyms: *syphilis maculosa, syphilitic erythema*), is the most common of all the syphilides, and it is also the most precocious, for, as a rule, it marks the advent of the secondary period. It is usually noted from the sixth to the seventh week after appearance of the initial lesion. Sometimes the interval may be shorter, or it may be prolonged to fifty or sixty days, even longer. *Lang* has observed it as late as the seventh month.

It consists normally in an eruption of disseminated and more or less confluent erythematous spots, at first rose-colored, but which gradually deepen to a reddish tint (see Plate **135**), and ultimately become yellowish or tawny as they retrogress. The color at first disappears under pressure, but persists when the rash is fully developed. The eruption is progressive, and ordinarily appears first on the flanks and abdomen, extending to chest, back, and extremities;

it does not, as a rule, affect the face, except at margin of scalp and forehead, where it forms one of the varieties of the corona veneris. The eruption itself is rarely accompanied by any appreciable symptoms, and may be so pale and slight as to pass unnoticed by the patient until his attention is called to it by the examining physician. At times it is profuse and confluent, giving a generally mottled appearance to the skin resembling measles (see Plate **136**), from which it is readily differentiated by the absence of fever, catarrhal symptoms, and slower evolution.

The evolution of roseola is comparatively slow, and is rarely completed under seven or eight days; when fully developed, it may, if untreated, persist for weeks, whereas it disappears rapidly under treatment. Occasionally its onset is accompanied by a slight febrile reaction of short duration, and it often coincides with the early systemic phenomena of headache, general malaise, angina, disseminated polyadenitis, etc. It is also subject to relapse, sometimes recurring at intervals during the first years of the disease. The recurrences generally described under the name of *roseola recidiva* differ from the original eruption in being more discrete and attenuated, sometimes assuming a circinate form (see Plate **137**).

Roseola Circinata.—The circinate form differs from the preceding in two respects: first, it appears at a later period of the disease at or near the end of the first year, or in the course of the second or third years, sometimes later. Secondly, it consists of rose-colored or reddish spots, slightly raised, arranged in crescentic, annular, semiannular, or elliptical shapes, as shown in Plate **137.** This form is also very apt to recur, and may reappear several times in spite of treatment.

Occasionally roseolar eruptions depart from the usual type and may present slight elevations resembling a mild urticaria; exceptionally the macules may be diminutive and discrete or sometimes of large size, as in the follicular variety shown in Plate **138,** Fig. 223.

Differential Diagnosis

The confluent form offers some resemblance to measles, from which it is easily differentiated by absence of fever and general symptoms and its slower evolution.

The medicinal rashes of copaiba and antipyrine present some similarities, but are distinguished by their ephemeral nature and disappearance with the cause. The eruption of copaiba is more confluent, more abundant on the extremities, near the joints, and is usually pruriginous.

Papular Syphilides

This group is in some respects the most important of the secondary syphilides, for it is represented by a greater number of varieties and because these are extremely common. While the various forms differ from each other in appearance, size, abundance of eruption and mode of grouping, they all derive their origin from a common basic elemental papule, the different modifications of which furnish the many varieties classed as papular syphilides.

The elemental papule may retain its original form and undergo no change for some time, but usually its surface desquamates with the formation of scales and is thus converted into a scaly or papulo-squamous syphilide.

The *papulo-squamous syphilides* offer several varieties based upon the difference in size of the papule and its eruptive form. These are subdivided into:

The lenticular type.

The miliary type.

The giant or nummular type.

The diffuse type.

The *lenticular type* is the most common and characteristic. It is usually precocious, and sometimes marks the beginning of the secondary period (see Plate **139**). Objectively, it consists of small papules about the size of a lentil. They are generally round, and frequently describe perfect circles, as in the orbicular variety (see Plate **140**). The surface is flat, and the general appearance suggests that of a round disk slightly elevated above surrounding surface. The color of the papule in its initial period is of a rose tint, but it deepens when fully developed into a dark red, resembling that of cut lean ham; more rarely it assumes a coppery tint, which turns to a lighter shade on pressure. The base presents a slight induration, recalling the minimal parchment induration of the primary sore. When fully developed, the surface of the papule desquamates (this is well shown

in Plate **140,** Fig. 227). The scales split, fall off, leaving a bright, smooth, shining surface, surrounded by a scaly ring, corresponding to the circumferential border of the papule, and constituting the so-called collar of *Biett,* who first described it (this is also well shown in Plate **140,** Fig. 228). At times some thin fine scales may persist on the surface.

The eruption is successive, appearing in different crops, so that it generally presents papules in different periods of development. It varies in abundance from a limited number of discrete elements to a profuse confluent type, but as a rule the papules are fairly numerous.

Distribution

The papulo-squamous syphilides may appear on any part of the body, but the extensor aspects of the extremities are much less affected; *per contra,* they exhibit a preference for certain regions, such as the back, the nape of the neck, the face, angles of the mouth, the forehead, specially at the hair-margin, where they constitute one of the varieties of the so-called *corona veneris.*

Duration

When fully developed, the eruption may remain stationary for weeks or months and then subside, leaving brown pigmented spots, which persist for some time, and then gradually fade, leaving a normal integument; under treatment the eruption disappears quickly. This form of papular syphilide is very apt to recur; the recurrences, however, are generally more discrete, less abundant, and have a greater tendency to limit themselves to certain regions and assume annular, semi-annular, horseshoe, or bouquet forms.

Miliary papular syphilides (synonyms: *papulo-granular syphilides, syphilitic lichen, lichenoid syphilide*).—This form is uncommon, and differs from the lenticular in the smaller size of the papules and in their shape, which, instead of presenting a flat surface, are acuminate or convex. Their size varies from that of a pinhead to that of a small lentil, depending upon their period of evolution. To the touch they give a rough granular feeling or the sensation of small shot inlaid in the skin.

The miliary papular eruption is much more confluent than the lenticular type; it may be very abundant, or else assume annular or circinate forms (see Plate **142,** Fig. 230). Its duration is longer, and it is more rebellious to treatment. In some respects it resembles *lichen planus,* from which it occasionally requires differentiation.

Differential Diagnosis

Like the papular miliary syphilides, *lichen planus* consists of a disseminated eruption of small papules of slow evolution, which may also appear in the mouth and tongue and present the appearance of mucous patches. It sometimes, as in the annular form, presents a mode of grouping observed in the syphilides, and, like them, leaves a terminal pigmentation.

The papules of *lichen planus* are of a yellowish red, sharply raised, with a smooth, shining, flat, waxy surface. They often assume a bouquet form, or the eruption may form confluent patches, especially on flexor surfaces of forearm, where, from reciprocal pressure, the individual papules become polygonal in shape and represent a tiled or mosaic effect. The eruption is symmetrical, and frequently abundant on palmar surfaces, the penis, and glans. Its terminal pigmentation occurs successively in different spots, and it is generally pruriginous in varying degrees. Sometimes it produces a burning sensation.

The *miliary syphilitic papules* are generally round, more elevated, of firmer consistency, and *convex* instead of flat; they are more scaly and do not present the peculiar waxy polish, and have not the same tendency to confluence in patches. The terminal pigmentation, when it occurs, is generalized, instead of in spots, and, as a rule, the eruption is not pruriginous; furthermore, the history, the presence of the secondary polyadenitis or other concomitant symptoms, as well as the serological reaction, will establish the diagnosis.

A diminutive form of miliary papules, described as the *punctate* form, is exceptionally observed. It consists of dotlike rudimentary papules, reaching the size of a small pinhead, generally covered by diminutive scales, and excessively abundant. The eruption appears mostly on the back, then the flanks, thighs, and extremities.

Large papular syphilide (sometimes called *giant papules, nummular papules*).—This variety is not infrequent, and consists of flat papules of exaggerated proportions. They are usually the size of a dime, but may be considerably larger; in shape they are round, and present a brownish-red or raw-ham color; the surface is usually smooth and shining, as if polished. The base has a slight parchment-like induration, and upon disappearance they leave a dark-brown pigmentation, which persists for some time. The eruption is discrete, scattered, never abundant, and often coexists with the lenticular variety.

Diffuse Papular Syphilide.—This is a rare type, due generally to

the coalescence of individual papules forming irregular eruptive patches of varying extent, but which may sometimes cover a large surface, such as the popliteal space, the axilla, genitocrural folds, the palmar and plantar surfaces, etc. The appearance as to color, elevation, and the mode of evolution conform to that of the ordinary papular eruption.

The *papular syphilides* present certain peculiarities dependent upon the degree of desquamation, the mode of grouping, and the regions affected. At times the desquamation, never abundant, attains an unusual degree; under such circumstances the papules are covered by whitish or grayish scales, cast off quickly, as a rule, but which to some extent resemble psoriasis, and for that reason are usually termed *psoriasiform* syphilides.

The papule likewise varies greatly in its degree of development. Sometimes it is very marked, and, owing to the dense infiltration, its base presents a degree of hardness comparable to the parchment-like induration of the initial lesion; *per contra,* the papules may be so small, so rudimentary, as to be hardly appreciable except as a slight thickening of the superficial cutaneous layers, accompanied by redness and exfoliation. In some cases the surface of the papule, instead of being uniformly flat, presents a slight depression in the centre, which, from the dark-brown color it assumes, contrasts with the normal color retained by the borders. In other instances the papule may, from its volume, elevation and firm consistency, resemble a tertiary tubercle; it may even become excoriated and covered by a crust. This form is usually a late manifestation, and appears to be intermediary to the tertiary tubercular lesions; its differentiation is often difficult.

The *circinate syphilides* also present many varieties. The *annular forms* are constituted by eruptive rings of variable size, but rarely exceeding the circumference of a twenty-five-cent piece, and enclosing a central zone of normal skin.

The *arciform syphilides* describe curves representing segments of circles, varying from a third to half or more of the circumference. This variety is very common. Sometimes the free extremities of the segments unite or conjugate and form a series of arcs resembling a garland or festoon. This peculiar arrangement is observed chiefly on the face, neck, and shoulders, but it especially affects the integumentary region surrounding the mouth, either on the upper or lower lip, sometimes the chin. The lesion consists of a thin eruptive line composed of small, rather pale, or grayish papular elements, cov-

ered by fine scurfy scales, and describing a series of arcs like a festoon. This peculiar manifestation situated around the mouth is characteristic of syphilis.

The *concentric* varieties are rarer forms, and are constituted by a series of parallel circles or arcs (see Plate **142,** Fig. 231). Not infrequently, these different circinate varieties present a more or less pigmented brownish centre.

Varieties in the Mode of Grouping.—The late secondary papular syphilides differ from the earlier or precocious forms in being less disseminated and profuse, and in being relatively more circumscribed, regional and disposed to affect certain modes of grouping.

The *grouped papular syphilide,* also called the *bouquet form,* is constituted by a varying number of papules closely distributed within a given area, in much the same manner as flowers are assembled in a bouquet; several such groups may occur in different parts, the regions mostly affected being the back, particularly in the scapular regions, the nucha, forehead, scalp, etc.

A rare mode of grouping, styled the *corymbiform,* consists in the arrangement on one or more regions of the skin of a large central papule, surrounded by a number of small satellite papules, more or less confluent (see Plate **141**).

When a papule occurs in a cutaneous fold it frequently cracks at the point of folding and degenerates into a fissure, which secretes slightly or may be covered by small incrustations. This commonly happens at the angles of the mouth, the nasojugal folds, postauricular folds, etc. (see Plate **142,** Fig. 231).

A peculiar modification of this process takes place at the nasojugal fold, where, in the slight fissure caused by the infolding of the papule at this point, there develop a number of very small, dry, warty or papillomatous excrescences. This curious lesion is observed in syphilis only, and was regarded by *Ricord* as pathognomonic of the disease.

Palmar and *plantar syphilides,* also described as *psoriasiform syphilides,* are a common and important variety of the papular manifestations. They have considerable diagnostic importance, which is further enhanced by the fact that not infrequently they are the only visible evidence of the disease, especially in insufficiently treated subjects. The eruption is usually of the lenticular type, but it may be diffuse or circinate.

The *lenticular type* consists in the appearance on the palmar surface of rose-colored spots, visible under the thick epidermis. These

develop into slightly raised papules of varying size, usually round, and covered at first with grayish scales. When these are cast off the denuded papules assume a brownish-red or raw-ham color, and are surrounded by a scaly border or collar. They feel dry and rough owing to the circumscribed thickening of the epidermis, and usually number from four to six elements, sometimes less (see Plate **143,** Fig. 233).

In the *diffuse type* the eruption is spread over a variable extent of the palm, which, owing to the infiltration, feels dry, rough, and presents here and there grayish exfoliating spots, with scaly borders. The color is generally a sombre red, while fine white or chalky lines, corresponding to the normal furrows, are also observed.

In the *circinate form* the papules may be grouped in semi-annular or crescentic shapes, or else the papules meet so as to form continuous tapelike bands, which describe various curves.

A *horny type* also occurs, in which the papules, from an exaggerated dermic infiltration, form dense, hard callous spots, resembling corns, which patients not infrequently dig out with a knife-point.

The palmar syphilides are indolent, and may persist for long periods and recur despite treatment, to which they are sometimes rebellious. They are very apt to become painful, especially in individuals with manual occupations, in whom the normal palmar and digital flexures become the seat of fissures and raghades, usually of a deep and very painful nature.

Plantar Syphilide.—With slight exceptions, the course of the palmar and plantar eruptions is identical (see Plate **140**, Fig. 228). In the *plantar* region the eruption is paler in color, excepting when it appears on inner lateral border of foot, where it may have a yellowish coppery aspect. The desquamation, owing to the thickness of the skin, occurs in larger and thicker scales than in the hand, while fissures are rare complications. When the papules are situated in the interdigital spaces, they become converted into moist, exuberant lesions, owing to the natural moisture of the parts (see Plate **147**).

The eruption is, as a rule, always limited to the palmar and plantar surfaces, and very rarely extends to the dorsal regions of these parts. It is frequently symmetrical, and affects both hands, but not necessarily, and when present on the hands it not uncommonly appears on the soles as well.

While there is no particular period for the appearance of these eruptions, the lenticular is the most common and precocious form;

it often coincides with and corresponds to the type of the general papular eruption. The diffuse and circinate varieties are generally tardive, appearing during the second or third year, but frequently much later, and in full tertiary period. Well-characterized palmar and plantar manifestations are pathognomonic of syphilis.

The *flexor surfaces of the fingers* are sometimes involved by extension from the palmar manifestation, but may be affected independently. The fingers are also apt to be the seat of small horny papules similar to corns. These are usually situated in the finger-pulp.

The *clinical diagnosis of the papulo-squamous syphilides* rests upon their general apruriginous and indolent characters, their tendency to circinate forms, mode of grouping and regional preferences, as well as the history of recent syphilitic antecedents, the possible remains of the initial induration, more probably the satellite bubo, the coincidence of other secondary manifestations, mucous patches, adenopathies, scabby lesions of the scalp, etc., and the further confirmation given by the serologic test.

Differential Diagnosis

The papulo-squamous syphilides, from their resemblance, may be mistaken for some forms of psoriasis. This is especially true of the palmar and plantar eruptions, and of some marked scaly types occurring on the back. The chief points of difference are that psoriasis, while symmetrical in its distribution, shows a strong predilection for the extensor surfaces (the knees and elbows particularly), whereas the syphilides affect the flexor surfaces principally, and never occur isolated on the knees and elbows. The scales in psoriasis are more abundant, imbricated and silvery white, while they usually cover all of the eruptive papular base. The finger nail drawn across the crust leaves a chalky or micaceous streak, while its forcible detachment leaves a bright-red base with small red or purplish points, bleeding slightly.

In the squamous syphilides the scales are thinner, lamellar, and of a dull or grayish appearance; they do not cover the eruptive base, are less adherent, and upon removal leave a surface at first somewhat red, but which soon assumes a brown or tawny appearance, without the characteristic bleeding points of psoriasis; furthermore, the corroborative evidence of other lesions, mucous patches, adenopathy, isolated papules, etc., is usually found.

The *differential diagnosis* between the diffused form of palmar syphilide and chronic dry eczema of the palm which in some cases

presents an identical appearance is often difficult. The chief points of difference being that in palmar eczema the eruption is frequently diffused over entire palm, including fingers, and shows a tendency to spread from palm to lateral or dorsal regions of hands and fingers, while the eruptive borders are flat, irregular and broken, diminutive vesicles also develop at intervals, and it is apt to be intensely pruriginous.

The palmar syphilide is usually confined to the palm, and only exceptionally involves its entirety or extends to fingers. The eruptive base is thickened, infiltrated and indurated, while the borders are generally in relief, well defined, and frequently circinate. The further evidence of the serologic test may be necessary.

Papulo-crustaceous Syphilides

These are generally composed of small or diminutive papules, characterized by the formation of thin, easily detached crusts, which leave a moist, seemingly exudative surface without erosion or ulceration, or else the crust may form through the intermediary of a small vesicle crowning the papule, as in the *papulo-vesicular* or *herpetiform* type, or of a diminutive pustule, as in the papulo-pustular, acneiform variety, and in syphilitic impetigo.

Herpetiform syphilide (synonyms: *miliary herpetiform syphilide, vesicular syphilide, syphilitic varicella*) consists of very small papules capped by ephemeral vesicles, which on rupture leave a diminutive crust. The eruption is markedly abundant and confluent. Its favorite locations are the trunk and extremities. It nearly always appears during the first or second year of the infection.

Acneiform syphilide (synonyms: *syphilitic acne, miliary pustular syphilide, syphilide varioliformis*) is a papulo-pustular eruption constituted by small hemispherical papular elevations with an indurated base, and varying in size from a pinhead to that of a small pea. The apex of the lesion is crowned by a diminutive pustule which, upon rupture, leaves a small brownish or yellowish crust covering a slight superficial erosion. This eruptive form is usually discrete, and affects the face, scalp, chest, back and neck. It often coexists with papular varieties, and is very frequently found in the scalp, where it principally constitutes the little scabby lesions so common in that region. The differentiation between this form and *acne vulgaris,* which it may greatly resemble, is based upon the fact that common acne is essentially a chronic affection beginning in adolescence and continuing to puberty and beyond, and that it is composed of lesions in different

periods of evolution, whereas *syphilitic acne* is comparatively transient, has a wider range of dissemination, is less inflammatory, and is constituted by elements belonging to the same period of evolution, while it is often associated with other papular lesions, mucous patches, adenopathy, etc.

Syphilitic impetigo, or *impetiginous syphilide,* so-called from the aspect and characters of the crusts which resemble those of ordinary impetigo (see Plate **148,** Fig. 241). The eruption consists of small pustules closely distributed and developing on a common red, infiltrated, papular base. As a result of the close grouping, the individual pustular crusts unite or coalesce, to form more or less extensive incrustations presenting an uneven or granular appearance. They are of variable thickness, dry, porous, friable, and of a yellowish or amber color. This tendency to assume yellowish tinges distinguishes syphilitic impetigo from the ecthymatous varieties in which the crusts are of a darker color, brown, or almost black.

The skin beneath the crusts is generally superficially ulcerated or eroded; occasionally when the eruption has existed some time the underlying erosion, instead of being depressed, becomes raised or slightly convex, so that when deprived of its crust the lesion resembles a moist papule. The crusts are but slightly adherent.

The eruption occurs most frequently in lymphatic subjects of a blond type, women and children particularly. It is nearly always circumscribed, and exhibits marked preference for certain regions, the scalp margin of the hair, beard, eyebrows and the face, especially the forehead, nostrils, and labial commissures; it rarely affects other parts. Resolution takes place with the detachment of the crusts and cicatrization of the ulceration, with a remaining brownish pigmentation persisting for some time.

Syphilitic impetigo is usually a benign eruption responding readily to treatment.

Papulo-erosive Syphilides

These are simply papules which, instead of remaining dry and squamous, become eroded, moist and secreting, owing to their localization. They are identical in appearance and present the same characters as the lesions appearing on the mucous surfaces, and will be described with them.

Pustular or Ulcerative Syphilides

These are the latest of the secondary forms to develop, and do not ordinarily appear until after the first six months of the disease, and more frequently at a later date.

The lesions consist of ulcerations covered by a scab. They present some analogies with the tertiary ulcerative forms, but differ from them in the lesser extent and more *superficial* character of the ulceration. They may begin as a small inflamed spot about the size of a lentil, from which the epidermal layer soon separates and becomes converted into a thin crust, which gradually thickens and covers an underlying ulceration, or else the morbid process begins with a pustule which eventually dries up, to form a scab covering an ulceration. The further course is identical in both instances.

Syphilitic Ecthyma or
Ecthymatous Syphilide

The secondary ulcerative syphilides have been variously described as *pustulo-crustaceous* or *pustulo-ulcerative syphilides, ecthymatous syphilides, flat, lenticular, erosive* and *deep ecthyma, impetigo rodens, rupia, syphilide pemphigoides,* etc. Many of these confusing designations applied by the older writers to variants of the same morbid process have become obsolete.

Syphilitic ecthyma is generally initiated by a somewhat flattened, yellow pustule seated on an infiltrated base and surrounded by a dark-red inflammatory areola. The pustule eventually desiccates, to form a crust covering an ulceration, and the lesion progresses through the formation of a raised pustular zone surrounding the peripheral margins of the crust. The desiccation of this pustular zone or annular pustule adds to the size of the original crust, which becomes still further enlarged through the repetition of the same process. When the evolution is completed the lesions appear as round scabs surrounded by a red areola. They vary in size from a lentil to that of a dime or larger. These dimensions distinguish them from the papulo-crustaceous or papulo-pustular forms, which are always small, rarely exceeding the size of a lentil and from the tertiary incrustations, which are generally of much greater extent. The crusts are adherent, compact, of variable thickness, and present varying shades of dark-brown or greenish tints.

The underlying ulceration is usually round, shallow, and with well-defined, abrupt borders, while the floor is yellowish or reddish, and covered by a puriform, concrescible secretion which soon furnishes a fresh crust to the denuded lesion. When fully constituted the eruption may remain stationary for months. When it retrogresses the red areola fades and disappears, the crusts become gradually detached, fall off, and leave a terminal dark-brown pigmentation which may

persist for long periods, to be ultimately followed by more or less appreciable superficial scars.

The eruption is less disseminated than the papular forms, and exhibits a tendency to group itself in certain regions, notably on the anterior aspects of the lower extremities, the scalp, forehead, and hairy regions of the face.

Ecthymatous eruptions may occur isolated, but are more frequently associated with papular types.

A severe form is occasionally observed beginning with a large flat pustule, which from its greater extent forms large stratified rupial scabs.

The term rupia, meaning filth, is non-descriptive, and is usually applied to the large characteristic oyster-shell incrustations of the tertiary ulcerative syphilides.

Frambœsia Syphilitica

This is a rare type, consisting of a vegetating papillomatous process springing from the floor of an ulceration and forming an exuberant raspberry-like mass resembling the lesions occurring in *yaws* or *frambœsia tropica.*

This form is usually limited to a few lesions grouped together. (See Plate **149,** Fig. 243.)

Malignant Secondary Syphilides

This designation is usually applied to ulcerative manifestations of a tertiary type appearing during the early period of the disease, but *Fournier* describes as malignant certain papular forms, which from the exaggeration and intensity of the morbid process depart from the type ordinarily observed. These forms denote a severe infection and are usually associated with more or less serious systemic symptoms (iritis, cephalalgia, periostitis, myalgia, often syphilitic fever, nervous and other functional troubles, etc.). They are, furthermore, particularly rebellious to treatment. Three types are described:

1. A papulo tubercular syphilide.
2. An exfoliating papular syphilide.
3. A pigmented type, or syphilide papulo-nigricans.

Papulo-tubercular syphilide.—In this form the individual papules acquire an exaggerated volume and resemble the tertiary tubercles, whence the name papulo-tubercular. They are of a bright red, differing in this respect from the raw ham or coppery tints of the ordinary lenticular type. In shape they are round, sometimes perfectly

so, and are firm to the touch. The eruption may consist solely of these exaggerated lesions, but frequently some lenticular papules are present. It retains the typical secondary characteristics in its abundance and in its dissemination, which shows preference for the face, scalp and lower extremities. It also exhibits a marked tendency to confluence, and may literally cover parts affected. Sometimes it presents an annular form, and through the fusion of the individual elements describes partial or complete circles with some pigmentation of the central integumentary zone. (See Plate **138,** Fig. 224.) The evolution is slow, chronic, and when developed the eruption may last for months without showing signs of resolution.

Papulo-foliaceous syphilide.—The tendency to confluence exhibited by the secondary malignant forms results in diffused placards, due to the coalescence or fusion of the individual elements. These are generally situated on the back, and may form raised eruptive plaques the size of the palm or considerably larger. The borders are polycyclic, and show vestiges of the original papules. The desquamation is abundant, and occurs in rather large, thin foliaceous scales, like onion skins, differing from those of psoriasis.

Papulo-nigricans syphilide.—In this form the terminal papular pigmentation is greatly intensified, and presents very dark brown or almost black shades, which persist for long periods exceeding a year, and are very slow to fade.

Syphilitic affections of the nails are not infrequent during the secondary period. The nail itself may be affected in different manners, or else the nailbed and periungual regions may be the seat of the lesion.

Onychia.—The different varieties of onychia are due to local disturbances affecting the nutrition of the nail. In one form the nail becomes rarefied and brittle, while the free border splits constantly; in another form the nail becomes partially separated from its bed and loses its natural polish, or else the separation may end with complete detachment of the nail, which then falls off, leaving a denuded matrix and nail bed. The loss of the nail is not permanent, however, for a new one forms, its formation sometimes beginning before the old one is entirely detached. Ordinarily the new nail presents defects, being of unequal thickness, with transverse ridges, and frequently arched. Occasionally, in a rarer variety, *pachyonichosis,* the nail becomes hypertrophied and greatly thickened. All of these lesions are painless.

Perionychia—In the periungual affections certain varieties are also observed. In the squamous form a papule develops at the nail

border or beneath the free edge of the nail. In another variety, the integumentary nail border becomes thickened and callous, sometimes on one side only. Removal of the callous and thickened epidermis by paring or other means leaves a slightly sensitive red surface, which is soon covered by new thickened epidermis. This little lesion may persist for a long period; it is indolent, but may become painful through the development of little fissures at the cutaneous angles. In another variety the nail border (usually on one side only), and more rarely the root, becomes inflamed, thickened, of a deep red or brownish-red color, and somewhat sensitive. Its appearance suggests an ordinary whitlow, from which it differs by its slow evolution and lesser degree of pain. When fully developed the lesion may persist for a long time in the same dry condition. When it affects the big toe it is more painful and may terminate in an ingrowing toe-nail.

The *ulcerative form* of perionychia may be consecutive to the preceding or develop primarily. It consists of an ulcerative process, involving a part or all of the nail border and frequently the nail bed. The ulceration is generally deep, irregular, and surrounded by a thickened, prominent border of a deep red color; its secretion is seropurulent, sometimes sanguinolent, and flaky. The border may also be covered by unhealthy granulations, which degenerate into a fungous mass, partially covering the nail, and occasionally when complicated by inflammation the whole finger-tip becomes tumefied and flattened. When the lesion affects the big toe it is especially apt to be complicated by inflammatory conditions owing to the situation. In this variety of *perionychia* the nail, as a rule, falls off. (See Plate **144,** Fig. 234.) The evolution is slow and chronic.

Pigmentary syphilide (synonyms: *syphilitic leucoderma, syphilitic leucopathy, syphilitic vitiligo*), first described by *Hardy* in 1854, consists of a localized hyperpigmentation of the skin, which, although occurring in different regions, is almost always distributed around the neck and chiefly in women. The appearance of the pigmentation varies somewhat. Sometimes it occurs in streaks or bands around the neck, especially on the lateral aspects, or it may present a mottled effect or that of a coarse meshwork. (See Plate **144,** Fig. 235.) The manifestation is primarily a pigmentation, and does not result from any previous lesion of the skin, which in all other respects remains normal. Pigmentary syphilide, which is not very common, is a secondary manifestation, ordinarily developing in the first year. Its duration is indefinite, and it is but slightly affected by treatment.

Syphilitic alopecia is a comparatively precocious symptom, occur-

ring usually within the first six months of the disease. It may affect any hair-covered region, the scalp, beard, eyebrows and genitals, but is most commonly observed on the scalp and under two forms.

In one form, the loss of hair is diffused over the entire region, and results in more or less thinning of the hair, which may become perceptibly less abundant and sometimes very markedly reduced in quantity, particularly over temporal regions. This form offers nothing characteristic, and does not materially differ from the loss of hair observed in the convalescence from severe illness or other impoverished conditions.

In another form, which is characteristic and often diagnostic of syphilis, the hair falls out in spots, sometimes circular but more often of irregular contour, and which have been likened to small clearings in a forest. The bare spots are always numerous, generally small, and chiefly distributed over occipital and parieto-temporal regions, to which they give a moth-eaten appearance. Sometimes the spots, through confluence, become merged and form incompletely denuded areas with irregular or polycyclic borders. The denuded areas vary in size, but may be quite extensive, especially over parieto-temporal regions. The condition is very apparent even in mild cases, for the surrounding hair does not completely cover or conceal the bare places. (See Plate **128,** Fig. 208.) This form of syphilitic alopecia differs from alopecia areata in the greater number of affected areas which it presents and in the incomplete denudation of the bare spots, in which some hairs generally remain. The presence of other secondary manifestations furthermore confirms the diagnosis. In alopecia areata (see Plate **128,** Fig. 207), the affected regions are few in number and frequently limited to one. The denudation is complete and leaves a characteristic ivory white, smooth bald spot. The eyebrows, beard and genital regions may be similarly affected by syphilitic alopecia. The degree of alopecia varies from a simple loosening of the hair with imperceptible loss to a very marked reduction or extensive denudation; complete baldness is extremely rare. The loss of hair is temporary and is eventually replaced by a new growth.

Moist Syphilides

The moist syphilides developing on the mucous surfaces and in certain regions of the skin are the most important of all the secondary manifestations, not only because of their great frequency and tendency to recurrence, but because *they are all secreting lesions and contagious,* and without question furnish the most prolific source of infection. The initial lesion occurs but once, and is limited in its capability of conveying the disease to its duration, which is measured in weeks, whereas the moist lesions may recur for years, always retaining their contagious character.

They are essentially secondary, and appear during the first months of this period, and may occasionally be contemporaneous with the roseola, but as a rule appear later.

Moist Cutaneous Lesions

The moist cutaneous lesions are constituted by *erosive papules,* sometimes called cutaneous mucous patches, moist, humid and secreting papules, condylomata, etc.

When a papule develops in regions in which the skin is normally thin and moist, such as the intergluteal, genitocrural, perianal, scrotal, submammary, axillar, interdigital spaces of the feet, etc., it loses its epidermal covering through maceration and friction and is converted into a denuded lesion with a raw, moist secreting surface. In other respects it retains its papular characteristics of a generally round, slightly elevated, flat lesion. The eruption may likewise be discrete and confined to a few elements, or else confluent, and through fusion form more or less extensive plaques or condylomata. Further modifications may take place, resulting in a great increase in size, or hypertrophy of the individual elements, as in the *papulo-hypertrophic* variety, and at times a *papulo-ulcerative* variety is also observed.

The moist papules occur with greatest frequency in the intergluteal, perianal and genital regions, especially in women. When they develop between the buttocks the eruption, which is ordinarily symmetrical, may be limited to a few discrete papules, generally of large

size, presenting a smooth, red, secreting surface. These are apt to be pruriginous and painful from irritation caused by the pressure and rubbing of opposing parts, particularly in the act of walking.

The moist papules occurring in the *perianal regions* are generally closely distributed, and as they develop become merged and coalesce to form the eruptive plaques known as *condylomata lata.* (See Plate **145,** Fig. 236.) These are elevated above surrounding parts and present a more or less eroded flat surface of varying shades of red, sometimes with grayish streaks, depending upon the degree of irritation. The borders are scalloped, and represent vestiges of the peripheral margins of the papules entering into the formation of the lesion, while the secretion, which may be fairly abundant, is puriform and foul-smelling.

The *perineal raphe* is frequently invaded by moist lesions, and may become infiltrated, greatly thickened and prominent.

The scrotum is also a very common site for the moist lesions. These may be limited to a few smooth, beefy-red elements, of large size, or they may be numerous, more or less confluent, and assume circinate forms. When situated at the *penoscrotal* fold they are usually saddle-shaped. The scrotal lesions are often accompanied by similar ones developing on corresponding inner aspects of thighs.

The *female genital regions,* owing to their anatomical disposition, delicate texture of the skin, mucous surfaces, heat and moisture, offer the most fertile field for the development of moist lesions, which in consequence are found there in greatest abundance and in different varieties.

The vulvæ (especially the free borders), genito-crural folds and superior internal aspects of the thighs are the parts chiefly affected, but extension to the perineum is common.

The eruption may, as elsewhere, consist of a few discrete moist papules, distributed on the vulvæ or genito-crural folds and sometimes associated with dry lenticular papules, or the eruptive elements may be numerous, confluent, and through fusion form plaques with polycyclic borders, which may occasionally be extensive and diffused over a considerable area. Such lesions usually present a reddish, inflamed appearance, and are also pruriginous, sensitive, and furnish an offensive, purulent secretion.

Papulo-Hypertrophic Variety

The papulo-hypertrophic variety is simply an exaggerated type resulting from neglect and lack of local treatment of the preceding

lesions, whereby the individual papules become greatly increased in size and amplified. Under these conditions an isolated hypertrophied papule may form a tuberosity or small tumor-like mass, the size of a hazelnut, and generally round and somewhat convex. The eruption, which may be limited to a few isolated elements, is more often confluent and agminate, and consists of hypertrophied, sometimes lozenge-shaped papules, distributed over cutaneous aspects of vulvæ, particularly the free borders, where they become more or less fused and may extend to genito-crural regions and form condylomata presenting an uneven or mulberry-like surface. (See Plate **148**, Fig. 240.)

These may grow luxuriantly, become exuberant, and form large, vegetating, cauliflower-like masses, which in extreme cases sometimes attain huge proportions and may extend from vulvæ to genito-crural folds, internal aspect of thighs and perineum.

These lesions, unless irritated or inflamed, are generally of a pale red or reddish-gray tone, but they are frequently aggravated by inflammatory complications and then present a more or less eroded, often ulcerative, uneven surface of a deep red color, with fissural indentations corresponding to the points of fusion of the original papules. (See Plate **148**, Fig. 240.) The vulvæ are tumefied, the borders particularly, while the surrounding skin is red, inflamed and excoriated. The whole appearance is repulsive and loathsome, and the abundant secretion is indescribably offensive and nauseating.

The other localities in which moist papules are sometimes observed are the axilla, the interdigital spaces of the toes (see Plate **147,** Fig. 239), and the submammary, abdominal and other cutaneous folds, especially in fat persons.

Ulcerative Varieties

Sometimes the surface of a papule, instead of being merely eroded, becomes the seat of an ulcerative process, which may extend quite deeply, but is usually confined to the neoplasm itself and leaves no scar.

More rarely, true ulcerations, corresponding to the ecthymatous lesions, but minus the crust, are observed. These occur chiefly on the vulvæ, and are generally round, with a smooth, yellowish floor, abrupt margins and red areola. They occasionally undergo fusion and form polycyclic ulcers. In their general appearance they resemble chancroids, from which they have to be differentiated.

The moist cutaneous syphilides may pursue an indolent course, but from their character, exposure to irritation and complications, are most frequently sensitive and sometimes extremely painful. They also

persist for long periods if not treated, and not infrequently the different lenticular, moist, hypertrophic and ulcerative forms are found variously associated, and occasionally all may coexist. The aspect varies in color from a pale or rosy red to the deepest shades, according to the degrees of irritation, and at times the lesions present a pale gray or dirty white exudative appearance.

The moist lesions are generally the result of neglect and personal uncleanliness, and are seldom seen in persons of the better class, except in mild forms. The interdigital and the large vegetating condylomatous lesions are only observed in persons of inconceivably filthy habits, of which the low class of prostitutes furnish the most striking examples.

They all yield readily to suitable local treatment, which may be summed up as rest, local cleanliness through frequent bathing, isolation of parts, and keeping them dry with any inert desiccating powder, zinc oxide, bismuth, talcum, etc. Under these measures the lesions desiccate, retrogress, and lose their painful character. Even the large cauliflower masses will disappear under this treatment, although more slowly. Their resolution may be hastened by applications of silver nitrate solutions, 2 to 3 per cent., or occasionally a small actual cautery point may be applied. Excision is seldom, if ever, necessary.

The syphilides appearing on the mucous surfaces consist of erosions or superficial ulcerations, to which the common name of *mucous patches* is generally given. These, as the name indicates, may appear on any mucous surface, but they are principally confined to the mouth, throat and external genitals in both sexes. They have been observed in the larynx, nasal fossa and palpebral commissures, but whether they also occur on the mucosa of the intestine, stomach, esophagus, etc., is not susceptible of proof.

The mucous patches of the mouth, throat and tongue are probably the most common of all syphilitic manifestations, and are relatively more frequent in man than in woman, who, as a rule, takes better care of her mouth, and who, with few exceptions, does not smoke. Mucous patches are found in all parts of the mouth and throat, but show a marked predilection for the tonsillar and faucial regions, tongue and lips. They also present different types, usually described as *erosive, papulo-erosive, ulcerative* and *depapillating.*

Erosive Type

This is by far the most common, and constitutes the true typical mucous patch. It consists of small, superficial erosions or denudations

of the mucous surface through loss of its epithelial covering. Such lesions are flat, smooth, and usually present a base of deeper red than the surrounding surface. Occasionally they are of a lighter hue, comparable to a pale rose color; but their appearance varies considerably, for they often present grayish or whitish tints, ranging from a pale, opalescent gray to milky white, occasionally blue-white. The erosions are generally of small extent, of round, oval or irregular shape, but are frequently fissural, and then constitute the little sensitive lesions so often seen in the small furrows on the dorsum and edges of the tongue and labial commissures. The erosive type is not only the most common but also the most important, for it furnishes the small, insignificant but *contagious* lesions, which may recur for years in the mouth and on the genitals, and sometimes practically constitute the only objective symptoms of the disease.

Papulo-Erosive Type

This is constituted by the eruption of papules on the buccal and lingual mucosa. When a papule develops on a mucous surface, it is deprived of the dry epidermal covering of its prototype appearing on the skin, and becomes a moist and secreting lesion; otherwise it does not differ from it, and appears as a round, slightly raised disk-like lesion, of opalescent or whitish aspect. (See Plate **146,** Figs. 237, 238; and Plate **139,** Fig. 226.) It occurs mostly on the tongue, lips and soft palate, where it occasionally forms eruptive patches with circinate borders.

When situated at the labial commissure it forms a fissure or raghade, while its cutaneous margin is frequently covered by incrustation.

The papulo-erosive type is less common than the erosive, and generally corresponds to the period of the cutaneous papular eruption.

Ulcerative Type

This is not infrequent, and is usually the result of neglect and lack of treatment. The ulcerations are generally shallow, with a reddish but sometimes grayish or yellowish base, which is more or less uneven or anfractuous. They are often seated on an irritated or inflamed area, and are usually of small extent, of round, oval or irregular shape, and with non-indurated margins. They occur mostly in the tonsillar regions, lips and tongue, where they may lodge in some of the normal furrows and become fissural.

Depapillating Type

This peculiar lesion is observed quite often, and consists of depapillated patches occurring on the dorsal aspect of the tongue, in the shape of small oval areas, from which the papillæ appear to be absent, as if shaved off. These areas are surrounded by normal papillæ, and present a bright-red color, contrasting strongly with the normal appearance of the surrounding parts. The lesion has been compared to alopecia areata, and is sometimes described as *lingual alopecia.* It is usually painless.

The Genital Mucous Patches

While common in both sexes, they are relatively more frequent in the female genitals, where they develop on the labia, at the entrance of the vagina, and also appear on the cervix. They frequently coexist with the moist cutaneous forms.

In man they occur on the glans, coronal sulcus and mucous aspect of prepuce, and almost always in the form of simple erosions.

The *radiating anal folds* are sometimes the seat of fissural erosions developing between two or more folds, which in consequence become infiltrated, thickened, and form little prominent ridges radiating from the anal aperture. Upon separating the folds, little fissural erosions are perceived, extending to the muco-cutaneous border and beyond.

Mucous patches present many variations or modifications. They vary in size, from insignificant, barely discernible erosions of ephemeral duration to persistent and extensive manifestations. They may be limited in number or even solitary, or else be abundant and widely disseminated. Oftentimes they are confluent, and through extension or coalescence form the large lesions seen on the inner aspect of the lips or soft palate, where occasionally all of the free border and uvula is involved.

These manifestations may present a smooth, deep-red surface. Sometimes the centre is of a deep purplish or brown-red color, shading off toward the borders, which may be partially covered by light, grayish exudate; or else the central portions may be covered by a slate-colored exudate, while at other times it is grayish white or even white, adherent, and resembles a diphtheritic membrane. This diphtheritic appearance is particularly noticed in the tonsillar and faucial regions, where it may give rise to some misgivings as to its nature. It is also seen on the lips and on the labia of the female genitals.

A *papulo-hypertrophic* variety is occasionally observed. This, as in the moist cutaneous lesions, is the result of neglect, and consists of

an enlarged papule, forming a hard, elevated, discoid mass, sometimes with a vegetating papillomatous surface or else a central depression. Exceptionally, several such elements combine to form a raised mammillated plaque. These hypertrophied lesions are situated at the back of the tongue almost exclusively.

The buccal syphilides show but little tendency to circinate forms. Annular syphilides of the erosive type are occasionally seen on the palate, lips and tongue, but crescentic shapes are more frequent. The element of pain is variable, and depends largely upon the regional situation. Some lesions, even of large size on the lips or hard palate, may be but slightly sensitive, while the small fissural lesions situated at the labial commissures and edges of the tongue are apt to be very sensitive. Those situated on the pillars and tonsils are usually more or less painful. The early forms, accompanied by engorgement and tumefaction of the pillars and tonsils and constituting the syphilitic sore throat or angina, may be excessively painful and accompanied by severe dysphagia.

Diagnosis

The buccal syphilides do not exhibit any sufficiently distinctive characteristics upon which to base an absolute diagnosis. Their appearance is sometimes more than suggestive, but demands the corroborative evidence derived from the history, presence of other manifestations, and, if necessary, the serological reaction, for many non-syphilitic affections present similar objective features and may require differentiation.

Differential Diagnosis

The simple erosions resulting from traumatism, rough teeth, burns, vesication, acrid substances, etc., must be excluded. *Herpes* differs by its abrupt onset, smarting, and the micro-cyclic appearance of its base.

Aphthæ differ from the ulcerative lesions by their orbicularity, bright canary-yellow color, funnel-shaped base, and their painful character.

Mercurial stomatitis presents exulcerations on the tongue, lips and cheeks. The exudates are of a dirty white color, with a yellowish cast, and occur mostly on the cheeks, but the principal difference lies in the affected, swollen, turgid gums, the frequent ulceration at the base of the lower incisor teeth, the salivation and the abominable fetor of the breath.

Other affections, such as the *impetiginous commissural fissure* of

children, the *geographical tongue, exudative tonsillitis, diphtheria,* etc., may require consideration from their occasional resemblance to the specific manifestations.

Treatment

The local treatment and care of the mouth is a necessary adjunct to the systemic measures, to which the buccal syphilides are frequently more or less unyielding.

Mucous patches occur spontaneously, but their tendency to recurrence, aggravation and persistence, is largely influenced by *neglect, lack of oral cleanliness, smoking,* chewing, alcohol, rough and decayed teeth, irritating substances, strong condiments, acid and spicy foods, etc. All of these act as aggravating and predisposing causes. In the same manner, lack of local care and cleanliness are predisposing factors in the genital lesions. Hence, oral hygiene, the prohibition of smoking and the avoidance of other irritating factors are absolutely indicated. Cleanliness of the genitals is essential, and in man, the daily cleansing and examination of the preputial regions should never be omitted, for small, insignificant, ephemeral erosions developing in these parts (practically overnight) have been the source of contagion.

Topical Application

Nitrate of silver is the most generally useful agent, and may be used in solutions of 2% or 3% for the simpler lesions, but more often the solid stick is preferable. The applications should not be repeated *too often*—once in four to five days is usually sufficient—and if solutions are used in the faucial or tonsillar regions, great care must be exercised that none of the solution drops in the larynx, for this might provoke a terrifying, suffocative, spasmodic seizure. When the lesions are numerous or extensive, only a part should be treated at one time.

For obstinate lesions *Fournier* recommends the *acid nitrate* of *mercury.* This is a very powerful and diffusible substance, most useful in old, unyielding lesions, from its penetration into the deeper layers, but it must be used with great care. A very small quantity of cotton should be tightly wrapped around the end of a toothpick or small applicator, then dipped in the acid and *expressed almost dry* before using. The application must be limited to the lesion itself and followed by gargling the throat or mouth with water. Sedative mouth washes or gargles are useful when much irritation exists, while the more astringent type, borated, chlorate of potash, tincture of myrrh, peroxide, etc., may be used during the intervals of treatment.

Tertiary Syphilides

The tertiary cutaneous manifestations are constituted by the *subcutaneous gummata* and the localized infiltrations of the skin or *tubercular syphilides.* The oro-pharyngeal cavity is also the seat of gummata and ulcerative syphilides, while the tongue is frequently the site of localized scleroses, resulting from the connective-tissue hyperplasias so often found in the late forms of syphilis. A late or tertiary form of erythema first described by *Fournier* is occasionally observed.

Gummata

The various names of *gummæ, gummositates* and *gummata* were used by early writers in the sixteenth century to designate certain late products of syphilis, appearing as firm, elastic, more or less circumscribed tumors, which at some period of their evolution contained or gave issue to a gelatinous gummy material.

Gummata are the most characteristic and typical pathological lesions of syphilis. They sometimes appear during the first year of the disease, but occur mostly from the second to the eighth year; thereafter they progressively diminish in frequency, but are occasionally observed as late as twenty, thirty and even more than fifty years after infection.

A subcutaneous or submucous gumma is an inflammatory neoplasm presenting the dual characters of a tumor and abscess, and, as *Darier* describes it, "consists originally of a firm, elastic nodule which grows rapidly and upon section presents the appearance of a fleshy almost sarcomatous tissue of a grayish rose color (the so-called crude gumma). As the evolution proceeds, the central parts progressively soften until eventually the gumma gives signs of fluctuation. At first the disintegrated part shows a whitish translucent centre, sometimes punctuated or streaked with red. Its consistency, which is soft, still further diminishes until it becomes a sort of gelatinous or syrupy fluid enclosed in a fleshy envelope. When about to evacuate, the skin or mucous membrane invaded by the gummatous infiltration becomes thin,

ulcerates through and gives issue to a thick puriform fluid. The cavity left behind is coated by a characteristic yellowish-white material, or contains a core which represents the necrosed but not yet liquefied remains of the gumma. When completely eliminated, repair takes place, by the filling up of the cavity and the formation of a scar.

"In its initial period a gumma, like all other syphilitic lesions, is constituted by the dense accumulation of embryonal cells around a small altered blood-vessel. The difference noted between a gumma and other syphilitic products such as a syphilitic tubercle is that the alteration nearly always involves a veinule instead of an arteriole. The alteration acts upon a limited point, and it is at this point only that the cellular infiltration takes place, and develops eccentrically into round or oval nodulations. The infiltrative cells are extremely abundant and crowded together. They insinuate themselves between the preexisting elements (which they only destroy after a certain time), and to this is due the firm consistency of the gumma. Ultimately, and unless arrested by treatment, the central parts always degenerate into necrobiotic tissue."

Virchow found that gummata and other syphilitic products were composed of granulation tissue which did not differ anatomically from ordinary inflammatory granulation tissue, and he included them in his classification of the granulomata. He furthermore looked upon the initial lesion as a gumma, a mucous papule, as but an ill-developed form, etc. The essential and distinguishing character of a gumma, however, and wherein it differs clinically from non-specific granulation tissues capable of spontaneous resolution or of permanent organization, is, that it is not viable, and that unless arrested by treatment it is destined to undergo degeneration and terminate in dead or necrobiotic tissue.

Gummata present two clinical forms, one characterized by distinct, isolated, circumscribed tumors of variable size, the other by diffused gummatous infiltrates.

A gumma may undergo a slow caseous degeneration terminating in a solid yellowish dry mass retaining the characters of a firm tumor (*tuberculiform gumma*), or else it softens, liquefies and eliminates its contents, and this is the more frequent termination.

A *subcutaneous gumma* is constituted primarily by a small nodular mass situated in the subcutaneous cellular tissues. As such it is most often unperceived, but as it continues to grow, it projects more and more above the surface of the skin and ultimately develops into a well-limited, localized tumor, generally of an oblong or hemispherical

shape, and varying in size from a small olive to that of a pigeon's egg or sometimes considerably larger. At first the surface is smooth and covered by normal-appearing skin without redness, surrounding inflammation or exudate, while the mass which feels firm to the touch is freely movable and usually painless. This constitutes the crude period. After a variable time, the gumma begins to soften and feel doughy or fluctuating, while at the same time it also becomes immobilized or fixed, and somewhat sensitive. The surface assumes a more or less red color, and the skin at the central point becomes thin, adherent, and finally ulcerates through, leaving a small round opening, which gives issue to a thick, gummy reddish or yellowish material of purulent aspect, but differing from true pus in that it contains but few leucocytes and is made up chiefly of degenerated and broken down granular tissue.

Unlike an abscess, a gumma does not collapse after opening, and only undergoes a slight diminution in volume. The small opening gradually enlarges through progressive ulceration of its borders, to an extent corresponding to the proportions of the tumor, and ultimately uncovers a cavity containing a core-like mass of dead tissue, of a dirty white or yellowish color, which through progressive molecular degeneration is finally eliminated. The remaining ulceration constitutes a gummatous ulcer, which, after repair has taken place, always leaves a permanent and indelible scar.

A gummatous ulcer is usually round or oval, sometimes kidney-shaped or other circinate type. The excavation is always well marked, with abrupt, vertical and adherent borders surrounded by a brown-red areola. The floor is irregular and may be constituted by the core or its remains, or else be covered by a creamy yellowish material.

The *duration* of an untreated gumma is variable, it may last three or four months, or else require six or seven to complete its course. Sometimes, as in malignant syphilis, the evolution may be very rapid and completed in a few weeks. The duration of the various periods is also very variable, in some instances a gumma may remain in the crude state for very long periods—years sometimes. The stage of softening may also be very prolonged or limited in extent, while the ulcer may heal in a short time or persist almost indefinitely.

Subcutaneous gummata may appear upon any region of the body, but occur with greatest frequency on the leg, next on the upper extremities, the head, abdomen and chest, thigh, scrotum, penis, neck, etc. Their evolution usually proceeds without symptoms, but when situated near an articulation they may interfere with its functions and occasion pain, as in the wrist or jaw. They also occasion pain and

numbness by their pressure, when they develop along the course of a nerve or nerve plexus, as in the axilla. In point of numbers they are usually single, not infrequently double, but rarely exceed four or five (exceptional instances in which thirty-five or more have been observed at the same time in one patient are recorded in the literature).

Subcutaneous gummata sometimes appear as small nodules, but they usually vary in size from a small olive or hickory nut to that of an egg. Exceptionally they may become enormous. Thus *Fournier* describes a gumma of the thigh almost the size of a fetal head. *Charrier* and *Renou* (Annales de Dermatologie, 1896) reported a gumma of the calf which increased its circumference more than eight inches. Many other examples, of even larger proportions, have been reported.

Diffuse Gummatous Infiltration

In this variety the infiltration of the subcutaneous cellular tissues, instead of being localized and presenting a tumor, is diffused and spread out like a more or less thick layer over an area varying greatly in dimensions. Although observed in other regions such as the back, abdomen and chest, this variety principally affects the leg, where it may be diffused over the calf and lateral aspects and form extensive lesions, which may measure 6 to 10 inches in length by 4 or 5 in breadth, and of variable thickness (the so-called *syphiloma of the leg*).

The evolution of a diffuse gumma is similar to that of the circumscribed form, but if at all extensive the development is not simultaneous, for different parts represent different periods. Some parts may be in the crude stage, hard and firm, while others are in the stage of softening or of ulceration. As a rule, several openings take place, succeeded by ulcerative cavities, which enlarge and form gummatous ulcers. These, as they extend, frequently meet, coalesce and form the enormous ulcerations sometimes seen on the leg.

Serpiginous Forms

Gummatous ulcers are sometimes complicated by a phagedenic process, through which they extend. The skin at the periphery of the lesion becomes infiltrated and eventually ulcerates; a fresh peripheral zone is then invaded by the infiltration and the process repeated. In this successive manner, the ulceration advances, sometimes at one point only, through infiltrative irradiations. At the same time repair is taking place in the central region, or parts originally affected (see Plate **157,** Fig. 258).

Serpiginous forms affecting the scalp are far more serious, for the tissues are frequently undermined, while the gummatous infiltration

extends to the periosteum and cranial bones, and results in destructive caries and necrosis. (See Plate **152,** Fig. 249.)

Diagnosis

The diagnosis of gummata rests upon the specific antecedents, the presence of other tertiary lesions or their cicatricial stigmata, but particularly on the slow, generally indolent evolution, its progressive periods of crudity, softening and terminal ulceration with its characteristic core, as well as the results of the serological test, or that failing, the *luetin* cutaneous reaction of *Noguchi.* The *treponemata pallida* have been found in crude gummata, but do not appear to be present in the ulcerative lesions.

Differential Diagnosis

Subcutaneous gummata when young and firm often present the appearance of small fatty tumors, or sebaceous cysts. These are to be excluded by their longer duration, situation, general characters, and absence of specific antecedents, but as they occur in syphilitic subjects as well, the final determination may depend upon the further evolution and results of treatment.

Gummata have also been mistaken for cancerous growths, but these differ by their generally uneven or nodular surface, the more rapid and extensive adherences of the skin, but especially by the lancinating pains which frequently accompany them, while cancerous ulcerations present an entirely different picture in their red, vegetating surface, everted borders, bleeding and characteristic fetid discharge. Furthermore, when cancerous growths are sufficiently developed, they are accompanied by a glandular involvement, which as a rule is absent in gummata.

Chronic varicose ulcers and *gummatous ulcerations* of the leg may present a striking resemblance, but differ in several respects. The varicose ulcer is habitually situated below the middle third of the leg and as a rule on its lateral aspect above the internal malleolus. The borders of the ulcer are irregular, declivitous, greatly thickened, hard, and surrounded by a chronic edematous zone—the floor is uneven, often dry and glazed, with necrotic, dark-red, or yellowish areas, while it emits a peculiar penetrating cadaveric odor, whereas the gummatous ulcers may occupy any part of the leg. The borders are abrupt, less thick and surrounded by a narrow, reddish-brown areola, while the excavation presents either a core or a creamy yellowish floor, sometimes more or less scabby. The contour is usually of a circinate type or may present polycyclic margins due to the fusion of several ulcers.

Tubercular Syphilides

The tertiary manifestations of the skin have long been known and described as syphilitic tubercles or tubercular syphilides. Although applied in their descriptive dermatological sense, these ancient denominations are apt to be confounded with the cutaneous products of the tubercle bacillus, with which these terms are now so closely identified. Hence they have also been variously described as cutaneous gummata, tubero-squamous, tubero-ulcerative, tubero-serpiginous, tertiary ulcers, gummatous tubercles, tuberculo-crustaceous, etc.

The tubercular syphilides are constituted by small nodular infiltrations, usually limited to the true skin, and differing in this respect from the subcutaneous gummata, in which the infiltrate is hypodermic. They occur during the first years of the disease and also at very late periods. In a series of 1,108 cases observed in private practice, *Fournier* was able to definitely establish the period at which they appeared, as follows:

1st	year	118	cases	22d	year	11	cases
2d	"	127	"	23d	"	8	"
3d	"	133	"	24th	"	12	"
4th	"	95	"	25th	"	6	"
5th	"	71	"	26th	"	5	"
6th	"	75	"	27th	"	6	"
7th	"	42	"	28th	"	6	"
8th	"	53	"	29th	"	2	"
9th	"	48	"	30th	"	3	"
10th	"	55	"	31st	"	3	"
11th	"	30	"	33d	"	4	"
12th	"	22	"	34th	"	2	"
13th	"	20	"	35th	"	1	"
14th	"	20	"	36th	"	2	"
15th	"	26	"	37th	"	2	"
16th	"	19	"	39th	"	2	"
17th	"	15	"	40th	"	3	"
18th	"	18	"	46th	"	1	"
19th	"	20	"				
20th	"	15	"				
21st	"	7	"			1,108	cases

From this it appears that they reach the maximum of frequency in the third year, then decrease sensibly up to the tenth year, thereafter markedly, although still presenting isolated instances up to the 46th year.

The tertiary syphilides are regional, the eruption usually limiting itself to some given part, such as the back, the scalp, the face, etc. (whereas the secondary syphilides are usually symmetrical and disseminated over several regions). They are, furthermore, destructive, and terminate in localized scleroses or ulcers of a deep character, which leave permanent cicatrices and, unlike the secondary eruptions, which are polymorphous, the tertiary syphilides are confined to one type. The eruptive elements are usually round or of circinate shape, and show a marked tendency to assemble themselves in groups. In their mode of grouping they also affect different forms. Sometimes they are closely distributed over a small area, as in the bouquet form, and several such groups may be present, or else the eruption may consist of a single group, composed of a few elements. At times they are arranged like a circle of beads, separated by intervening spaces of normal skin; or they may be disposed in crescentic shapes, rings, conjugated arms, etc. The eruption is occasionally disseminated, and in certain regions, such as the palmar and plantar surfaces, it may be diffused.

The *tubercular syphilides* present a dry or squamous type and an ulcerative type. Both are primarily due to the same infiltrative process, but the terminal evolution differs. In the squamous type, the lesion becomes condensed, shrinks, and ends by absorption, leaving a more or less marked local atrophy or cutaneous sclerosis to mark its site (*tuberculiform gummata*). In the ulcerative type, which is the more common, the lesion undergoes gummatous degeneration, ulcerates, and becomes incrusted through a process in all respects similar to that of the subcutaneous gummata. This constitutes the ulcerative or gummatous tubercle.

A *squamous syphilitic* tubercle consists of a circumscribed nodular infiltration, forming a small tuberosity or eminence, with a base deeply imbedded in the skin, as though inlaid in it. The small mass is round, solid and firm to the touch, while its summit, which is somewhat convex, projects above the surrounding skin. It is usually the size of a split pea, sometimes larger, and of a deep red smoked ham color. The surface is at first smooth and polished, but eventually it may become wrinkled and covered by fine scales. The evolution is slow and when fully developed the lesion may persist without change for months or

even years if untreated. Finally it shrinks, is absorbed and disappears leaving a dark pigmented spot which lasts for some time and is succeeded by a slightly depressed atrophic white spot or scar.

The course of this form is unaccompanied by pain or special symptoms. The eruption is occasionally disseminated and may be limited to a few isolated elements usually situated on the palm, face or leg, but it is much more frequently grouped and arranged in varying crescentic, annular, arciform or beaded shapes.

Serpiginous or Creeping Form

This mode of eruptive extension is common to both the squamous and ulcerative types, and is due to the development of successive crops of tubercles, in lines parallel with the peripheral border of the original grouped lesion. In this manner the eruption advances through the invasion of fresh cutaneous zones, while at the same time repair is taking place in the older or central parts. In consequence, the lesion presents elements in varying stages of evolution, the original tubercles being represented by the terminal macules. Others more recent may be in the retrogressive period, while the outer border is constituted by elements in the period of development. (See Plate **150,** Fig. 244, and Plate **151,** Figs. 246 and 247.)

The diffuse type consists of an infiltrative eruptive patch of continuous surface, generally of a deep sombre red color. While it may appear in other regions, it most frequently affects the palmar and plantar surfaces and constitutes the tertiary psoriasiform lesions. As a result, the palmar region is converted into a rose or dusky red desquamating surface, thickened, hard and rough to the touch and intersected by white lines or sometimes painful fissures. The exfoliation is irregular, white and lamellar, while the borders are red and circinate. The palmar eruption may also be constituted by tubercles differently grouped. (See Plate **150,** Fig. 245.)

Eruptive Variations

Sometimes, in a small grouped lesion, the intervening skin becomes infiltrated and thickened, the appearance being that of a number of tubercles seated on a common red hypertrophied base. The degree of infiltration varies, it is usually slight, but exceptionally it may be massive and bring about deformity of the affected part. Under these conditions the lips (usually the inferior), the nose, nostrils, lobe of the ear, chin, vulva, etc., may be enormously increased in size. These rare disfiguring lesions occur in both the squamous and ulcerative types. When the nose is involved it may present the grotesque ap-

pearance brought about by hypertrophic acne or hypertrophic lupus, while the lip or ear lobe may be doubled or trebled in thickness. These various conditions also resemble some of the leontiasic deformities observed in tubercular leprosy, hence the term *syphilitic leontiasis* applied to them. The infiltration is of firm consistency and differs from an edematous exudate in not retaining the impression of the finger.

Occasionally the tubercular elements are small and attenuated, and from their lack of volume and flat surface resemble the secondary papular forms, from which they are distinguished by the characteristic, circumscribed mode of grouping, and lack of dissemination common to the tertiary forms.

Ulcerative Tubercular Syphilides

Synonyms: *Tubero-ulcerative syphilides, tuberculo-crustaceous syphilides, tuberculo-ulcerative syphilides, ulcero-serpiginous syphilides, gummatous tubercles, tertiary ulcerations*, etc.

The tuberculo-ulcerative syphilides are the most common of the tertiary cutaneous manifestations, and also occur on the mucous surfaces of the oro-pharyngeal cavity, nose and genitals. In its early stage a gummatous tubercle is identical in appearance with a squamous tubercle and offers the same initial characteristics, but differs in its termination, for after a variable time the lesion undergoes gummatous degeneration and softens, while the skin at its apex becomes thin, eventually breaks and gives issue to a slight discharge, which desiccates and forms a small dark crust, that grows larger and thicker as the underlying ulceration, which it conceals, extends.

The ulcerations vary in size from that of a lentil or split-pea (Fig. 253) to that of a dime, half dollar or even larger, and sometimes through the fusion of confluent elements they may form lesions as large as the palm. The lesions may be perfectly round, but frequently assume crescentic shapes or represent segments of circles or long curves due to the mode of grouping and the fusion of the elements. The ulceration itself is usually deep, with abrupt, indurated and adherent borders, surrounded by a sombre red areola, while the floor presents the usual irregular corelike or creamy yellowish appearance of gummatous ulcers.

The scab or incrustation which covers the ulceration is proportionate in size, and is usually solid and of great thickness. The edges are included in the borders of the ulcer as if in a frame and it is firmly adherent, while the shape corresponds to that of the lesion. The color varies from light brown or ochrous tones to dark chocolate-brown

shades; at times, the scab is almost black or even black, and frequently presents deep bottle-green tints. The color is not always uniform, for different portions of the scab may present different shades, but the generally dark brown, blackish or deep green tones are very characteristic.

Syphilitic Rupia

The scab may be simply thick, but it is often stratified owing to the superimposition of different layers of crust resulting from extension of the ulceration, the uppermost layer being the smallest, while each succeeding layer becomes progressively larger, so that the scab presents a somewhat conical elevation. In shape, the lesion may be round, and it frequently suggests the appearance of an oyster-shell, both by its shape and stratification, hence the name *ostreaceous* given these forms. These thick stratified lesions constitute the typical syphilitic rupial eruptions. They are chiefly seen on the back and extensor aspects of the arms, where they may form several large incrustations, sometimes the size of the palm; and they are usually observed in old neglected cases and in the severe or malignant forms of the disease. (See Plate **149,** Fig. 242.) Resolution may take place under the scab, which desiccates and is eventually detached.

The *tertiary* scar is at first red, then turns to a dark brown or almost black color, which may persist for long periods, sometimes years. (These dark pigmentations are frequently seen on the legs, particularly the shins, and in colored individuals they are inky black.) After a variable time the color fades, until finally a dead or milky white surface remains, which by its lighter tone contrasts with the surrounding skin. The scar itself is slightly depressed below the level of the contiguous parts and corresponds in size and shape to the original lesion, which is commonly round or represents segments of circles or various crescentic shapes. The scar tissue is of fine texture, smooth, and in the larger lesions of a parchment-like thickness, which may be picked up between the fingers. Small multiple scars occurring on the forehead, chin, or other portions of the face, frequently represent by their arrangement the circinate contour of the original lesions. On the nose, which is a favorite site of the ulcerative syphilides, little white crescentic or pitlike depressions the size of small shot or somewhat larger are left, while the borders of the nostrils remain with small scalloped, gouged-out indentations. Occasionally the loss of tissue may involve a good portion or the whole of a nostril, while perforation or partial destruction of the septum is also a common result when the pituitary membrane is attacked.

The tertiary scars are indelible and typical relics of syphilis, and when well characterized are practically diagnostic of the disease.

The tuberculo-ulcerative syphilides present many variations. The eruption is sometimes limited to a single group of a few elements situated on some part of the face, back or leg, or per contra the lesions may become numerous through successive additions, as well as more or less confluent, and through fusion involve a large surface. A small isolated lesion may progress eccentrically through peripheral infiltration and attain the size of a silver dollar while at the same time the scab which covers the ulceration grows proportionately larger. Phagedenic complications are sometimes observed; these are usually of an extensive serpiginous character, more rarely of a perforating type.

The course of the tuberculo-ulcerative syphilides is insidious. They develop slowly and may form extensive and destructive ulcerations unaccompanied by pain or apparent constitutional disturbances. A small incrusted and painless lesion situated on the nostril or nasal septum is the prelude to a disfiguring loss of tissue or perforation. The evolution also varies in rapidity. Usually the ulcerative tubercle softens within a comparatively short time, but sometimes it remains in its firm, crude state for months, and in the same manner an incrusted lesion may remain without change for prolonged periods. The eruption may also present elements in different stages of evolution, and not infrequently ulcerative forms are found associated with dry, squamous elements. This is well shown in Plate **149,** Fig. 242. The tubercular syphilides may occur on any part of the skin, but show predilection for certain regions. They appear most frequently on the face, and particularly on the nose and nostrils. (When situated at the scalp margin they constitute the tertiary form of the *corona veneris.*) Next in frequency the palmar and plantar surfaces, the lower extremities, extensor aspect of the forearm, the back (especially in the scapular regions), nape of the neck, scalp, etc.

The diagnosis of the tubercular syphilides rests upon their objective characteristics and the antecedents. In the dry or squamous type, the orbicularity, firm consistency, deep cutaneous insertion of the base and the dusky red, raw ham color of the eruptive elements furnish valuable diagnostic guides.

The tuberculo-ulcerative lesions are distinguished by the dark-brown, blackish or greenish tints of the scabs, while the ulcers are generally deep, with abrupt, vertical, adherent and indurated borders,

surrounded by a deep red, sometimes pigmented areola, and particularly by the corelike or creamy yellowish aspect of the floor.

Both types exhibit the same regional preferences, and the same tendency to orbicular or circinate shapes of the eruptive elements. These furthermore follow the same modes of grouping, and according to their arrangement present the various bouquet, beaded, crescentic, annular, semiannular and other forms.

These different characters taken singly or as a whole, together with the antecedents, serve to differentiate the tubercular syphilides from other cutaneous manifestations presenting at times a similar appearance, acne varioliformis, lupus, tuberculous ulcers, epithelioma and varying pyodermic affections, for the detailed descriptions of which the reader is referred to other parts of this work.

Local Treatment

The tubercular syphilides, as a rule, yield readily to mixed treatment, but certain lesions, like the ulcerations of the leg or chronic palmar and plantar infiltrates, etc., are often obstinate and rebellious. Their resolution is greatly hastened by additional appropriate local measures, and of these the occlusive method, first introduced by *Chassaignac* many years ago, remains the most useful and valuable. It consists simply in the strapping of the affected parts with narrow strips of mercurial plaster or *Vigo's* plaster, or where the surface permits, a piece of sufficient size to cover part and extend beyond the borders may be used, and maintained in apposition by a light bandage. Should these prove irritating, diachylon strips may be employed, for it is the occlusive principle rather than the mercurial element which is beneficial.

The part to be dressed should be suitably prepared by a preliminary removal of the crusts by means of wet dressings and immersion in warm borated water, and overlapping or intercrossing narrow strips of plaster applied to the surface of the ulceration and extending beyond its borders until the whole of the lesion is covered. A thin layer of absorbent cotton is then applied over the dressing and kept in place by a light gauze bandage. At first these dressings may have to be renewed twice daily, for, as in the case of an ulceration of the leg, the secretion is apt to be abundant, but later, daily renewal will prove sufficient and ultimately the dressing may remain on for a longer period.

The results are usually very satisfactory, for after a few days an obstinate ulcerative lesion of the leg will begin to clean up and assume

a better appearance, while the infiltrated borders become softer. Still later the surface will present an even, healthy, red appearance, while a pale, hazy-white marginal epidermized zone will be noticed which gradually closes in until lesion is covered. Great care must be taken not to injure the delicate newly formed epidermal layer by rough methods or irritative topical applications. In lesions of the leg, rest of the part is an important auxiliary measure.

The thick infiltrated palmar and plantar lesions require prolonged immersion in warm borated water, not only for the cleansing but for the soothing and softening effects. The dressing should be applied in rather narrow strips so as to better conform to the parts, and over it a layer of absorbent cotton kept in place by a light bandage.

Lesions of the nose, chin, forehead may be similarly dressed.

Cleansing of the parts with warm borated solution or immersion should always precede the removal of the dressings, while topical applications of solutions of iodine and silver or the solid stick are occasionally indicated to repress unhealthy granulations or stimulate sluggish conditions.

Tertiary Affections of the Mouth and Tongue

These are not uncommon, and are important because of the serious and irreparable damage they occasion.

The tongue may be the seat of gummata, but it more frequently undergoes sclerotic changes, which are always confined to the dorsal aspect. The sclerotic process is due primarily to a hyperplastic cellular infiltration, which later becomes organized and develops into vascularized fibrous tissue. As this newly formed connective tissue contracts, it strangles the parenchymatous elements, which in consequence atrophy and are ultimately replaced by a dense connective-tissue formation.

The morbid process varies in degree, and may be limited to the surface of the tongue, as in the cortical or superficial form, or else it may extend and involve the deeper structures.

Sclerous Glossitis

The cortical or superficial form of sclerous glossitis is characterized by a thin parchment-like induration of the surface affected, while the deeper portions retain their normal softness and consistency.

The lesions consist of small infiltrated patches or islands, usually two or three, varying from the size of a lentil to that of a bean, and generally of round or oval shape, unless situated on the lingual mar-

gin. In the early period, these are of a deep cherry-red color, with a smooth depapillated surface, but as the sclerotic process nears completion, the color becomes lighter and turns to a whitish or grayish tone. To the touch the affected regions feel smooth and give a sense of resistance or slight induration different from that of the surrounding parts. Complications due to local irritation and consisting of linear erosions, excoriations or slight exulcerations are common. The infiltration sometimes occurs in bands or may be diffused and affect the anterior dorsal portion of the tongue or its anterior lateral half, which then presents the characteristic parchment-like induration, the same smooth depapillated surface, color, etc. This superficial variety prepares the ground upon which the hyperkeratotic patches of syphilitic leukoplakia develop.

Deep sclerous glossitis, also termed *lingual cirrhosis, lobulated glossitis, interstitial glossitis,* is the typical tertiary lesion of the tongue. It is seldom circumscribed, but nearly always affects a large part of the dorsal surface of the tongue, its anterior half or two-thirds, sometimes a lateral half and exceptionally the whole. The organ becomes tumefied, increased in size, deeply indurated, lobulated and deeply fissured. The lobulation is produced by the contraction of newly formed connective-tissue bands in the deeper planes of the tongue, precisely as in the cirrhotic or interstitial processes of the liver and kidney.

The affected and tumefied region at first presents a smooth, depapillated surface, of a deep vinous red color. As the condition progresses the characteristic lobulations develop; these vary in size and number, they are of irregular shape and form slight prominences on the lingual surface, to which they give an uneven and mammillated appearance. They are also separated from each other and more or less completely surrounded by irregular depressions or interlobular fissures. The fissures vary in depth, depending on the degree of tumefaction, and through the infiltration and eversion of their borders they are frequently **V**-shaped. They also pursue different directions, and may be longitudinal, transverse, oblique, etc. Thus the normal median furrow is ordinarily converted into a deep longitudinal **V**-shaped fissure, while transverse or oblique fissures branch out laterally from it. When the margins are affected the normal contour of the tongue is lost, sometimes the tip is spread out laterally and presents a square appearance, while the margins themselves become the seat of depressions and fissures. Indurated marginal protuberances filling the space left by missing teeth are also common. In the advanced stage erosions, painful raghades, exulcerations or ulcerations are usual complications.

These chiefly affect the borders of the fissures and lingual margins and also develop at the bottom of the fissures. Irregular cicatricial bands and patches of a dirty white or grayish color are formed, which contrast strongly with the deep red of other parts, and sometimes the lobulations undergo gummatous degeneration and form deep, characteristic ulcers or *sclero-gummatous* lesions.

In its ultimate phase, the thickened and hypertrophied region shrinks, atrophies and becomes converted into a hard, dense, irregular fibrous mass, excepting the inferior surface, which is never involved.

Sclerous glossitis is chiefly observed in men, and is relatively rare in women. Its development is insidious and its evolution slow and chronic. In the superficial variety the symptoms are usually slight and pain is not complained of unless erosions and fissures develop, and these are not infrequent complications. In the lobulated form the initial period is characterized by some degree of functional impairment. The tongue feels big, thick and as if covered by a foreign substance; its normal flexibility and motility are interfered with and speech becomes indistinct and modified by the difficulty of articulating properly.

When the usual complications of erosions, raghades and ulcerations appear, all these symptoms are accentuated, the tongue is sensitive, inflamed and pain becomes a prominent symptom. It varies in severity, but is easily aggravated by the movements of the tongue in eating and talking and particularly by smoking and the use of irritating foods, sweets and spirituous drinks.

The duration of sclerous glossitis is indefinite, and unless recognized and arrested in its early period by energetic treatment, but little permanent benefit may be expected from subsequent measures, for once constituted the structural changes cannot be remedied.

The local treatment requires absolute oral hygiene, prohibition of smoking and the avoidance of irritating foods, sweets and spirituous liquors. The frequent use of alkaline and soothing mouth washes is indicated, especially after eating, for the removal of food particles lodged in the fissures. Repeated painting of the erosions and raghades with a 20% solution of chromic acid usually gives prompt relief, or the lesions may be touched with chromic acid crystals, or a finely pointed silver nitrate pencil.

The diagnosis of lobulated glossitis is based upon the characteristic lobulation, deep induration and irregular fissuration as well as the general appearance of the tongue, which is more or less deformed, mammillated, eroded or ulcerated and covered here and there by

whitish, gray or deep red patches and cicatricial bands, the picture varying with the extent and degree of the morbid process and the age of the lesion. The diagnosis is further confirmed by the syphilitic antecedents and serological results.

Epithelioma may resemble some of the ulcerated lesions of sclerous glossitis, but lingual epithelioma is relatively circumscribed and constituted in its early period by a red vegetating mushroom-like growth, or else by an excavated crater-like ulceration, surrounded by thick, elevated and everted borders of an almost cartilaginous hardness. The growth usually bleeds easily on the slightest provocation, while the breath and saliva have the characteristic fetid cancerous odor. The tongue is moved with difficulty and sometimes almost immobilized, while the painful symptoms, often of a lancinating character, are far more accentuated than in lobulated glossitis. Glandular involvement is also present in developed epithelioma and absent as a rule in sclerous glossitis.

Gummata of *the tongue* occur less frequently than the sclerous forms of glossitis. They may be superficial and limited to the mucous membrane or else affect the deeper muscular structures.

The superficial gummata are situated on the dorsum of the tongue and consist of gummatous tubercles the size of a split-pea or small shot. Sometimes there is but one, but more often three or four are found, while occasionally they may be numerous and grouped in horse-shoe or crescentic shapes. At first they feel like little round bodies imbedded in the lingual surface, but after a certain time they soften and following the usual evolution of gummata, end finally in small deep ulcers corresponding to the size of the lesion.

The *deep* or *muscular gummata* correspond to the subcutaneous gummata. They are submucous and affect the deeper tissues of the tongue, but invariably point and open on the dorsum. There may be only one lesion, but two or three may exist, varying in size from that of a bean to that of a small olive or almond, occasionally somewhat larger. They pursue the usual course of gummata, and are at first felt as hard masses lodged in the lingual tissues. As they develop and increase in size a certain amount of swelling or protuberance of the surface marks their site. The protuberance is smooth, may be elongated, ovoid or round, and is sometimes very pronounced and deforms the tongue. Such lesions may remain in the crude state for two or three months, then soften and terminate in ulcerations. The ulcers are usually elongated and correspond to the long axis of the tongue (see Plate **156,** Fig. 256), but they are also frequently round or oval,

notably deep—surrounded by a hard indurated deep-red zone—and present the gummatous characteristics of vertical, adherent borders and a yellowish irregular floor.

The diffuse form is rare and is due to an irregularly disposed gummatous infiltration, which may persist for long periods and terminate in ulcerations of various irregular shapes (see Plate **154**).

The evolution of lingual gummata is slow and generally painless; but when the terminal ulcerations have developed, painful symptoms due to the local irritation appear. The food lodges in the ulcerative cavities, which become irritated, sensitive, and some degree of functional impairment is usual. The local care demands a soft unirritating diet and the same measures adopted in sclerous glossitis, excepting the cauterizations, which are never well borne.

The terminal scar is frequently linear and represents usually a much smaller loss of tissue than might be expected from the sometimes large size of the ulcer.

Tuberculous ulcers may simulate the appearance of gummatous lesions, but tuberculous ulcers are generally not as deep, while the characteristic gummatous induration is wanting. The borders are more ragged and sometimes undermined or detached instead of vertical and adherent. The base presents a brighter yellow, touched here and there with orange red, or else may present a red granular surface. It is also more painful and bleeds easily. Tubercle bacilli are usually found in the necrosed tissue from the bottom of the ulcer, and concomitant evidences of laryngeal or pulmonary tuberculosis are generally present.

Leucoplakia Buccalis

This name was introduced by *Schwimmer* to denote an affection due to a localized keratosis of the buccal mucous membrane. Since then it has been described by different authors under the names of *leucoma, leucoplasia, tylosis, keratosis linguæ, psoriasis buccalis, ichthyosis buccalis,* etc.

Syphilis is a strong predisposing factor, and probably the most frequent cause of leukoplakia, but it is also observed in individuals who have never had syphilis, in gouty persons, and as the result of long-continued irritation due to rough, projecting teeth, excessive smoking and other irritating causes (glassblowers are often affected).

According to *Sabouraud,* syphilitic leukoplakia is characterized by its exclusive localization on the dorsal aspect of the tongue, the syphilitic origin being doubtful when situated on the cheeks or lips.

The lesions consist of white or lactescent spots, bands or patches, presenting a mother-of-pearl luster and situated on the dorsal aspect of the tongue and its lateral borders.

The leukoplasic patches are due to a localized keratosis developing upon a sublying sclerosis, and present a smooth, level surface, which to the touch gives a slight sense of resistance or leathery feel. The borders, although susceptible to many irregularities, are usually well-defined and contrast with the surrounding red surface. The affection, like all other syphilitic lesions of the tongue, is far more common in men and is comparatively rare in women. It occurs during the tertiary period as a rule, and is a frequent sequence of sclerous glossitis, and from its character is usually ranked with the parasyphilitic affections.

Leukoplakia gives rise to but few symptoms, a certain amount of stiffness of the tongue is complained of, while the affected parts lose their normal sensitiveness and feel as though covered by a foreign substance. Painful complications due to linear erosions or excoriations are frequent and result from the same irritating causes found in other syphilitic affections of the mouth and tongue.

The duration of leukoplakia is unlimited, it persists in spite of all forms of treatment, and is, furthermore, apt to lead to the ulterior development of epithelioma.

In the diagnosis it is necessary to exclude essential leukoplakia, dental glossitis, smokers' patches and the buccal lesions of lichen planus.

Gummata of the *soft* and *hard palate* are not infrequent, and sometimes they occur on the lips or at the angle of the mouth. (Plate **155,** Fig. 254, shows such a gumma in the period of softening.)

The soft palate may be the seat of grouped tuberculo-ulcerative syphilides, or of an isolated gumma, but the diffused infiltrative form is much more common and may involve a part or the whole of the soft palate. As the infiltration becomes constituted the soft palate assumes a dark red color of a much deeper hue than that of the surrounding parts. It is visibly thickened and swollen, indurated to the touch, and more or less immobilized by the infiltration, while at the same time the normal contour of the free borders and arches is lost, thus producing more or less deformity. It may remain in this condition for some time; it then softens and finally opens through a small orifice, which rapidly enlarges and becomes converted into an ulceration. This may extend and invade all of the infiltrated tissue, which it may perforate or totally destroy, the result being more or less extensive

mutilations, or even complete loss of the soft palate (see Plate **153,** Fig. 250).

The development is insidious, unaccompanied by pain, and during the infiltrative period the lesion gives comparatively slight functional disturbances; but when perforation or division of the palate takes place (and this occurs without warning), the functional impairment is at once evident and marked, and consists in a *sudden* alteration of the voice, which becomes nasal, and an accompanying difficulty of articulation, which may render the speech unintelligible. In addition, as the ulceration extends, the act of swallowing causes the regurgitation of liquids through the nose. The resulting deformities constitute permanent impairments, varying in character and degree, and depending upon the nature of the post-ulcerative adhesions.

Sometimes the perforation is constituted by a round orifice, which, as it repairs, contracts down to a small opening, which subsequently may be made to close by cauterization of the edges. At other times the palate may be divided at one or both sides of the uvula, which is left hanging free, while the flaps retract like a pair of curtains and form posterior adhesions with their inferior and free extremities. In severe and phagedenic types the uvula and soft palate may be totally destroyed.

The hard palate is less frequently affected, but it is also the seat of tuberculo-ulcerative syphilides, which leave irregular ulcerations with a yellowish base; these are succeeded by pigmented post-ulcerative scars. (See Plate **152,** Fig. 248.) Isolated gummata involving the periosteum and bony tissues also occur; these terminate in perforation. (See Plate **153,** Fig. 251.)

Phagedena is a serious complication of the tertiary ulcerative lesions. Although rather common in former years, it is comparatively rare at the present time, and only occasionally seen in private practice. The etiology of syphilitic phagedena is not well understood, but among its recognized causes the absence or insufficiency of early systemic treatment is the most potent. Neglect, want of local care, uncleanliness and irritation are contributing factors, while debilitated or impoverished organic conditions due to poverty, alcoholism, senility, excesses and inherited tendencies play a large part. The character of the soil is also an important factor, for phagedena may develop in young and apparently robust individuals, who seemingly have a morbid tendency or lack of resistance to infections, and this is exemplified in the precocious appearance of tertiary lesions in the malignant form of syphilis. The malignancy has been attributed to the source of in-

fection or to the virulence of certain strains of treponema pallida; but an infection contracted from an ordinary and benign syphilis may develop into a severe and malignant form, and per contra, this may beget a mild type. As a rule, phagedena is a late complication and limited to the tertiary ulcerations, the initial lesion which is sometimes attacked forming an exception. Phagedena may complicate any lesion wherever situated, but it exhibits a preference for the face (nose particularly, see Plate **156,** Fig. 257), the fauces and genitals.

Tertiary malignancy, or *phagedena,* is a destructive process, characterized by an exaggerated intensity in the development and progress of the ulcerative lesions. Under its influence these spread, become amplified and attain unusual proportions; thus an ulcerative syphilide, while retaining its usual objective features, may extend and involve a very large surface, a half or two-thirds of the thigh, or it may cause large excavated ulcers of the leg, or else the back may be the seat of rupial incrustations as large as the palm, etc. The morbid process is sometimes of an inflammatory type. The lesion then presents an angry or livid red color and is surrounded by a deeply injected hyperemic areola, the secretion is abundant and sanguinolent, while its extension is rapid. More often it assumes a gangrenous form. The affected part presents small areas of a dark brown or black color, or else a massive gangrene involving a large surface may take place. In this manner a large tegumentary area may become stricken by gangrene and become inky black. (See Plate **130,** Fig. 212, and Plate **162.**) A nostril may become gangrenous and be cast off as an eschar, the whole evolution being completed in a few days.

The phagedenic process may extend in surface or in depth, as in the perforative variety, and although rare, it is possible for both to be associated in the same lesion. The degree of the morbid action varies greatly; it is sometimes comparatively benign and limited to a single part, a nostril, a vulva or the glans penis, or it may affect a whole region of the skin, the genitals, the nasal fossa, or throat, and it may also attack different regions in succession.

The superficial variety enlarges eccentrically through peripheral extension. An ulcerative tubercle becomes surrounded by a series of tubercles which undergo the usual evolution, soften, ulcerate and become merged with the original ulcer; a fresh series develops and follows the same course, and thus the lesion progresses through the invasion of successive peripheral zones. At the same time repair takes place in the original ulcerations in the order of their appearance, so that a lesion may present at one time all periods of evolution.

The diffuse gummata progress in the same manner through the peripheral extension and ulceration of the infiltrate. These serpiginous forms, so described from their creeping and snake-like mode of progression, differ from the ordinary forms by their greater extent and more rapid course. (Compare lesions in Plate **151,** Fig. 247, and Plate **157.**) The lesions may be circular, kidney-shaped, or describe wide curves, depending upon their mode of extension. (See Plates **157** and **162.**)

Another serpiginous form proceeds in long, curved, undulating eruptive bands of limited width. In this snake-like form the advancing ulceration corresponds to the head, while repair takes place at the tail. *Fournier* describes such a lesion, which, starting from the middle of the back, proceeded horizontally to the antero-lateral portions of the thorax, covering a distance of more than twenty inches, while the width of the lesion did not exceed three to four fingers' breadth; and another, which, in the form of a narrow band one to two inches wide, described a large circle around the left scapula and covered a distance exceeding twenty-five inches.

The *perforating* or *terebrating* form is the most serious, for it extends in depth and destroys all the tissues in its path. It attacks the skin, mucous membranes, cellular tissues, aponeuroses, muscles and bones. It may bring about extensive destruction of the scalp, expose the bones of the skull (see Plate **152,** Fig. 249), or even perforate them and lay bare the coverings of the brain. It may destroy all the nasal bones, the orbit, and expose the eye, or it may perforate the urethra, the recto-vaginal wall or bring about the partial or complete destruction of the glans, scrotum, labia, nose, ears, hard and soft palate, etc.; or else cause deep excavations, denude the muscles and expose arteries, veins and nerves.

Fournier describes a case coming under his observation in which, through the total destruction of the nasal bones, the ethmoid, hard and soft palate, the mouth and the rami of the superior maxillary bones, the face was converted into a huge cavernous opening, the pharynx itself being a mass of cicatricial tissue. Even more extreme cases are recorded, while the older writers in their descriptions give almost incredible accounts of the terrible mutilations wrought by the disease. Very fortunately these extreme cases are exceedingly rare, and may be ranked with other pathological curiosities.

The cicatrices left by the malignant forms of syphilis correspond to the lesions. They are frequently disfiguring, and may represent severe mutilations. They may also form dense bridles, atresias

and adhesions, which still further cripple the functions of parts affected.

The evolution may be rapid or slow, and may affect any grade between these two extremes. Ordinarily the perforating forms progress rapidly, while the superficial forms may be almost chronic. This is exemplified in the large cutaneous lesions of the trunk and extremities.

Hereditary Syphilis

Children who inherit syphilis may present evidences of the disease at birth or they may within a few days develop *pemphigus,* an eruption composed of straw-colored and wine-colored bullæ distributed on the hands and feet, also to some extent on the extremities, and which almost always ends fatally. (See Plate **158,** Figs. 259 and 260.) Ordinarily, the symptoms do not develop until later, and frequently children are to all appearances normal at birth; but when four to eight weeks old, sometimes later, they develop cutaneous manifestations similar to the secondary eruptions of the acquired disease. In infants the eruptions are usually of an erythematous, papular or scaly type, and owing to the delicate texture of the skin these are more apt to become confluent, or eroded and moist, than in adults.

The erythema or roseola consists at first of rose-colored spots, which later assume a dusky red hue, from which the color does not disappear on pressure. The eruption may be more or less confluent, and sometimes forms diffused patches. It is distributed over the abdomen, back, neck, genitals and extremities.

The papular type is well characterized and may coexist with the roseola. It is ordinarily distributed on the face, trunk, buttocks, genitals and extremities (see Plates **159** and **160**). The eruption may be scaly, and this is not infrequently seen on the face, where its appearance may suggest an eczema, from which it differs by its papular base. It may also be diffused and form more or less extensive plaques slightly raised above the surrounding surface. Papules situated in the axilla, genital folds, intergluteal and perianal regions are apt to become eroded and moist, and through fusion form the flat condylomata so often found near the anus. Impetiginous or papulo-pustular forms occur on the face and forehead, sometimes on the trunk (see Plate **148,** Fig. 241, and Plate **143,** Fig. 232). Acneiform elements are also observed in the scalp. The papulo-vesicular or herpetiform variety is of rare occurrence, while ecthymatous forms do not appear until late and as a rule in severe cases only.

Erosions and mucous patches accompany the cutaneous eruptions and occur on the lips, tongue and inside of cheeks, particularly at the labial commissures. Their tendency to ulcerate is greater than in adults. Papules developing at the angle of the mouth and on the borders of the lips become moist, fissured, and form scabby lesions, which, upon healing, leave fine, radiating linear scars that are pathognomonic of syphilis.

Snuffles of a well-marked and persistent character is usually present. The coryzal symptoms may appear with the roseola, and papules also develop at the nasal orifices and form scabby lesions, which interfere with the breathing and nursing of the child. (See Plate **160,** Fig. 262.)

While some children remain apparently well during the course of these manifestations, the great majority show the effects of the systemic invasion and become puny, emaciated and shrivelled as if prematurely aged.

The secondary symptoms usually disappear under suitable treatment and the child recovers and may remain well for some years.

The effects of inherited syphilis may be very marked. Affected children develop badly; they remain small, puny and delicate. At the period of the second dentition, the upper incisor teeth present the stigmata of the disease in a peculiar notched malformation, first pointed out by *Hutchinson* (see Plate **161,** Fig. 265). Such children, when older, are also very prone to develop affections of the cornea and of the ear, leading to deafness. The malformation of the incisors, the keratitis and otitis, constitute the well-known *Hutchinson's triad,* and all three are sometimes present in the same individual. At puberty the generative organs do not develop normally, and the ovaries and testicles may remain immature in a state of infantilism.

Tertiary gummatous lesions may develop in early adolescence or not until the adult age (the late hereditary form). They follow the same evolution as in the acquired disease, and result in deep ulcerative processes, which most frequently attack the face, where they may destroy the nose or eye and leave deep disfiguring scars. The destruction of the nasal bones results in a characteristic deformity (the *saddle-back nose*), caused by the sinking in of the nose through the loss of its supporting bony frame. (See Plate **161,** Fig. 264.)

Deep and destructive lesions also occur on the extremities as in the acquired disease. Plate **162** shows deep phagedenic and gangrenous ulcers of the thigh. (Note the extensive scars.)

Diagnosis and Treatment

Diagnosis

The discovery of the treponema pallidum, the introduction of the serum test of *Wassermann, Neisser* and *Bruck,* the luetin reaction of *Noguchi* (Lumbar Puncture, *see* Appendix, p. 378), and *Ehrlich's* salvarsan, with its later modification neo-salvarsan, have practically revolutionized both the methods of diagnosis and treatment.

Prior to these discoveries the diagnosis of syphilis rested altogether on the anamnesis and the clinical evidences presented, while in doubtful and obscure cases the only recourse was the empirical therapeutic test based upon the assumption that, if syphilitic, the condition would be relieved by specific treatment. The treatment was likewise delayed until the provisional diagnosis was confirmed by the appearance of the secondary phenomena.

The diagnosis of syphilis at the present time depends upon the demonstration of its causative factor, the history and clinical evidences presented and the serologic and cutaneous reactions.

The *treponema* is the earliest discoverable evidence of syphilis and when found in the primary lesion, furnishes absolute proof of its specific nature; hence it should always be sought for in all suspicious local lesions however innocent or benign they may appear. It is present in the early period of the primary sore and can be demonstrated in the great majority of cases unless the sore has been locally treated with antiseptics, mercurials or cauterized, for these measures cause its disappearance. In that event it may be sought for in the enlarged inguinal glands according to *Hoffmann's* method. During the secondary period it is found in the mouth lesions, moist papules, condylomata, etc.

The clinical evidence offered by the typical cutaneous syphilitic eruptions is so characteristic that no other confirmation is required. The antecedents and the frequent presence of concomitant symptoms, mucous patches, condylomata, adenopathy, angina, alopecia, etc., still further establish the diagnosis irrespective of the serologic findings which may be negative in the presence of active lesions.

Sero-Diagnosis

In the absence of definite data and characteristic symptoms the complement fixation reaction, generally known as the *Wassermann test,* gives most valuable aid in the diagnosis of syphilis. It is particularly valuable for the recognition of latent and obscure forms and as a guide for the control of treatment.

The reaction is also present in yaws or frambœsia tropica and in leprosy. It has been reported in late tuberculosis, carcinoma, malarial fevers, pneumonia and scarlatina, but even when syphilis can be excluded, such findings, according to *Bruck,* are doubtful and due to faulty technique.

Aside from these easily excluded affections and according to our present knowledge, a well-marked positive reaction showing a complete absence of hemolysis signifies that the individual has at some time contracted syphilis, but it does not follow that a given symptom or lesion is for that reason specific, for syphilitics may, like other people, suffer from other ills.

A negative reaction, per contra, does not always denote the absence of syphilis, for it may be negative in the florid period and in the presence of active secondary or tertiary symptoms. Thus *Craig* (Journal A. M. A., Feb. 22, 1913), from the examination of 3,381 syphilitics, found the reaction in the

Primary stage	10	per cent. negative.
Secondary stage	nearly 5	per cent. negative.
Tertiary stage	nearly 14	per cent. negative.
Latent stage	nearly 35	per cent. negative.
Congenital syphilis	over 10	per cent. negative.
Parasyphilis	over 32	per cent. negative.

and that furthermore a strongly positive reaction is rendered temporarily negative by the ingestion of from 90 to 120 cc of whiskey on the day preceding the examination.

A negative reaction may also become positive through the administration of antisyphilitic remedies, this so-called provocative reaction being in all probability due to the liberation of organisms hidden in the lymph-nodes or elsewhere; hence a number of factors, some of which are known, may influence the reaction.

The *Wassermann* test is most useful as a guide to treatment and for its control. The reaction fluctuates under the influence of treatment; however, if this is adequate, it generally becomes weaker and finally disappears, but may shortly relapse to positive upon its dis-

continuance, so that the first negative reaction cannot be regarded as an indication for the cessation of treatment. When the reaction remains negative after repeated examinations, the treatment is stopped and fnrther tests made at intervals of two to three months. A negative phase persisting for a year or more is only presumptive evidence of cure, as it is not yet known for how long a time the reaction may remain negative and still relapse to positive. The added confirmation of a negative *luetin* reaction would greatly strengthen the presumption, bnt at present reinfection furnishes the only absolute proof of a cure having taken place.

The conversion of a positive *Wassermann* to a permanent negative reaction is more difficult in the latent than in the earlier stages and is sometimes impossible, no matter what treatment may be used.

A strongly positive reaction signifies syphilis and furnishes an indication for treatment.

A single negative reaction has no diagnostic value; it may mark the beginning of a negative phase and thus furnish information as to the effect of treatment. An individual with a history of syphilis should never be declared free from it as the result of a single negative reaction.

The diagnostic value of a negative reaction depends upon its permanence in the absence of clinical symptoms and as the result of treatment. An arbitrary period of one to two years is generally mentioned as a probable indication of cure, but the reaction has returned after more than one year's absence.

In the presence of typical clinical evidence the *Wassermann* test is of secondary importance.

The *luetin* test of *Noguchi* is similar in principle to the *von Pirquet* cutaneous test for tuberculosis, and consists of an emulsion prepared from killed pure cultures of the treponemata pallida, which, injected into the skin of syphilitic subjects, produces a specific cutaneous reaction, characterized by a localized inflammation at the inoculated point and the formation of a papule. A control fluid serves to differentiate and measure the reaction. The formation of the characteristic papule constitutes a positive reaction. In normal individuals the result is a slight erythematous area at the inoculated point, which is unaccompanied by either pain or itching and which gradually subsides within 48 hours, leaving no induration. The reaction in luetics develops usually within 48 hours, but may be delayed in some instances as late as three or four weeks after inoculation (*Noguchi,* Jour. A. M. A., Oct. 5, 1912). It varies in intensity from a small papule to a later

indurated pustular formation, lasting several days. The results obtained thus far by different clinicians show the *luetin* reaction to be specific for syphilis, that it is present in the majority of cases in the tertiary and latent periods, and in hereditary syphilis, but that it is not so constant in secondary cases that have not been treated.

Per contra, the Wassermann reaction is present in over 95 per cent. of secondary cases, but is negative in about 14 per cent. of tertiary cases, and in nearly 35 per cent. of latent cases, these being the periods in which the luetin reaction is most constantly present; hence its great value in determining the presence of syphilis in Wassermann-free cases. If, as a result of treatment, a prolonged negative Wassermann is obtained, the luetin test should be used to confirm the absence of syphilis; if both are negative, the presumption of cure is greatly augmented and justifies a better prognosis or vice versa.

Treatment

The demonstration of the *treponema* in the primary lesion at once establishes the diagnosis and permits the immediate initiation of treatment instead of waiting as formerly for the advent of the secondary manifestations, thus much valuable time is gained and treatment instituted at an early period when it can be most effective in destroying the invading organisms, preventing or minimizing the later symptoms and greatly increasing the probability of an early cure.

The treatment of the cutaneous eruptions is that of syphilis, of which they only constitute an external or visible manifestation. Locally, they demand the same general care that is given other skin affections; cleanliness of the skin is essential, baths of a soothing and emollient character (bran or starch), are beneficial and grateful. Parts subjected to friction and rubbing, or that are normally moist, should be dusted with talcum powder, etc., to prevent the development of moist lesions, particularly in children, who are very prone to them. The care of the mouth and teeth cannot be too strongly insisted upon; smoking should be prohibited, for it is the most potent factor in the development of the annoying and recurring mucous patches and the severer forms of mouth lesions. This is illustrated by the great disproportion in the frequency of these lesions in men who smoke, as compared to women and non-smokers. The necessity of oral hygiene is still further indicated to prevent the toxic effects of mercurial medication (salivation, gingivitis, etc.).

General hygiene is most important. Syphilis reacts differently on different organisms. In some the general health is apparently very little affected, but others show its systemic effects in many ways, and

by lessening the individual resistance may open the path to other ills. Hence all means should be used to combat the depressing effects of the disease, by regulating the habits, giving proper food, tonics, etc., for the administration of mercurials, salvarsan or iodides does not constitute all of the treatment of syphilis.

The individual must also be treated. To some the very name of syphilis inspires terror, and in such the consciousness of the disease is apt to produce a severe mental shock, begetting loss of ambition and morbidity. Others become timorous, self-centred, and develop into confirmed neurasthenics, with all kinds of phobias. Such people must be encouraged, buoyed up, and the probability of an early cure through the newer methods held out to them. The majority, however, are more apt to be careless, and indifferent, provided the present symptoms are relieved; they are irregular in following the treatment, and it is difficult to make them understand or appreciate the possible consequences of their neglect.

Mercury, the arsenical compounds (*salvarsan* and *neo-salvarsan*), and the *iodides* constitute the antisyphilitic remedies; both mercury and salvarsan act as specifics by destroying the treponemata pallida with which they come in contact and are curative. The iodides are not curative in the same sense, for they are not spirillicidal, but they act energetically against a certain order of lesions and are invaluable as part of the syphilitic therapy, especially when combined with mercury in the form of mixed treatment.

Mercury is active in all stages of syphilis. Under its use, the cutaneous manifestations subside and disappear rapidly; but to this there are occasional exceptions, for certain obstinate secondary forms of a lichenoid papular type or palmar and plantar eruptions are sometimes rebellious and may persist for a long time. The lesions of the mouth are sometimes rebellious and relapse repeatedly, while old chronic tertiary ulcers and tertiary palmar syphilides are notably refractory to treatment; but aside from these exceptions, the effects of mercury in causing a rapid disappearance of symptoms is very marked.

Mercury may be administered per os, through the skin by friction, and by hypodermic and intramuscular injections; it is also given by intravenous injections, but this method has not come into general use. The therapeutic action of the drug is secured, however introduced, but its effects vary in degree of efficiency with the method used.

The internal administration was for many years the method of choice, and it probably remains the one most widely used to-day, but

it presents certain disadvantages, for it is apt to disagree and produce gastro-intestinal irritations, necessitating temporary suspension of treatment. The dosage cannot be increased sufficiently to produce a rapid and intense effect, and the treatment is more likely to be carried on irregularly than by more precise methods; but it renders good service when these cannot be adopted

The protiodide, gr. ⅛ to ½, three times daily, or the biniodide, gr. 1/20 to gr. 1/12, three times daily, are the most commonly used preparations.

Mercurial rubbings furnish a rapid method of introducing the remedy into the system and for securing quick results, but it is a dirty procedure and its effects are difficult to control, for of all methods it is the one most likely to cause salivation, hence it must be watched and the number of rubbings included in one series limited to twelve. This method is largely used in the treatment of children, and is preferred by some continental clinicians following the use of salvarsan or neo-salvarsan. Mercurial ointment is employed in doses of 3i to 3ii; the rubbings should be made in different regions at night and followed by a bath on the following day. In children the dose should not exceed 3ss.

Injections may be made with soluble or insoluble salts. The soluble injections are made into the *subcutaneous* tissues with an ordinary hypodermic syringe, the interscapular regions being the usual site. The preparations most commonly used being the benzoate of mercury and the biniodide.

Hydrarg. benzoate	1 gram.
Sodium chloride pure	2 grams.
Distilled water	100 cc.

15 to 30 minims to be injected daily.

or

Hydrarg. biniodide,		
Sodium iodide (chemically pure)	āā.	0.10 centigram.
Aq. dest.		10 cc.

15 to 30 minims to be injected daily.

The soluble preparations have the disadvantages of being more or less painful and of requiring daily administration, to which most patients object. Their effects are rapid but not durable; for that reason the intramuscular injections of the insoluble salts are to be preferred.

The intramuscular injections are generally used when an intensive mercurial action is desired and for routine use.

Calomel is the most active and intensive but also the most painful. The injection may be prepared with sterilized olive oil or liquid petrolatum.

Calomel ..... 0.50 gram.
Olive oil ..... 10 grams.
15 to 20 minims to be injected weekly.

The *salicylate* of mercury is most generally used for routine injections; it is made up in 10 per cent. suspensions with sterilized liquid petrolatum, each 10 minims representing one grain of the drug, which is the usual dose; but this may be increased to 15 or 20 minims to obtain a maximum effect if indicated; the injection is repeated weekly.

Gray oil or the *ol. cinereum* of *Lang* is preferred by some. The intramuscular injections should be made deeply into the gluteal muscles alternately, and the most careful aseptic precautions observed. The needle should be withdrawn rather quickly so as not to leave any of the preparation in the tract, as this causes a painful swelling. Pulmonary embolism is an accident sometimes observed after the injection of insoluble salts; it comes on quickly and is characterized by some oppression of the chest or by tickling and coughing. The attack may last an hour or two and then pass off. The accident is infrequent and usually of no significance.

Iodide of Potassium finds but few indications in the secondary stage, except in early ulcerative and phagedenic lesions. It is useful in the recurrent mouth lesions and for the relief of periosteal and meningeal pains, but it is when directed against the tertiary gummatous and ulcerative lesions that its action is most manifest and marked. It is not so efficient in the dry or squamous tubercular eruptions. Its action in gummata of the tongue and soft palate is remarkable, and it is wonderful to observe how rapidly a gumma of the soft palate at the point of rupture and threatening its destruction, will resolve under adequate doses of iodide. It is useful in most of the tertiary symptoms; but to secure its therapeutic effects it must be given in sufficient quantity. The ordinary dose of ten to twenty grains two or three times daily may suffice, but much larger doses may be required, and where a rapid action is necessary, as in gumma of the soft palate, 3i to 3ii daily should be given and much more if necessary. Thus in the case, coming under the writer's care, of a young man suffering from a cerebral syphilis, marked by active delusions and hallucinations, no perceptible improvement was noticed until the dose exceeded 3iv daily;

the quantity was rapidly increased until the enormous total of nearly ℥iii per day was reached, when complete recovery took place and was maintained until last seen several years later. *Kingsbury* has administered the iodide intravenously in doses of ʒii in cases of cerebral syphilis with good results. In the administration of iodide of potassium care should be taken to test the susceptibility of the patient; ten grains may cause a distressing anginal swelling, and the ordinary toxic phenomena of coryza and acne may be excessive.

Mixed Treatment

The combination of iodide of potassium with mercury forms the most generally useful and effective treatment in the tertiary and latent periods. It is best administered separately, the mercury under the form of intramuscular injections or per os, and the iodide in the form of a 50 per cent. solution, of which two minims represent one grain of iodide. In this manner the dosage of the respective drugs may be increased or decreased according to indications; thus in the dry squamous tubercular syphilides the proportion of mercury should be larger, whereas in the ulcerative forms the iodide should be in excess.

Salvarsan

The early enthusiasm over this remedy, caused by the extravagant reports sent forth, have given way to a more just and conservative estimate of its value. It is now known that it cannot be said to cure syphilis any more than mercury does, that relapses are frequent following its use, and that only exceptionally does it cause a permanent disappearance of the Wassermann reaction. On the other hand, it has shown itself to be a most powerful symptomatic remedy for syphilis. It causes a more rapid disappearance of the symptoms, and will bring about the resolution of old chronic lesions that have proven refractory to mercury or the mixed treatment; but sometimes its effects are not so satisfactory. Its power seems to be in direct ratio with the age of the disease. Given in the primary period, it usually brings about a rapid cicatrization of the chancre and may prevent altogether the secondary phenomena, and in some reported instances it seems to have brought about a complete sterilization, as shown by subsequent reinfection. In the secondary period it causes a more rapid disappearance of the infective and recurrent moist lesions, mucous patches, etc., but its effects on the papular forms are sometimes no better than produced by mercury; while in the tertiary and latent periods its superiority is not always demonstrated.

Salvarsan presents greater dangers in its administration than does mercury, for a number of fatalities have been reported, and neuro-recurrences are far more frequent. Certain contraindications to its use have been pointed out by *Ehrlich.* Among these, affections of the auditory and optic nerves, non-compensated heart lesions, arterio-sclerosis and nephritis. Salvarsan, like mercury, is a specific, for it destroys the treponemata and is indicated in all periods of the disease.

Neo-salvarsan is a modification of salvarsan, which, from its lesser toxicity, greater solubility, neutral reaction, and equally good therapeutic effects, is generally used in preference to the older remedy.

The intravenous method is generally employed for its administration. It dissolves freely and rapidly when poured on the surface of the water, which should be freshly distilled (from 150 to 200 cc is sufficient). The solution should be prepared at the time of administration and used immediately, with all aseptic precautions. The average dose for males ranges from 0.6 to 0.75 and from 0.45 to 0.6 gram for females, but smaller doses are advisable in the beginning of treatment. Further experience has also demonstrated that the best results are obtained by combining mercury and neo-salvarsan.

Given a case in the primary period and presenting no contraindications, an initial dose of neo-salvarsan of from 0.15 to 0.3 gram is given, followed in seven days by one of 0.3 to 0.45 gram, and this is repeated weekly until four to six injections have been administered. Between the injections of neo-salvarsan an intramuscular injection of mercury is given, and these mercurial injections are continued afterward. When the injections of neo-salvarsan are begun during the florid secondary period, a short preliminary course of mercurial injections is advisable to prevent severe reactions and the development of neuro-recurrences. *Ravaut* (*Presse médicale,* 1er mars, 1913) uses concentrated solutions of neo-salvarsan which he administers intravenously by means of an ordinary glass hypodermic syringe, 10 cc of distilled water being sufficient to effect the solution of the larger doses, 0.75 gram or even 0.90 gram. The treatment is initiated with a dose of 0.45 or less; the injections are repeated every eight days and the dose progressively increased, provided the preceding one has been well tolerated, the doses being successively increased from 0.45 then 0.60—0.75 and 0.90. A thermic reaction is noted in primary cases that have received no anterior treatment. In those having had some preliminary treatment or in whom the chancre was recent, no reaction was observed. In individuals presenting active lesions or in the latent period and who had not been recently treated, the first injection was

followed by a febrile reaction, its absence being exceptional, whereas after the following injections absence of fever is the rule and its presence the exception.

As a result of his experience, *Ravaut* makes the following deductions:

1. To begin treatment with a small dose.
2. To allow an interval of at least eight days between each injection.
3. If the injections are well tolerated, to progressively increase the dose, which, however, should never exceed 0.90 gram.
4. Aside from the first injection, which may sometimes determine some fever, nausea, etc., the other injections should be apyretic.
5. If, after an injection, signs of intolerance are manifested and these have disappeared at the end of eight days, the injection may be renewed, but without increasing the dose. If, however, the manifestations persist after eight days, the dose should be diminished or the injection postponed until they have subsided. If the following injections are well borne, the dose may again be increased.
6. If the signs of intolerance recur notwithstanding the reduced doses, it is advisable to have recourse to mercury and stop the use of neo-salvarsan.

The advantages claimed for the concentrated method is its great simplicity, the uniformity of results and the elimination of possible dangerous factors due to the distilled water, since in this method the quantity used is so small as to render its ill effects negligible, for even the ordinary commercial distilled waters have been used. The technique is simple, but great care must be taken to see that the needle is within the lumen of the vein.

The rectal administration of salvarsan was first suggested by *Geley*, of *Annecy*. *Luis del Portillo*[1] from a series of experiments found that weekly intestinal injections of an alkaline solution of salvarsan in rabbits during a period of six weeks produced no ill effects and that the intestinal mucosa of the killed animals presented microscopically no detectable alterations.

Rajat, director of the bureau of hygiene of Vichy, who has employed this method in 125 instances, claims results equal to those obtained by intravenous or intramuscular injections, and he reaches the conclusion that rectal administration should be the method of choice

[1] Dr. *Luis Del Portillo*, Tecnica de la applicacion del "606" por la via rectal. *Revista española* de dermatologia y sifilografia.—No. 163, Juillet, 1912.

from the advantages it presents; these being its innocuous, painless character and simplicity. Febrile reactions were not observed and only very slight after-effects, such as transient vertigo, were noted. He considers the method particularly applicable in reduced dosage for the treatment of children. It would be equally so in cases presenting contraindications to the intravenous method by reason of arterial hypertension or non-compensated heart lesions.

The technique is simple and consists in a preliminary cleansing, entero-clysis, on the day of injection and the administration of an opiate to control the bowel. An alkaline solution of salvarsan, in 120 cc of normal solution, or neo-salvarsan, may be used. The patient being in the lateral decubitus the injection is given by means of a small rectal tube or rubber catheter connected with an ordinary glass funnel, slightly elevated above the patient so as to allow the solution to flow very slowly into the bowel; or a syringe of sufficient capacity may be employed. The usual aseptic precautions should be observed, and the patient kept at rest after treatment.

The method of treatment will often be governed by circumstances. In suitable cases and when there are no contraindications, the combined neo-salvarsan and mercurial treatment gives the best immediate results, particularly in the early stages of the disease. Either the intramuscular mercurial injections or mercurial rubbings may be employed in combination; the rubbings are much used on the continent of Europe, and are preferred by some authorities. When the neo-salvarsan treatment cannot be adopted, the choice of mercurial methods will lie between injections, rubbings or internal administration. Injections are to be preferred as being more definite in dosage and more easily controlled. The insoluble injections require less frequent administration and are productive of more durable results. Mercurial rubbings are very effective, but present the objectionable features mentioned. In certain cases the internal method is the only recourse, for sometimes sensitive patients will refuse any other form of treatment, and under certain conditions it is the only possible method, as with individuals constantly travelling, living on shipboard, in mining or lumber camps, or in localities where adequate medical care cannot be had. When under the same conditions the diagnostic confirmation of a Wassermann test cannot be had, it should also be remembered that the therapeutic test is still as effective as of yore, and may prove life-saving in obscure cases of possible or suspected syphilitic origin, as in developing gumma of the brain, cerebro-spinal or visceral syphilis, etc.

The Simple Venereal Ulcer or Chancroid

Synonyms: Soft chancre (Latin, *ulcus molle;* French, *chancre mou, chancroïde, chancrelle;* German, *schanker;* Italian, *ulcero molle*).

A chancroid is a contagious ulcer affecting the skin or mucous membranes, and is usually contracted from sexual intercourse with a person similarly affected. In consequence, it is found in the vast majority of cases on the genitals in both sexes, but it may be extra-genital and result from either direct or mediate contagion and develop wherever inoculation takes place, and in experimental inoculation. It is not infrequent in the female perianal and anal regions, and is occasionally observed in other parts, such as the lips, tongue, fingers, etc. (See Plate **162,** Fig. 268.)

Etiology

The causative factor is the bacillus of *Ducrey,* so named after its discoverer. The organisms are short, thick bacilli with rounded ends, appearing in pairs, groups and singly, both within and without the cells and usually associated with other microorganisms. Smears made from the secretion of fresh ulcers are readily stained by *Loeffler's* methylene blue and decolorized by *Gram.*

The initial result following contagion is the early appearance at the infected point of a slightly sensitive or stinging red irritated spot, which within 24 hours becomes somewhat elevated and surrounded by a red areola. At the end of 48 or at most 72 hours a pustule develops which soon ruptures and leaves a diminutive ulcer, which enlarges into a generally round excavated lesion with a yellowish floor, abrupt, vertical borders, and secreting an abundant purulent contagious discharge. As the ulcer extends, and depending upon its situation, it is apt to become irregular both in contour and depth owing to the variable resistance offered by different tissues to the destructive process, which may thus burrow under the marginal skin

and leave undermined borders and overhanging edges, or penetrate deeply into the follicles, while sometimes it follows cutaneous folds, forming ragged linear ulcerations. The ulcerative floor is irregular, pitted and more or less covered by an adherent slough, difficult to remove and leaving bleeding points when detached. The discharge is usually abundant, thick, purulent and of a dirty white, yellowish or sometimes greenish color, while the base is soft or feels doughy according to the degree of inflammatory exudate present.

Chancroids are frequently multiple at the start and appear simultaneously, but the discharge from an ulcer, originally single, very often contaminates the surrounding surface and leads to the development of successive sores, which, owing to their proximity to each other, often meet as they enlarge, and coalesce to form ragged elongated lesions.

Location

As chancroids are in the very great majority of cases of venereal origin, they are usually found on the genitals, and in order of frequency they appear upon those parts most subject to abrasion or injury during coitus.

In the male, the inner surface of the prepuce, the coronal sulcus, the glans, the frenum, the preputial margins and the urethral orifice are the parts chiefly affected. The little pockets at either side of the frenum are also favorite sites, from retention of contagious material deposited in them.

In the female the parts most commonly involved are the introitus vaginæ (particularly the fourchette), the inner surface of the labia (see Plate **165,** Fig. 271), and occasionally the cervix. The vagina, from its greater resistance, is very rarely affected.

Chancroids vary in type. Sometimes they are represented by irregular superficial exulcerations or erosions, with a raw red surface surrounded by well-defined red edges, while occasionally the surface is elevated above the adjoining skin or mucous parts. At other times there may be very little evidence of inflammation and the sore has a lardaceous or diphtheritic appearance; this particular type is apt to remain stationary and have a prolonged duration. A chancroid developing upon the skin, as on the cutaneous surface of the penis or labia, is often covered by a thin brownish crust, beneath the edges of which a yellowish pus exudes upon pressure. The infection of a follicle leaves a rather deep and conical ulcer.

Chancroids also offer certain peculiarities due to their regional

location. They are generally multiple when situated on the inner surface of the prepuce and coronal sulcus, and are apt to extend in surface and present irregular undermined borders; lesions of the sulcus are usually elongated. Those occurring on the glans are most frequently round, cup-shaped, with abrupt adherent borders and tendency to extend in depth, while corresponding ulcers on the inner preputial surface are not uncommon.

Ulcers of the preputial margin are ordinarily multiple (see Plate **164,** Fig. 269), and apt to extend along the cutaneous folds. Marginal sores are generally painful from the irritation caused by urination and erections; retraction of the prepuce is difficult or sometimes impossible owing to the phimosis, which is a frequent complication.

The *frenum* is frequently the seat of linear ulceration, and is also apt to be undermined by ulceration of the subfrenal fold, which becomes perforated and sometimes leaves the eroded frenum like a thin band bridging over the little chasm. This usually leads to its rupture. Lesions of the frenum are ordinarily painful, owing to its normal sensitiveness and the irritative effects of erections.

Ulcer of the urethral orifice may affect one or both lips and sometimes extend into the urethra. (See Plate **162,** Fig. 267.) (Cicatricial narrowing of the orifice is a common result when repair has taken place.)

Extra-genital chancroids occur most frequently in the female perianal and anal regions. They are generally multiple and sometimes quite numerous, and may result from direct contagion or auto-inoculation from preexisting lesions.

Anal chancroid is, for obvious reasons, most frequently seen in women. In man it is rare and ordinarily results from sodomy.

Complications

Chancroids may be complicated by buboes, lymphangitis, phimosis, paraphimosis, balanitis and phagedena.

The *bubo* is the most common complication. It may be either simple or virulent. The simple or sympathetic inguinal bubo is a more or less sensitive glandular swelling which is generally limited to one side. It sometimes goes on to suppuration and upon opening reveals a healthy looking base while the purulent discharge is non-inoculable. Its further course is that of an ordinary abscess and is followed by prompt repair.

The *virulent bubo* is due to the absorption of contagious elements. This is followed by a painful glandular swelling which progresses

rapidly to softening and fluctuation while the skin assumes a livid or purplish red color. The opened abscess presents a deep irregular cavity covered by a foul pultaceous material and with deeply undermined edges; while the abundant unhealthy-looking pus contains the bacillus of *Ducrey* and is auto-inoculable. Sometimes the peno-dorsal lymphatics are involved and one of the small glands may break down into a small virulent abscess or bnbonocele (see Plate **164,** Fig. 269).

Phimosis is not an uncommon complication and most frequently accompanies lesions of the glans and preputial margins.

Paraphimosis is less frequent and often results from the inability to restore a foreskin which has been forcibly retracted for the purpose of examination or treatment.

Phagedena is by far the most serious complication, and as in phagedena occurring in other conditions, usually reflects a low, vitiated constitutional resistance due to acquired causes or individual tendencies rather than to any inherent property of the original morbid process.

In lesions attacked by phagedena the formerly abundant and purulent discharge becomes thin and scanty while the appearance of the ulcer also changes. It becomes dry with dark brown or black sloughing necrotic areas emitting a foul odor, the surrounding surface being generally of a livid red color. After a time the discharge becomes more abundant, the sloughs separate and are detached leaving a clean granulating surface which may proceed to repair, or else the destructive process may begin anew. In other instances the process may assume an inflammatory type and extend rapidly through a molecular disintegration of the tissues involved (see Plate **165,** Fig. 272). Vast serpiginous gangrenous ulcers sometimes result from extension to the surrounding surface of lesions situated on the vulvæ or from phagedenic buboes (see Plate **164,** Fig. 270). Serpiginous ulcers are generally chronic and progress superficially along the lines of least resistance. They may remain stationary for long periods and then take on renewed activity, unless successfully arrested.

Phagedena may cause great destruction of tissue and result in severe mutilation or deformities, thus the glans, which seems to be a favorite site may be very largely destroyed (see Plate **165,** Fig. 272); at other times the process may burrow beneath the skin for long distances. In a case coming under the writer's care the process besides destroying nearly half the glans, had burrowed under the dorsal skin of the penis which it undermined to nearly the root, and ultimately formed a long foul ulceration.

Phagedenic chancroids may become chronic and persist for months or longer, sometimes progressing slowly or remaining practically stationary with attempts at partial repair, and they are also apt to start afresh with renewed activity.

Diagnosis

The characters upon which the diagnosis is made are the short period of incubation, the lesion usually appearing within two or three days after exposure, sometimes six or seven; the multiple number of lesions, the soft and non-indurated base, the frequently undermined edges, the irregular yellowish ulcerative floor and the abundant purulent discharge which is auto-inoculable and contains the specific bacillus of *Ducrey*. The differential diagnosis between chancroid and the syphilitic-chancre with which it is most apt to be confounded, will be found under the heading of Syphilitic Chancre.

Treatment

A chancroid is a purely local condition and its effects are limited to the part affected. The aim of treatment is to destroy the virulent and specific character of the ulcer so as to convert it into a simple lesion capable of prompt repair and also to protect the surrounding surface from inoculation by the contagious discharge. For this purpose various cauterizing agents are used, chiefly solutions of silver nitrate, fuming nitric acid, carbolic acid and the actual cautery. Other substances sometimes recommended such as caustic potash, and acid nitrate of mercury are very diffusible and difficult to control, while caustic pastes of sulphuric acid and charcoal or zinc chloride present no advantages, and furthermore mask the parts.

The dressings or applications generally used subsequent to cauterization vary. Greasy substances, ointments, etc., are not, as a rule, well borne or useful, particularly when the ulcerative process is active and the discharge abundant. They are sometimes serviceable in cutaneous lesions in the period of resolution. Powders are preferable, but they also have the disadvantage of caking and disappearing from the surface they are intended to cover owing to the abundance of the discharge, hence they must be reapplied with sufficient frequency. Iodoform, although best, is not adapted for general use on account of its intolerable, permeating and tell-tale odor; for that reason, aristol, nosophen, europhen, dermatol, etc., are to be preferred. Moist dressings, consisting of a thin layer of absorbent cotton or lint moistened with a weak solution of bichloride, 1 to 4,000, black wash or aromatic wine diluted one-

third, are most useful in subpreputial lesions when the ulcerative process has abated and the secretion is slight. The dressings may be kept constantly moist, without their removal, by retracting the prepuce sufficiently to allow a few drops of the solution to fall on them from time to time.

Scrupulous local cleanliness should be maintained and all applications and dressings should be preceded by cleansing the affected parts with mild solutions of bichloride, permanganate of potash or peroxide of hydrogen diluted one-half or more, and then carefully dried. The choice of caustic will depend upon the type of the lesion. When this is of the mild superficial erosive or exulcerated variety, the daily application of a 2 to 3 per cent. solution of silver nitrate to the sore with subsequent dusting of aristol or the application of a moist dressing will generally prove sufficient to bring about resolution. In the severer types with undermined edges and sloughing irregular ulcerative floor, nitric acid or carbolic acid should be used. To lessen the pain the ulcer should first be cocainized with a few drops of a 5 per cent. solution of cocaine, or a tablet may be allowed to dissolve in the ulcer. The part should be carefully dried and a toothpick wrapped with a little cotton dipped in pure fuming nitric acid is then applied to every part of the ulcer, *particularly the undermined edges and infiltrated peripheral zone.* Carbolic acid is less efficient than nitric acid but suffices in many cases; its application should be followed by a few drops of alcohol to limit its diffusion. It has the advantage of being anesthetic and in consequence may also be used as a preliminary application to deaden the pain caused by nitric acid. One thorough cauterization is generally sufficient to abort the chancroidal process, but repetition may be necessary. The actual cautery is indicated in rapidly progressing lesions and in phagedenic types. It must be thoroughly applied and under general anesthesia.

Treatment of Complications

A threatening bubo requires complete rest and the application to the part of hot moist dressings; if suppuration ensues the abscess should be opened and if virulent in type, the cavity is to be flushed out with pure peroxide of hydrogen, dried, then mopped out with tincture of iodine or carbolic acid, followed by a little alcohol and loosely packed with iodoform gauze.

Phimosis is an annoying complication requiring rest, frequent immersions in hot water and subpreputial irrigations. When the prepuce cannot be retracted so as to expose a concealed chancroid a dorsal

or bilateral incision may be necessary and the incised edges should be thoroughly cauterized to prevent their contamination. After healing has taken place the flaps can be resected and circumcision completed. Chancroids situated on the margins of long and redundant foreskins should be cauterized and removed by a circular circumcision.

Phagedena is fortunately uncommon and should be treated by rest and constitutional measures. Local applications or immersions in very hot water are both grateful and beneficial from the local hyperemia they produce. Hot air from a cautery point, held intermittently in close proximity to the sore until it desiccates, is also a valuable procedure to arrest the process. The actual cautery is the most energetic measure and should be used freely in rapidly progressing lesions unchecked by other means, or in the unyielding chronic sluggish types; general anesthesia is necessary.

Peroxide of hydrogen is the best topical agent and may be used in half or full strength, particularly in burrowing lesions.

Crystals of permanganate of potash applied to a sluggish ulcer will often convert it into a healthy one. The application is somewhat painful and should be preceded by cocainization.

Dusting the ulcer with salvarsan has also been recommended; it produces a dry brownish or black adherent eschar, but its necrotic action is apt to be excessive.

Fig. 207. Half-tone, Dr. Kingsbury, New York.

Fig. 208. Half-tone, Dr. Trimble, New York.

Figs. 209 and 210. Models in Lesser's Clinic in Berlin (*Kolbow*).

Figs. 211 and 212. Models in Freiburg Clinic (*Vogelbacher*).

Fig. 213. Model in Women's Clinic (Geh. Rat Leopold) in Dresden (*Kolbow*).

Fig. 214. Model in Municipal Hospital am Urban (Dr. Buschke) in Berlin (*Kolbow*).

Fig. 215. Model in Neisser's Clinic in Breslau (*Kroener*).

Fig. 216. Model in Lesser's Clinic in Berlin (*Kolbow*).

Fig. 217. Model in v. Bergmann's Clinic in Berlin (*Kolbow*).

Fig. 218. Model in St. Louis Hospital in Paris, No. 1574 (*Baretta*). Quinquaud's case.

Fig. 219. Model in St. Louis Hospital in Paris, No. 306 (*Jumelin*). Fournier's collection.

Figs. 220, 221 and 223. Models in Freiburg Clinic (*Johnsen*).

Figs. 222 and 228. Models in Neisser's Clinic in Breslau (*Kroener*).

Fig. 224. Model in St. Louis Hospital in Paris, No. 1786 (*Baretta*). Halopeau's case.

Fig. 225. Model in Freiburg Clinic (*Johnsen*).

Figs. 226 and 227. Models in Neisser's Clinic in Breslau (*Kroener*).

Fig. 229. Model in Municipal Hospital Friedrichstadt (Dr. Werther) in Dresden (*Kolbow*).

Fig. 230. Model in Lesser's Clinic in Berlin (*Kolbow*).

Fig. 231. Model in Neisser's Clinic in Breslau (*Kroener*).

Fig. 232. Model in Municipal Hospital Friedrichstadt (Dr. Werther) in Dresden (*Kolbow*).

Fig. 233. Model in Freiburg Clinic (*Johnsen*).

Figs. 234 and 235. Models in Neisser's Clinic in Breslau (*Kroener*).

Fig. 236. Model in Polyclinic of Dr. Max Joseph in Berlin (*Kolbow*).

Fig. 237. Model in Freiburg Clinic (*Vogelbacher*).

Fig. 238. Model in Freiburg Clinic (*Johnsen*).

Fig. 239. Model in Freiburg Clinic (*Vogelbacher*).

Figs. 240, 241, 242, 243, 244 and 245. Models in Neisser's Clinic in Breslau (*Kroener*).

Figs. 246 and 247. Models in Freiburg Clinic (*Johnsen*).

Fig. 248. Model in St. Louis Hospital in Paris, No. 371 (*Jumelin*). Fournier's collection.

Fig. 249. Model in Pospelow's Clinic in Moscow (*Fiweisky*).

Fig. 250. Model in Freiburg Clinic (*Vogelbacher*).

Fig. 251. Model in St. Louis Hospital in Paris, No. 417 (*Jumelin*). Fournier's collection.

Fig. 252. Model in St. Louis Hospital in Paris (*Jumelin*). Jullien's collection.

Fig. 253. Model in St. Louis Hospital in Paris, No. 678 (*Baretta*). Lailler's case.

Fig. 254. Model in Freiburg Clinic (*Vogelbacher*).

Fig. 255. Model in St. Louis Hospital in Paris, No. 1917 (*Baretta*). Fournier's case.

Fig. 256. Model in St. Louis Hospital in Paris, No. 1451 (*Baretta*). Fournier's case.

Figs. 257 and 258. Model in Neisser's Clinic in Breslau (*Kroener*).

Fig. 259. Model in Schlossmann's Infant Asylum in Dresden (*Kolbow*).

Fig. 260. Model in Lesser's Clinic in Berlin (*Kolbow*).

Fig. 261. Model in Neisser's Clinic in Breslau (*Kroener*).

Figs. 262 and 263. Models in Schlossmann's Infant Asylum in Dresden (*Kolbow*).

Fig. 264. Model in Lesser's Clinic in Berlin (*Kolbow*).

Fig. 265. Model in Greeff's Ophthalmological Clinic in Berlin (*Kolbow*).

Fig. 266. Model in Freiburg Clinic (*Vogelbacher*).

Fig. 267. Model in Cochin Hospital in Paris, No. 384 (*Jumelin*). Heurteloup's case.

Fig. 268. Model in St. Lazare Hospital in Paris (*Jumelin*), Dr. Jullien's department.—A very typical soft chancre on the right index finger. Several similar chancres were present on the vulva of the same patient.

Fig. 269. Model in Freiburg Clinic (*Johnsen*).

Fig. 270. Model in Lesser's Clinic in Berlin (*Kolbow*).

Fig. 271. Model in Neisser's Clinic in Breslau (*Kroener*).

Fig. 272. Model in Cochin Hospital in Paris (*Aumelin*). Mauriac's case.

Appendix

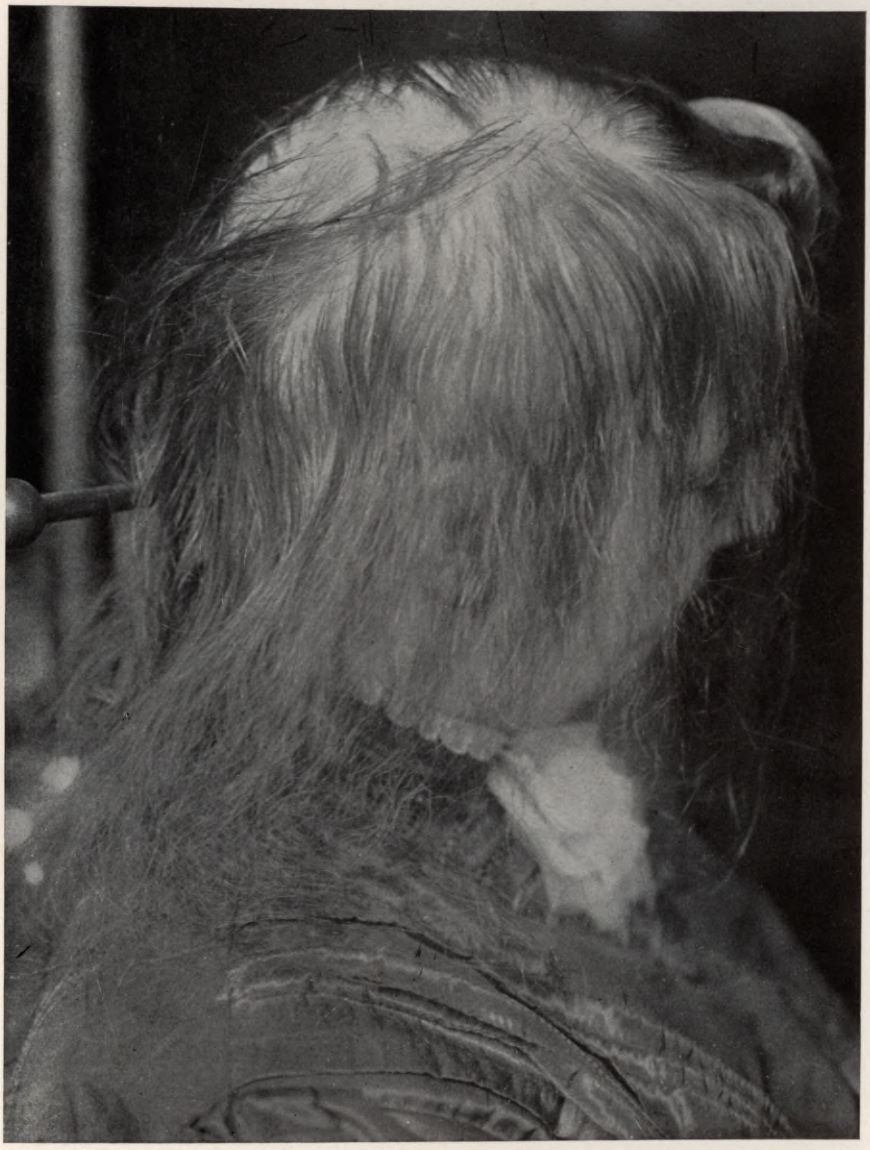
Lumbar Puncture

Normally the cerebro-spinal fluid presents a clear limpid appearance, sometimes with a slight yellowish tinge. Its specific gravity varies according to different observers from 1006 to 1010, and it contains either no cells or at the most a few lymphocytes (4 to 5 per field. *Widal*). A few red cells are sometimes seen resulting from the slight hemorrhage caused by the introduction of the needle. The protein content (globulin, nucleo-proteid and protalbumose) varies according to *Quincke* from 0.2 to 0.5 per litre. As a result of syphilitic infection the cerebro-spinal fluid may undergo certain alterations first pointed out by *Widal, Ravaut* and others, and these furnish valuable diagnostic elements. In the late syphilitic affections of the central nervous system, paresis, tabes, hemiplegia and cerebro-spinal syphilis, the serologic reaction of the spinal fluid is frequently positive while that of the blood serum may be negative. The cytologic examination shows a variable degree of lymphocytosis, sometimes quite marked (exceeding 100 lymphocytes per field). The protein content is increased and a flocculent globulin precipitate is obtained with *Noguchi's* butyric acid test. This, according to *Noguchi,* is positive in 90 per cent. of cases. Other changes sometimes noted being hypertension and a cloudy appearance of the fluid. Excluding the treponemata which have recently been found in the spinal fluid but are exceedingly difficult to demonstrate, these various findings appear to be the earliest discoverable pathologic signs of the late syphilitic nerve lesions.

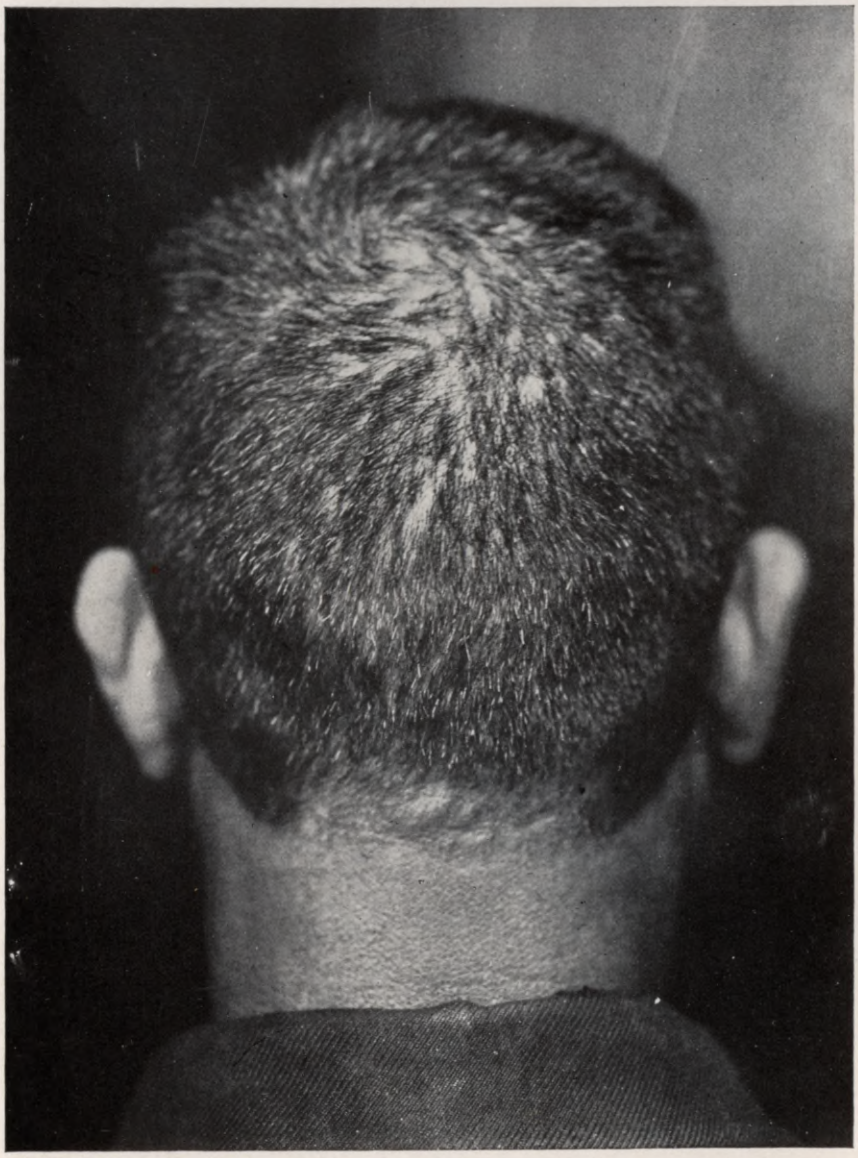
Cytologic alterations are also observed in the secondary stage in subjects presenting clinical symptoms of early involvement of the central nervous system, and they may also be present at that period in the absence of clinical evidence as shown by the results of lumbar puncture.

These facts have an important bearing on the treatment, for according to *Ravaut* it is in this class of cases that the severe nervous reactions sometimes observed after the administration of salvarsan or neo-salvarsan during the florid secondary period occur. As a rule they are absent in the early primary period and also in subjects in the secondary period who present a normal cerebro-spinal fluid.

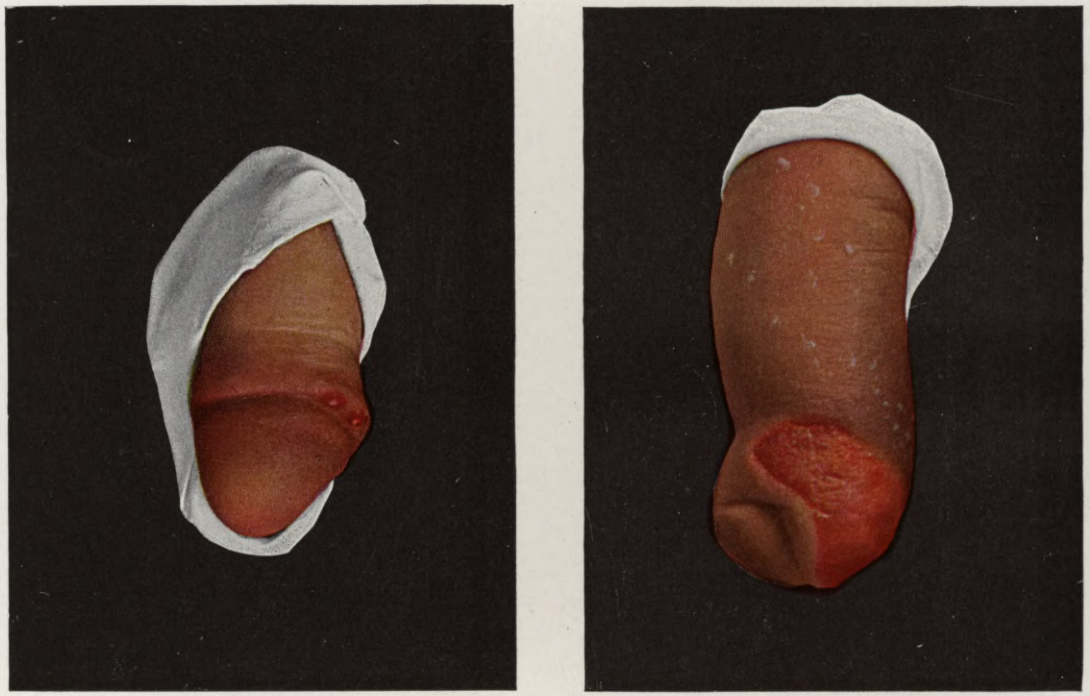
In the secondary period it is therefore advisable for the purpose of attenuating or preventing severe nervous reactions, to begin the treatment with a short preliminary mercurial course (soluble injections given daily for six or seven days or inunctions), in order to secure the more gradual spirillicidal action of mercury and thus prepare the ground for the more intensive action of salvarsan or neo-salvarsan, the initial doses of which should also be small.



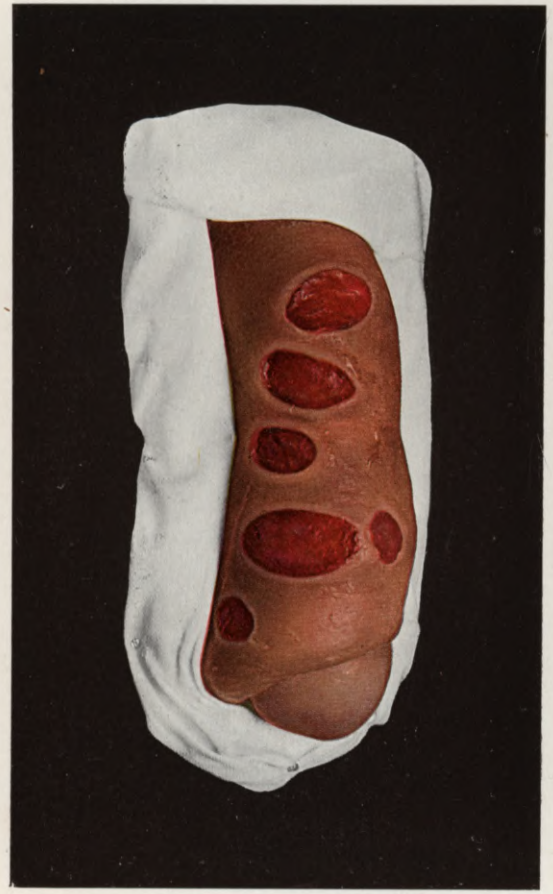
No. 207. Alopecia syphilitica.



No. 208. Alopecia syphilitica.

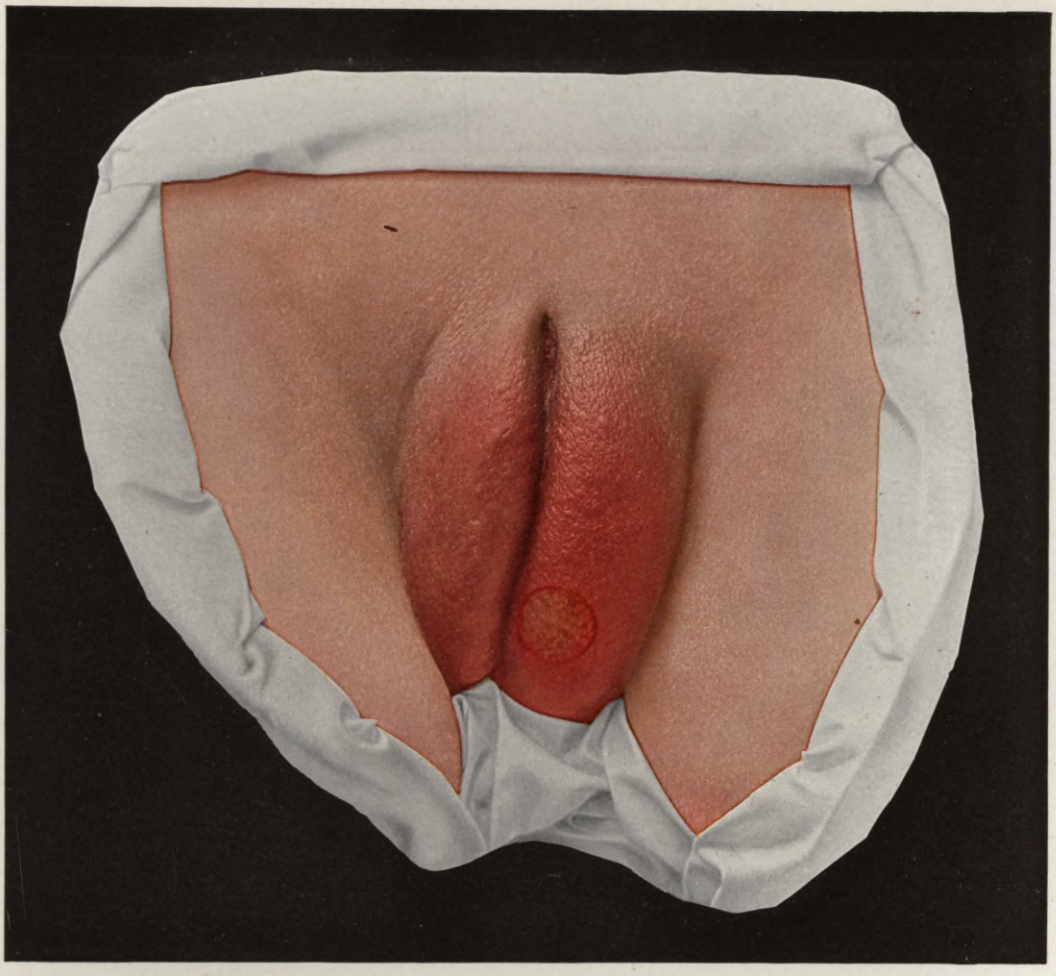


No. 209. 210. Scleroses syphiliticae.



No. 211. Scleroses syphiliticae.

No. 212. Sclerosis phagedaenica.



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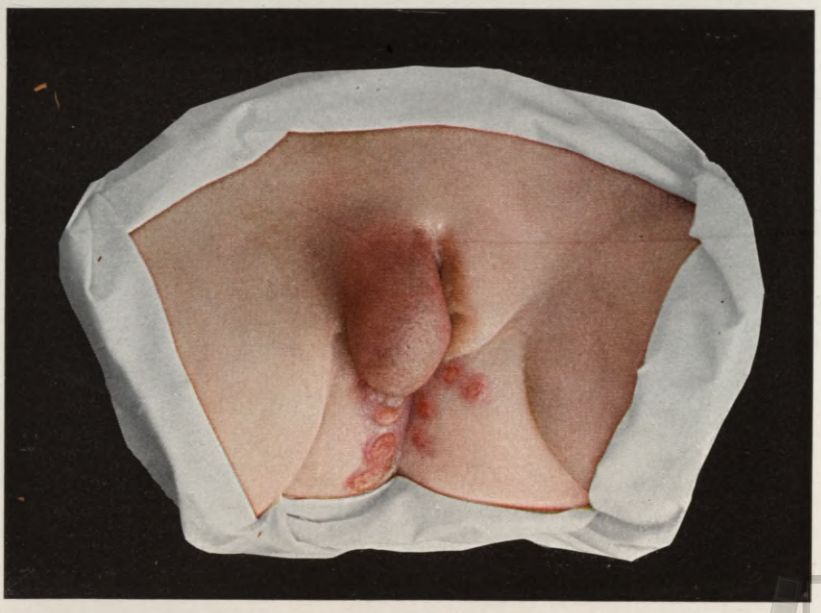
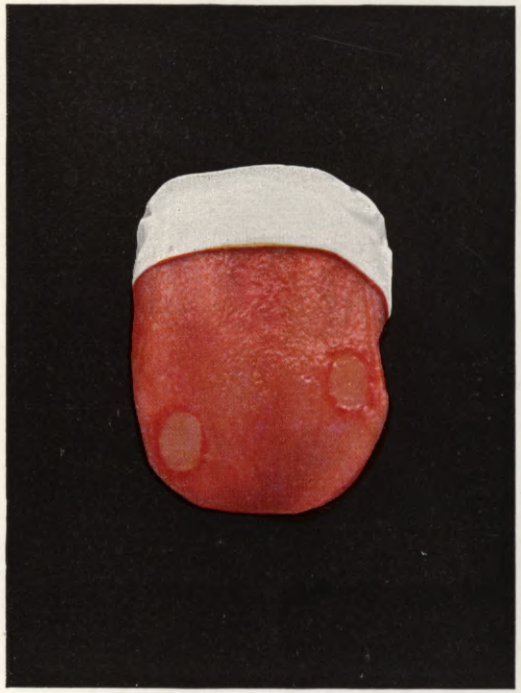
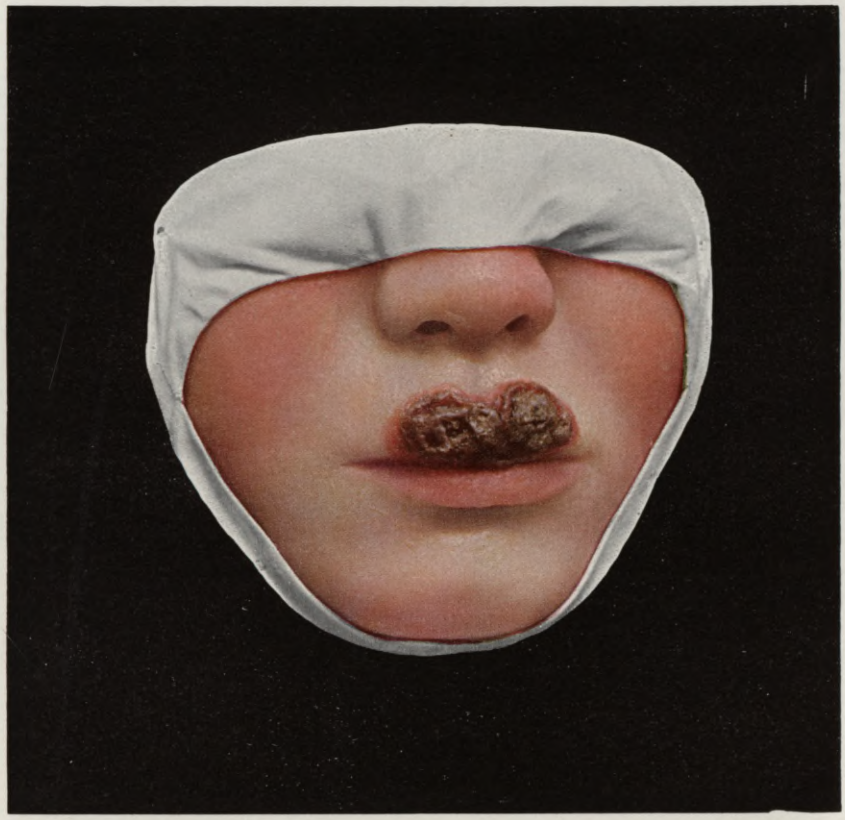


No. 214. Sclerosis et oedema indurativum (in infante).

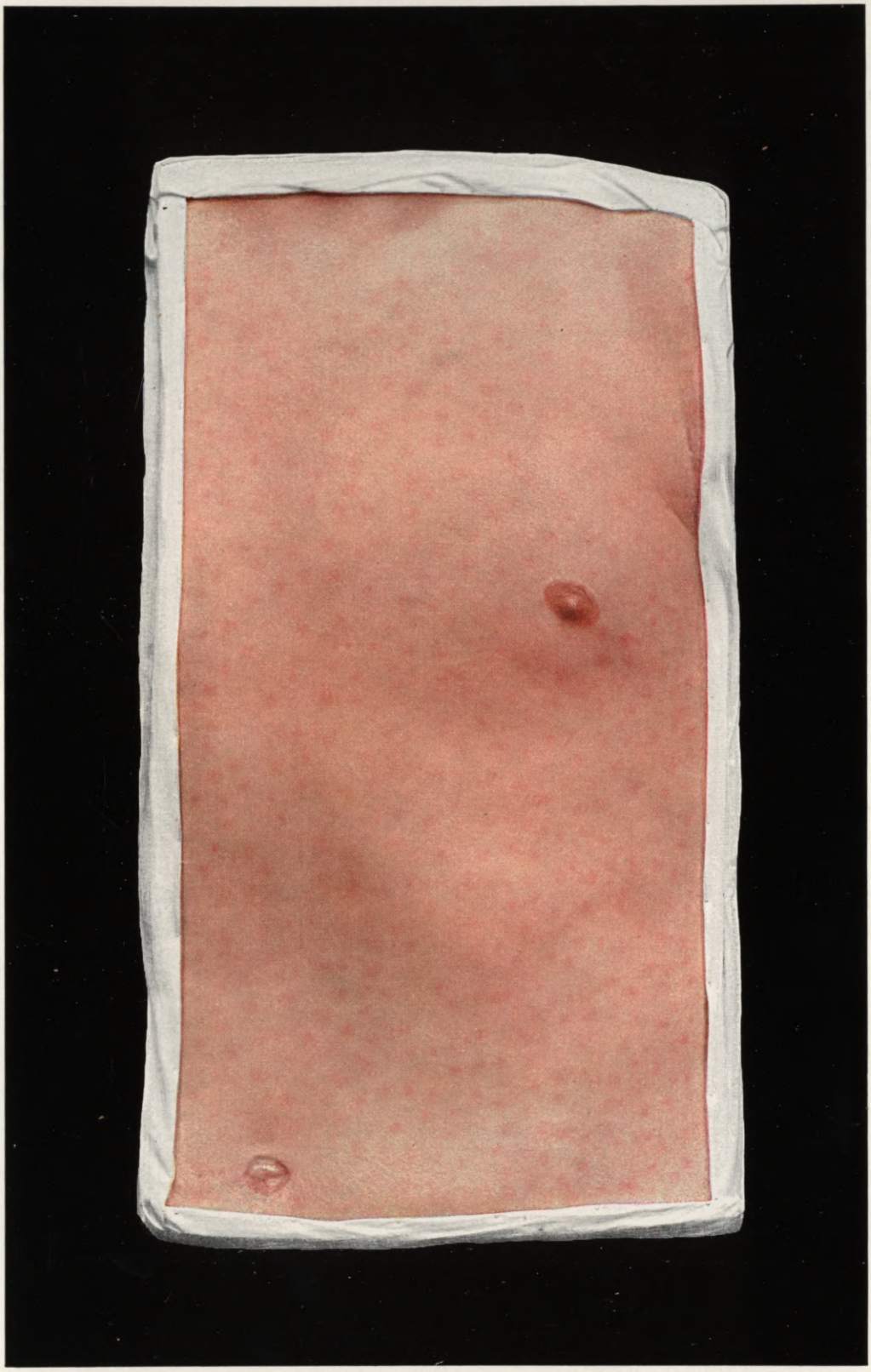


No. 215. 216. Scleroses syphiliticae.

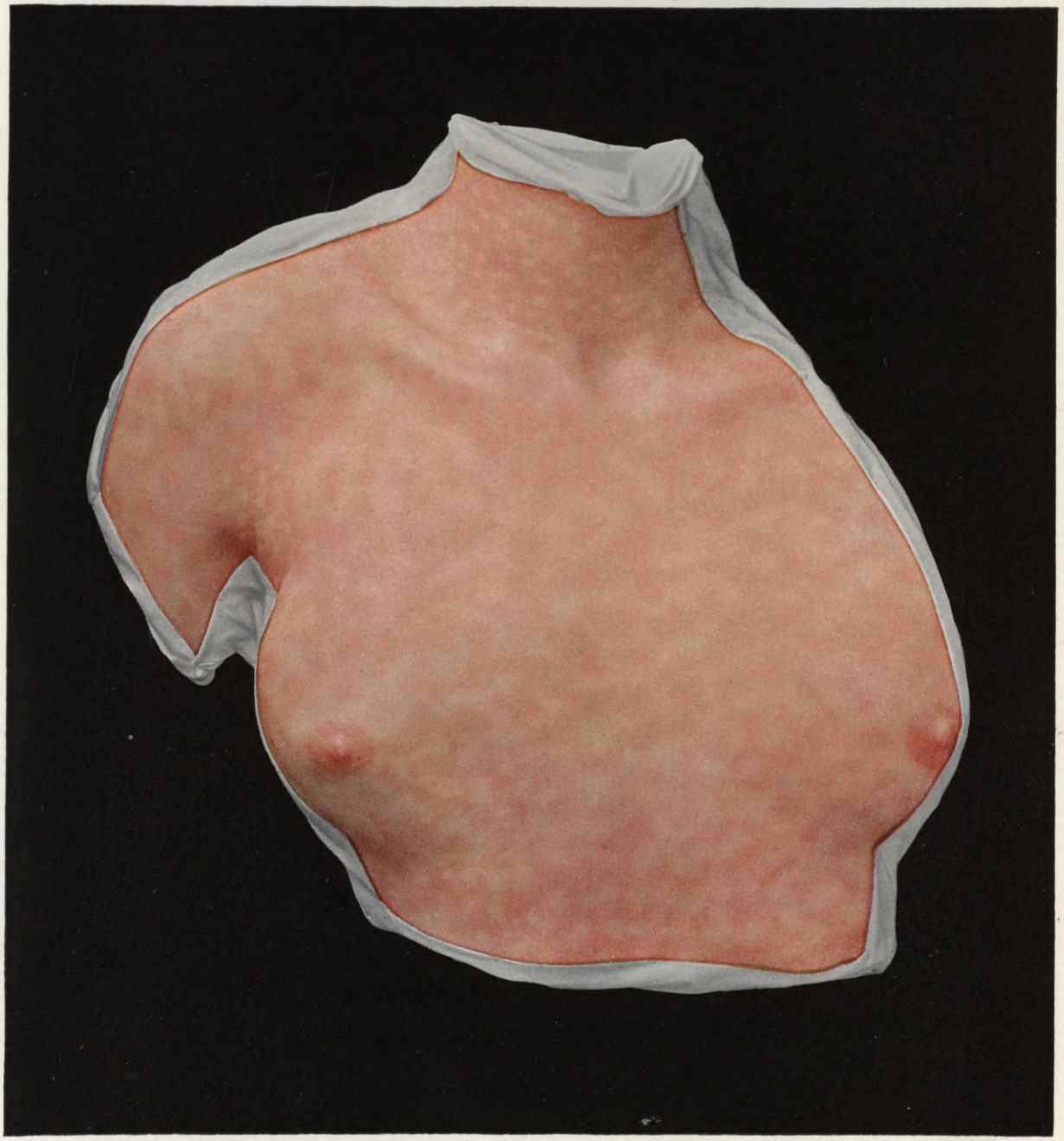


No. 217. 218. Scleroses syphiliticae.

No. 219. Sclerosis syphilitica tonsillae.



No. 220. Syphilis maculosa (Roseola).



No. 221. Syphilis maculosa confluens; Leucoderma.

No. 222. Syphilis maculosa recidiva (Roseola recidiva).

No. 223. Syphilis maculosa follicularis.

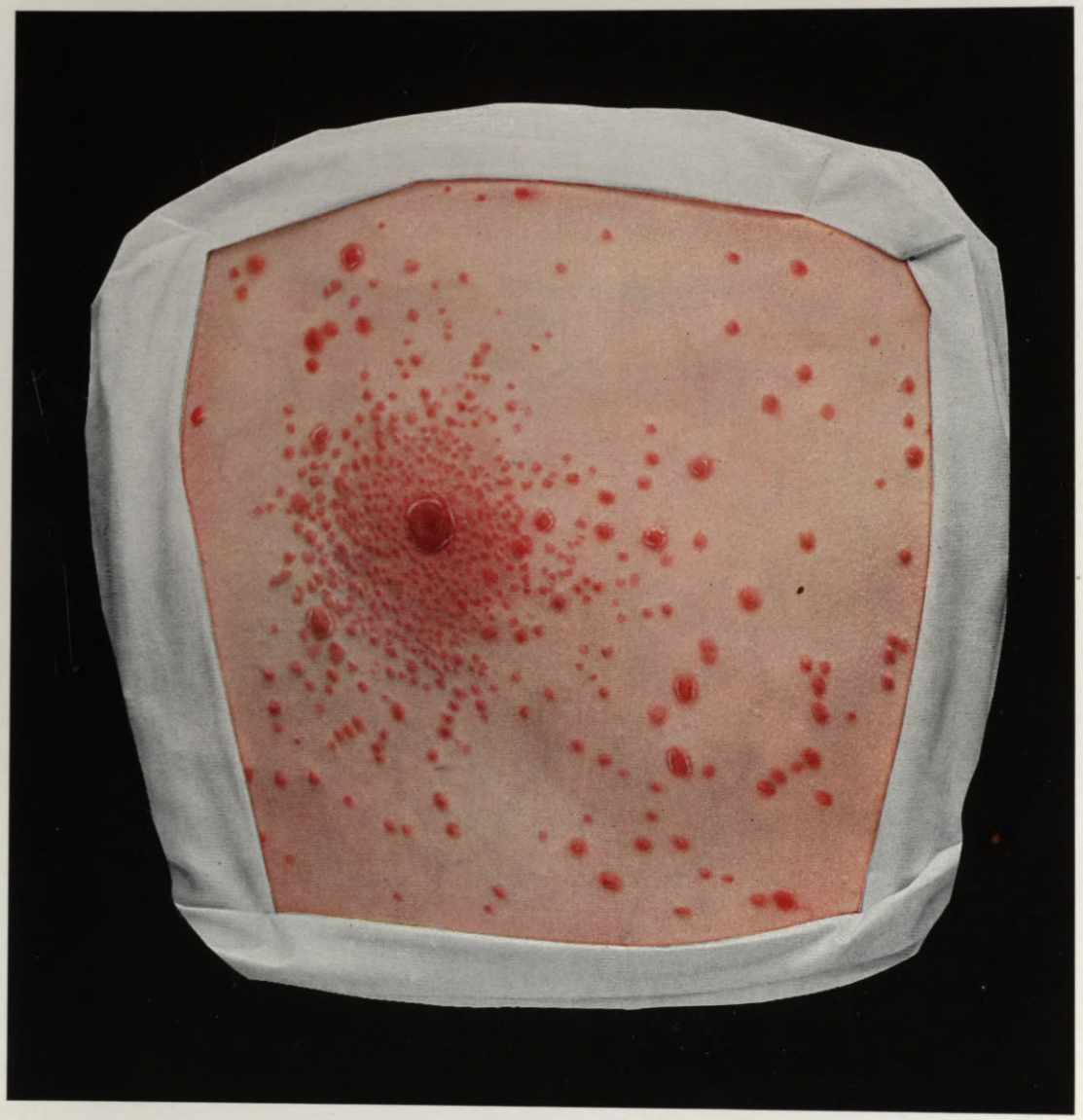
No. 224. Syphilis papulosa annularis.

No. 225. Syphilis papulosa lenticularis.

No. 226. Syphilis papulosa mucosae oris.

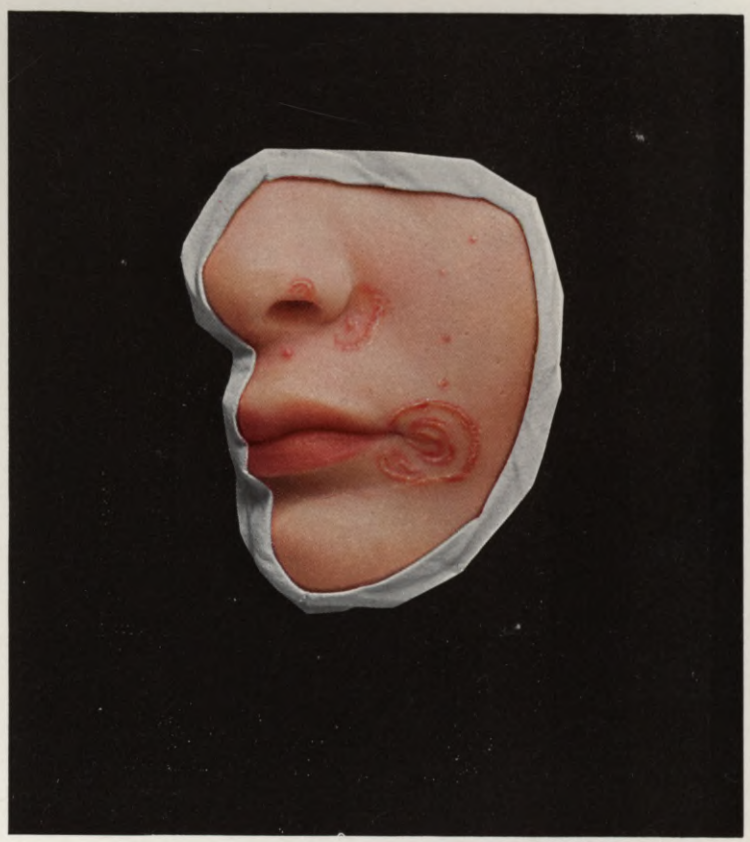
No. 227. Syphilis papulosa orbicularis.

228. Syphilis papulo-squamosa.



No. 229. Syphilis corymbiformis.

No. 230. Syphilis milio-papulosa (lichenoides).



No. 231. Syphilis circinaria.

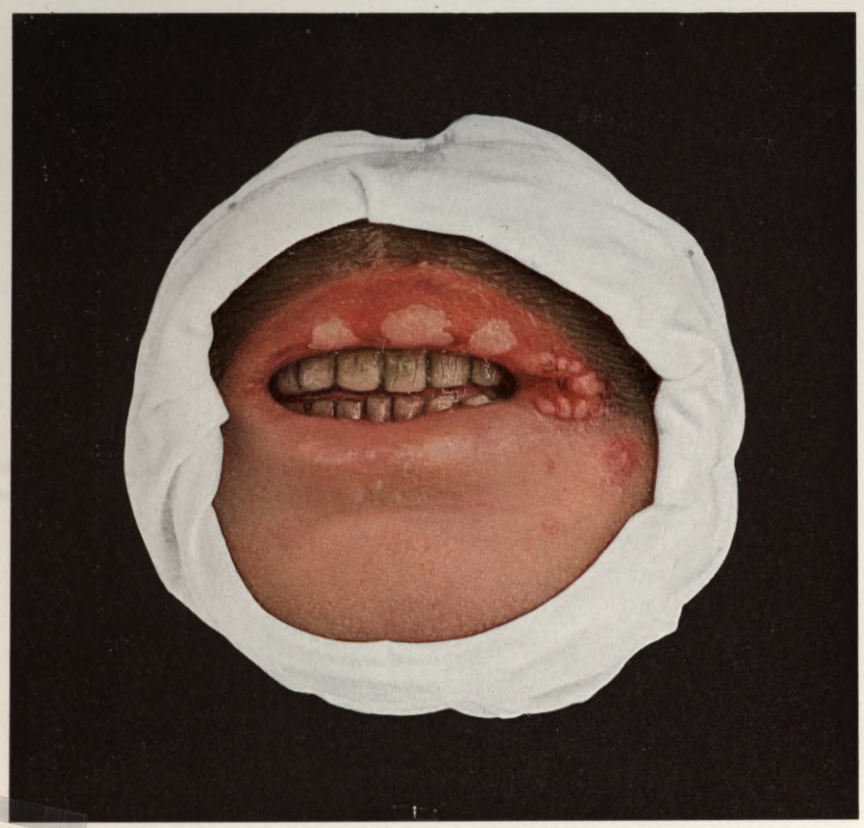
No. 232. Syphilis papulo-pustulosa.

No. 233. Syphilis papulo-squamosa.

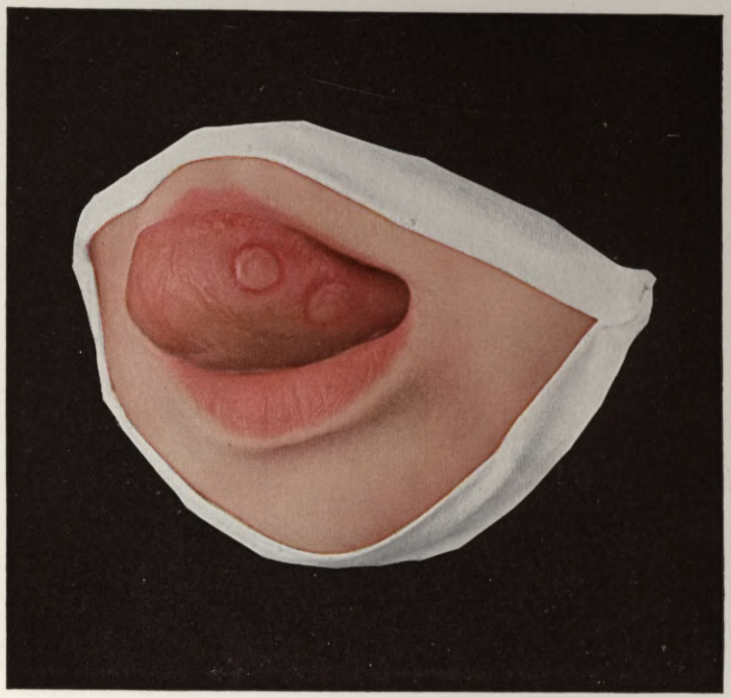
No. 234. Paronychia syphilitica.

No. 235. Leukoderma syphiliticum.

No. 236. Syphilis papulosa (Condilomata lata).

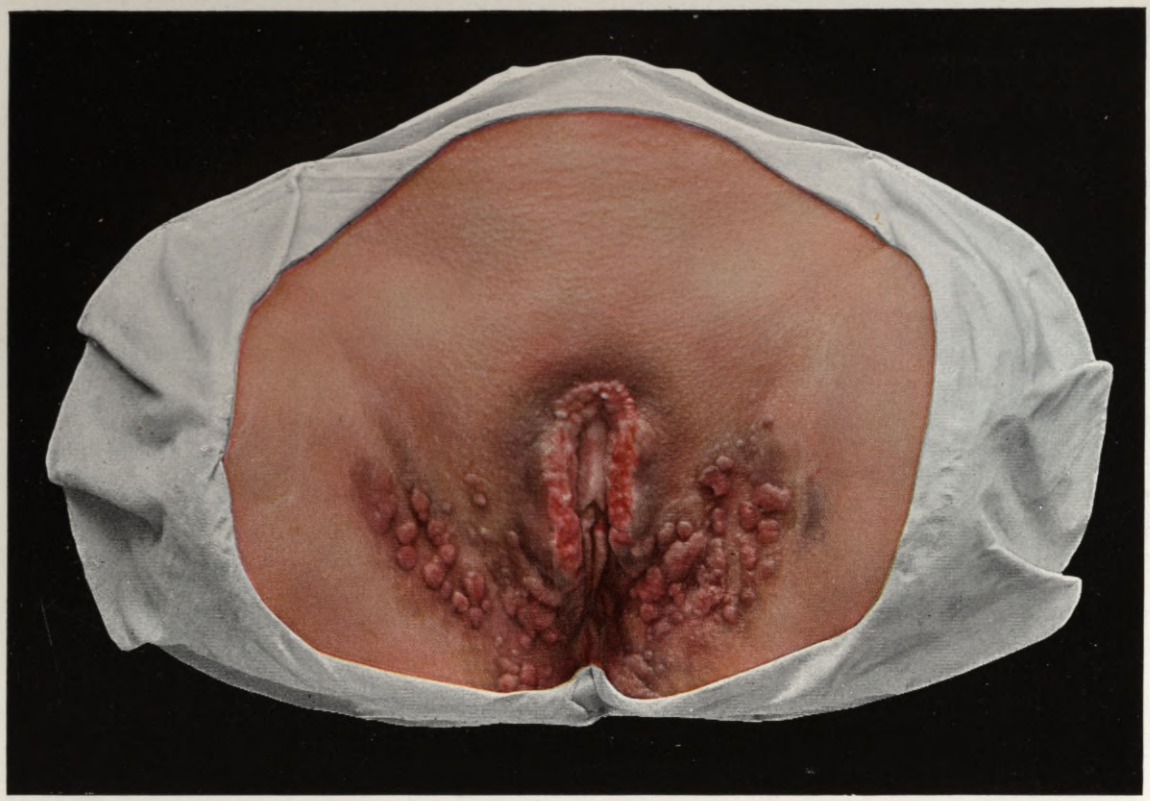


No. 237. Syphilis papulosa mucosae et anguli oris.

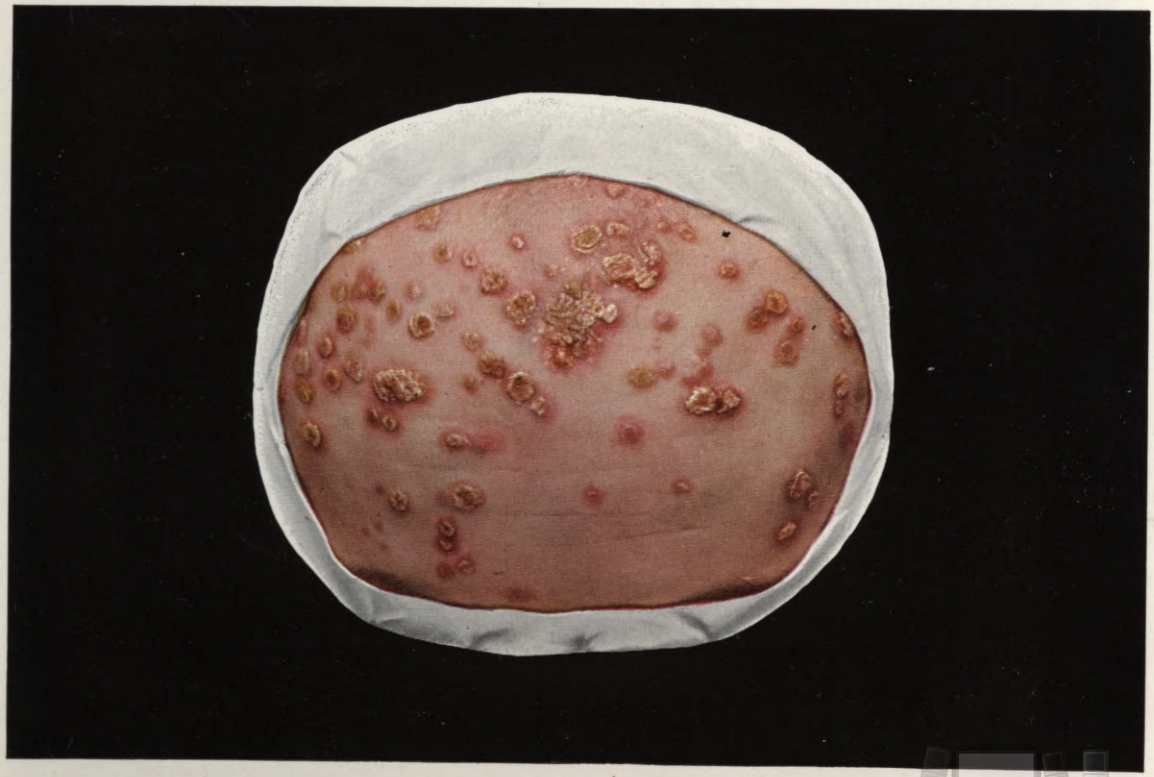


No. 238. Syphilis papulosa linguae.

No. 239. Syphilis papulosa.



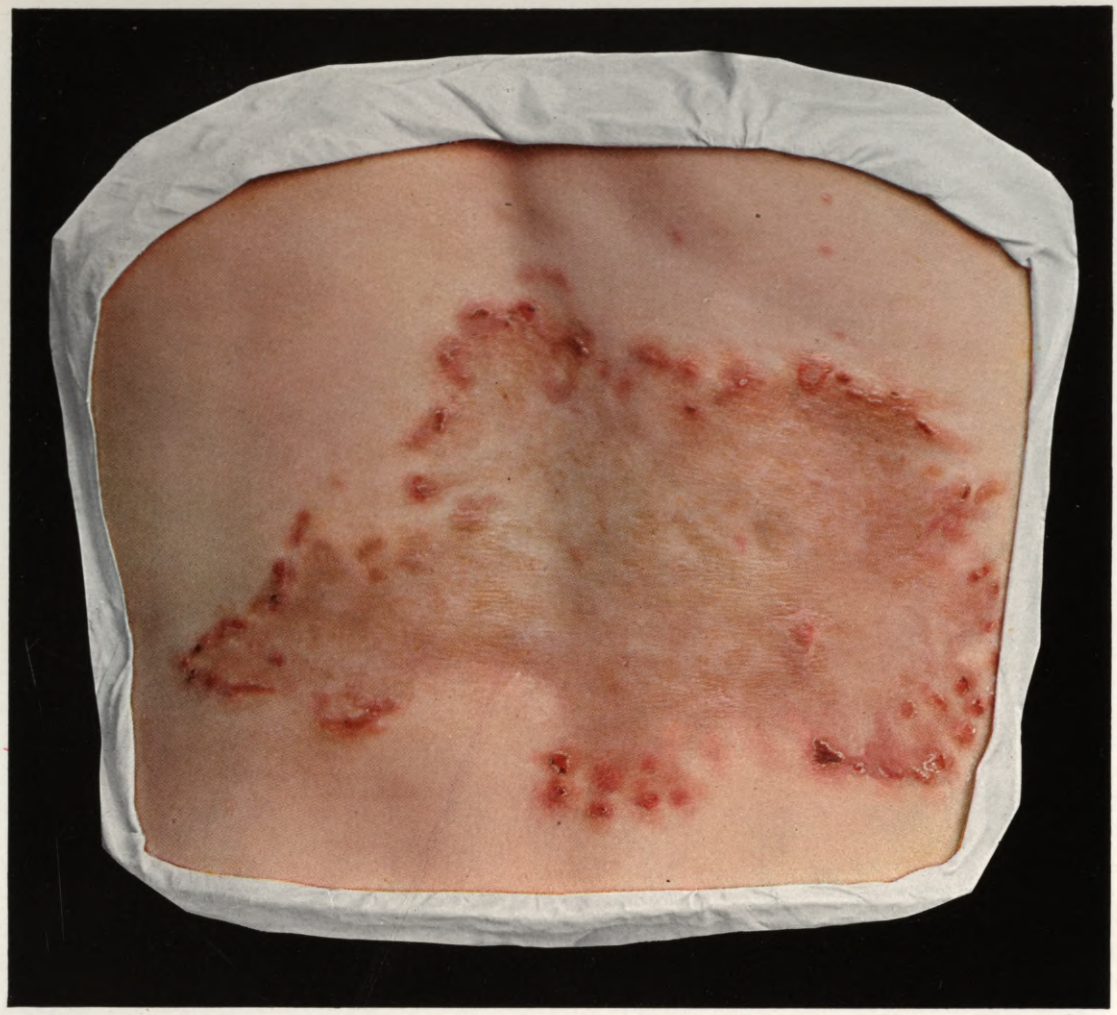
No. 240. Syphilis papulosa (Condilomata lata).



No. 241. Syphilis papulo-pustulosa.

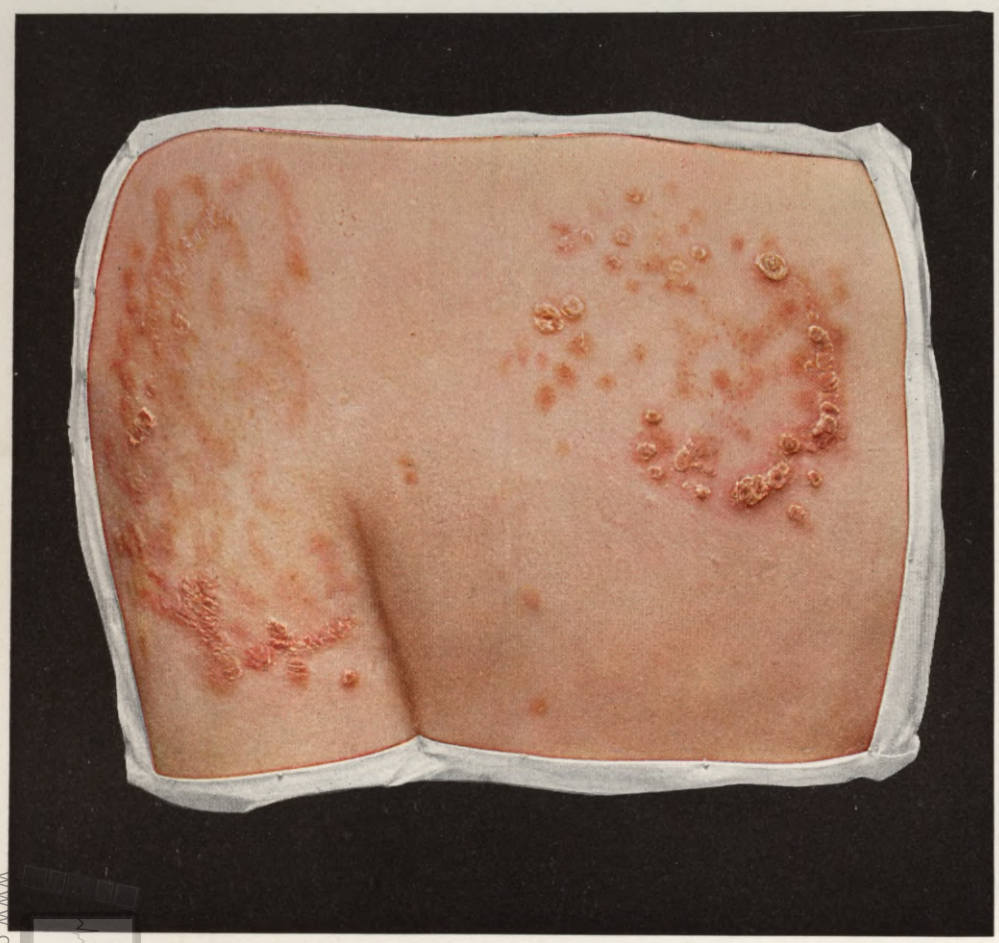
No. 242. Syphilis maligna (Rupia syphilitica).

No. 243. Syphilis framboesiformis.



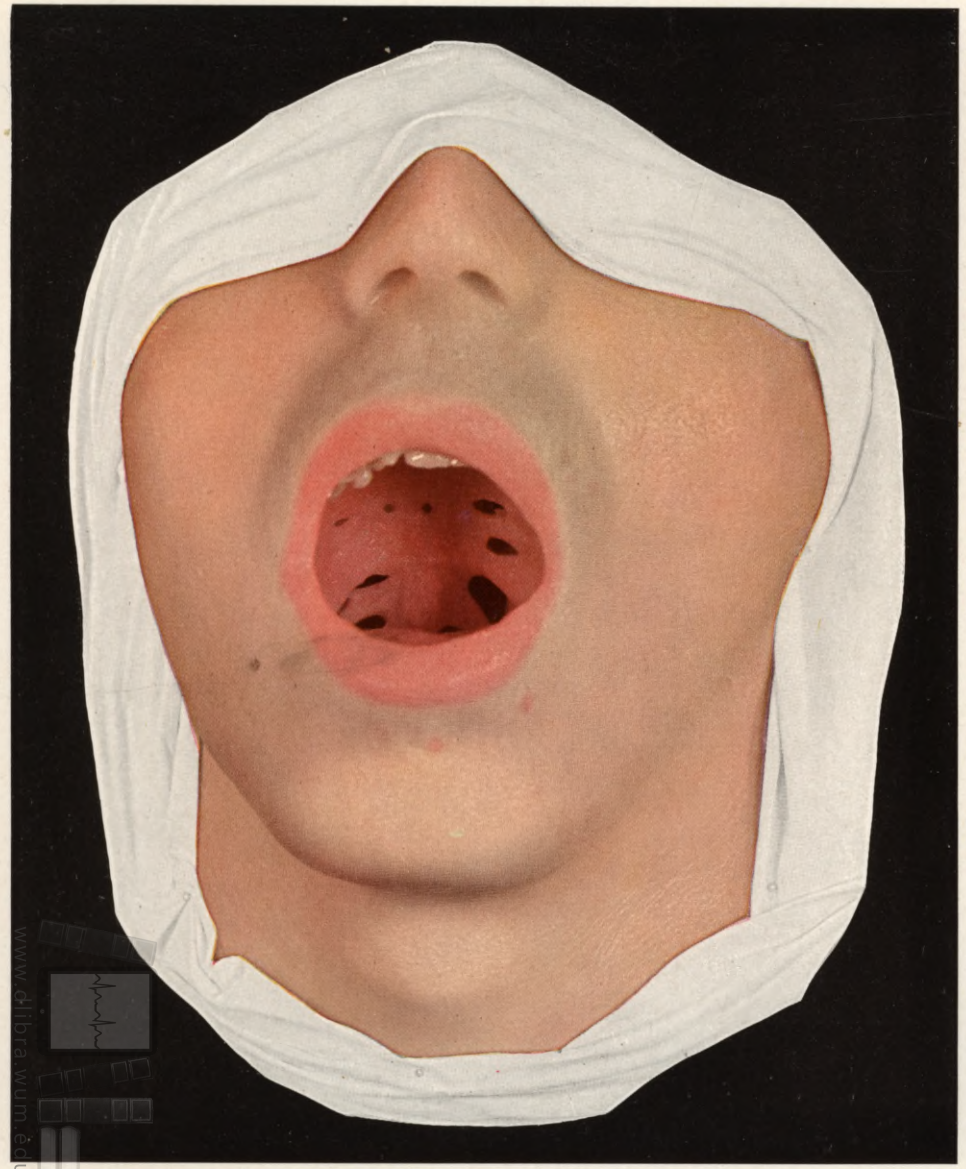
No. 244. Syphilis tubero-serpiginosa.

No. 245. Syphilis tertiaria.



No. 246. Syphilis tubero-serpiginosa.

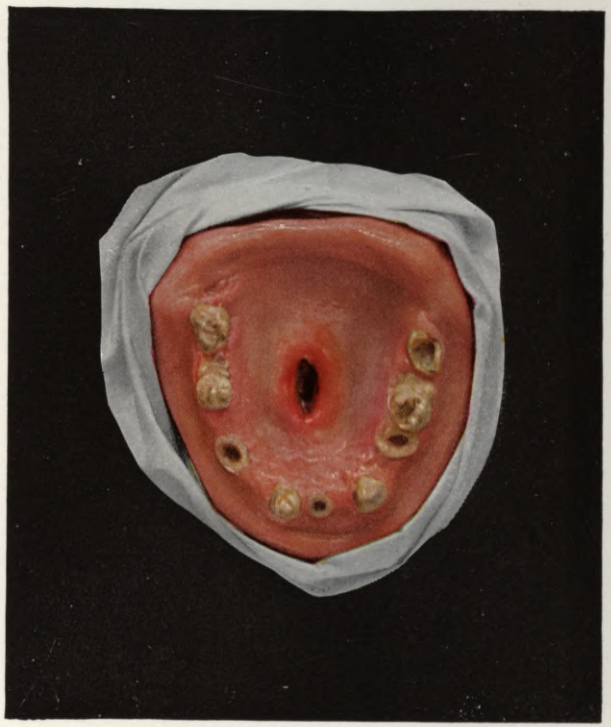
No. 247. Syphilis ulcero-serpiginosa.



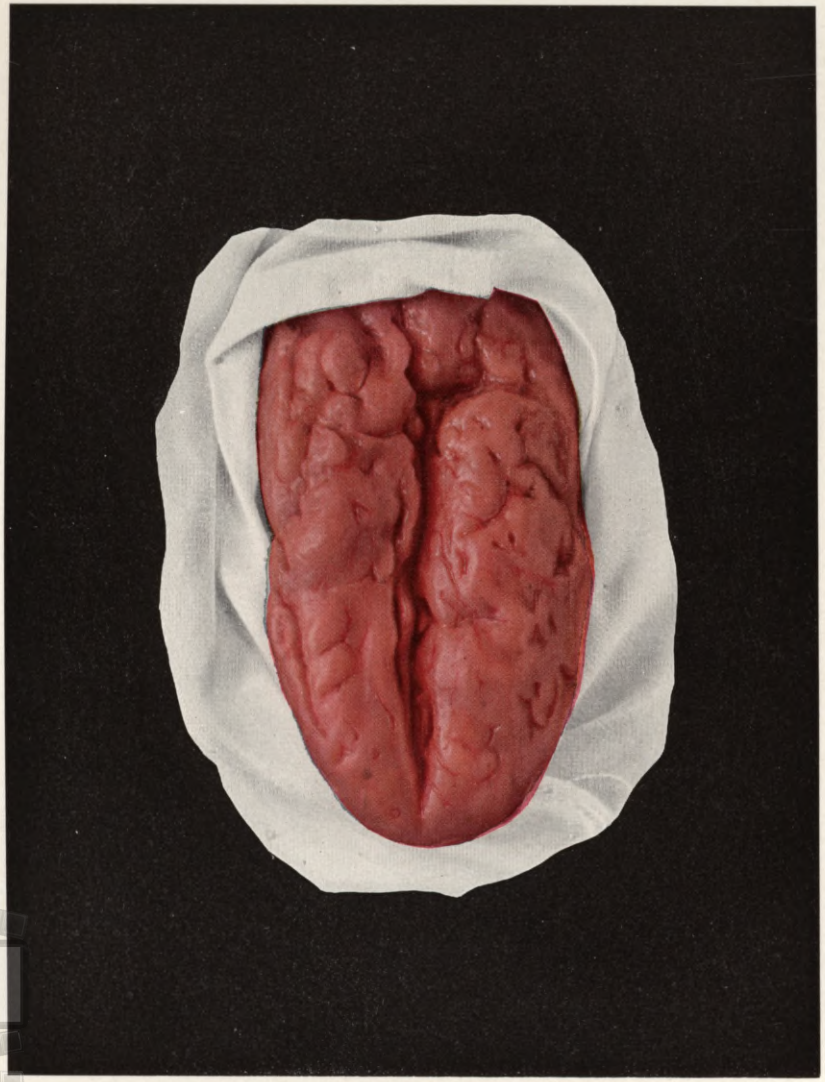
No. 248. Cicatrices palati mollis post ulcerationes syphiliticas.

No. 249. Caries syphilitica ossium cranii.

No. 250. Syphilis ulcerosa palati mollis.



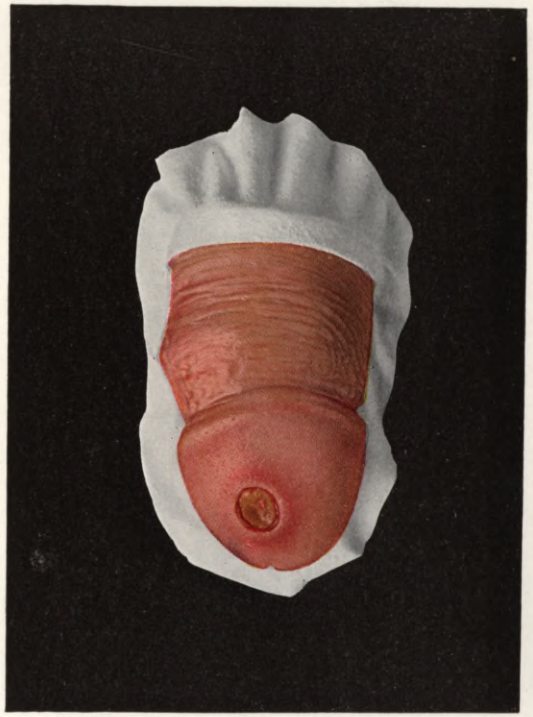
No. 251. Syphilis ulcerosa palati duri.



No. 252. Syphilis gummosa linguae diffusa.

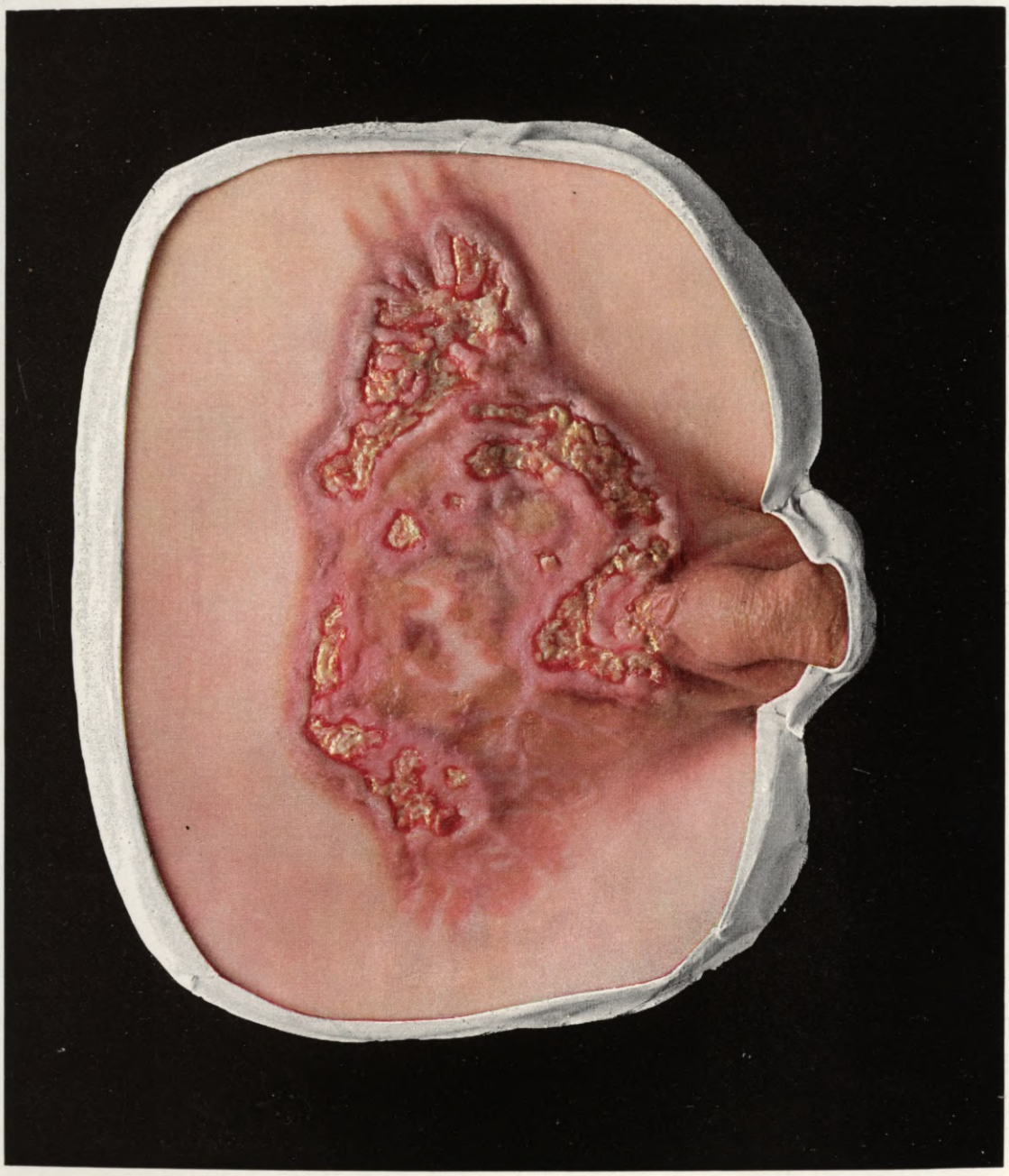
No. 253. Syphilis gummosa digiti.

No. 254. Syphilis gummosa.

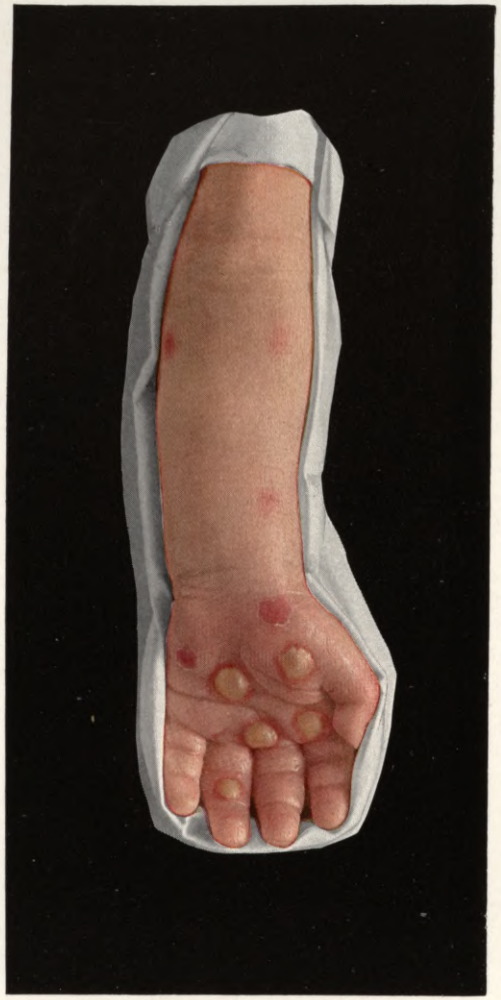


No. 255. Syphilis gummosa glandis (Pseudo-chancre).

No. 256. 257. Syphilis gummosa.

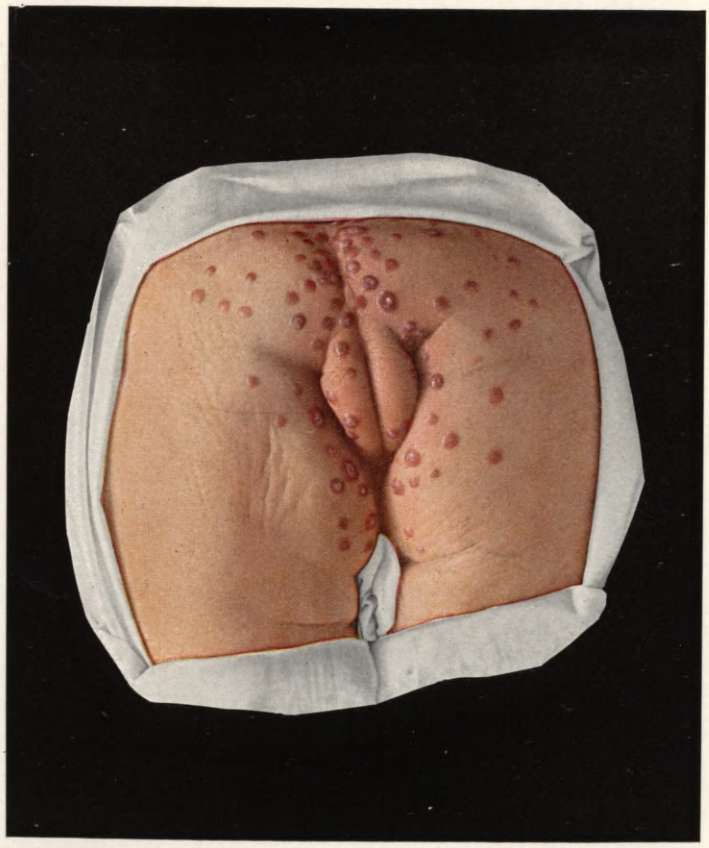


No. 258. Syphilis ulcero-serpiginosa.



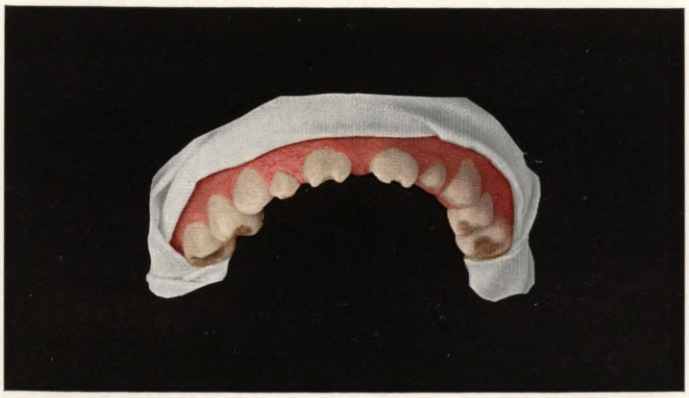
No. 259. 260. Syphilis hereditaria bullosa (Pemphigus syphiliticus).

No. 261. Syphilis hereditaria papulosa.



No. 262. 263. Syphilis hereditaria papulosa.

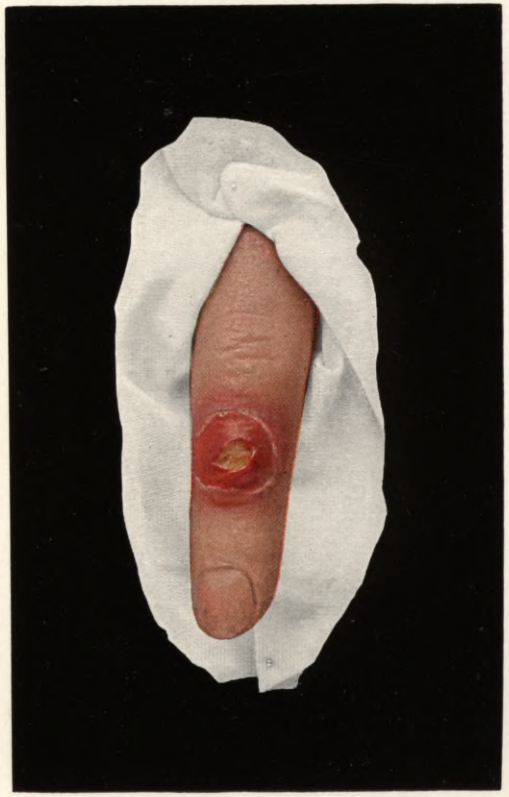
No. 264. Syphilis hereditaria ossium nasi.



No. 265. Hutchinson teeth.

No. 266. Syphilis hereditaria (tarda).

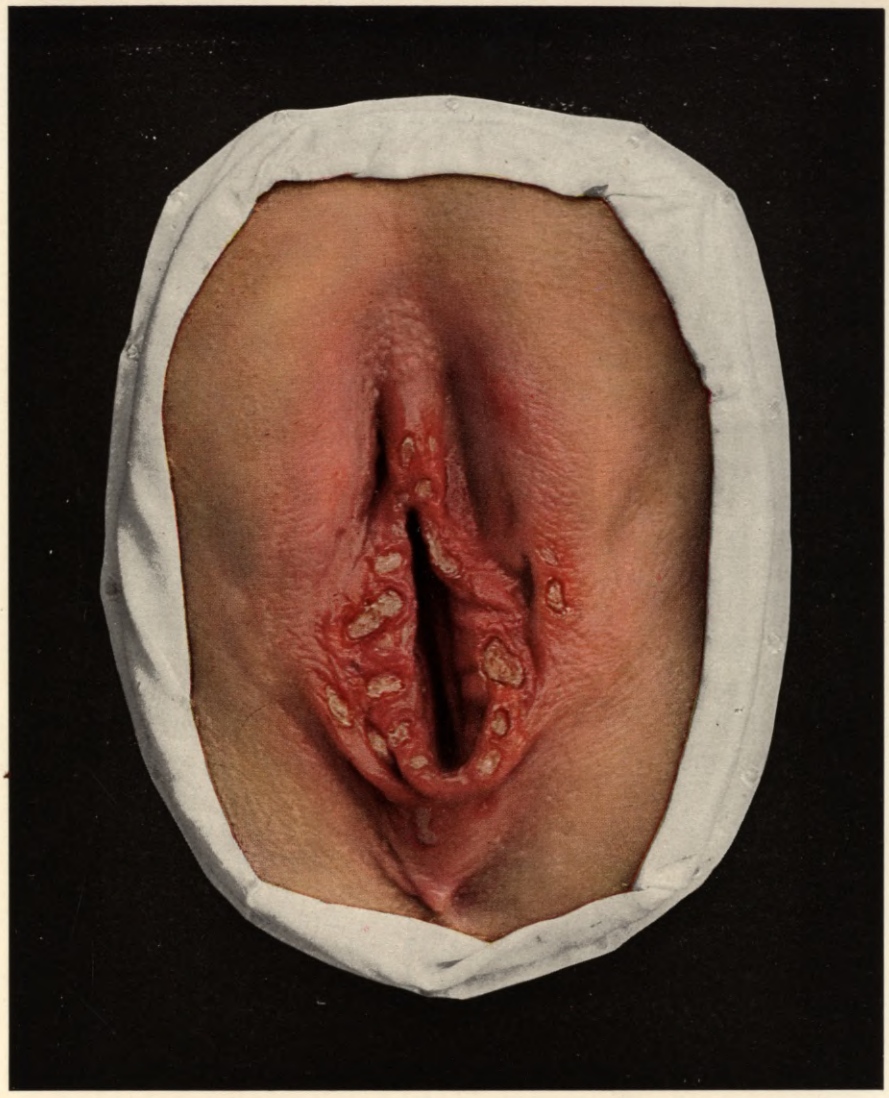
No. 267. Ulcus molle orificii urethrae.



No. 268. Ulcus molle digiti.

No. 269. Ulcera mollia-Bubonulus.

No. 270. Ulcus molle gangraenosum.



No. 271. Ulcera mollia vulvae.

No. 272. Ulcus molle phagedaenicum.

Index

(The black figures denote the page in the text where the principal subject may be found, also the plate illustrating that particular subject, except in the section dealing with syphilis.)