SYPHILIS.

Synonyms.—Lues venerea; Morbus gallicus; Pox; "Bad disorder;" *Fr.* Vérole; *Ital.* Sifilide; *Ger.* Lustseuche; Krankheiten der Französen; *Span.* Sifilis; *Swed.* Radezyge.

Syphilis is a general infectious disorder transmitted from one individual to another by both contact and inheritance, chronic in course, and displaying in a more or less determinate sequence symptoms involving one or several of the organs of the body. It is classed with the infectious granulomata, and it is due to the toxic effect of the invasion of the bodily tissues by a morbific germ. Though the identity and relations of the latter have not completely been established (as has been done in the case of the bacilli of tuberculosis and lepra), no doubt can be entertained as to its existence and potency.

ACQUIRED SYPHILIS.

Syphilis is said to be acquired when transmitted in another way than by inheritance. The term "contact-syphilis" has also been employed to distinguish the former from the latter.

Etiology.—The micro-organisms which are effective in the production of this disease have not yet been incontestably demonstrated. Donné, Hallier, Lostorfer, Klebs, Doutrelepont, Lustgarten, Fordyce, and many others have repeatedly, by difficult and delicate methods of staining, recognized bacilli in syphilitic tissue. The

failure to distinguish the exact micro-organism whose toxine may be efficient as a cause of the disease is due partly to the fewness of the bacilli present in any one section, to the circumstance that the bacilli found in the smegma præputii are either identical with or very similar to the supposed syphilitic germ, and to a fact pointed out by Fordyce, that the general absence of giant-cells in syphilitic tissue forbids their use as a guide to the location of the bacilli.

But if the germ of the disorder has not yet been distinguished satisfactorily, no doubt exists as to the fact that a germ-carrying secretion or virus, which may be collected on the point of a lancet, is capable of transmitting the disease. This virus must be furnished by a person infected with syphilis.

The purveyors of this virus are usually in an early or active stage of the disease. They may furnish a pathological secretion, such as that supplied by a mucous patch, a chancre, a syphilitic pustule, or an ulcer. Such a secretion may be commingled with a physiological fluid (tears, saliva, milk), and be thus effective, however innocent to the view, though the physiological secretions of a syphilitic subject not thus mingled with a virus are rarely, if ever, noxious. The blood of such subjects is, however, capable of transmitting the disease. Pathological secretions of other character (gonorrhœal, leucorrhœal, vaccinal) may readily be commingled with the virus of syphilis, and thus be effective in its transmission.

The evidence as to the date when the syphilitic subject can no longer furnish an infectious virus is confusing. Up to a recent time it was believed that the late lesions of syphilis (so-called "tertiary") were incapable

of furnishing such a virus. Instances are, however, on record disproving this; and, though the power to furnish a virus is gradually lost in every surviving subject of syphilis, it is safest to hold that any awakening of the morbid process at a late date may, however rarely, render such persons dangerous to the uninfected.

The modes of infection are both immediate and mediate. The direct contacts of the sexual act (including the perverted and unnatural imitations of the latter) and the opportunities of transmission afforded in kissing, biting, sucking, etc. are often the beginnings of syphilis. In the same category may be named all the accidental contacts which occur in the service of the physician, the nurse, and the midwife, and those where prisoners are manacled together.

The articles which have been mediately effective as virus-carriers are so many and so various as to forbid enumeration. The list includes a great number of household utensils (forks, cups, spoons), articles of domestic use (tooth-brushes, syringes, combs), articles employed in the professions (dentists' forceps, surgical instruments and appliances, razors, vaccinating needles, lancets), and, in brief, almost every substance brought into contact with the human body, from nursing-bottle to water-closet seat, and from the finger moistened in the mouth of the nurse and given to the nursling to the tools of the chiropodist.

Given an infective germ in its vehicle (the virus), furnished by an infected subject of syphilis (in a stage of that disease capable of transmissibility by contact), it remains to inquire whether the person inoculated with such a virus, mediately or immediately conveyed, will suffer from the disease. A categorical answer to this

question cannot be given. There is reason to believe that all individuals are not equally susceptible to the action of the virus. These reasons are based on the accepted fact of repeated exposures of certain persons without evident results; of repeated exposures with results that are slight, or, if threatening at first, abortive as to any ultimate consequences; and of well-known analogies existing between this disease and others in which the proofs of susceptibility and non-susceptibility of individuals are irrefragable.

All such instances are, however, exceptions to a rule that is enforced by constant experience. The husband recently infected as a result of infidelity to his wife communicates his disease to the latter with almost unfailing regularity; the lover with a mucous patch upon his lip gives his disorder with an appalling certainty to the woman whom he kisses upon the mouth. For practical purposes it is best to assume that all men, women, and children are susceptible who have not been protected either by a previous attack of the disease or (a point to which attention is called later) by the experience of the mother who brings into the world a syphilitic child diseased by inheritance from the father, while she seems to escape.

CHANCRE.

Synonyms. — Syphilitic chancre; Initial lesion or sclerosis of syphilis; Hard chancre; Infecting chancre; *Ger.* Hartes Geschwür; Schanker; *Fr.* Chancre syphilitique.

The first evidence of a successful transmission of syphilis from an infected to a sound person is termed a "chancre," or, as this last term has often been erroneously applied to non-syphilitic local venereal disorders, better the "initial lesion of syphilis."

The First Incubation.—After the successful introduction of the syphilitic virus into a sound body an interval occurs before the evolution of the initial lesion is appreciable to the eye. This interval is called the "period of the first incubation," a phrase suggestive of the ignorance of the earliest observers. It is almost certain that from the instant of a successful inoculation the subject is, however imperceptibly to human tests, syphilitic, and that there is, without pause or arrest, a multiplication of the effective germs of the disease to the point where the lesions produced by these germs become apparent to coarse methods of observation. This interval is by different observers made to extend over a period of time with singularly varying limits. The average is between twenty-one and twenty-six days, but the period has been claimed to be as brief as from one to two days and as extended as three months. The numerous chances of error in all these estimates need not be pointed out. Between ten and thirty days after infection the vast majority of all infecting chancres appear. The reverse is also true: on the first appearance of a chancre it may safely be estimated that infection occurred previously between ten and thirty days.

The chancre or syphilitic initial lesion appears at the site of inoculation. Its recognition, when first exhibited as the earliest indication of a serious disease, is a matter of the profoundest importance, seeing that the welfare of the individual, and often of others with whom he sustains intimate relations, may be conditioned upon its correct diagnosis.

The chief error committed by the practitioner and

student anxious to master this problem lies in an effort to identify some particular chancre as a type of all others, and to base a diagnosis upon a comparison of others with this as a type. This is the familiar process by which men recognize in nature a flower or a bird, and in medicine a disease of so fixed a type as a corn or a carbuncle.

The sole constant characteristics of every chancre are —(*a*) an incubative period preceding its appearance; (*b*) a sclerosis, induration, or dense thickening of the base of the lesion, widely varying in grade and duration with different chancres; (*c*) a simultaneous enlargement and induration of the gland or glands in nearest anatomical relation with the chancre, constituting the "syphilitic bubo," or primary adenopathy. The first of these constant characteristics is an historical symptom, a knowledge of which may be withheld from the practitioner at the date of his examination. The last, though wellnigh constant of occurrence, may not have been declared fully at the date of the examination, or the glandular enlargement may be so slight or so deeply situated as to escape detection. It follows that in some cases it is possible that at a given moment the sclerosis may be the sole chancre-symptom present whereby the nature of the disorder may be declared. Yet there are several non-constant symptoms which can usually be recognized without difficulty, and which leave the observer in little doubt as to the diagnosis. These symptoms are for the most part explained later.

A chancre is a modification of the sound or pathologically altered skin or mucous membrane, occurring after syphilitic infection, and displayed after an incubative period, characterized by a circumscribed sclerosis

of tissue, and accompanied by an enlargement and induration of neighboring glands. Every chancre means a syphilis, mild or severe, that will follow. Every case of acquired syphilis points to a precedent chancre, recognized or unrecognized. Every chancre, further, is a symptom not merely of a syphilis that will follow, but of a syphilis actually present. The proof is found in the fact that infection of a sound individual from such a chancre is followed by the development not merely of a new chancre, but also of a new syphilis.

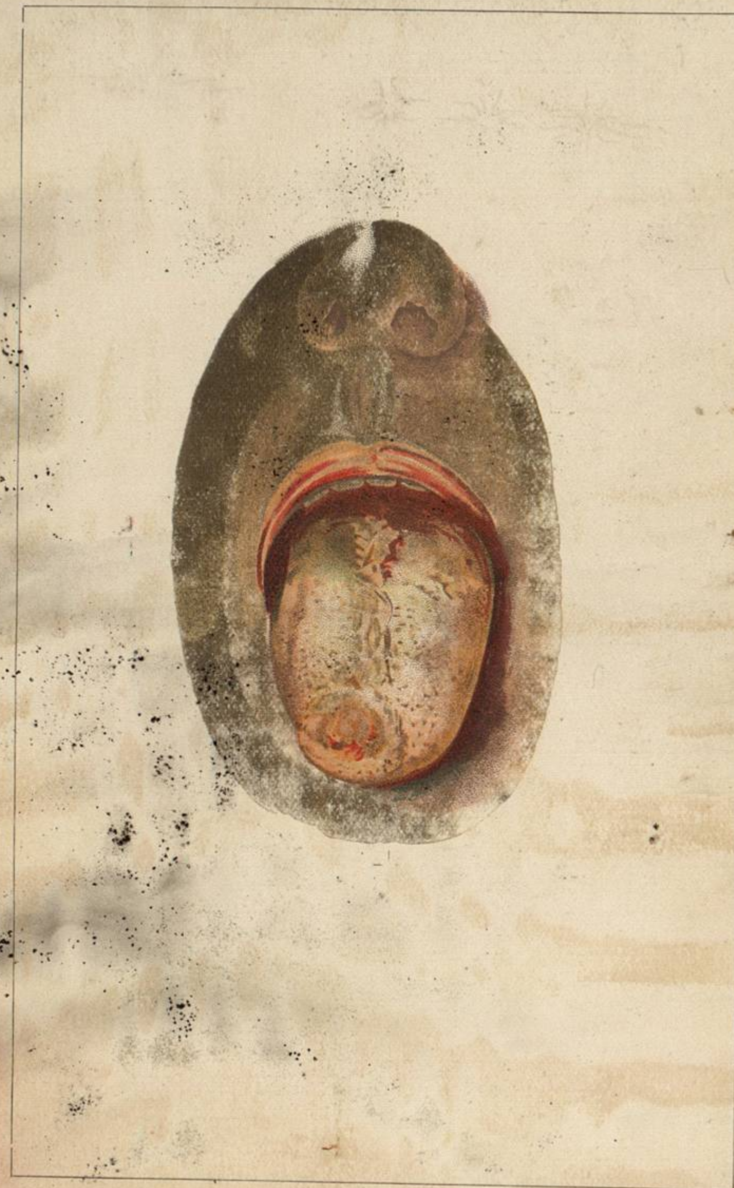
It is important to note at the outset, considering the definition given above, that a chancre may be either an isolated first lesion of syphilis or a modification of some symptom of another disease. Briefly, the study of chancres is the study less of lesions than of a series of singular modifications of lesions recognized in many other diseases, which, under the influence of syphilis, take on new aspects and undergo singular metamorphoses. Thus, the chancre may develop upon the sound skin of the arm as a consequence of intentional experimental inoculation, or upon the sound mucous membrane of the vulva as the result of infection in the sexual act. It may also originate as an untoward modification of a "cold sore" (herpes labialis) of the mucous membrane of the lip infected in the act of kissing, or be a significant change in the evolution of a vaccine vesicle, a blister on the finger, or an excoriated nipple.

Chancres may thus be represented at one time or another by every recognized lesion of the cutaneous surface, including the macule, papule, vesicle, pustule, bleb, tubercle, tumor, and ulcer. Only the most common types can here be enumerated conveniently.

Erosion (Superficial erosion).—This is the least con-

spicuous, the oftenest ignored or misunderstood, and yet the commonest of chancre symptoms. It is recognized as a roundish, oval, or quite irregular macule or spot resting, soon after its evolution, upon a delicate bed of induration, giving to the touch the sensation of a thin sheet of parchment or of mica let into the underlying tissue. It is usually distinctly circumscribed, and exhibits a shallow or scarcely depressed erosion, centrally fixed or involving its entire face. In size it varies from a large pin-head to a bean, and may be many times larger. Its color is dull-reddish, grayish, or even whitish; it often resembles in hue a section of raw ham. It may be dry and glazed, or slightly moist and secreting a thin serum which glues to its surface any dressings that may have been applied to it. At times it has a grayish-white film over its face, and may even have a diphtheroid aspect. It may be uniformly level with the neighboring skin, or its edges may be raised and its centre slightly depressed. It very rarely suppurates freely or degenerates into a well-marked ulcer. These complications usually result from external irritation (caustics, mixed infection, urine flowing over the site, as in urethral chancre). The accidents of phagedena and sloughing are still rarer. When these chancres survive until general syphilis is declared, they are gradually transformed into symptoms of general syphilis, readily enlarging to elevated, granulating, rarely hemorrhagic masses smeared with a highly contagious puriform mucus and merging thus into the mucous patch and condyloma.

These erosions may be lifted away from their original sites by extensive underlying scleroses, and be thus greatly modified in appearance. They are then changed from flat macules to large-nut-sized and even larger



Chancre and papillary growths of the tongue (Hutchinson).

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irregularly outlined masses, ridges, and deformations of the lip, the vulva, or the preputial rim—favorite sites for their development. These odd-looking swellings, unlike each other and conspicuous chiefly for their irregular bulging, often as firm as ivory to the touch, are capped at one point or another by the smooth, shallow, dry and glazed or slightly secreting erosion described above. All are essentially giant-papules, undergoing a special evolution because of the pressure- and friction-effects of their particular environment.

Papule (Dry scaling papule; Non-ulcerating, indurated papule).—This is the common result of inoculation of the skin as distinguished from that of the mucous surface. The chancre is here evolved as a pea- to a bean-sized papule or papulo-tubercle, indurated at the base, dry, scaling, and colored in various shades, according to its situation. It is occasionally seen upon the skin of the penis as the result of accidental infection of that part, and upon other cutaneous surfaces, as the thigh and the arm, as the result of accidental or experimental inoculation.

Ulcer.—Ulceration of the chancre is probably in every case the result of local irritation. This irritation may be accidental, as in the case where improper dressings or applications are made to the lesions, or intentional, as where savin cerate has been applied or horse-hairs have been passed through the base for the purpose of exciting suppuration with a view to supplying a virus for purposes of experimentation. Two types of ulceration may be recognized in chancres, the shallow and the deep. Both occur in beds of induration. Their causes have been discussed above; maceration (by mucus, by leucorrhœal and blennorrhagic discharges), friction, improper

treatment by local applications, filth, and neglect may all be cited as of consequence.

Shallow and superficial ulcers, scantily secreting serum, are usually imbedded like erosions in thin sheets of induration, but they may cap considerable elevations of tissue. Their edges are sloping, almost never clean-cut, punched out, or undermined; their floors rarely slough; their outline is irregular. At times they resemble shallow fissures, especially on the side of the frænum; at others they form at the bottom of a crevice between two walls of induration, as when the sclerosis involves the mucous membrane of both the corona glandis and the adjacent prepuce.

Deep ulceration of chancres invariably results from the action in excess of the causes suggested above, or from similar agencies. The "Hunterian chancre," so named because Mr. Hunter believed that it was the sole precursor of general syphilis, is a deep excavation in a large mass of induration. This crateriform ulcer is roundish, oval, or very irregularly shaped, often with a floor set in an angle, presenting thus the aspect of a deep fissure in a neoplasm. Its secretion is commonly scanty, though when profuse it may be hemorrhagic; its edges are sloping; its rim is densely indurated, capping a tumor-like mass varying in size from a hazelnut to that of a pullet's egg.

Mixed Chancre.—By this term is generally designated a venereal lesion which at the outset, usually a brief time after infection, exhibits all the characteristic features of the soft chancre ("chancroid," "chancrelle," etc.), but which, after a due incubative period has elapsed, becomes specifically indurated at the base, is accompanied by syphilitic bubo, and later is followed by general syphilis. This accidental implantation of the virus of syphilis upon a soft chancre (or upon its site before the appearance of the latter) is analogous to the complication which ensues when a herpetic vesicle ("cold sore") of the lip or a cigarette-burn of the same region becomes infected with the virus of syphilis. In these cases it is the modification of the original process that announces the syphilitic complication.

The chancroid or "soft chancre" is essentially a pustular lesion, and its purulent secretion, whether from pustule or from suppurating abrasion or fissure, is indefinitely auto-inoculable, as distinguished from the secretion of the syphilitic initial lesion, which is scanty and non-auto-inoculable; hence all infecting chancres secreting an auto-inoculable pus are of the "mixed" type. The bubo, also, accompanying the soft chancre is usually inflammatory and has a tendency to suppurate, as distinguished from the dense multiple buboes of syphilis, which rarely suppurate and are often non-inflammatory in type. It follows, then, that the buboes of "mixed chancre" may exhibit the features of one or the other of the two disorders thus commingled. The important point to recognize is that syphilis may ensue after the occurrence of "mixed" chancre; and this possibility should never be forgotten in making the prognosis of any suspicious venereal sore. The individuals most often exhibiting these "mixed" chancres are of the pauper class frequenting public dispensaries and out-patient departments of hospitals—persons whose female associates are as uncleanly as they are vicious.

Another "mixed" variety, in the light of modern science, is the chancre of syphilitic origin that is also later infected with micro-organisms. This complication is

more common than is generally supposed. All the pus cocci, several of the mucors, and a large number of foreign substances, usually inert, may often be recognized in chancres, especially in those of the filthy, but also of those who never previously suffered from venereal disease, and who, in ignorance or as the result of improper advice, suffer from neglect of cleanliness or from positive aggravation of the original disease.

Chancres of the Syphilized.—Persons infected with syphilis have usually but one attack in a lifetime. The exceptions to this rule are so rare as simply to enhance its value and importance. But the recent as well as the veteran victims of that disease expose themselves to it and to other venereal diseases with results which demand exact recognition.

Such persons, of course, may contract "soft chancres." But when exposed to fresh sources of syphilitic virus they occasionally exhibit, as a result, chancres of a formidable type and an obscure character, requiring some expertness for their proper recognition. Some of these results are (*a*) lesions like soft chancres, but atypical, less clean-cut at the edge, with much less purulent secretion, and non-auto-inoculable; (*b*) slightly indurated chancres, strongly resembling the initial erosion chancre, without accompanying syphilitic bubo, and disappearing without leaving results of consequence; (*c*) large indurations with deep central excavation, at times strongly resembling the "Hunterian" chancre, yet without bubo, and yielding completely to proper internal treatment. Some of all these are, without question, gummatous (so-called "tertiary") lesions of general syphilis, occurring with reawakened activity where, at the site of invasion, new bacilli have been introduced. Yet rarer are (*d*) pea-

sized and larger, exceedingly dense, circumscribed thickenings of the genital region, without erosion, ulcer, or hyperæmia, and due to the causes named above.

Location of Chancres.—As distinguished from chancroids, which are very rarely extra-genital in site, syphilitic chancres may occur upon any exposed portion of the body-surface; very rarely indeed do they develop at long distances from the mucous orifices of the body (as, for example, in the bladder, œsophagus, stomach, etc.). The genital region of the two sexes is most often involved merely because of the frequency of transmission in the ample opportunities of the sexual act. In this way the balano-preputial sulcus, the rim and inner face of the prepuce, the frænum, glans, and integument of the penis, the scrotum, the inner face of the thigh in contact with the latter, and the perineum become common sites. Urethral chancres are rarely deeply situated, but they may commonly be recognized at the tip of the glans in men, where the indurated mass encroaching upon the limits of distensibility of what may be termed the "urethral nozzle" produces so much local irritation and consequent sero-purulent discharge that the symptoms are often mistaken for those of a blennorrhagia. When the glans in these cases is grasped firmly between the thumb and the finger, the induration may be felt, resembling a short section of a clay pipe let into the submucous tissue, and at the moment of pressure a characteristic whitening of the rim of the labia of the meatus urinarius bears witness to the extreme thickening of the initial lesion.

In women the labia majora and minora, the fourchette, the os uteri, the clitoris, the vestibule, the meatus urinarius, and, very rarely, the point of the superior