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SYPHILIS.DEFINITION.

Syphilis is a chronic infectious disease, acquired by inoculation with the blood or morbid secretions of an individual suffering from the malady or by transmission from parent to child, believed to be due to a specific micro-organism, and characterised by a variety of structural lesions, of which the chancre, the mucous patch, and the gumma are the most distinctive.

HISTORY.

The occurrence of an outbreak of syphilis in Italy between the years 1495 and 1500 may be said to mark our knowledge of the disease as a separate and distinct affection. From the numerous writings which appeared in the latter part of the fifteenth century, and in the beginning of the sixteenth, it is evident that the physicians regarded it as a distinct disease. Its origin is, by common consent, traced by them to the army of Charles VIII. of France, who had been in Italy since September 1494, and 1494-95 was besieging Naples. The disease is said to have broken out in a very severe form, and to an alarming degree, amongst the soldiers of the besieging army. Marcellus Cumanus, who observed the disease amongst the army besieging Novara, gives the earliest description. Ulcers of the genitals, violent pains in the arms and legs, and persistent eruptions of the skin, are described as symptoms of the affection. While most physicians, as Conradinus Gilinus (Aphor., I, p. 343), in 1497, recognised the starting-point of the disease to be in the genitals, and regarded impure sexual intercourse as the most important element in the etiology, yet this to many seemed insufficient to account for the suddenness of the outbreak, and the rapid, universal spread of the malady. By some the stars were blamed as the source of the evil, and since, in the year 1483, an exceedingly ominous constellation had made its appearance, they did not hesitate to ascribe the origin of the disease to it. Corruption of the atmosphere was assumed by others to be the cause of the outbreak. More especially, perhaps, in order to account for the attacking of ecclesiastics, was the air considered as the medium of contagion. Various writers advanced atmospheric conditions as the source of the epidemic, and it was especially noted that the year 1494 was an exceedingly wet year, many of the rivers being flooded at that time. It is not strange to read that the discovery of America was thought of in order to account for the sudden outbreak of a hitherto unknown disease: indeed, it is remarkable that so long a time should have elapsed before the two events were held in intimate relationship to one another. As regards this point, it appears that the earliest contribution was made by Leonard Schmaus (Aphrod., I, p. 383), professor in Salzburg, who, in 1518, wrote: "For it is clear to all, that the West Indians had for many years suffered from this disease". It seems, therefore, - as is also evident from the letter of Jo. Wandarus (Aphrod., I, p. 606), written in 1525, - that this view was already widely entertained at the time, although not one of the earlier medical writers mentions it; and even

Schmaus is disposed to regard the origin of the disease in Europe as due to the influence of the weather. R. Diaz de Isla (Med. Times and Gaz., 1867, II, p. 90), whose writings, although not published until 1589, were probably written some time earlier, - about 1510, - claims to have treated men from the ships of Columbus, who were suffering from the disease before they landed; and also that, before the King of France had come into Italy, he had persons under treatment for the same affection in Barcelona. The disease is said to have spread in the latter place from the soldiers and sailors of Columbus, they having brought it from Hispanola (Hayti); and that it was raging there as early as the middle of the year 1494, is shown by a letter of Nicolaus Scyllatius (Aphrod. I, p. 116) which was written on June 18th, 1494. But it is remarkable that, while he expressly states that the physicians told him that the disease had been imported from France, he makes no mention of the American origin of the pestilence which he found in Barcelona. The elaborate treatment in vogue in Hayti, and particularly the use of guaiacum wood, Diaz de Isla advances as an especial ground for believing that the disease had long existed there. "How could these uncultivated people have attained to such a systematic method of treatment unless the disease had been prevalent among them for a long time?" Indeed, it seems chiefly to have been the introduction of the guaiacum wood into Europe (into Spain in 1508, and into Italy in 1517) that gave currency to the theory of the disease having originated in America. In the middle of April, 1493, after having landed at Seville in the first part of the same month, Columbus arrived in Barcelona. But, inasmuch as before this he had remained nine days at Lisbon, and was for some time detained by stormy weather off the Azores, and, furthermore, since one of his ships before joining him at Palos, south of Seville, had touched at the coast of Galicia, it was naturally suggested that, supposing the disease to have been really brought from the West Indies, it should have broken out in all these places before it did in Barcelona. Montéjo endeavours to show that this was impossible, since but a few of Columbus' men landed at the Azores, and remained only for a short time, and that they were cruising there in the storm but one week altogether; and at Lisbon, he declares, the crew did not go ashore, and Columbus himself, accompanied only by a pilot, visited the King of Portugal, not in Lisbon, but at a country-seat in Valparaiso. The same author, in reference to Seville, shows that there was a hospital there as early as 1502, for the treatment of syphilis, to which the name of "Serapion de las Indias" had been given (Med. Times and Gaz., 1867, II.). The disease from Spain was carried into Italy, partly by the Spaniards in the army of Charles VIII., and partly by the Spanish army which was led by Gonzalo Hernandez de Cordova into Italy to the assistance of King Ferdinand II. of Naples, and which in May, 1495, landed at Messina. The theory of the American origin of syphilis was, however, most contributed to by the work of Gonzalo Hernandez de Oviedo (Relacion sumaria de la historia general y natural de las Indias occidentales, Toleti, 1525, who, in 1525, was sent out to Hayti to inspect the mines there, and in 1525 published a description of the country. We find this theory often mentioned or avowed by the medical writers of the middle of the sixteenth century, as, for example by Alfonso Ferri in 1537, J. Bapt. Montanus in 1550, A. Musa Brasavolus in 1551, Gabr. Fallopius in 1564. Astruc's celebrated work (De Morbis venereis, Lib. VI, Paris, 1789) lent the theory weight in the eighteenth century; but, at the same time, instigated the critical writings of Ant. N.

K. Sanchez (Dissertation sur l'origine de la mal. Vénér., Paris, 1752; Examen historique l'apparition, etc., Lisbonne, 1774), and Hensler (Ueber den westindischen Ursprung der Lustschey, Hamburg, 1789), which, in spite of the partially well-founded objections raised against them by Girtanner, have still the effect of depriving Oviedo's statements, with regard to the primary occurrence of syphilis in the West Indies, of all credit, even to the present day. Montejo, Gaskoin, and Bassereau have attempted to re-establish them. The latter urges that during the life of Oviedo no opposition was raised to his view, although, in other respects, his history of the West Indies encountered little hostility. But, after all, that does not appear so remarkable when we consider that this view was an explanation of the outbreak of the disease, - to every one a new and strange affection, - which obviated all difficulties, and that the Spaniards, and especially the French, were only glad to accept a theory that relieved them of the reproach of having themselves given birth to the disease. However, Oviedo's assertion did encounter an adversary even in the sixteenth century, in the person of the Spanish priest Francesco Delicado (Il modo di adoperare legno di India occidentale salutare remedio, etc., Venetia, 1529), who lived for a long time in Italy, and who makes the statement that the disease, with which he was acquainted from personal suffering, - prevailed as early as 1488 in Rapallo, and was carried to America from Columbus' sailors. J. D. Vigo, who was born in Rapallo, and wrote in 1503, does not mention this, and makes the first outbreak of the disease occur in 1494. As shown by recent investigations, certain other alleged facts, in regard to the first outbreak of the disease, which are used as objections to Oviedo, prove not to be authentic. Thus, the accuracy of the date of the frequently quoted letter of Petrus Martyr Anglerius to Aurius Lusitanus, in Salamanca, was indeed suspected by Sanchez, to whom this letter might have been of material service, and it has more recently been called in question by Pellicier, Muñoz, and Cantù. This letter is dated April 15, 1488 (Gaskoin, l. c. p. 21). Bassereau (Origine de la Syphilis, Paris, 1873) contends that in the chronicles of Puy, which were written by a contemporary and citizen of the town, de Meyès, the fact that the "verole" first showed itself in that city in the year 1496 is particularly mentioned. The disease, therefore, appears to have been in existence in Spain before the campaign of Charles VIII. But there is in the dates thus far presented nothing inconsistent with the supposition of its importation from America. Nevertheless, there are a number of collections of literary matter, descriptive and historical, which make it not improbable that the disease was not unknown in certain portions of Europe, even prior to the return of Columbus from the West Indies; indeed, in some of the chronicles before the Neapolitan campaign of Charles VIII. the terms "morbus gallicus", and "mala franzos" are met with. A very fair representation of syphilis occurs in the description of Friedberg (Die lehre von den venerischen Krankheiten in dem Alterthum und Mittelalter, Berlin, 1865) of a disease in persons of high rank; as, for instance the case of the Bishop of Posen, Nicolaus von Kurnik, who died on March 18th, 1382, after having suffered from ulcers of the genitals and afterwards of the tongue and throat, so that he was hardly able to speak or to swallow, and finally with ulcers upon the right side. The probability is that syphilis existed in certain portions of Europe, more especially in Southern Europe, prior to the epidemic outbreak of the disease in Italy at the end of the fifteenth century, in the same way, perhaps, as it prevails

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at times in retired localities in the form of an endemic disease. But, at the end of the fifteenth century various circumstances combined to favour a great general, epidemic outbreak. The previous centuries, by means of the crusades and the peculiar pilgrimages of the previous century, had already set the people in motion, and established more intimate relations between the different nations. The unsettled mode of life had tended to deprave the morals, and the rough bands of soldiers roving through the country gave occasion to all kinds of licentiousness. In Italy, just before the outbreak of the morbus gallicus, an epidemic disease, probably of a typhous character, had been raging and destroyed many people, the affection having been imported with the Jews (Marranen, Cited by Bassereau, loc.cit.), who were driven out of Spain; besides, the years 1494-95 were marked by great rain-falls, so that floods occurred at Rome and other places. All these circumstances would naturally impart to the already existing disease, when taken with the unfavourable hygienic circumstances that always accompany war and siege, an acuter, severer character than it had before; just as we now observe worse forms of the disease in persons reduced in health, or living under debilitating conditions. The spread of the disease in Italy, Spain, France, and Germany was also largely contributed to by the campaign of Charles VIII. This spread during the last ten years of the fifteenth century was of a very rapid and general character. Indeed, as early as the year 1496 measures were taken in the different cities of France and Germany to put a stop to the extension of the scourge. On March 6th, 1496, the Parisian Senate issued a decree designed to protect the inhabitants from the epidemic; it began with the statement that ^acertain contagious disease, "la grosse vérole" had been raging violently in different parts of the kingdom for two years. In Nuremberg (Waldau, Vermischte Beitr. zur Geschichte der Stadt Nuremberg, B. IV, p.409) the Rath passed an ordinance concerning the bath-keepers, and in reference to the "new" disease of the "French". In Frankfort, the disease broke out in the summer or spring of 1496. On August 9th of that year the Rath decided to issue a proclamation to the people, and on the 13th and 25th of October passed a decree with regard to it. The monk, J. Sciphover de Meppis (Chron. Archicomit. Oldenburg. in Meibom. script., t.II, 1497) relates of this pest that it came from Bremen and Hamburg to the principality of Osnabruck and to Westphalia. The controversial point as to whether syphilis towards the end of the fifteenth century was really a new disease, or was then for the first time imported into Europe, has engaged the attention of physicians with greater earnestness the farther they have been removed from that period. To the contemporaries, the influence of the stars, war, famine, and flood sufficed to account for the production of a new disease. Others contented themselves with the theory of the American, or even of an Ethiopian origin. Still, even at that time, there were some who sought to trace a connection between it and diseases with which they were familiar. They were specially disposed to trace the source of syphilis to lepra - the leprosy - which was at that time becoming extinct. But the efforts to identify these two diseases were opposed by Niccolaus Leonicensus (Aphr., I, p.18) in 1498). On the other hand, again, Natalis Montesaurus (Aphr., I, p.115), in 1498, declared that the disease was no new one, but had already been described under the names Bothor and Asphati; and Sebastianus Aquilanus (Aphr., I, p.5), in 1498, says that it is identical with the elephantiasis of Galen; but, in this, is

sharply corrected by Jacobus Catanneus (Aphr., I, p. 143) in 1516. An attempt has since been made to establish the theory of the development of syphiosis from leprosy. As F. Simon (Virchow's Handbuch der spec. Pathol. und Therapie; II, 1, p. 429) calls it the offspring of leprosy, and claims, too, that under certain circumstances it may become its parent. What we see of leprosy at the present day in the East and various lands, certainly bears but little resemblance to syphilis; and it is noticeable, too, that in the commencement of the sixteenth century, the lepers were evidently afraid of infection from those who were syphilitic, and that this was no groundless fear; that is, that lepra afforded no immunity against syphilis, is shown conclusively by the inoculation experiments of Danielssen. Still, it is not impossible that the term "lepra" was made to embrace much that properly belonged to other diseases, syphilis included; and this view is made plausible by E. Guntz (Arch. f. Dermat. u. Syphilis, B. II, 1870, p. 59) from the descriptions of lepra by B. Gordonius (1805). Putting aside the controversy as regards the supposed infectivity of leprosy, such passages as the following of J. Gaddesden (Roas Anglica, Lib. II, cap. vii, de lepra) are interesting: "Ille qui concubuit cum muliere cum qua coivit leprosus puncturas inter carnem et corium (scil. virgae) sentit et aliquando calefactiones in toto corpore et postea frigus et insomnientates et circa faciem quasi formicas currentes;" and comparing such passages with others where lepra is not directly referred to, but rather some general infection of the body following impure intercourse, the unavoidable conclusion is that the implied disease is syphilis. The question becomes more involved if we go farther back in the literature, from the fact that in the writings of antiquity and of the middle ages we rarely find such minute and descriptive accounts of morbid appearances as are contained in certain passages from Celsus and Oribasius; but the accounts are mostly limited to the descriptions of various local affections, for which technical names are employed, whose import, expressed according to modern pathological views, is not easy to determine. The position of pathology, or of any single prominent investigator at any period, has a decided influence upon the interpretation of such expressions. For those who made syphilis arise from the most various local affections of the genitals, from gonorrhoea even, the fact of there being evidence of such local affections had been observed and unmistakably described in remote antiquity was quite sufficient proof of the existence of syphilis in those times; while, on the other hand, certain adherents of duality in syphilis saw only in those records descriptions of purely local affections, such as are of frequent occurrence at the present day, and have solely their frequent source in unclean sexual intercourse in common with syphilis. The fact that we find no accounts of such affections as occur in children with hereditary syphilis in the writers of Grecian and Roman antiquity is striking. A passage in Michael Scotus, - de procreatione et hominis physiognomia, - which Cazenave cites, may possibly have some reference to this: "Sciendum est quod si erat fluxus quando erat facta conceptio creatura concipitur vitiata in plus aut minus". In the Ajurveda of the Indian medical writers, such as Susrutas (Erlangen, 1844-50, B. I, cap. XII, and XIII, p. 195, and cap. II, p. 175; II, p. 124), which contains throughout very interesting accounts of affections that owe their origin to sexual intercourse - and can, therefore, scarcely be considered as anything else than syphilis; he mentions an "atrophia ulceribus terribilis" of infants,

for the occurrence of which demons are held responsible. It is in the highest degree probable, therefore, though difficult to prove absolutely, that, not only local affections of the most varied description, due to unclean sexual intercourse, but also syphilis existed even in antiquity, both in the East and in Europe. But not, however, until the close of the fifteenth century was it recognised as a disease sui generis. Noteworthy is the fact that, originally, various exclusively local affections of the genitals - ulcers (caries, caroli) and discharges (gonorrhoea) - were distinguished from the "morbus gallicus" and were represented as something peculiar. And there was considerable doubt, with regard to the epidemic outbreak of the disease, as to whether its origin was not due to the action of general causes. Gradually, however, as the most frequent source of the disease came to be recognised, in the category of morbus gallicus all affections of the genitals springing from sexual intercourse were included in common. Infection was, as early as the sixteenth century, recognised as a cause of a blenorrhoea of the urethra, while it had been hitherto regarded as a true gonorrhoea, as a superfluitas. In the earliest descriptions of the morbus gallicus no mention is made of the gonorrhoea, and even in the petition of Simon Fish to Henry VIII, in the year 1530, the clap was distinguished from other diseases communicable through coitus. While at the end of the sixteenth century Hieronymus Capivaccius speaks of a "gonorrhoea citra luum venereum", we find that such distinction was more and more lost sight of, up to the end of the seventeenth century; so that Sydenham (*Opera universa*, *Epist. respons.*, II.) wrote: "cujus (scilicet morbi) virus cum per gonorrhoeam non ejaciatur, sanguinis massam dicto citius pervadit infecitque". The progress, however, of medical thought in the eighteenth century demanded the separation of gonorrhoea and syphilis. In 1767, Balfour (*Diss. de gonorrhoea virulenta*, Edin., 1767), in a dissertation upon the subject, maintained their non-identity. But this view produced a less general impression than it would otherwise have done, since so weighty an authority as John Hunter (*The Works of John Hunter*, ed. by J. F. Palmer, Vol. II, London, 1835, p. 143), supported by experiments, decided in 1787 in favour of the identity of gonorrhoea, chancre, and lues venerea. In May, 1767, Hunter had inoculated (probably upon himself) pus, which he considered to be gonorrhoeal matter, on the surface of the glans penis and prepuce (*loc. cit.*, p. 417). Ulcers were produced, followed after some months by ulceration of the tonsils, and a coppery skin-eruption. Consequently it appeared to John Hunter that the identity of the gonorrhoeal, chancreous, and syphilitic virus had been clearly demonstrated. Differences in the manifestations he believed to depend solely upon the difference in locality; on mucous membranes the venereal virus produced a blenorrhoea, upon the skin an ulcer. On the other hand, Benjamin Bell (*Treatise on Gonorrhoea Virulenta and Lues Venerea*) took up the controversy in 1793, and advocated, - likewise supported by experiments, - the view of Balfour. But the matter was only settled definitely, in consequence of the numerous inoculations made by Ricord (*Traité pratique des maladies Vénériennes*, Paris, 1838), in the year 1831. Out of many hundred inoculations of the skin with gonorrhoeal secretion, Ricord did not succeed in producing a chancre or constitutional syphilis in a single instance; the contrary results obtained by others he explained by supposing that in their case a chancre had been concealed within the urethra. Thus gonorrhoea was once more finally eliminated from the definition of syphilis, and the latter term was

limited to ulceration and certain other diseased processes upon the genitals, and to those symptoms called, since Hunter's time, "constitutional." A further restriction of the term was proposed by Basseréau in 1852, in separating from syphilis the so-called soft chanéres and the suppurating buboes, to which they often gave rise.

S Y N O N Y M S.

We have seen that the term "morbus venereus" was for long applied to the disease; and a number of local affections, having no connection whatever with syphilis, were for a considerable period confounded with it. Etiologically speaking, syphilis and morbus venereus are not synonymous terms; syphilis may be a morbus venereus - as, in fact, it is in the great majority of instances - but not necessarily. The term "syphilis" was probably invented with reference, etymologically, to the most frequent mode of origin of the disease, and was first employed, incorporated in a myth, by the Veronese physician Hieronymus Frascatorius (*Syphilis sive morbus gallicus*, Lib. III, 1521), who related in a poem concerning the disease, that a herdsman of King Alkithous, Syphilus by name, was afflicted with it by Apollo, in punishment for paying divine homage to the king instead of to the god. Other names employed in the fifteenth and sixteenth centuries were: "Morbus gallicus" (by the Italians, Germans, and Spaniards), *Morbus neapolitanus*; by the French, who, however, as early as the end of the fifteenth century, called the disease "la grosse vérole." In Spain the popular term was "bubas" (pox); in Germany - "Welsche Bossen" or "Purpeln", and also "mala franzos". The names "Lues venerea", "mentagra, or "mentulagra", and "Pudendagra",, and "Patursa", etc.,, were employed by the older writers. The term "Sibbens", or "Sewens" was applied to a disease peculiar to the west of Scotland, and especially to the counties of Wigton, Dumfries, Ayr, etc., which first began to be observed towards the end of the seventeenth century, - 1694,- at which period it was said to have been imported by the soldiers of Cromwell. From the descriptions extant there can be no doubt that it was in reality syphilis.

D I S T R I B U T I O N.

There is scarcely any necessity to enter into minute details as regards the geographical distribution of syphilis, for, in consequence of the active intercourse which has been maintained between different countries in modern times, the disease is of wide-world prevalence. Still, its principal seats are the great centres of traffic and luxury, whence the malady is constantly being conveyed to other and remote localities. Especially is this true of the great seaport towns. In many countries the coast is invaded before the inland regions. The fact that syphilis develops less readily in one place than in another is to be ascribed solely to external circumstances. The mode of life, manners, and customs, material prosperity, national temperament, and the grade of civilisation are the main points that influence the spread of the disease. Race appears to have no particular bearing upon susceptibility to the syphilitic poison. It is, therefore, so much the more remarkable that in certain countries,

although exposed to the infection, the disease has made little or no progress. These countries are such as Iceland, and, according to Livingstone, a portion of Central Africa. Livingstone states that the natives who contracted the disease upon the West Coast recovered, and on returning home, without medication. This peculiarity, however, was exhibited only by the natives of pure African blood; mixed breeds were affected by the disease precisely as Europeans, and, moreover, negro tribes or other regions exhibited no such immunity to syphilis. Livingstone's statements still require confirmation; the causes which have hitherto prevented syphilis from taking root in Iceland are yet obscure. It has been affirmed by many good observers that the disease appears to be more severe when communicated to Europeans from persons of another race, e.g., Europeans in China, etc. It is scarcely possible in an essay of this kind to mention all the countries where syphilis is especially prevalent, or to relate what is known concerning the period of the earliest occurrence of the disease in various lands. The main facts are very exhaustively dealt with in the excellent treatise by Hirsch (*Handb. der histor. geograph. Pathologie*, Erlangen, 1860, + *Syd. Soc. Trans.*). I will only allude to the facts that in the South Sea Islands the disease threatens to exterminate the natives, and that in South America, but still more so in Mexico, it is extraordinarily prevalent. At the end of the eighteenth century the spread of the disease in America had been very limited, and there are said to this day to be Indian tribes, living quite apart by themselves, whom the disease has never reached. In the East its principal seats are the great seaport towns of China and Japan; in Africa, Egypt, Abyssinia, and Algiers, and also the western coast; in Europe, the northern provinces of Turkey, the northern portion of European and Asiatic Russia. The influence of climate upon the development of syphilis is a factor of secondary moment in comparison with other outward influences which affect health and vitality. According to Lagneau (*Rech. compar. sur les mal. vénér. dans les diff. contrées*, *Annal. d'hygiène publique et de méd. légale*, Ser. II, t. XXVIII.), the course of the disease owes its character to the temperature of the region where it occurs. In the warmer countries it is claimed that it runs a more rapid course than in the colder. In regard to the influence of climate upon the course of the disease so far as severity is concerned, a number of statistics, intended to indicate a favourable influence of mild climates, are offset by Hirsch with another series, equally large, which shows that even with the most favourable climate the disease may take a very malignant course. The more uniform the climate is, the less unfavourable will be the influence from this particular source; but, at the same time, the resulting advantage may be quite outweighed by other circumstances. The same result as residence in a severe climate may occur in one who dwells in a region where not yet acclimatised.

GENERAL PATHOLOGY.

A fixed contagium is contained in the disease-products and in many of the physiological elements of those affected by syphilis, which is capable of reproducing the disease when inoculated into a healthy person by accident or by design. It seems that the contagium does not penetrate the intact epithelial layer of the skin or of the mucous membrane, but that an inoculation is effected only in parts deprived of epithelium, or when the contagious principle is introduced beneath the epithelial layer. In all probability

it may also gain entrance by penetrating into the hair follicles down the roots of the hair. Having gained entrance there the typical local lesion develops, the general symptoms following in due course. The contagium then reproduces itself for many years, - during a period in which, too, it may be transferred to a healthy person, - within the diseased organism, and also retains its virulence for a length of time that has not yet been determined with accuracy. The constitutional syphilitic disorders are manifested by a chain of symptoms continuing for years, sometimes for life. During this time there are periods of relative, apparently complete, health, without anything abnormal being observed - the so-called "latent periods." The disease, however, probably dies out after a relatively short period in many, if not most, cases. It is but very very seldom that the typical local changes produced by the syphilitic poison are wanting, but in some exceptional cases they cannot be found. Syphilitic semen, in producing conception, may at the same time infect the woman, and cause constitutional syphilis without causing an initial lesion, and the same is true as regards women who have become syphilitic during pregnancy by retro-infection from the foetus. The initial symptoms are always absent if the virus is introduced with the generative cell, in which case the advance of the disease coincides with the development of the foetus, and we may encounter only general disorders without local lesion. The terms "inherited", "hereditary", and "congenital" syphilis have been applied to the disease when it developed during intra-uterine life. From the "acquired" form it shows other marked differences. It is at present uncertain whether syphilis can be transferred to the second generation. The infiltration which constitutes the initial syphilitic local lesion develops at the point where the contagium penetrates the skin or the mucous membrane, i.e., where desquamation has occurred or where there is a chaf or crack in the integument, an accidental or artificial injury, or an open follicle perhaps. The lesion appears only at the point of infection, but only after a symptomless period of days or weeks - provided no other infectious material is inoculated at the same time. The duration of the symptomless or incubatory period is usually two, three, or four weeks; occasionally, however, it has been observed to last only one week, sometimes five or six weeks; and J. Hutchinson says he has seen it extended to eight weeks. There arises, after the initial lesion has existed for a few days, a usually painless swelling of the nearest lymphatic gland, or of those next away from it - the indolent bubo, sclerosis of the glands, scleradenitis; at the same time we frequently see sclerosis of the lymphatic vessels, - sclerotis lymphangitis, - the lymphatic vessels being, between the initial lesion and the bubo, changed into thick, knobby cords. Then appear symptoms of general infection after a few more weeks, - the so-called "second incubation", - which may involve any organ, or any tissue, either singly or in combination. These symptoms may last, with brief or protracted interruptions, - sometimes of years, - for a variable period. This is general or constitutional syphilis, characterised by latent periods or relapses. Sometimes we see in this so-called "second incubation", - also called the "intermediary stage," - at a variable period after the initial symptoms, the development of characteristic syphilitic lesions. These are either interjected prodromes of the general eruption, or they have to be considered as the result of regional active or passive migration of the contagium, and partly of accidental or intentional infection - postinitial infection. The intervals between the infection

and the appearance of the initial symptoms, + first incubation, + and between this and the first symptoms of general infection, - second incubation, - can be exactly determined in some accurately described cases of experimental infection with syphilis. Thus, in one case, the duration of the first incubation period was, minimum, 10 days; and in another case, maximum, 42 days - the average being between 21 and 28 days. That of the second incubation period was, minimum, between 7 and 14 days (once); maximum, 159 days (once) - the average being from 6 to 12 weeks. In actual practice, however, great variation is observed in this respect, as it is, moreover, not always easy to determine the moment of general infection, and the character of the same makes some difference.

P A T H O L O G I C A L A N A T O M Y.

PRIMARY LESION OR CHANCRE.

At the point of entrance of the syphilitic virus healing will take place in a few hours like any other trivial lesion, and nothing can be seen of an unusual character for a few days, i.e., during the period of incubation. Then, if the poison has taken effect, an initial manifestation occurs in the form of an infiltration, which from the beginning is marked by a slight redness, sharply defined borders, induration, and slight sensitiveness; these characters, especially the hard, sharp borders, persist for some time; this first induration is called "Hunter's Induration" or "Hunterian Chancre", as well as the "syphilitic chancre", the "syphilitic induration", or simply "chancre" or "induration". The infiltration at other times has the form of a sharply defined, not very hard nodule, projecting above the surface of the skin, to which the term "initial papule" or "syphilitic papule" has been applied. The chancre, when examined under the microscope, shows a proliferation of the cells of the cuticular connective tissue, which in the beginning are found along the smallest blood-vessels, and the process must therefore be regarded as in part a proliferation of the elements of the walls of the vessels, and in part also a migration of leucocytes. In the course of its further development the new formation of cells extends between the small blood-vessels, so that finally the papillary layer, the rest of the cutis, and the subcutaneous tissue appear equally infiltrated. Gradually we observe in the vessels thickening of the medial and proliferation of the intima - changes which are found in the arteries as well as in the veins, and which finally produce contraction and even obliteration of their lumen. These processes resemble those of endarteritis and of endophlebitis. The lumen of the lymphatic vessels is not so affected, only perhaps larger than usual. Sometimes we find, corresponding to the sclerosed part, inter-papillary epithelial depressions of various shapes, like pegs or offshoots, penetrating through the infiltrated cutis; at other times the borders between the papillary layer and the stratum Malpighii are obliterated. In such cases the new cells of the cutis are forced always towards the surface, the epithelial stratum appears thinner and thinner, and finally disappears, + erosion, - or the infiltrated cutis, deprived of its epithelium, breaks down entirely, - ulceration. In retrograding chancres we find few cellular elements, but shrunken threads of connective tissue. In old chancres giant cells are occasionally found, as also other changes similar to those

existing usually in a gumma. The formation of new cells occurs also in the papillary layer, sometimes extending into the subcutaneous stratum, but principally confined to the papillary layer; starting from the blood-vessels; the papillae are usually longer and broader, and the interpapillary ingrowth of epithelium is often interspersed with proliferating young cells. Desquamation soon occurs as a result of moistening of the epidermis. The chancre of syphilis occurs as an infiltrate, from the size of a lentil to that of a shilling, which lies in the skin or mucous membrane and the underlying connective tissue as a sharply defined body, somewhat reddish in colour, and projecting a little above the level of the surrounding skin. According to the structure of its seat, so does that of the chancre vary as regards shape. If it is on thin skin with a loose subcutaneous connective tissue, it has a flat or plate-like extension, in which form it is easily recognised; it is sufficient to grasp the edges between the index and thumb to feel the cartilaginous hardness or hard plaque - parchment induration. The comparison to a flat plate of cartilage appears the more fitting if the chancre occupies the inner surface of the prepuce; if we try to turn the inner lamella outwards, the part of the prepuce which the chancre occupies appears like a stiff plate and is bloodless, just like the conjunctiva when turned over the tarsus. If the sclerosis occupies the free border of the prepuce or of the urethra, it will feel like a stiff tube. An indurated chancre is easy to recognise in this way, and the diagnosis can be confirmed by examination afterwards. Usually although the superficial extension of the sclerotic infiltration is pronounced, it may have a circular, semicircular, cylindrical, or bean shape; but it will generally feel doughy, indurated, and more or less sharply defined at its edges when grasped between the index finger and thumb. As has already been mentioned, these forms are usually more pronounced when they are located in loose tissue than when the skin is thicker or when the sclerosis lies over unyielding subcutaneous tissue; in women this difference is more conspicuous, if scleroses on the labia minor or on the prepuce of the clitoris are compared with scleroses on the rough skin of the thigh or on the labia majora. If the hard chancre is in the cavernous tissue of the glans or in the muscular stratum of the cervix uteri the diagnosis becomes even more difficult. In the latter case an indurated cicatrix, the remains of a laceration during childbirth, may be mistaken for a syphilitic sclerosis. In less accessible places, such as the vagina, or in extragenital localities, as on the lips, nipples, etc., it will not be difficult to recognise them, once their characteristics in the ordinary situations are learned. Usually the infiltrate, which underlies the chancre, increases in proportion as the patient is neglectful of it. When it is carefully attended to, the infiltrate will gradually diminish in the course of a few weeks; it shrinks into a simple thickening of connective tissue, which remains for years. Sometimes, however, the retrogression is so rapid and complete that no trace of induration can be found after a few weeks; and occasionally the indurated part becomes atrophic, cicatricial, thin, and poor in pigment. All this may occur, especially when the lesion is of limited extent or in some inaccessible place, without any appreciable injury to the patient, so that he may deny in good faith any knowledge of an initial lesion; and he may be utterly unable to account for the presence of old connective-tissue induration or a colourless, atrophied cicatrix on the

penis which the medical attendant may discover. Sometimes one may overlook the infiltration, as it is often so trivial that it can be hardly seen or felt. The epithelium soon desquamates when the initial lesion is inside the preputial sac, leaving a limited erosion, discharging some secretion, and an appearance like posthitis or balanitis may be assumed by the chancre. As a rule, the epithelium covering the chancre desquamates early, leaving the corium as a light red, shining surface, often covered with thick, sticky pus; this is the erosive or desquamative chancre. In dry places this secretion becomes a thin, stiff crust. In other cases the secretion destroys the corium also, and a loss of substance results, leaving an ulcer; this is now called exulcerative sclérosis, ulcerative chancre, hard or indurated chancre, infective chancre, or the Hunterian chancre. Probably because of the access of pyogenic micro-organisms, a chancre early and often assumes an ulcerated form, so that some observers erroneously reverse its stages and assume that the ulcer comes first and then the induration; this is absolutely incorrect, at least for such cases in which there are no complications with the syphilitic infection. The destruction of tissue and the formation of the ulcer in ulcerated scléroses give rise to additional symptoms. The loss of substance rarely involves the whole extent of the sclerosis, but usually only the middle portion and without extending through the entire thickness. As a consequence of this, the principal characteristic of the chancre becomes the fact that it is situated on an indurated base, and is either partially or entirely surrounded by a hard, sharply defined border. For the same reason the edges of the ulcer are usually adherent, not undermined; the ulcer is generally shallow, but is sometimes deeper in the centre. The base of the ulcer is more or less discoloured by adherent sloughs, but is sometimes of a fine red colour and granulating. The quantity of the pus is proportionate to the size of the ulcer; it is shiny, and often contains shreds of broken-down tissue. To such an extent may the destruction of the ulcerated chancre prevail that at first sight it has all the appearances of a simple ulcer, but more careful examination shows that the margin and bottom of the ulcer have the clear characteristics of a sharply limited induration. There always remains an excavated, dish-shaped part, the outer surface of which forms the seat of the concave ulcer, when the greater part of the lesion ulcerates. Various circumstances give rise to ulceration of a chancre. Its histological structure, which shows endarteritis and endophlebitis, explains how the disease of the vessels may lead to gangrene. Thus we observe occasionally bloody, necrotic shreds of tissue in the centre of the open chancre, and the gangrenous process may even extend sometimes over the whole surface of the initial lesion, and in that case is formed what is termed the gangrenous chancre, the superficial layer of the chancre appearing as a blood-soaked eschar. The clinical picture may be altered by the lodgment of various pathogenic germs on the open, - ulcerated or gangrenous, - chancre. These are, besides the contagium of the venereal ulcer, - soft chancre, - the pyogenic cocci, especially when cleanliness is lacking. The destruction of tissue is rapidly increased by the inflammation produced by these micro-organisms. The more the lesion extends towards the surface, and the greater the macération which the epithelial layer undergoes, and also the more the person is careless and uncleanly in his habits, the sooner will erosion and ulceration take place. The movements of the parts and the consequent stretching and pulling in different direct-

ions of the infiltrated lesion also favour the occurrence of ulceration. The syphilitic virus, we have already seen, usually gains entrance in parts which are naturally disposed to erosions, tears, etc.; but the tendency to such lesions is increased by the pathological changes emanating from the initial manifestation, as a loss of the normal elasticity is occasioned by these. If inflammation is excited by carelessness or improper treatment the further course of the ulcerated chancre is unfavourable. Then we observe certain complications, - which may, of course, alter the original appearance of the chancre, - such as erysipelas, gangrene, etc. In consequence of exuberant granulation filling the ulcer and even rising above the surrounding level of the skin, an ulcerated chancre sometimes assumes a singular appearance - the so-called *ulcus elevatum*. In rarer cases the chancre becomes the seat of papillary excrescences, which may assume the appearance of warts, arising from a base of from the size of a hempseed to that of a pea, or which are attached by a slender pellicle, and form a growth with several lobes of various sizes and forms. These formations, - which are usually called *condylomata*, - sometimes develop alongside of the other syphilitic forms. They have also been called venereal warts or *papillomata venerea*. Under appropriate treatment the ulcerated chancre undergoes, as a rule, satisfactory improvement. The ulcer begins to clean, and a fresh growth of the epithelium begins to form at the periphery after a few days; the secretion of pus diminishes, and in a short time the loss of substance is covered by new skin. Nevertheless, close examination will show that the sclerosed part on which ulceration had existed has meanwhile decreased a little in area, but that further diminution proceeds very slowly; just as in the non-ulcerated sclerosis. It is in such cases often difficult to make the patients understand that the course of the initial lesion is not finished with the cicatrization of the ulcer, and that there is danger of fresh eruptions while induration persists. One must not forget this, or it will not be understood why and how sooner or later new ulcers arise in the same place. It is a fact that a chancre often breaks open again in one or the other part after such cicatrization, or that the initial lesion is but imperfectly cicatrized on one side, while at the opposite border the ulceration deepens and progresses. This is seen especially in cases in which the initial manifestation changes directly into a lymphatic sclerosis, or into an indurated lymphangitis. If in such cases the breaking down of the initial lesion extends to the lymphatic vessels which are affected at the same time, the ulcerative process is often greatly protracted. A chancre in the sulcus behind the corona has a special tendency to extend in this way, and we see the ulceration proceeding along the affected lymphatic vessels, or advancing along between the glans and the corpus cavernosum, pockets and excavated ulcers being formed, of a very chronic course, by its destruction. The chancre, however, sometimes shows only an imperfect tendency to heal, even when there is no affection of the lymphatic vessels, and leads to progressive ulceration in other parts. In such cases it is probable that the initial production has undergone a change into a gumma, this change resulting, - just as in a gumma which is breaking down, - in the taking on by the ulceration of a serpiginous character. A chancre is usually recognised easily enough, but under certain conditions other changes may occur which give a marked resemblance to the initial lesions of syphilis; such, for example, are scars produced by cauterisation with caustic potash or other caustics. At other times a trivial mechanical lesion, such as a tear or fissure, or

desquamation, around the genitals may, as can be readily understood, assume a suspicious character, - chiefly because of its situation, - without having anything to do with syphilis, upon the occurrence of a slight inflammation produced by the settlement of pyogenic micro-organisms. Consequently, the history of the case and the chronological order of the appearance of the lesions, as well as the condition of the neighbouring lymphatic glands, should always be most carefully investigated. The initial lesion may also be resembled by a gumma. When a chancre exists within the preputial sac, or be otherwise concealed, certain difficulties may arise. It is impossible to see the lesion in the sac of the prepuce when there is phimosis from the beginning, or when the initial lesion within the prepuce is accompanied by a contraction of its orifice, - a so-called inflammatory phimosis, - but even here we are usually able to diagnose a chancre. Externally there is no change visible; or there may be, at the site of the chancre, a small protuberance of a more or less red colour. But, if we palpate successively the glans, corona, sulcus, and fraenum, we shall be able to detect the existence of an induration. The form, uneven surface of the sharply defined, indurated, and sometimes sensitive infiltration is so marked that it can hardly be overlooked. The occurrence of a discharge from the orifice of the preputial sac is of no diagnostic value, for it is dependent upon the degree of ulceration or erosion. We may suspect the existence of a soft chancre in the preputial sac if the external surface of the prepuce is intensely red and swollen, and especially if it should be very sensitive in one or another part, but without the above-mentioned symptoms characteristic of a chancre. If these symptoms are absent, an existing discharge from the preputial sac may be regarded as due to gonorrhoea or to a simple or herpetic balanoposthitis. Initial lesions on the mucous membranes present usually the same clinical aspects as those on the skin; but the epithelial layer desquamates sooner in such cases, and consequently erosion and ulceration are more common results. The induration is then ordinarily covered with a whitish, scurfy epithelium, or is converted into an ulcer, more or less coated with secretion; or occasionally red and smooth. A chancre may be found concealed in any portion of the urethra, from the meatus to a point about one inch above the fossa navicularis; above this it hardly ever develops. Erosion usually follows quickly and produces some mucopurulent or frankly purulent discharge, which draws the attention of the patient to the possibility of a gonorrhoeal infection, although he cannot understand how it appears so long after the coitus. The burning sensation which accompanies gonorrhoea during macturation is absent or very mild, but the fact of a discharge from the urethra induces the patient to seek medical advice. Careful examination of the anterior portion of the urethra shows a circumscribed, hard, sometimes sensitive infiltration of cylindrical or spindle-like form, about half an inch in length or less. The infiltration can be easily found by pressing with the thumb and index finger the glans, sulcus, and other parts of the penis one after the other in regular order, and by palpating the urethra laterally. It is ascertained in this way that the sclerosis occupies either the whole circumference of the urethra, or simply one part of it. Rarely we find two or three perfectly distinct tumours. Sometimes there is at the same time another initial lesion externally on the penis or some other part. On endoscopic examination, the introduction of the

-e tube reveals a stricture of variable calibre, according to the degree of

infiltration; it is therefore necessary to use a tube of a smaller calibre. With this we are able to detect a displacement or a distortion of the central image, according as the sclerosis is cylindrical or occupies only one side of the urethra. We see a difference in colour after removing the thin layer of secretion if the eroded or ulcerated surface of the chancre is coated. Closely resembling a chancre of the urethra may be in gonorrhoea a considerable swelling and infiltration of the part. Usually this inflammatory infiltration of the submucous layer, when it is very extensive, occupies a large part of the urethra. Still, confusion will be avoided on observing the copious secretion and the existence of gonococci, even when it is only in a very limited portion of the channel. Venereal ulcers can also be seen with the endoscope. They are usually located in the anterior part of the urethra, and may be suspected from the observation of considerable swelling, redness, and sensitiveness, the urethra at the same time, however, being free from any sharply circumscribed induration.

The DRY PAPULE is a form of chancre which occurs in places that are not subject to heat or moisture. The skin of the penis, the surface of the glans in men who have been circumcised, the pubic regions, and the skin of the body in general furnish favourable sites for its appearance. The papule begins as a reddened, indurated point about the size of a pin-head, and increases slowly in size and elevation until it is several lines in height. The lesion is firmly indurated throughout, and the tissues at the base are more or less involved. The summit of the papule is flat or convex, and is usually covered with a dry, somewhat adherent grayish scale. The papule is often surrounded by a reddened areola. Its hue is a dusky red or a ham colour. It may continue as a papule throughout its entire course or be converted into a pustule, and later degenerate into an ulcer. A deeply pigmented spot often remains after the resolution of the papule.

In certain cases, superadded to the initial lesion, may be the peculiar condition known as INDURATED OEDEMA, which is that of an increase of volume of the affected part in consequence of a firm, oedema-like infiltration in the skin and subcutaneous connective tissue. Only, however, on the genitals is this condition found. One of the first cases of syphilis which I ever had to treat was of this kind, circumcision having ultimately to be performed owing to the enormous amount of swelling rendering retraction of the prepuce impossible. The patient had also a large bubo in the left groin, and a severe attack of gonorrhoea. Although it is usually in connection with the initial manifestation of syphilis that this indurated oedema is seen, it may also complicate the lesions of the constitutional disease, usually the papular lesions. The original syphilitic focus appears to be the starting-point of this affection, which may, however, attain a greater degree of development by passing beyond its early limits. The whole prepuce, then, may be found, as it was in the above-mentioned case, changed into a hard, elastic, even swelling, of such a degree that the member may attain the size of an infant's leg. The skin is dark or dirty-brown in colour, usually smooth and not pitting on pressure with the finger. The borders of this hard oedema are sometimes indistinct and at other times sharply limited, and with them the chancre and the initial syphilitic papule are usually plainly to be seen; sometimes we can feel a hard, nodular, lymphatic cord through the thick skin of the penis. The affection advances very slowly, and it rarely reaches the mons Veneris or the skin of the scrotum; when the

scrotum is invaded, there is an exaggeration of the normal markings of the skin of this region. There is no symptom of any inflammatory condition, such as sensitiveness, redness, or increased temperature. The occurrence of suppuration here is quite a clinical curiosity. The oedema changes slowly if left to itself, but under local and mercurial treatment it usually quickly subsides. The indurated oedema develops similarly in women; the labia majora, the prepuce of the clitoris, and sometimes the labia minora are affected.

The term MIXED CHANCRE is applied to those chancres arising from simultaneous infection with the poison of the soft non-syphilitic venereal sore (chancroid) and that of syphilis. The chancroidal elements are the first to develop. There is no incubation period, the sore appearing shortly after exposure. A pustule appears at the start. It is markedly inflammatory in its nature, and shortly becomes ulcerative. No induration can be detected at its base. If the sore appears upon the penis, a single gland in the groin may enlarge. The occurrence of enlargement in both inguinal regions is, however, of rare finding. The gland is tender to the touch, and soon becomes exquisitely painful. The skin over it is very red, and the gland may proceed to suppuration in due course. The sore takes on new features after the usual period of syphilitic incubation has passed. The base becomes hard, and the chancre assumes the characteristics of the ulcerative lesions of syphilis. The glands in general begin to enlarge, and constitutional syphilis is present.

SECONDARY LESIONS.

The most common are mucous patches; others are general lymphatic enlargement, alopecia, iritis, etc.

The favourite sites of the mucous patches are the muco-cutaneous junctions - mouth, anus, etc. In the mouth the papule is represented by the mucous patch. That there is no distinction between the two is evidenced by the readiness with which the papule occurring on the skin when subjected to heat and moisture is made to take on the characteristics which render it in no wise distinguishable from the mucous patch in the mouth. These mucous patches may be the result of transformation of a chancre occurring in the part, or they may develop independently or primarily. They then begin as reddened, circumscribed macules in the mucous membrane. Elevation, due to multiplication of the cells in the substance of the lesion, soon follows. Removal of the epithelial covering by maceration and friction follows, and the lesion takes on a grayish white appearance, as if the part had been touched with a pencil of silver nitrate. Mucous patches occur singly or in groups. Often they come out in successive crops. Coalescence may ensue, with the formation of an irregular patch varying in size. Neglected cases frequently show the entire roof wall of the mouth or the inner surface of the cheek covered by a lesion of this nature. Patches occurring upon the cheek or tongue are apt to beget like lesions upon the surfaces with which they come in contact. Favourite sites for their appearance are just within the angles of the mouth and underneath the tongue. When occurring upon the surface of the tongue they frequently have a glistening, shiny look, and may appear depressed instead of being elevated. This is due to the elevation of the surrounding papillae. The shining appearance is produced by the removal of the epithelium and the exposure of the rete beneath.

The patient may have great difficulty in swallowing owing to the occurrence of painful patches upon the walls of the pharynx. From infiltration of the patch with small round cells hypertrophy of the same may occur. When such patch is situated on the cheek near the labial angle, it often becomes deeply fissured, owing to the movements of the parts in mastication, and it then becomes very painful. It may even pass beyond the angle of the mouth and extend for some distance upon the surface of the cheek. Hypertrophy of the mucous patches on the surface of the tongue gives rise to lesions having very much the appearance of venereal warts. This form has given rise to the designation of the "toad's back" tongue. Lesions of this class belong to the type of moist papules so frequently seen in syphilis about the vulva and anus. Various skin eruptions are of exceedingly common occurrence in syphilis. Like the mucous patch, they show round-cell infiltration of the connective tissue and blood-vessels as in a chancre.

The other lesions of this stage will be described later on

TERTIARY LESIONS.

These are peculiar circumscribed inflammatory lesions known as gummata. Of variable consistency, they may develop in any organ; but their favourite seats are the subcutaneous cellular tissue, the skin, and upon the bones, the liver, the testicles, the brain, the kidneys, and, especially in children, the lungs. They present the appearance of a grayish-red, soft, homogeneous mass, either without fluid contents or else yielding a scanty juice-like mucus. They may occur as infiltrations of microscopic size, scattered throughout the parenchyma of an organ, and even when they appear as sizable tumours, as large as a walnut or more, they are not encysted nor sharply defined, but merge directly into the surrounding tissue. In fact, sometimes they occur more in the form of a diffuse infiltration than of a distinct tumour. Now, the development progressing, a softening takes place in the central portions, a metamorphosis into the above gummous or honey-like substance, or, on the other hand, the mass becomes drier and firmer, showing on section in certain places, a cheesy consistency and a yellow colour. A fresh gumma under the microscope shows nucleated cells of an inflammatory character, more or less closely packed together, and so imbedded in the tissue that when the cells are brushed away little cavities remain in their places. Here and there, besides the round cells, may be seen occasionally an indication of commencing transformation into connective tissue. The central softening is effected either through a simple atrophy and fatty degeneration, or through a mucous metamorphosis, under which circumstances stellate branching cells are often formed. Such a gumma, then, presents the appearance of a nodule, with more or less fluid contents, enclosed in a dense cortical layer. After a certain period fibrous tissue begins to be formed in the peripheral layers of the nodule, owing to the fact, probably, that nutrition is less active in these portions. This new connective tissue surrounding the growth develops most rapidly after the central portion of the tumour, or several isolated spots, have become caseous, in consequence of fatty degeneration of the densely crowded cells and of their intervening tissue; scattered throughout an exceedingly dense structure are then seen the yellow spots. The gumma is most frequently seen in the internal organs in the last-named form, which represents its final stage of development, and in which it may continue to remain for many years. The parenchym

of the latter, in consequence of the displacement, compression, and the cicatricial contractions to which the organs are subjected, suffer various alterations. The effects of a gummy tumour may extend to a great distance, in case it has caused contraction of the calibre of some vessel, especially of a blood-vessel, which is particularly liable to occur when the tumour has its seat in the tunica adventitia. As sometimes happens in the brain, fatty degeneration, and wide-spread softening processes, may be the consequences of a tumour in itself insignificant. The gumma, when situated in the skin, in the subcutaneous cellular tissue, and upon the mucous membranes and superficial bones, often makes its way to the surface, since in these situations it is not uniformly enclosed upon all sides, but is exposed to unequal pressure. Ulcerative processes then attack the entire infiltration. It is the general course of development that especially characterises the gummy tumour; for there is nothing that is specific in the separate processes of this development. Virchow points out that as a special characteristic may be noted the perishable nature of the cells, their disposition to become disintegrated through an incomplete fatty metamorphosis. But the cells of the gummy tumour share this nature with those of numerous other growths, notably with tubercle. The resemblance of a cheesy gumma to a cheesy tubercle, in certain parts of the body, may be so great that it becomes difficult to distinguish the one from the other. Even E. Wagner (*Das Syphilom*, *Archiv. Heilk.*, B. IV, 1862, S. 11), who coined the special name of "Syphiloma" for this lesion, and in regard to the specific character of it goes much farther than Virchow (*Die krankhaft. Geschwülste*, B. II, S. 387), does not look for its specific character in its histological constitution at any particular period of its development exclusively, but takes into account the mode of its course, the etiology, and even the action of remedies upon the development and further course of the tumour, to assist in characterising it. The histology, therefore, furnishes scarcely any more certain points for diagnosing a new growth to be syphilitic than may be obtained from a thorough investigation of its history, together with a circumspect clinical examination of the case, and a general summary of all existing phenomena. Nevertheless, we may believe with Wagner that the cells of the syphilitic new growths have in reality a more specific character than is apparent. The whole course of their development points to such being the fact; they owe this specific character to the tissues, the soil in which they develop, and so, indirectly, to that indefinable action of the syphilitic poison upon the tissues, whereby those properties are imparted to the cells which determine their future destiny. These properties have undoubtedly something specific about them; but their specificity is not obvious with regard to the single cell, and, from the course pursued in the cellular growths, can only be inferred. The occurrence of a cellular infiltration constitutes the only point in common between, histologically speaking, the gumma tissue and the primary affection. It is no more remarkable than we meet with elsewhere subsisting between widely diverse pathological conditions. Many of the local processes of the secondary period also present precisely the same histological characters. But what distinguishes these processes from the gummy tumours is their tendency to wholly disappear by re-absorption, or else to form more highly organised tissue; that is, to develop connective tissue, bone tissue, etc. The specific character of these secondary processes, then, must lie in something different from that of the later events. So Virchow makes the distinction between the merely

irritative and the gumous processes. The primary affection has been ascribed to the former, for the reason that in a large proportion of cases it is a process which disappears in a comparatively short space of time without leaving a vestige of it behind. The source of irritation to which it is due, viz., the syphilitic poison, is in this instance brought from without directly into the healthy tissue; during the irritative processes of the secondary period the virus operates from without, i.e., from the blood, upon all the various tissues of the body.

GENERAL ETIOLOGY.

BACTERIOLOGY.

The accumulation of evidence points to a living germ being responsible for the production of syphilis. So many of the clinical facts and manifestations of the disease can be given a ready and satisfactory explanation by the assumption of such an hypothesis. Moreover, reasoning by analogy we are able to arrive at the same conclusion. Syphilis undoubtedly belongs to the category of the infectious granulomata. Its infectiousness, the course it pursues, the development, the structural anatomy, clinical appearances, and ultimate termination of its various lesions are all in accord with diseases of this class. In this group of affections are included leprosy, tuberculosis, glanders, lupus vulgaris, mycosis fungoides, and actinomycosis. All these diseases are known to be inoculable; bacteria are found constantly in their lesions; and in some, as in tuberculosis, glanders, and actinomycosis, certain of the organisms are positively known to be the causative agents of their production. The belief, then, that syphilis originates in the same manner is almost proved by these facts. Nevertheless, though there is every probability that the existence of a bacterium produces and perpetuates syphilis, we have not yet been able to detect, isolate, and thoroughly demonstrate it.

In 1884 and 1885, Luschgarten (Wiener med. Woch., 1884, p. 47; and Wien. med. Jahrb., 1885) described a bacillus which he had found by staining syphilitic tissues by a special method: this he assumed to be specific. The staining method required to demonstrate its existence is somewhat complicated, and is as follows: Thin sections of the part to be examined are made through the border of the lesion, including, if possible, sound as well as syphilitic tissue. These sections are placed in a solution consisting of one hundred parts of aniline water, and eleven parts of a concentrated alcoholic solution of gentian violet. In this they are allowed to remain for twenty-four hours. The temperature of the solution is now raised to 40°C., and the immersion is continued for two hours longer, after which the sections are removed and placed in absolute alcohol for five minutes. On removal from this they are dipped for ten seconds in a one and one-half per cent. solution of permanganate of potassium, and then decolourised in sulphurous acid largely diluted with distilled water. If after a thorough attempt it is seen that decolourisation of the specimen cannot be thoroughly effected, the process of washing in alcohol, permanganate solution, and a stronger solution of sulphurous acid must be repeated. The section when ready for mounting must be colourless to the naked eye. When decolourisation is complete, the section is washed in distilled water, cleared in the usual way with oil of cloves, mounted in glycerine or Canada balsam, and examined under the

microscope with an oil immersion lens. De Giacomini (Baumgarten's Jahrb., 1885, p. 96) prefers to stain the cover-glasses in a hot anilin-water-fuchsin solution for a few moments, or sections in the same solution, cold, for twenty-four hours; after which they are immersed first in a weak, then in a strong solution of chloride of iron. The sections are then dehydrated and clarified in the usual way, after being washed in alcohol.

The syphilitic tissues thus stained are found to contain bacilli, each one being from three to seven micromillimetres in length, or about the size of the tubercle bacillus. It has a slightly curved or S-shaped appearance, and knob-like enlargements at its end. In the tissues and secretions of chancres and moist papules; in dry papules, mucous patches, gummata, condylomata, and lymphatic glands these bacilli have been found. They are not numerous, usually being found alone, or in groups of two or three to eight, somewhat resembling, but larger than, the white blood-corpuscles. They are usually found near the advancing border of the lesion, and not very often within its substance deeply. The hypothesis of Luschka's bacillus being the specific cause of syphilis has not yet been proved. He himself did not carry his work to completion, nor has any observer done so since. The probable specificity of the bacillus was lessened by the observation of Matterstock (Mitth. med. Klin. Würzburg, 1885); Alvarez and Tavel (Arch. de Phys. normal et Path., 1885), that preputial and vulvar smegma, taken from healthy individuals commonly contained an organism similar in morphology and staining. Furthermore, it is not enough to find certain forms of bacteria present in the syphilitic lesions. They must be found constantly in all at least of the earlier lesions. They must be removed from such lesions, isolated from all other species of bacteria, and pure cultures must then be made upon suitable media. From these cultures inoculation experiments upon individuals free from any taint of the disease must be made, with the result in them of producing demonstrable syphilis. In the lesions of syphilis thus produced the same germs must be found. These are essentially Koch's laws, and in the observance that they require alone can complete proof be found. Only when this shall have been accomplished with the bacillus of syphilis be completely demonstrated. One great difficulty in the way of demonstrating the germ of syphilis is the fact that animals are immune to the disease, and, therefore, the help afforded in the study of, say, tuberculosis is here denied. Inoculation experiments have been tried repeatedly on animals, but only in rare instances with uncertain results.

Van Neissen (Centr. f. Bakt. u. Parasitenk., Bd. XXIII, No. 2, Jan. 19, 1898, p. 49; Nos. 3 and 4, Jan. 31, 1898, p. 97; and Nos. 5 and 6, Feb. 11, 1898, p. 177) claims to have cultivated from the blood of syphilitics, upon the usual media, a motile flagellated, sporogenous, aerobic, and optionally anaerobic, non-chromogenic bacillus, which is capable of being stained by the ordinary methods, including that of Gram, but which does not resist the decolourising effects of acids. In inoculation experiments Van Neissen observed (1) abortion in pregnant rabbits, (2) extragenital primary lesion in the form of nodes upon the ears of these animals, and (3) secondary ulcers and tumour formations, and irregular lesions, such as sometimes produce pneumonia and thrombosis. These facts he adduces in favour of the theory of the specificity of his organism.

Döhle reports having discovered certain protoplasmic bodies in stained syphilitic tissues, like those which he had previously isolated from the

discharges. They were stained by a mixture of haematoxylin and carbolfuchsin, then immersed in iodine, and washed in alcohol. The usual forms were round or oval, sometimes with irregular outline, and flagellated. Having excised small fragments from the gummata and other syphilitic tissues, he placed him beneath the skin of guinea-pigs; and the fact that they forthwith fell into a chronic marasmic condition, and ultimately died, convinced him of their specificity.

Having examined a large number of preparations of syphilitic tissues, Max Schüller (Centralbl.f.Bakt., etc., Bd. XXXIII, 1902, pp. 342, 438, 489, 609) found two protozoa-like bodies. These he was able to demonstrate in fresh smears from the primary lesions, and he describes them as occurring in the two forms of "large capsules" and "young organisms." The former are usually pyriform or three-cornered bodies, of a brownish-yellow colour, the contents of same being of a darker shade, and the capsule of a glistening yellow tint. Small, knob-like elevations and nucleated masses of protoplasm are to be seen under the high power of the microscope. The so-called "young organisms" are much smaller than the above, and are radially striated, light in colour, and of a double contour. They appear to develop from the "large capsules."

De Lisle and Jullien claim to have isolated from the blood of syphilitic patients a peculiar polymorphic motile bacillus. This organism disintegrates after the blood has undergone coagulation; it is agglutinated by the serum of syphilitics, a point which is held to be in favour of its specificity.

Interesting and important observations have been made by Schaudinn and Hoffman (Cited in the British Med. Jour., May 27, 1905) on the presence of a peculiar spirochaete in the juice of syphilitic lymphatic glands. Schaudinn describes two forms, viz., the pale, slender form, the spirochaete pallida, and the deeply-staining form, the spirochaete refrigens. It is the spirochaete pallida which these observers found in the primary affection, papules on the genitals, and indolent inguinal glands of syphilitics. The organism is described as being extremely delicate, almost transparent in the living condition, actively motile, long, thread-like, and spiral, with pointed ends. It varies in length from four to fourteen micromillimetres, its breadth is almost unsizeable, and does not measure more than .25 micromillimetres in the thinnest forms.

Metchnikoff and Roux report having inoculated six apes with syphilis, and discovered the spirochaete pallida in four out of this number.

Levaditi says he has found the spirochaete in the various lesions of congenital syphilis.

Rille and Vockerodt (Münch. med. Woch., Aug. 22, 1905, p. 1620) have seen the spirochaete in the skin lesions of a papular character far away from the genital organs; as well as in the latter parts also. They failed, however, to discover it in syphilis haemorrhagica neonatorum, and in osteoperiostitic gummata of the skull.

The organism in question has also been observed by Pollis and Fontana (Gazz. degli Osped., Sept. 10, 1905) in the pustules of syphilitic acne, and in the scrotal condylomata, of a man who had contracted syphilis four months before. In nineteen other cases, specially examined, they could find the organism only in eight.

Eushnell (Lancet, Dec. 9, 1905, p. 1728) considers it an easy matter, in primary and secondary syphilitic lesions at least, to demonstrate the presence

of the spirochaete pallida, and he considers their finding of some importance in the diagnosis of the disease.

Among more recent observations may be mentioned the finding of a motile element, resembling amoeba proteus, in the primary and secondary lesions of syphilis by Beddoes and De Korte (Lancet, Sept. 9, 1905, p. 787), and of a spirillum in the blood of syphilis in the secondary stage.

INFECTIVITY.

That syphilis is a distinct and independent disease and due to a specific micro-organism, the preceding remarks go far to prove. Local infection with such a virus is invariably followed by invasion of the system and development of syphilis, which, again, is related etiologically to no other affection. The theory of its dual nature has now fallen into oblivion. The more strange, then, is it that the infecting virus had so far defied the most skilful and untiring investigations to unravel its complexity or determine its true nature. While evading recognition, I have cited facts enough to make it reasonably certain that the causative agent is a bacterium, and that syphilis is a microbic affection, the detection of which apparently cannot be much longer delayed. The theory in question is the only one that can satisfactorily explain its protean manifestations. In order that the virus shall effect entrance to the system, it must be brought into contact with some solution of continuity in the skin or in contact with the mucous surfaces. It cannot make its way through the sound integument. The semen is able to infect the embryo, and in turn the mother, although it does not apparently convey the poison. The secretion from a chancre, and from any of the secondary lesions are contagious, as, too, the blood in the secondary stage of the affection, the resulting lesion being always a chancre. Normal secretions, such as the sweat, the milk, and, as stated, the semen, do not act as vehicles of the poison, unless the discharges from some of the lesions of the primary or secondary stage contaminate them.

MODES OF INFECTION.

It is certain that the contagium of syphilis cannot be carried through the air. The easiest and most usual form of transmission is by direct contact with the individual suffering with the disease. If the conditions are favourable, there is then a direct passage of the virus from the unsound to the sound individual. Such mode of infection is termed "immediate". When the virus is transmitted by means of some intervening carrier the infection is said to be "mediate". The break in the skin or mucous membrane, necessary for entrance of the virus, may be exceedingly minute; it may be the merest abrasion or pin-point opening, but it is always there as an open door through which the causative agent may enter. Upon the mucous surfaces there is good reason to believe that such an opening is not so necessary. Here the virus, if implanted and allowed to remain undisturbed, especially when located in a mucous or sebaceous follicle, can make its way through the subjacent structures into the underlying tissues.

In the vast majority of cases, - at least 70 per cent. - syphilis is acquired by sexual intercourse. This belief is both universal and time-honoured.

Next to the genitals the commonest seat of infection is the mouth,

especially the mucous membrane of the lips, and in the great majority of cases the contagion is effected by local secondary lesions, communicated from mouth to mouth in the pernicious habit of kissing. Not only does this habit lead to infection upon the mouth, lips, and tip of the tongue, but upon other parts of the face, as the cheeks, the eyelids, the forehead, etc. According to F. R. Sturgis (Amer. Jour. Med. Sci., Jan., 1873), the comparative frequency of infection upon various parts of the body was as follows; in 11,491 cases observed by Rollet, Fournier, Bassereau, and Clerc:

The genitals	in	91.1 per cent.
" lips	"	3.2 "
Various parts	"	3.9 "
The anus	"	1.7 "

The most common source of infection, next to kissing, where the syphilitic virus is conveyed directly to the lips or other parts of the mouth, is the custom of employing a wet-nurse. ProbabIt there must be even more instances of the poison being communicated from the mouth of a child with inherited syphilis to the breast of a healthy nurse than where a nurse with syphilitic lesions of the nipple inoculates the mouth of a healthy child. Especially in countries where the custom prevails of having infants raised by nurses in the country, numerous instances have for long been recorded where syphilis has been widely spread by a single diseased nurse or a single syphilitic infant. So true is this that a wet-nurse should never be engaged until we are quite satisfied that she is, and has always been, quite free from any specific taint or lesion. Furthermore the disease used to be often conveyed through the custom, now almost obsolete of drawing out the nipples of women, either just before delivery or immediately after, by sucking them, or by emptying them in this manner when distended by milk. There was formerly a class of women who made this a business, and in the writings of the sixteenth century, this is mentioned almost invariably among the modes of infection.

Among the mediate ways in which the mucous membrane of the lips and mouth may become infected with syphilis, can be instanced the use of eating and drinking utensils, tobacco pipes, and cigar holders, as well as the smoking of a cigar stump that has been thrown away, - these articles having been previously used by a syphilitic person. A familiar instance in point also is the spread of the disease in the glass factories where the custom prevails of passing the blow-pipe from mouth to mouth. When, in the event of an immediate or mediate communication with the virus, the epidermis of the lips is intact, but there happens to be a solution of continuity in the epithelium of the mucous membrane of the tongue or palate, with which the poison is brought into contact by some means, as by the food for instance, infection may take place upon the tongue or in the deeper parts of the mouth, and the primary lesion develop there.

It is unfortunately the case that the obstetric finger may become inoculated with the poison. Several instances of this kind have come under my observation, and numerous cases of the kind are recorded in the literature. The bite of a syphilitic individual may inoculate the hand of the victim, as has been instanced by several syphilographers. Moreover, a scratch from an infected finger nail may produce the disease in another person.

Syphilis has occasionally been conveyed to healthy persons by surgical

instruments that have not been thoroughly disinfected. In former times this was of common occurrence. The risk of infection in public baths and wash-houses should be borne in mind.

The old custom of tattooing, now again coming into fashion amongst the upper classes of society, from the point of view of the syphilologist at least, is one to be condemned on all occasions.

The sucking of the wound made in the ritual procedure of circumcision amongst the Hebrews, and other races who practise it, may lead to the victim being infected with syphilis.

The propagation of syphilis in modern time by the practice of vaccination is one that rarely occurs. The risk, however, should not be lost sight of, and all possible precaution taken against this accident.

Another mode of infection is by hereditary transmission; but in view of the great importance that attaches to this same, I deem it proper to treat at some length of the circumstances under which it occurs:

HEREDITARY TRANSMISSION.

That syphilis may be transmitted from parent to offspring has been believed universally since the doctrine was first announced by Torella at the end of the fifteenth century; and the facts in support are so numerous and convincing that, in spite of a few distinguished opponents, among whom John Hunter (*Opera Omnia*, vol.ii, p.388) was the most conspicuous, - it has been unhesitatingly accepted by the profession down to the present day. As regards the manner of transmission, however, controversy has been and is still rife. Opposing theories have been constructed and ardently supported, differing radically as to essential points, often resting upon exceptional or anomalous, and still oftener upon cases that have been imperfectly observed. The father can derive syphilis from the mother only in the usual way - i.e., by contagion through a breach of surface permitting of the direct absorption of the poison, the development of the disease being attended with the usual phenomena - chancre, lymphatic enlargement, skin eruptions, etc. The woman may - and in the vast majority of instances does - acquire the disease from the husband in a similar manner. But there seems good reason for believing that she may also become infected through the medium of the child, who receives its syphilis directly from the father, the mother up to the time of conception having escaped contagion. Furthermore, it appears to be highly probable that no woman ever bears a syphilitic child and remains herself free from the malady. The strongest argument that can be adduced against the theory that every woman who has had a syphilitic child has herself been infected lies in the existence of cases like the following, several of which have been from time to time observed: The wife of a man having active but untreated syphilis gives birth to one or two syphilitic children, she herself developing no symptoms. Later, the husband is placed on mercurial treatment. She then conceives and gives birth to a healthy child. He stops treatment, and she again bears a syphilitic child, which on his resuming the mercurial course is followed by another healthy infant. Such cases indicate that the syphilis of the mother, if any exists, is incapable of transmission to the child, as the effect of the treatment of the father is too direct and unvarying to admit of any doubt being entertained. Setting aside, however, the arguments based on theoretical considerations, it would appear that the weight of clinical evidence is altogether in

favour of the frequent, if not the invariable, contamination of the mother through the medium of the foetus! It is a common experience to find cases in which the husband, having had syphilis and having married after an insufficient interval or an imperfect course of treatment, has infected his wife with the disease, although at the time no discoverable symptom is to be found upon his body - no abrasion, sore, mucous patch, no lesion of continuity, or suspicious point of any description. An equally careful inspection of the woman will also in such cases be attended with negative results - no initial lesion, no spot of induration, no adenopathy being at all discoverable - and yet she will be found with unmistakable evidences of constitutional syphilis. A typical case of this description is narrated by Colles (Edition of his works by the New Sydenham Society, London, 1881, p. 258). From that date to this hundreds have been reported, and it would be idle to refer to each of them separately. There is a clue to all such cases which will immediately solve the difficulty. In every instance, provided that no mistake has been made, and that both the husband and wife are really free, - the one from any contagious lesion, the other from any evidence of a present or previous primary sore, - it will be found that pregnancy has occurred; that the woman has either been delivered of a syphilitic child, or has had an abortion or a miscarriage at some time before the outbreak of the symptoms of syphilis. Although I am firmly convinced that this is a statement of facts based upon careful clinical observation, and although this view has received the unqualified endorsement of no less an authority than Fournier (Syphilis and Marriage, p. 87), it is yet strongly combated by many excellent authorities. They say in reply to the above arguments that the reported cases are open to just criticism, that trifling and unnoticed lesions of the father, - chafes and abrasions of an almost microscopical size, - suffice to transmit it on his part; while the well-known difficulty of discovering syphilis in women under any circumstances is cited as an explanation of the supposed absence of the primary lesion in the mother. What seems to me, however, as an unanswerable argument lies in the application of the well-known law of Colles to the case in question (The Works of Abraham Colles, edited by Robert McDonnell, the New Sydenham Society, London, 1881, chap. xiii, p. 287), which is well worth quoting from his writings: "One fact well deserving our attention is this: that a child born of a mother who is without obvious venereal symptoms, and which, without being exposed to any infection subsequent to its birth, shows this disease when a few weeks old, - this child will infect the most healthy nurse, whether she suckle it or merely handle and dress it; and yet this child is never known to infect its own mother, even though she suckle it while it has venereal ulcers of the lips and tongue!" This means, in short, that, owing to a sort of protective vaccination with the specific virus, a woman who bears a syphilitic child enjoys perfect immunity, and this in the absence of all signs of the infection. Couetts (Hunterian Lectures, Lancet, 1896, No. 3889), however, dissents from this opinion; but, in spite of this and other objections, the truth of the law is generally admitted; and it has received the assent of every authority who has written upon the subject since it was announced in 1837. The chancres so often seen on the nipples of wet-nurses are never seen on the mothers of infected children. Now, as about 99 out of every hundred of such children are nursed by their mothers, the weight which this entire absence of proof that mothers ever suffer bears can be at once appreciated; in other words, it proves that they

are not susceptible to the disease. From these facts, therefore, I feel justified in concluding that the mothers who have thus acquired an immunity have done so by first contracting the affection. It may, in those cases where no secondary symptoms appear, be in a modified form, due to some heteromorphism or alteration of generations on the part of a specific bacterium, or to the excessively small quantity of the poison which finds its way from child to mother, or to some other obscure cause that is not at present understood. It is, at any rate, no more mysterious than the protective influence of vaccine in smallpox, and when one is rationally explained, doubtless the other will be found to be closely allied in its mode of action. The fact, however, which interests me most at this juncture is that it is in the highest degree improbable that anything but some form of syphilis itself could afford this entire protection, and it is not in the least improbable or unreasonable, but, on the contrary, logical and consistent with all the known facts, to suppose that, while in some cases no observable symptoms might be produced, in others, where the cause was the same, but more active, or the powers of resistance less, there might develop the usual constitutional symptoms. Von Baerensprung's theory that the syphilis of the mother is imparted to her at the moment of impregnation, the disease being impressed upon the fecundated ovum, does not materially conflict with the above views, conception being in either case the essential factor, but in the latter instance the intervention of the foetus itself not being necessary. It has to support it the clinical fact that in those cases where syphilis appears during pregnancy the outbreak of symptoms occurs at about the ninth or tenth week after the date of conception, or at a period which closely corresponds to that of the appearance of general symptoms after exposure to ordinary contagion, i.e., when three weeks for the incubation period of the chancre and six weeks for the secondary incubation are allowed. Syphilis may reach the child by descent from the father, by descent from the mother, and by direct infection. At the moment of conception, of course, the influence of the father upon the child, so far as regards heredity, will cease; or, to be more exact, no subsequent condition of the male parent, no development or acquirement of disease, can exert any further effect. That the existence of active syphilis in the father may be the result in transmitting of the malady to the child can hardly be doubted. I am aware, of course, that there are numerous examples of cases where both wife and child have escaped, though the husband at the time of conception showed very active secondary lesions. These, however, are exceptions, and do not in the least invalidate the rule that it is possible for a father to hand the disease directly to his child. There is no other possible interpretation of the cases, already alluded to, in which successive pregnancies in the same woman alternately resulted in healthy or in syphilitic children, according as the father was or was not subjected to mercurial medication. On the other hand, descent from the mother may occur in consequence of infection of the mother previous to conception, at the moment of conception, or during the period of uterogestation. There is little or no difference of opinion regarding the first of these methods of transmitting the disease. Even those who claim the most for paternal influence, include among the conditions which may give rise to syphilis in the child disease of the ovum, and it may be stated as incontrovertible that recent or active syphilis in the mother at the time of conception will almost certainly be followed by syphilis in the child. As a rule,

women who have borne syphilitic children, even when they do not give unmistakable evidence of the disease, fail in health, become anaemic, and often develop glandular or osseous swellings, which are only relieved by specific treatment (Zeissl - Jahrbuch, vol. ii, 1872, p. 303). The bearing of Colles's law upon the alleged immunity in many cases of the mothers of syphilitic children has already been shown; and there is other evidence, not perhaps so conclusive, but strongly corroborative, of the same view, viz., that their escape is only apparent, and that syphilis, either latent or active, always affects such mothers. There can be no manner of doubt that in every instance, at or about the time of childbirth, there are not to be found pathognomonic lesions of syphilis, nor do such lesions always make their appearance in cases where the period of observation is a short one; but it is claimed, with much show of truth, that some symptom of the presence of the disease will be discovered if only properly and patiently looked for. As evidence of the direct descent of syphilis from the father to the child, without the intervention or participation of the mother, have been urged the cases in which the treatment of the father has resulted in healthy children, whereas without treatment he procreated only syphilitic children, the mother being without either symptom or treatment. Those who hold the contrary view have also thrown doubt upon them; but after looking into them carefully, I am constrained to admit that some of them, notably those of Kassowitz (Die Vererbung der Syph., Stricker's Med. Jahrb., 1875, p. 391) and R. W. Taylor (Arch. of Clin. Surg., Sept., 1876), are convincing of the fact that treatment of the father controlled the condition of the child, and that there was no evidence that the mother had syphilis. But we have seen that the only proof of the universal infection of mothers of syphilitic children is the law of Colles, and that in many cases the disease is for a long time latent or unrecognisable. Admitting, however, that this was the condition in the cases in question, it does not at all follow, necessarily that because the mother had latent or hidden syphilis she must infect the child. Every case, even of active syphilis in the parents, is not handed down to the children, a certain proportion of whom escape; even when both parents are in the height of the secondary stage at the time of conception. But the activity of the disease in children, and even more the likelihood of its reaching them, are in direct proportion to its activity in the parents. A mother, therefore, who under the influence of active syphilis in her husband has given birth to two or three syphilitic children, and has herself shown no symptoms of the disease, may nevertheless have it in the latent form, and have no strong tendency to transmit it. Consequently, treatment of the father will result in the procreation of healthy children, because it removes the active and efficient cause of their infection. As regards the influence upon the child of a syphilis acquired by the mother during some period of utero-gestation, it may be mentioned that some good observers have denied that under these circumstances the child can become infected. Thus, Bumstead and Taylor (Venereal Diseases, 1879, pp. 242, 744) base their denial, first, on the physiological hypothesis that no interchange of cellular elements between mother and father is possible, and, next, on the absence of satisfactory evidence of the occurrence of infection during pregnancy. Zeissl's case seems sufficient answer to the last assertion, and there is strong evidence that the first is without foundation. The placenta is penetrated by the virus, and does not play the part of a filter,

for the elementary particles of matter which, so far as we know, represent the true active contagion of the disease. In the absence of direct experiments, which it would be almost impossible to institute, we may argue from the facts known to exist in certain acute infectious diseases in which there are very interesting points of resemblance. For instance, it has been known for a long time that smallpox occurring in the mother may be transmitted to the product of conception enclosed in the uterus, and it is supposed that the virulent particles traverse the walls of the maternal vessels in order to penetrate the circulating apparatus of the foetus. But what is only a supposition in the case of smallpox seems to have been actually demonstrated in symptomatic charbon, bactericidian charbon, and recurrent fever, in which the poisonous element is easily recognised. Experiments have shown that the foetus participates in the "charbonic infection" of the mother. Albrecht, in 1880, showed that numerous spirochaetae are present in the blood of the heart of a child born at seven months of a woman with a second attack of relapsing fever. In the same method as that of relapsing fever or of charbon, therefore, it may be assumed, though not demonstrated, that the infection of syphilis takes place. All that appears to me necessary for proof of the influence of a syphilis acquired by the mother during some period of utero-gestation upon the child, as leading to the infection of the latter, is, however, evidence of the freedom of both parents from syphilis at the time of conception, or, in other words, syphilis must have been acquired by both - not alone by the mother - after the beginning of pregnancy; and also that the syphilis of the child be unmistakably pre-natal, i.e., not acquired by some accident that has occurred after birth or before the latter. Hill and Cooper (Syphilis and Local Contagious Disorders, London, 1881, p. 60) state a case which seems to me to combine both these requisites. The patient, thirty-six years of age, left his wife, to whom he had been married two years, to go a journey on July 15, 1877. The wife was then in the second month of her first pregnancy. On July 24th her husband had extra-marital intercourse. After twenty-one days following this coitus he observed a small lump on the inner surface of the foreskin, and on August 22nd he consulted a medical man (Zeissl). On September 23rd a maculo-papular eruption of the skin, with erythema faucium, appeared. Under treatment these symptoms completely disappeared. On October 29th he went home to fetch his wife to Vienna for her lying-in, and had intercourse with her soon after his return, notwithstanding the physician's strict prohibition. At the beginning of December a hard sore developed on the left nymph of the wife, who was then in the seventh calendar month of her pregnancy. At the end of December a maculo-papular eruption spread over the body, and was treated with mercury. On February 14, 1878, a well-grown and apparently healthy female child was born at full term. When eleven days old, - much too early, of course, for the constitutional symptoms if the disease had been acquired during or after birth, - a pustulo-scaly eruption came out on the child's soles and toes, and soon afterwards a maculo-papular eruption over the body generally. A few days later the child died. No post-mortem examination was permitted. In July, 1878, the wife had iritis, and after that gummata on the leg. She had a miscarriage in July, 1878, at the third month, and again, at the second month, in February, 1879. From these facts I am driven to the conclusion that in some manner the poison of syphilis found its way from the mother to the child. The old idea that the latter

was directly infected in utero from the semen of the father is altogether without foundation. The possibility of infection during utero-gestation has been established without doubt by other cases, equally satisfactory and complete, unless the intelligence or the truthfulness of the respective observers be impugned. The contagion of the mother, in the case just described, occurred in the seventh month of pregnancy; and this, I believe, is as late as it has ever been known to be communicated to the child. The exact date at which it becomes impossible so to transmit it is unknown; but, as a general rule, it may be said that the earlier a mother is infected during gestation the less likely is it that the child will escape. The whole problem is very greatly modified; and the chances that the child will not be infected, by specific treatment of the mother, or of the father in cases where he is at fault. I cannot properly include under the heading of inherited syphilis the occurrence of infection of the child during birth. There is no possible reason why, when the mother has contagious lesions of the genitals, acquired too late to infect the child in utero, this should not occur, but, as a matter of fact, no such case, so far as I can ascertain, has ever occurred. One explanation of this circumstance may be found in the protective covering of vernix and mucus which coats the infant's body and lessens the risk of absorption. This hardly accounts satisfactorily, however, for the entire absence of such cases from medical literature, and it is fair to suppose that in all but those cases in which the primary sore is acquired during the last months of gestation - which for obvious reasons are excessively rare - the infant acquires some immunity which protects it from its mother, and is similar to that which, under Colles's law, operates in her favour. Otherwise expressed, it has a latent or modified syphilis which protects it from contagion, even though apparently free from syphilis at birth - a not uncommon event. Carefully reviewing the foregoing remarks and arguments, therefore, I feel justified in arriving at the following conclusions: (1) Having undergone specific treatment, - and this is absolutely essential, - and after a certain interval, not less than four years, a person who has contracted syphilis, not especially severe and malignant in its type, may be permitted to marry. The assent to marriage will then be based on a belief in the curability of syphilis or the cessation of its contagiousness, its inoculability, and, in the vast majority of cases, its transmissive power when the secondary stage has been passed. (2) From father or mother, or both, it may be inherited, and the probability that this will occur increases in a direct ratio with the nearness of the time of conception to the date of their infection with the disease. The same proportionate increase also is seen in the case of the severity of the inherited disease in the child. (3) The father being healthy, and the mother syphilitic, it is undoubted that the child may, and in all probability have the malady. A great disbeliever in the possibility of paternal heredity, viz., Sturgis (The Etiology of Hereditary Syphilis, New York Med. Jour., July, 1871); having devoted much study to the subject, concluded that a mother begets non-syphilitic children as long as she is not infected, even though the father is syphilitic; and that the moment she is diseased the children are inevitably so. This doctrine was previously supported by Cullerier, whose views gave rise to the remarks of Voillemier (cited by Fournier) that if they were accepted "the father would only be the accidental occasion of a child; one would be, in reality, the child of his mother only.

Cullerier's cases are invalidated by the fact that the syphilitic fathers who had healthy children had been subjected to mercurial treatment (Mém. de la Soc. de Chir., Paris, 1854; cited by Taylor in Arch. of Clin. Surg., vol. i, p. 82). The theory is an old one. Vassal has sustained the idea as long ago as the beginning of the eighteenth century. Kostum, in 1804, and after him Hufeland, were of the same opinion. In 1857 Cullerier wrote: "In order that a child acquire syphilis hereditarily, it is necessary that the mother or has been Syphilitic." Notta, Pollin, Charrier, Mireur, in 1867, and Langlebert, in 1873, support the theory more or less earnestly. In 1873, Oeuvre wrote: "Paternal influence is nil as regards hereditary syphilis." Iss-off, in 1879, wrote: "Where a man suffers or has suffered from syphilis he cannot transmit the disease to his descendants without infecting his wife; that is to say, in fewer words, there is no infection from the father." Sigmund (Nouv. Dict. de Méd. et Chir., vol. xxxiv, p. 698) affirmed that the "heredity of syphilis is derived in its last analysis from the mother!" (4) The mother being healthy and the father syphilitic, it is probably (but less so) that infection of the child will occur. The words in parenthesis refer simply to the comparative probability of infection, and does not conflict with the statistical fact expressed by Hutchinson (Reynold's System of Med., vol. i, 1866, p. 481) in his own words: "In the large proportion of cases met in practice the taint is derived from the father alone." This numerical preponderance of paternal influence is very readily explained. There are very many more syphilitic men than syphilitic women, and especially among the couples who contract fertile marriages, the number of women who are infected before being mothers is inconsiderable. On the other hand, it frequently happens that men who have had syphilis, but have been without symptoms for a longer or shorter interval, marry and transmit to a series of children a disease which has ceased to be directly contagious to their wives, the transmissive power continuing after the possibility of ordinary contagion has disappeared. As in the majority of such women the disease is latent, and may be only displayed in their immunity from infection, it becomes evident that, history and symptoms being wanting on their part, the assertion of Hutchinson is justified by the existing conditions. (5) Though scarcely to be regarded as proven, it is highly probable that in all cases where a child becomes syphilitic through paternal influence, the mother is also the subject of syphilis, which, may, however, assume a latent form, in a few cases the protection which it affords against infection through the medium of the child being the only evidence of its presence. (6) As late as the seventh month of utero-gestation the disease can be transmitted from mother to child, when acquired by the former.

The most definite views which I entertain upon the subject of hereditary transmission of syphilis may be otherwise expressed, as follows: Infection of children may take place through heredity, not only when the two parents are syphilitic, but also when only one, either the father or the mother, is at the time of conception suffering from the malady. In the case of both the father and the mother being diseased at that time, there is more certainty that the child will be infected, and infected gravely, than if only one of them happens to be syphilitic. Even when both parents have actual specific symptoms, the hereditary disease is not always fatal. The more recent the disease of the progenitors, the greater the chances of their transmitting the disease and of its assuming a serious form. That inheritance

syphilis is more grave when derived from the father than when coming from the mother cannot be proved. A mother, healthy at the time of conception, only in very exceptional cases does not participate in the disease transmitted by the father to the child. She undergoes a species of infection from contact with the contaminated foetus if she escapes direct contagion, which is, however, rare when the disease of the father is active. The usual characters and evolutions of the acquired disease are presented sometimes in syphilis by conception, which is thus transmitted from the foetus to the mother; frequently, also, it is latent, and is betrayed only by the existence of immunity from further contagion on the part of the mother. It may finally manifest itself by tertiary symptoms or by systemic disorders without specific phenomena. In the mother this form of syphilis manifests itself in three ways: 1st. By the usual signs of syphilis by contagion, with the exception of the primary sore, appearing about the sixty-fifth day after conception. 2d. Appearing at a later date as secondary or even tertiary symptoms, and preceded merely by a little disturbance of the general health, unhealthy appearance of the skin, falling of the hair, etc., but nothing truly specific. 3d. Showing itself some years afterwards in a tertiary form, having in the mean while given no indication of its existence save only in the protection it afforded against contagion from the child. The power of transmitting syphilis hereditarily decreases spontaneously as the disease of the parent becomes older. The influence of treatment is no less certain than that of time. If the mother acquire the disease during her pregnancy, the foetus may still be infected, even when the two parents are free from syphilis at the moment of conception.

C L I N I C A L H I S T O R Y O F A C Q U I R E D

S Y P H I L I S.

THE PERIOD OF INCUBATION.

A period of incubation occurs in the vast majority of pur, uncomplicated cases of infection with the syphilitic poison. During this period there are no symptoms of any kind, either local or general. It is precisely like the period of incubation which we observe on other infectious diseases, in the acute exanthemata for example. This stage of entire absence of any kind of trouble whatever is termed the "first period of incubation!" Then the first symptom of syphilitic infection makes its appearance. This is in the form of a sore, at the exact point where infection took place; which is termed the hard chancre, initial sclerosis, or the initial lesion of syphilis. While this first lesion of syphilis is always circumscribed and definite in its site, it is not true that the virus of the disease is entirely localised within it, for its extirpation does not abort nor in any way modify the course of the disease, and, hence, at least partial invasion of the system has taken place before its appearance.

THE PRIMARY STAGE.

The so-called "second period of incubation" begins with the appearance of the chancre. This period is ill-defined and indefinite in its extent.

It is made to include the development of the chancre, the enlargement of the neighbouring lymphatic glands, and that series of changes which takes place within the system before the appearance of the eruptions upon the skin. During this time the patient may retain the full vigour and appearance of health, or there may be prodromal symptoms, such as malaise, hebetude, headache, slight muscular pains, and occasionally a low or high temperature, showing that the system is slowly being brought under the influence of the poison. Then follows the first exanthem, with the appearance of which the establishment of syphilis within the system may be said to be effected. The division of syphilis into three stages of primary, secondary, and tertiary was effected by Ricord. The primary stage begins with the appearance of the initial lesion, and lasts until the development of generalised skin eruptions. The anatomy of the chancre has already been described.

THE SECONDARY STAGE,

This is ushered in with the appearance of the skin eruptions. It is more indefinite in its course and extent, and is made to include the febrile phenomena, the exanthemata occurring in the course of the disease, the loss of hair, affections of the nails, sore-throat, mucous patches within the mouth and elsewhere on the mucous surfaces, and the like.

THE TERTIARY STAGE.

This follows, as its name implies, the secondary stage, and is still more indefinite in its course. It is held to begin at about the first year, and to continue until the termination of the disease. Belonging to it are certain skin-eruptions, especially that which goes by the name of rupia, and gummata, as well as various affections of the bones, such as nodes, and chronic enlargements of the lymphatic glands. From the presence of gummata in the placenta, or from the action of the specific poison on the ovum, pregnant patients are particularly apt to abort or miscarry at this period.

This classification, while of great service in the past, has now lost its time-honoured popularity amongst, at least, those of great experience in the disease. Its errors are becoming more apparent every day, and it is not improbable that the time is not far distant when it will be entirely discarded. Its chief fallacy lies in the fact that it endeavours to make syphilis conform to a time schedule, and to a regular, unvarying succession of changes. Such a course syphilis does not pursue, and any attempt to make it appear that it does is misleading in the extreme. The tertiary stage in many cases never makes its appearance, all symptoms of the disease ending with the termination of the cutaneous eruptions. Again, the secondary stage, so far as any of its chief manifestations are concerned, may be entirely wanting, and the so-called tertiary symptoms follow close upon the appearance of the chancre. The only stage in which the symptoms are possessed of sufficient constancy and definiteness to warrant their being classified as belonging to one period of the affection is the primary. It is only possible to obtain an intelligent conception of syphilis, as it occurs in actual practice at least, by regarding it as a disease not following any one definite course, and manifesting itself in a series of symptoms appearing at a certain time after the development of the chancre, these running their course within specified and exact limits, then to disappear

and be succeeded by another set of symptoms equally concise and clear; but as a disease that, starting from a fixed point, pursues many different lines of evolution, and expresses itself in a great variety of symptoms. Very often, indeed, it expends its entire energy in an attack on one organ, or on a set of organs. Thus, the symptoms may be confined entirely or in large part to the skin, to the bones, or to the nervous system, or to any one of the various organs or systems of organs of which the body is composed; or a number of organs may be attacked simultaneously or in succession. Again, in its encroachment upon a given organ, it is not by any means uniform in the lesions that it produces, or in the effects to which it gives rise. There is no lesion of the skin known to physicians that syphilis may not reproduce, and its involvement of the deeper structures furnishes nearly as extensive a list of anatomical alterations. It follows, then that the study of the symptoms presented by syphilis must be one that involves a consideration of its different lesions, and the effects which they have upon the different organs. Furthermore, it must always be remembered that it is invariably a constitutional disease. The involvement of the system may be very severe, or it may be so slight as to give rise to scarcely any appreciable symptoms. Limitation of all symptoms to the chancre means that the systemic manifestations have been mild and the skin affections overlooked, or that the nature of the local lesion presented was misunderstood. In its clinical course syphilis is a chronic disease, persisting usually for a long period of time, and seldom presenting symptoms than can be classed as acute. Under favourable and early treatment most cases recover in from two to four years. Some cases are so mild that all symptoms vanish after the expiration of a few months, and never reappear. This happens at all times with no treatment at all, or that only of the most indifferent nature. In other cases the symptoms are severe from the beginning. Bone and brain lesions appear with, or precede, the skin eruptions. The skin may be quickly filled with ulcerating gummata instead of the more frequent macules or papules. The integrity of every organ in the body may be threatened and a fatal ending may ensue. This malignant form of the disease is called by the French "malignant", "galloping", or "lightning" syphilis, and the terms are apt and appropriate. As well as being of very rapid course, it resists all forms of treatment; the various stages manifest themselves early, and especially the tertiary, even in about six weeks after the commencement of the illness.

CLINICAL HISTORY OF CONGENITAL

SYPHILIS.

Leaving the chancre out of the question (and with pre-natal syphilis we are not concerned), the symptoms of congenital syphilis may be, though rarely, identical with those of the acquired disease. If the child is born alive, and the disease manifest in him, the symptoms are generally of a severe character. He is usually small, undeveloped, and has an aged appearance. He is troubled with the "snuffles", and cries hoarsely. An eruption of bullae appears, situated principally on the palms, soles, wrists, and ankles, and often confined to the extremities. These bullae are filled

→ or rather, partially filled, with a semi-purulent fluid. On the palms and soles particularly, they burst, leaving angry-looking sores, which remind one somewhat, by their situation and general appearance, of the palmar and planter syphilitides of adult syphilis. The cachectic look and general feebleness of these children show them to be profoundly affected. The lips are cracked and ulcerated, and crusts form at the angles of the mouth and openings of the nostrils. The liver and spleen are manifestly enlarged, and the imperfectly performed digestion, as shown by the continuous loss of flesh and unhealthy stools, excites the suspicion that other abdominal viscera are also involved. Usually these cases do not survive more than a few hours, days, or weeks after birth. Nevertheless, in many cases the symptoms are not so marked and fatality does not occur. Furthermore, a very large proportion of syphilitic children so born show no signs of the disease at birth. The child usually has all the appearances of health. But, though most of these children are born apparently healthy, presenting no symptom by which the most experienced observer can detect the disease, some of them show pallor or a muddiness of the complexion, or other signs of ill health, in the absence of the ordinary symptoms of syphilis. This disease usually shows itself within the first two months, at any rate; almost invariably within the first three. Thus, Dunn (*Brit. Med. Jour.*; 1865, ii, 600), at the Farringdon Dispensary, found that out of 53 cases, 17 manifested the disease in the first month, 21 in the second month, and 10 in the third month, 2 in the fourth month, and only 1 in the fifth month and 1 in the sixth month. In a series of 1000 cases, Miller, of Moscow (*Jahrb. f. Kinderh.*, xxvi, Hft. iv, S. 359, and *Viertelj. f. Dermat., N. S.*, 1888, Hft. iv, S. 649), observed the first appearance of the symptoms in the first month in 64 per cent., and in the second month in 22 per cent. In 24 per cent. the first symptoms occurred in the third week after birth. Some febrile disease, such as one of the exanthemata, may determine the outbreak of the disease: measles, for example, may subside, and the syphilitic eruption be apparent thereafter. Obstinate insomnia is one of the earliest and most constant symptoms of congenital syphilis. The child when put to bed is uneasy and wakeful; he cries almost unceasingly, and cannot be pacified. During the day he is more quiet, but every night there is a repetition of the same disturbance, and his uncontrollable complaints are a source of perplexity to all. The crying is possibly excited by nocturnal pains in the bones, similar to those affecting adults. The sleeplessness often continues after the appearance of other symptoms; but it ought soon to subside under the influence of mercurials. A large proportion of syphilitic infants are afflicted with nasal catarrh, or "snuffles." It is most characteristic and appears early - often, if not always, preceding the eruption. It shows itself at the beginning by difficult and noisy respiration. The mucous membrane of the nose becomes swollen; and partially closes the nasal passages. A nasal discharge appears and increases, still further occluding the passage, and acts as a valve with each respiration; which becomes noisy; and it is to this symptom that the term "snuffles" has been applied. At first the nasal discharge is sero-purulent in character, and often blood-stained. In severe cases this discharge runs down over the upper lip, which becomes reddened and excoriated. The difficulty in respiration increases; the discharge becomes purulent and dried into crusts, which may entirely close the nostrils and cause the child to breathe through the mouth. Nursing becomes difficult, and often

impossible; the child is fed very imperfectly, and sometimes weans himself, as he has to drop the nipple every moment to get breath. It is a common thing to observe a persistence of the nasal disturbances; they may continue for months after the other symptoms have disappeared. In some cases the snuffling is not very noticeable so long as the child lies quiet and breathes through his mouth, but the difficulty becomes at once apparent if he is disturbed, and even more marked when he takes the breast. The presence of mucous patches on the Schneiderian membrane gives rise to the nasal discharge. As a rule, the inflammation in the nasal fossae involves only the mucous membrane, and is rarely propagated to the periosteum, the cartilages, and the bones. In the severest cases the ulceration may, after a time, perforate the septum of the nose or lay bare the nasal bones, which, in consequence of the exposure, become necrosed. The crusts thrown off may contain fragments of these bones. A depression at the root of the nose occurs in some cases, but absolute destruction of the bony septum and framework is rare. Still, either lack of development in the nasal bones, or a pre-natural widening, leads to a deformity which is common in syphilitic infants, but it is not certain that it is not a congenital deformity rather than a result of the local disease which gives rise to the snuffles. The only symptom of syphilis in the infant may be the coryza, though its occurrence without other signs of the disease must be far from common. The possibility that it may occur alone makes the diagnosis difficult sometimes. Syphilitic snuffles may be confounded with a simple cold, - and it often is, - or with the nasal discharge from diphtheria, perhaps with nasal or retro-pharyngeal polypi. Simple coryza is extremely frequent, even at an early age. The discharge is less sticky, and less inclined to form concretions than that of syphilis. At the end of eight or ten days it tends to disappear, while that of syphilis, if left untreated, persists and increases. The nasal discharge of diphtheria might be difficult to distinguish if diphtheritic patches did not exist in the throat. The diphtheritic discharge, which presents nothing peculiar at first, is streaked with blood after twenty-four or forty-eight hours, and the false membrane may be found on the nasal mucous membrane. The rapid progress of the diphtheritic affection will also serve to clear up the difficulty, aided, of course by a bacteriological examination. In severe cases the cry of the syphilitic infant is a most noticeable feature; it is both hoarse and high-pitched. The presence of lesions similar to those which give rise to the nasal symptoms accounts for this. These symptoms usually herald the occurrence of the cutaneous manifestations. The latter are of a complex character, and closely resemble those of the acquired disease. They are, however, modified by the character of the infant's skin and by the manner of its life. The nates, and those portions of the body about the pelvis which are moistened and smeared over many times a day, are particularly liable to be the seat of eruptions; or a general eruption will flourish and take on more marked characteristics in that region. As already mentioned, the eruption of bullae occurs about the hands and feet in cases of unusual gravity. In cases in which the eruption is delayed until a later period, the usual eruption is an erythema, which consists of round or roundish pink spots which at first disappear on pressure. Soon the spots grow darker, assume the dull-red coppery hue, and no longer disappear on pressure. In many cases the outbreak of a papular syphilide is the first manifestation of the cutaneous lesion. In cachectic emaciated

cases, the skin usually hangs in folds: often, however, emaciation is not a prominent symptom. The colour of the skin is not a certain diagnostic sign: it usually has a pale, sallow, yellowish, or earthy hue. Of prime importance are the manifestations on the lips and mucous membranes of the mouth cavity. On the lips fissures, known as rhaġades, are exceedingly common. Their number and depth are very variable. On the upper lip they occur especially on either side of the median lobule, where they are manifestly an exaggeration of an anatomical disposition. On the lower lip the fissure is often a single one in the median line. In addition, the whole surface of the lips may be covered with ulcerations and excoriations. At the angles of the mouth also, flat papules on the mucocutaneous portions, condylomata, and ulcerations occur, which may be covered with crusts, or be superficially or deeply ulcerated. The mucocutaneous ulcerations at the commissures occasionally give to the mouth a peculiar appearance, making it look as if its angles had been slit. There may be more or less ulceration of the tongue, gums, and fauces. The manifestations of the disease in the mouth at first consist of slightly-elevated, well-defined portions of mucous membrane with whitish surfaces, like the corresponding manifestations of adults. The whitish epithelium is often cast off, leaving a smooth, often depressed surface, which may ulcerate. These patches lose their regular outline, coalesce, and form ulcerated surfaces of considerable extent in the severer cases. These ulcerations have an abundant and highly infectious secretion, which is quite capable of giving the disease to other; indeed, this frequently occurs. Glandular enlargements are said to be less characteristic of hereditary syphilis than of acquired. In order of frequency they are the inguinal, axillary, and cervico-maxillary. Their characteristics are the same as in the adult; they are multiple, non-inflammatory, perfectly distinct and movable in their cellular atmosphere. They are seldom recognised except by touch, though occasionally they project sufficiently to be noticeable by sight. That the adenopathy is of much less diagnostic value than in acquired syphilis is therefore evident. Loss of hair occurs in hereditary syphilis as in the acquired form. It may happen from the occurrence of dermal lesions in the scalp, but there is a loss of hair, due probably to the adynamic influence of syphilis, which is more or less severe in different cases. The eyebrows and the eyelashes are occasionally shed. Indeed, if in a child from two to three months old one or both eyebrows be bare, it ought always to raise the suspicion of congenital syphilis. Alopecia may be observed in the occipital region, and enlargement of the occipital glands with it. Still, it must be remembered that in rickety children with much sweating of the head and muscular weakness, the occiput very often becomes almost bare of hair, and that in a young infant the head presents a deep bay in each tempero-frontal region where the hair is deficient. The loss of hair is hardly characteristic unless it is very marked on one side. Often in congenital than in adult syphilis are the nails involved. Onychia occurs in two forms. In the first form a papule or pustule occurs on the skin at the side of the nail. It may involve the matrix and cause the loss of the nail. The thick and everted edges of the ulcer, its sloughy base, and the sanious discharge are more or less characteristic, and are accompanied by a general and painful enlargement of the distal phalanx. The second form of onychia begins as a swelling at the base or side of the nail, which becomes thickened, fissured, and brittle, with a more or less amount

of deformity of the finger. This form is a later manifestation. From its bearing upon diagnosis syphilis of the teeth has its chief interest to the general practitioner. As manifesting itself at an age when the child is not apt to present the active and unmistakable cutaneous and mucous lesions of the disease, and when, consequently, its recognition is often difficult in the extreme, this diagnostic importance is considerably augmented. The teeth of the first dentition, although exhibiting the usual signs of interference with nutrition in their irregular development, opaque and chalky enamel deficient in quantity and unevenly distributed; soft and friable dentine, incongruity of size individually and relatively, and proneness to decay, do not often display any distinctive evidence of syphilis. The same conditions may, and often do, depend on other causes, and are commonly associated with various cachexiae - the strumous, gouty, rheumatic, rachitic, etc. - and even tending to produce imperfect assimilation and malnutrition with other slighter ailments. Furthermore, the same condition may be due to other causes in the permanent teeth. Stomatitis, however produced, - by mercury, by gastrointestinal derangements, by local irritation of any kind; - is apt to result in imperfectly organised dental structures. Mercurial teeth, for example, are usually irregularly aligned, horizontally seamed, honeycombed, craggy, malformed, of an unhealthy dirty yellow colour, separated too widely, and deficient in enamel. The diseases of childhood, especially the eruptive fevers, eclampsia, typhoid fever, etc., by temporarily arresting or greatly interfering with nutrition during the developmental period of the teeth, often cause horizontal furrows across their crowns, which are, of course, persistent throughout life, and mark indelibly on all the formative processes the influence of such disorders. Consequently, none of these conditions are on the least degree characteristic of syphilis, the expression of which in the mouth is to be found only in the permanent upper incisors. For the recognition and description of the peculiarities of these teeth in the subjects of inherited syphilis we are indebted, as we are for so much else of inestimable value in the study of the disease to Mr. Hutchinson. In 1868, in a memoir on "Syphilitic Diseases of the Eye and Ear, he wrote as follows concerning the symptoms which, in a suspected case, would aid in determining the diagnosis: "By far the most reliable of the objective symptoms is the state of the permanent teeth if the patient be of age to show them. Although the temporary teeth often, indeed usually, present some peculiarities in syphilitic children of which a trained observer may avail himself, yet they show nothing which is pathognomonic, and nothing which I dare describe as worthy of general reliance. The central upper incisors of the second set are the test teeth, and the surgeon not thoroughly conversant with the various and common forms of dental malformation will avoid much risk of error if he restrict his attention to this pair. In the syphilitic patient these teeth are usually short and narrow, with a broad vertical notch in their edges and their corners rounded off. Horizontal notches or furrows are often seen, but they, as a rule, have nothing to do with syphilis. If the question be put, Are teeth of the type described pathognomonic of syphilis? I would answer unreservedly that when well characterised I believe they are. I have ~~never~~ met with many cases in which the type in question was so slightly marked that it served only to suggest suspicion, and by no means to remove doubt; but I have never seen it well characterised without reason to believe that the inference to which it pointed was well

founded? In the matter of such gravity and importance such a statement, as a matter of course, positive as it was, excited considerable criticism, and the views of Mr. Hutchinson have never been without earnest and often able opponents; But it is safe to say that time has only served to place them on a surer foundation and to enhance their value in the eyes of the profession. To Mr. Hutchinson also belongs the credit of having first clearly demonstrated the specific character of the iritis of congenital syphilis (Med. Times and Gaz., July 14, 1860; Ophthalmic Hospital Reports, vol. i, pp. 191, 226; A Clinical Memoir on Certain Diseases of the Eye, etc., London, 1863) He analysed 26 cases of the accident in syphilitic infants. The average age at the commencement of the iritis was five months and a half. The oldest was sixteen months at the time of the outbreak, the youngest six weeks. Both eyes were attacked in 11 cases. In 15 cases the effusion of lymph may be said to have been copious. The cornea was implicated in a few cases. In 7 cases the cure was complete. In 12 cases the pupil was permanently occluded. Iritis may be considered as one of the rarest of the symptoms of congenital syphilis, but Mr. Hutchinson thinks that it often escapes notice on account of the very slight symptoms which usually attend it. Infants suffering from iritis almost always show some of the well-recognised symptoms of the hereditary taint. Blindness occurs if the disease is left untreated; but this can be averted by mercurial medication. There are many digestive derangements to which the syphilitic child is liable. These gastro-intestinal disorders begin in an insidious manner; differing not at all from the symptoms observed in non-syphilitic children, viz., regurgitation, vomiting, and diarrhoea. In spite of treatment the symptoms persist, and also in spite of change of nurse, and the most careful hygienic and dietetic attention. The child emaciates rapidly; until fat and muscles seem entirely absorbed. In others a mild diarrhoea will persist, although the child is doing in other respects remarkably well. It is probable that erythematous changes, similar to those observed in the mouth and pharynx, exist lower down in the digestive tract, to account for some of these symptoms: actual structural changes have been found, such as fibroid changes in Feyer's plaques. It is of great importance to bear in mind that the lesions of a congenitally syphilitic infant are contagious. The possibility of inoculation from an infant was denied by Hunter, but the observations on which the non-contagiousness was affirmed are now known to have been erroneous. The other extreme has been taken by certain writers, to the effect that an extreme virulence was seated in the hereditary disease. The truth seems to be that it is in no way more contagious than acquired syphilis, but that the freedom with which an infant is handled, and the frequency with which contagious lesions are found in the mouth, make it an extremely easy matter for inoculation to take place; this same occurring an ordinary chancre makes its appearance in due course. Hence, a syphilitic infant is a source of danger to the non-syphilitic members of its family, and numerous cases are seen in practice in which a baby has infected those who have occasion to attend to it, as well as other infants.

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CONSIDERATION OF SOME OF THE MORE IMPORTANT PHENOMENA OF

SYPHILIS, WITH SPECIAL REFERENCE TO ITS VARIOUS

COMPLICATIONS AND SEQUELAE.

THE TEMPERATURE.

The occurrence of fever at the invasion of syphilis is well known: in point of fact, it was frequently mentioned by the ancient writers, many of whom stated that an eruptive fever occurred under the form of repeated rigors or of evening exacerbations of temperature. But the febrile attacks that usher in the period of eruption in syphilis were not always distinguished from those which sometimes occur in the later periods of the disease. Hunter refers to this distinction, however, in remarking that, at first, the fever bears a close resemblance to a rheumatic fever, but later is more of the hectic type. For more accurate investigations concerning the eruptive fever we are indebted to J. E. Guntz (*Das syphilitische Fieber, Küchenmeister's Zeit., Neue Folge, II, 1863, p. 123*). By means of the thermometer he succeeded in demonstrating the fact that the fever most frequently precedes the appearance of any manifestations upon the skin; and this has since been repeatedly confirmed by others. Hence the relation is similar to that which obtains in the acute exanthemata, where the fever also precedes the appearance of any of the signs of the cutaneous lesion, either by one, - as in scarlatina, - or several, - as in measles, and smallpox, - days. The virus is already present in the body, but different tissues and organs react toward it with different degrees of susceptibility, and the nervous system, - upon which the occurrence of the fever mainly depends, - is affected earlier and with greater facility than the skin and other organs of the body generally. The infection of the system may be determined with a fair amount of precision from the rise of the temperature. Usually it commences between fifty and sixty-five days, or, it may be, at the nintieth day from the time of infection. The pyrexia may consist of a sudden, marked elevation of temperature occurring but once, or it may continue for days, during which time the temperature may reach 104°F., and then rapidly fall again. This recession of the fever is often only temporary, however, and merges into remittent fever of a very moderate grade, which may last for weeks. Together with accompanying symptoms, it may present a marked resemblance to intermittent fever. In many cases there is no eruptive fever at all. According to Guntz, it appears in about 20 per cent., or so, of the cases; but this seems to me to be too low an estimate. Fournier says that it is less common in men than in women. It is not often that the fever is ushered in with a chill; as a general rule it makes itself felt by headache, malaise, general depression, weakness of the knees, and frequently rheumatic pains; anorexia, or possibly an insatiable appetite, is complained of; in individual cases the pain assumes a neuralgic character. These symptoms of a subjective character are especially painful in the afternoon or at night, and together with them we note an increase of temperature to 104°F., or over, in the evening, with morning remissions reaching nearly to normal. This fever lasts two, three, or four days, rarely longer; after it has existed for a day or two

a faint diffused blush is observed here and there on the trunk; but this rapidly disappears to make way for the eruption of the true cutaneous syphilide, which is due to a hyperaemia and a more or less pronounced infiltration; it also occasionally makes its appearance on the mucous membranes. The subjective symptoms continue for a considerable period, perhaps one or two weeks, in rare cases only, as a rule, they will have already begun to have diminished before the eruption makes its appearance, and will soon disappear altogether; the temperature begins to fall only after the eruption has appeared, and one or two days later defervescence seems to be complete. Usually no febrile symptoms accompany the increase of the cutaneous eruption during the following weeks., i.e., the appearance of successive lesions on the skin or mucous membranes. A fever of a remittent character, which, however, never reaches the height of the fever of invasion, lasting a day or two, is often observed as an accompaniment of subsequent eruptions, as well as of recurrent skin and mucous-membrane syphilides.

SYPHILIS OF THE SKIN.

In syphilis, as in other chronic diseases, the skin undergoes certain alterations; syphiloderma, dermatosyphilis, and syphilide are terms used to give expression to these lesions. There is, as we have seen, sometimes, preceding or ushering in the early eruptions, considerable systemic disturbance, such as pyrexia, anorexia, muscular pains, and headache, etc. Along with the cutaneous manifestations there are usually other signs of the disease. In the early eruptions the lymphatic glands are enlarged, and sore-throat and mucous patches may exist. Sometimes there is loss of hair. In the later syphilodermata pains in the bones, bone lesions, and other symptoms may be observed. The early eruptions are generalised; the later manifestations are usually limited in extent, and have a tendency to appear in circular, semicircular, or crescentic forms. The colour of the established syphilides is usually a dull brownish-red, or yellowish-red, and there are rarely any subjective symptoms. The cutaneous lesions of syphilis may include macules, papules, bullae, tubercles, or gummata; and, moreover, lesions of other varieties may be mixed up with them, although sometimes a predominance of some particular skin affection is noted.

In about six to eight weeks after the appearance of the chancre usually, a general eruption appears. This is termed Syphiloderma Erythematosum, and has also the synonyms syphilis cutanea maculosa, roseola syphilitica, and macular syphiloderm or syphilide. The appearance of the eruption is retarded by treatment in advance. It consists of macules of various sizes and shapes, for the most part the size of a small pea or bean and rounded, on a level with the surrounding skin or slightly raised, giving the skin a mottled or marbled appearance. At first the spots disappear under pressure, but later, owing to the presence of more or less pigmentation, they persist. Their outline, which is ill defined, is usually brought out more distinctly on exposure. They vary in colour from a pale pink to a dull violaceous red, depending upon their duration and also upon the natural complexion of the individual, and as they fade away become yellowish or coppery. As a rule, they exist in profusion, so much so as to cover not infrequently the entire surface, appearing without order of distribution; exceptionally they exist sparsely and faintly, in which case the eruption may be overlooked. The

face, backs of the hands, and feet frequently escape. Subjective symptoms are wanting. The efflorescence may appear with or without systemic disturbance, but malaise and fever frequently precede it. The chancre or its scar, enlarged inguinal and cervical glands, erythema of the fauces, rheumatic pains, and more or less falling of the hair usually accompany its development. It may manifest itself slowly and insidiously, a week or two elapsing before it reaches its height, or the invasion may be sudden, taking place in the course of twenty-four or forty-eight hours. This form of syphilide, which, as a rule, responds quickly to treatment, - occurs in the majority of cases of the disease, but in many instances it escapes notice, owing to its faintness. Measles, r theln, urticaria, simple erythema, tinea versicolor, and certain medicinal eruptions must be distinguished from it. The catarrhal symptoms, the fever, form, and situation of the eruption of measles; the rapid formation and disappearance of the patches of simple erythema; the wheals and intense itchiness of urticaria; the slight scaliness; peripheral growth, and distribution of tinea versicolor; the small roundish, confluent pinkish or reddish patches, precursory pyrexial symptoms, the epidemic nature, short duration of r theln; the history, fever, form, and duration of medicinal rashes, - are points of difference by means of which these affections can be distinguished from the syphiloderm in question. Among the rare cutaneous manifestation of syphilis may be here enumerated the so-called Syphiloderma Pigmentosum, or pigmentary syphilide. It is characterised by rounded, ovalish, or irregularly-shaped, discrete or confluent, pale grayish, yellowish, or brownish, usually ill-defined faint macules. It occurs most frequently about the neck, is seen almost exclusively in women, and is encountered during the latter half of the first and in the second year of the disease. It is a simple pigmentary affection, similar, apparently, to chloasma, from which and tinea versicolor it is to be differentiated. It develops slowly, and may continue for one or two months or as many years, and is uninfluenced by specific treatment.

There are various forms of what is termed Syphiloderma Papulosum, - syn., syphilis cutaneas papulosa, papular syphilide, papular syphiloderm, which is characterised by small or large lesions of the skin. The Small Papular Syphiloderm (syn., miliary papular syphiloderm, lichen syphiliticus) consists in an eruption of disseminated or grouped, more or less confluent, firm, small or minute, rounded or acuminated papules, the size of a pinhead or millet-seed. Their summits may be smooth or covered with fine scales, or may show pointed pustulation; this last symptom occurring especially in those through which a hair protrudes. Miliary pustules, scattered here and there over the surface may also be present. At first the eruption is bright- or dull-red, but later it generally assumes a violaceous or brownish tint. In some cases the lesions are numerous and grouped, forming patches. The eruption is seen most frequently about the trunk and upon the limbs. It may appear during the third or fourth month or later. Large flat papules or moist papules may exist simultaneously. It has a chronic course, with a tendency to relapse, and is usually rebellious to treatment. It is to be distinguished from keratosis pilaris, lichen scrofulosus, psoriasis punctata, papular eczema, and lichen ruber. Points of differentiation are the extent of the eruption; the colour, grouping, with usually the presence of pustules and large papules, and other concomitant symptoms of syphilitic disease. The formation of large, flat, circular or ovalish, firmly-seated,

more or less raised pale- or dull-red papules, varying in size from a small split pea to that of a sixpence, are features that characterise the Large Papular Syphiloderm (syn., lenticular syphiloderm). In the early stages they are usually smooth, but they subsequently become covered with exfoliating epidermis. The forehead, region of the mouth, neck, back, flexor surfaces of the extremities, scrotum, labia, perineum, and the margin of the anus are all favourite localities. The lesions, as a rule, develop slowly, and, having attained various sizes, remain for weeks or months. It is one of the commonest forms of cutaneous syphilis; it may be an early or a late eruption, and shows a disposition to relapse. As a rule, it yields readily to treatment. The lesions may undergo more or less modification, due either to the locality in which they exist, or to other influences. Ordinarily, they persist as typical papules, and gradually pass away by absorption. At times they become soft and spongy, while occasionally they become excoriated, with slight moisture and crusting. This latter condition is, about the junctures of the mucous membrane and the skin, commonly observed. A common transformation is into the Moist Papule (syn., mucous papule, mucous patch, broad, or flat, condyloma, or plaques muqueuses of the French). This takes place upon those regions where opposing surfaces and natural folds of the skin are subjected to more or less contact, as about the nates, umbilicus, axillae, beneath the mammae, etc. The lesions are more or less moist, covered with a grayish, sticky, mucoid secretion consisting of macerated epidermis. They are usually flat, and may coalesce, and so form large patches. They may become hypertrophic, warty, and papillary, constituting the vegetating syphiloderm (syphilis cutanea vegetans). In this form the lesions become elevated, more or less circumscribed, and may assume a warty character, resembling the cauliflower formation, with a contagious secretion which dries up into yellowish-brown crusts. Under local treatment they usually disappear rapidly; but their development is favoured by heat, moisture, friction, and want of cleanliness. Frequently the papule undergoes another modification, forming the squamous papule, or the Papulo-squamous Syphiloderm (syn., squamous syphiloderm, syphilis cutanea squamosa, psoriasis syphilitica). The papules become somewhat flattened, and are covered with dry, grayish, adherent scales. The scaling may be slight or relatively abundant, but is rarely as luxuriant as in psoriasis. On removing the scales the papular character of the lesion may be readily recognised. As a rule, the eruption is not extensive; it may show itself on any part, and is exceedingly persistent. It is most frequently encountered on the palms and soles, where, on account of the peculiarities in the structure of the skin, the lesions are somewhat modified. Occurring on these parts, it is known as the palmar or plantar syphiloderm. The lesions partake more of the character of macules than papules; they are slightly raised, and are irregular in outline, and, as a rule, ill defined, varying in size from a pea to a finger-nail. They may coalesce and form roundish serpiginous or crescentic patches, covered with dry, scanty, semi-detached, grayish flakes of epidermis, which are most abundant about the edges; at times the exfoliation is marked, and then the patches are distinctly squamous, as in psoriasis. As a rule, it is symmetrical, and is frequently observed in the centre of the palms or soles, and upon the ball of the thumb, and about the volar surfaces of the fingers. It may be an early or a late manifestation, - usually the latter, - and is rebellious to treatment. Eczema and psoriasis may be resembled by the papulo-squamous form of the syphiloderm.

In eczema heat, itching, and sometimes discharge, together with the history and course, will be sufficient points of distinction. Psoriasis upon the palms rarely occurs except as a part of a general eruption; the character and abundance of the scales, their lamellar arrangement, the red rete beneath, and the absence of infiltration are diagnostic.

An exceedingly rare form of cutaneous syphilis is Syphiloderma Vesiculosum (syn., vesicular syphilide, syphilis cutanea vesiculosa); in the majority of instances it may be more properly classed under the head of the pustular variety. The lesions vary in size from a pinhead to a split pea. If small, they are more or less acuminated, disseminated, or grouped, usually involving the hair-follicles; if large, semiglobular or flat, with or without a tendency to umbilication. The vesicles, as a rule, pass into pustules. It is an early eruption, occurring usually about the first six or eight months; it is, when appearing earlier, usually associated with other symptoms of the disease. It pursues a rapid course, and is seldom extensive in its distribution.

A very important form of syphilis of the skin, in dealing with which in practice my experience has been by no means inconsiderable, is Syphiloderma Pustulosum (syn., pustular syphilide, syphilis cutanea pustulosa). It is, however, usually not so common as the macular and papular varieties. The lesions assume various forms, any one of which may appear singly, but not infrequently they are mixed up together in the same person. The formation of milletseed-sized acuminated pustules, usually seated upon minute reddish papular elevations, may be said to characterise the Small Acuminated Pustular Syphiloderm (syn., miliary pustular syphiloderm). The puriform contents dry to crusts, which fall off and are followed by a slight fringe-like exfoliation around the base, constituting a grayish ring or collar. The lesions commonly involve the hair-follicles, are present either disseminated or in groups; in relapses the eruption is usually localised. Various-sized larger papules are sometimes seen scattered sparsely over the surface. It may be an early or late secondary eruption. Minute pinpoint atrophic depressions and stains are left, which gradually become less distinct. The diagnosis is rarely difficult, as other symptoms of syphilis are usually present. The occurrence of small or large split-pea-sized pustules, more or less acuminated, resembling the lesions of simple acne or smallpox, constitute the salient features of the Large Acuminated Pustular Syphiloderm (syn., acne-form syphiloderm; acne syphilitica, variola-form syphiloderm), in addition to the fact that the resulting crusts are yellowish or brownish, usually thick and bulky, and are seated upon ulcerated bases. The lesions may develop slowly or rapidly, with or without malaise or febrile symptoms, are disseminated or grouped, at first looking more or less papular. In the subacute or relapsing cases the eruption is apt to be localised. It pursues a rapid and usually benign course, and is to be distinguished from acne, from the eruption of potassium iodide, and from smallpox. The usual limitation of acne lesions to the face and shoulders, their rapid formation, and the chronic character of the disease, together with the absence of the concomitant symptoms of syphilis, are points of diagnostic importance. The acute character, bright colour, course, and history of the eruption of potassium iodide are, as a rule, sufficiently characteristic; while smallpox differs in the intensity of the general symptoms, the umbilicated pustules, and the definite duration of the disease. The occurrence of pea-sized, flat or raised,

discrete, irregularly-grouped, or confluent pustules points to the presence of the Small Flat Pustular Syphiloderm (syn., impetigo-form syphiloderm, *impetigo syphilitica*). The crusts, which form rapidly, are a yellow, greenish-yellow, or brownish-yellow, colour, more or less adherent, thick, bulky, uneven, with a tendency to become granular and to crumble. Where the lesions are confluent there results a continuous sheet of crust. Beneath the crusts there may be superficial or deep ulceration. The eruption is most frequently observed about the nose, mouth, and hairy parts of the face, on the scalp, and also about the genitalia. It can be differentiated from pustular eczema, which, when occurring upon the scalp, it closely resembles, - by the erosion or ulceration beneath. The next form we have to consider is a late and malignant manifestation of syphilis of the skin, which is not infrequently met with in hospital, dispensary, and poor-law practice. I refer to the Large Flat Pustular Syphiloderm (syn., ecthyma-form syphiloderm, *ecthyma syphiliticum*). This appears in the form of large pea-sized, flat pustules, with a deep red base. Crusting usually follows immediately. There are two forms of the lesion - a superficial and a deep. In the superficial variety the crust is flat, rounded, or ovalish, yellowish-brown or dark brown, and seated upon a superficial erosion or ulcer, having a grayish or yellowish secretion. It may occur upon any region, but is most common upon the back, shoulders, and extremities; the lesions are sometimes numerous. It appears, as a rule, within the first year, and runs a benign course. In the deep variety the crust is raised and more bulky, dark-greenish or blackish, inclined to become conical and stratified, like an oyster-shell, constituting what is designated *Rupia*. A crust of the same character occurs in the bullous syphiloderm. If the crust is removed, an excavated ulcer is seen, having a defined or irregular outline and a greenish-yellow, puriform secretion.

The appearance of one or more firm, circumscribed, rounded, acuminated, or semiglobular, deeply-seated, smooth, glistening or slightly scaly elevations, yellowish-red, brownish-red, or coppery in colour, varying in size from a split pea to a hazelnut, may be taken as characteristic of *Syphiloderma Tuberculosisum* (syn., tubercular syphilide, *syphilis cutanea tuberculosa*). These lesions occur in great numbers, and are, as a rule, confined to certain regions, and show a decided tendency to occur in groups, often forming segments of a circle. When several such groups coalesce, the result is a serpiginous tract, the so-called serpiginous tubercular syphiloderm. The face, back, and the extremities are favourite localities. They occur at a late period of the disease, sometimes not for years after the initial lesion. Though unaccompanied by subjective symptoms, a history of earlier symptoms of the disease is, as a rule, obtainable. Their slow development is particularly noteworthy; and the termination or disappearance is either by absorption or by ulceration. If the former, a pigment-stain, which is usually persistent, and in some cases slight atrophy, mark the site of the lesion, and there may be also a slight amount of exfoliation. If ulceration results, it may be superficial or deep, more frequently the latter. It begins on the summit or in the interior, and the result is a deep, punched-out, more or less crescentic ulcer, with a gummy, grayish-yellow deposit or covered with crust. If the ulcerative process takes place in a patch or grouped tubercles, an extensive excavated ulcer may result. Sometimes the ulceration occurs in a crescentic or serpiginous course. In some instances, and especially upon the scalp, from the ulcerating surface papillary, wart-like, or cauliflower excrescences,

with a yellowish, offensive, puriform secretion, - the so-called syphilis cutanea papillomatosa, - spring up from the ulcerating surface. Lupus vulgaris is at times closely simulated by tubercular syphiloderma; but, in syphilis, the lesions are firmer and deeper, and form more rapidly, than in lupus; moreover, the disease is usually one of adult life and middle age, whereas, as a rule, lupus first is seen in childhood. Leprosy and cancer have also to be differentiated, but each one possesses characteristic points of distinction, the consideration of which need not detain us.

One of the most characteristic lesions of the disease is what is known by the name of Syphiloderma Gummatosum (syn., gummatus syphilide, syphilis cutanea gummatosa), which consists in the formation of a rounded or flat, slightly raised, moderately firm, more or less circumscribed tumour, having its seat in the subcutaneous tissue, which later shows a tendency to break down. As a rule, only one or two tumours are present. The growth is variously known as a gumma, gummy tumour, and syphiloma. The lesion, which is usually a late manifestation, begins as a small, pea-sized deposit beneath the skin, which gradually increases in size; the overlying skin, which at first is of a natural colour, becoming pinkish or reddish. It may eventually attain the size of a walnut, or may be even larger. It is firm or soft and doughy to the touch, is usually painless, and tends to break down, disappearing by absorption or ulceration, the ulcer being usually deep with perpendicular edges. As a rule, other symptoms of syphilis are present, so that there is no difficulty in distinguishing it from furuncle, abscess, and fatty and fibrous tumours.

Another form of cutaneous syphilis appears in the form of a discrete, disseminated, rounded or ovalish blebs, varying in size from a pea to a walnut, and containing a serous fluid, which rapidly becomes cloudy or thick. This is Syphiloderma Bullosum (syn., bullous syphilide, syphilis cutanea bullosa, pemphigus syphiliticus). In some cases the process is distinctly pustular from the beginning. The blebs, which are, as a rule, partially or fully distended, after a variable time dry to crusts of a yellowish-brown or dark-greenish colour, which may be thick or raised or conical and stratified, the latter constituting rupia, as in the case of the large, flat pustular syphiloderma. It is usually seen in broken-down individuals, occurs late, is variable in its course, and is, on the whole, a rare manifestation of cutaneous syphilis.

The CUTANEOUS LESIONS OF HEREDITARY SYPHILIS are also of considerable interest and importance. About the second or third week after birth, - in very exceptional cases only within three days, - erythema, or roseola as it is differently called, is apt to present itself. As in the adult, it begins upon the abdomen in the form of oval, circular, or irregular spots, of small size, dull red in colour, and disappearing on pressure. Later the colour becomes deeper, the eruption extends to the trunk and limbs, and, as exudation and cell-proliferation succeed to simple capillary stains, it ceases to disappear when pressed upon. Occasionally it is confluent, and covers large areas with an almost unbroken sheet of deep red colour. It is often moist, owing to the thinness of the epidermis, and sometimes excoriated. Owing to its resemblance to the simple erythema of infancy, the diagnosis in the early stage is often difficult. As the disease progresses, however, maculae form here and there; the cell-infiltration involves the papillae, several of which coalesce, forming large papules; the nutrition of the

superficial layers of the epidermis is interfered with, especially where it is thick, as on the palms and soles, and the eruption in those regions becomes scaly. The next manifestation in the ordinary evolution of the disease is usually the development of papules upon the general cutaneous surface and of mucous patches on the tongue, lips, and cheeks + probably also on other mucous membranes not exposed to examination. These mucous patches have already been sufficiently described, as, too, the occurrence of condylomata in situations such as the angles of the mouth and anus. About the sixth week, in the secondary period, but sometimes much earlier, the papules become transformed into pustules, the change taking place slowly, so that if examined at any time after it has begun, the child will present an eruption which is markedly polymorphic, showing here and there yellowish or reddish-yellow maculae left after the absorption of the cell-element of certain papules, at other places beefy-red papules at the height of their development, or papules crowned by a ring of desiccated and desquamating epidermic scales; and in still other regions pustules in a state of a variety of formation. The various stages of formation of the pustules may, however, be passed through so quickly that the eruption will be almost entirely pustular, few, if any, unmodified papules being discovered. The pustules may remain distended with pus for a considerable time; after which they may wither and slowly disappear, or they may rupture and leave ulcerated surfaces. A number of these ulcers sometimes run together and make extensive patches covered with thick, dark-coloured crusts. These patches may resemble areas of impetigo or of impetiginous eczema, but in those affections the crusts are usually thinner and of a lighter colour, and the skin beneath them is usually on a level with the surrounding surface; bright red and glazed; while under the crusts of the syphilide will be found a more or less depressed or excavated ulcer, often covered with pus. The diagnosis may indeed often be made by gently detaching and raising one of the crusts, and noticing the character of the surface beneath. The erosion usually heals up very quickly, without the sequel of a cicatrix. A very rare manifestation is the so-called furuncular eruption, which may appear at variable periods between the sixth month and the third year,

CONDITION OF THE HAIR AND NAILS IN SYPHILIS.

Various diseases of the hair and nails are met with in the course of syphilis, and these are either the expression of a local morbid process or symptomatic of the general disturbance of nutrition. Alopecia, or loss of hair, is of relatively common occurrence. In an extreme degree of the affection it may implicate every hair of the body. When the deeper forms of syphilitic skin disease, the ulcerating forms especially, affect or perhaps destroy the cutis in its entire thickness, it is, of course, obvious that the hairs will be destroyed. Bald spots, of greater or less extent, are left upon the scalp, in the beard, or the eyebrows; for upon scars produced in this way the hair never grows again. No visible change takes place in the skin in the ordinary alopecia of syphilis. The hair merely loses its lustre, becomes dry and often discoloured, and upon combing it the hairs easily fall out (defluvium capillorum). Upon the head this may occur to a very large extent, though at first there is only a thinning of the hair in certain spots. Even in nearly total baldness, + a very uncommon

occurrence; - the scalp has almost a perfectly normal appearance; the follicle may be even more distinct than usual; and the skin is not smooth and shining as in the common forms of baldness. A very close resemblance is presented by this form of syphilitic alopecia to that which is seen in consequence of certain acute diseases, and is one of the early manifestations of constitutional syphilis. It begins usually at the time when languor, headache, pallor, etc., announce the approaching outbreak of an eruptive fever or a skin affection, and lasts for a number of months; but young persons, as a rule, regain their former luxuriance of hair. In the advanced secondary period, too, the alopecia may still occur, in connection with relapses; upon the integument, scarcely later, however, than in the second year after infection. Finally, it may occur as a concomitant symptom in the syphilitic weakness of the system generally. The highest grades of alopecia are observed not always especially in anaemic individuals; the local condition to which it is immediately due is, doubtless, a derangement of nutrition in the hair papillae; perhaps a scanty cellular infiltration of the papillae. That the use of mercury favours or actually causes baldness is a time-honoured hypothesis. This assumption, however, is entirely without foundation; as witness the fact that the use of mercurials in syphilitic persons actually promotes the renovation of the hair.

The syphilitic affections of the nails are equally interesting. When diseased by itself the nail presents either merely a lustreless surface, or numerous white spots appear, such as are very commonly seen in young persons in normal health; or a number of parallel rows of little furrows are observed, at first separated by rather wide interspaces, afterwards approaching gradually to each other. In this way the nail becomes thinned at its posterior extremity at first, so that here it can be easily dented. As this thin spot extends forward, the entire nail becomes gradually thinner and wavy. This condition is termed onychia sicca, and is uncommon. The onychia occurs under various conditions: for example, a great fragility of the nails may be produced, especially of the finger nails, so that they are constantly splitting off at the ends, - the so-called psoriasis of the nails, - and this form is met with most frequently in women. The development of the nails, however, may be not only more or less interfered with in its superficial layers; but their growth may cease entirely, and, in this case, the nail gradually advances forward with a posterior free, jagged edge, and thus at length becomes wholly disengaged from its bed. A toe nail may, for example, be lost in this way without the patient's knowledge. A normal or variously deformed new nail is produced in due course. The term paronychia is applied to designate the coarser processes which take place in the matrix, and which, according to their situation, may or may not be accompanied by alterations in the nail. Most frequently an efflorescence of a papular syphilide, developing on the fold of the nail, or alongside of it, is the source of the paronychia in its lighter forms. On the nail wall, - the skin projecting over the root, - it generally merely leads to a slight desquamation and to some alteration of the nail, while papules at the lateral edges are sometimes converted into condylomata lata, which crowd the nail, laterally, from its bed. Such moist papules of the matrix are more commonly observed upon the toes than the fingers, and may resemble closely an ulcer from an ingrowing toe-nail; they often owe their origin, indeed, partly to the same cause, namely, pressure. More severe forms are produced by pustular or tubercular syphilides upon the

fold of the nail. Suppuration or ulceration then takes place, which interrupts the nail-growth, or the fold of the nail may be entirely destroyed. In the latter case no new nail grows, but merely irregular islands of horny substance are developed upon the matrix. Considerable swelling and pain, especially in the case of the great toe, accompany such ulcerative processes.

SYPHILIS OF THE BRAIN AND OF THE SPINAL CORD.

So numerous and varied are the manifestations of syphilis upon the central nervous system that a very lengthy dissertation might be composed upon this subject alone. It is not my intention, however, to enter upon the task of an exhaustive theoretical disquisition, but to devote my energies entirely to enumeration of the more important phenomena as I have actually observed them in my practice. The most characteristic lesions appertaining to syphilis of the nervous system are the gummata. When occurring in the brain, these are more often found in the cortex than in the deeper portions, and in the cerebrum than elsewhere. The tumours in question are either single or multiple, and vary in size from that of a poppy seed to an olive. They often occur in very great numbers, and are nearly always found accompanying similar lesions in the meninges. In their earlier stages, when seen at the post-mortem examination, the lesions appear as small circumscribed bodies imbedded in the substance of the cerebral tissue. As the gummata enlarge they undergo the caseous degeneration seen in the like lesions elsewhere. They are usually surrounded by an inflammatory area, in which increased development of neuroglia occurs. Resolution is usually accomplished by absorption of the product, or the neoplasm may undergo calcareous or cystic degeneration. Gummata are found but rarely in the deeper structures such as the ventricles, optic thalamus, internal capsule, and corpus striatum. Syphilitic affections of these parts are more apt to be expressed in some form of arterial disease. The middle cerebral artery, or some of its branches, suffers the most frequently, either in the form of a specific endarteritis or periarteritis. Occlusion of the blood-vessels by thrombi may take place, or there may occur rupture of the vessel, and hæmorrhage into the surrounding tissues. The size of the lesion is here by no means in proportion to the gravity of the symptoms resulting, occlusion of the smallest artery in the internal capsule giving rise to the most serious and disastrous consequences. Aneurysmal dilatations or pouches of the arterial walls may be produced by the disease. Paralysis, coming on as the result of thrombosis, is slow in its onset, while that caused by the rupture of an aneurysm is sudden. When slow in its approach, numbness is first noted in the foot, hand, or cheek, or it may be that some slight difficulty in speech is first experienced. These symptoms increase slowly in intensity and extent until a part or the whole of one side is paralysed. Several days may be occupied in the process; or, when rapid, the patient, without any premonition of coming trouble, suddenly finds himself unable to speak or to hold his hand or to use his foot. Complete loss of consciousness does not occur; and this feature is almost typical of syphilis. The senses are deadened and mental activity is decidedly in abeyance, but the patient can still be aroused sufficiently to show by signs that he is conscious of his surroundings. There is exaggeration of the reflexes of the affected side. It is seldom that the paralysed parts undergo

atrophy, but sometimes the occurrence of contractures may be noted. The patient is not liable to have his case complicated with convulsions. To attempt any grouping of the symptoms of cerebral syphilis is not my intention, for it is scarcely possible to do so. Their exceeding great variability is the feature of features. Headache is never absent; and it nearly always begins insidiously, increases gradually, is nocturnal in character, and of a grinding, boring, or hammering nature. Emotional or psychological disturbances, such as mental hebetude, hysteria, hypochondriasis, stupour, somnolence, dementia, or mania, are occasionally the symptoms of syphilis of the brain. Gummata of that organ, if large, may give rise to all the phenomena produced by the various forms of tumour of the brain, amongst which are convulsions, vomiting, and optic neuritis.

Syphilitic lesions of the spinal cord are of less frequent occurrence than those of the brain. The syphilitic affection may begin in the vertebrae, in the spinal meninges, or in the cord itself. The forms most likely to occur are gummata and a diffuse proliferation of the connective tissue. Such lesions give rise to exaggeration of the reflexes, loss of control of the sphincters, spastic paralysis of the lower limbs; contractures; anaesthesia or paraesthesia, and lancinating pains in the back and down the thigh. Tabes dorsalis is a very frequent sequel of syphilis in this region.

The occurrence of mild or severe neuralgias, vague, indefinite sensations, burning pains in the toes or fingers, and paraesthesias, of limited or extended areas of the skin, would point to special involvement of the peripheral nerves. The sensations produced are sometimes painful in the extreme, and are apt to increase with the progress of the disease. Furthermore, so resistant to treatment are they sometimes that the iodide of potassium is of little use in allaying them unless given in extremely large doses.

SYPHILIS OF THE LIVER.

It is, in my experience at least, not often that the liver bears the brunt of visceral syphilis. In this organ syphilis manifests itself either in the production of gummata, or in the development of fibrous connective tissue. Jaundice is apt to occur early in the course of the disease. The process is seldom severe and always transient. Gummata are usually a late development; and occur in small or in large numbers, and in any part of the organ. In their earlier stages they are small, firm nodules composed largely of connective tissue. Spindle and small round cells are scattered throughout their substance. The connective tissue sends radiate processes into the surrounding parenchyma. When the lesion is situated near the capsule, the surface of the organ is apt to show a depression due to a contraction occurring in the connective tissue elements of the underlying gumma. Gummata here undergo various forms of degeneration. Softening and ulceration occur, but are infrequent. Caseous degeneration, with absorption and the development of fibrous connective tissue, are more usual. Calcification may occur. Contraction of the areas affected often takes place in such a way as to produce appearances resembling new lobes. At first the liver is enlarged; often so as to be noticeable on palpation and percussion. Owing to contraction of the resolving gummata, it later on becomes much reduced in size. It is in the neighbourhood of the suspensory ligament that gummata are most apt to develop. A fibroid change may, however, occur in

the liver without the production of gummata. The fibroid tissue seems to arise in the capsule of the organ and to penetrate the liver in broad or narrow bands in such cases. The septa thus formed are again intersected by like bands arising in the larger bundles. In this way the organ is divided into a number of separate and distinct lobules. Atrophy of the affected portions usually occurs; and the entire process is chronic and peculiarly stubborn in its resistance to treatment. As a rule, the signs of syphilitic disease of the liver are so vague that changes of a high grade may be found upon the dead body, without a single symptom during life having pointed to the existence of hepatic disease. Especially is this true of the gummata of the liver, which in many cases run their course without giving rise to any symptoms whatever. Changes in size and form of the organ, derangements in the portal circulation and in the escape of bile, and involvement of the peritoneal coating account for the symptoms of the syphilitic affections of the liver, whose morbid anatomy has been ascertained. Whether any or all of these symptoms display themselves, depends entirely upon the location of the process. The increase in the size of the liver is a constant symptom in diffuse inflammatory processes, both of hereditary and acquired syphilis, and also in amyloid degeneration, when it involves the entire organ. If, in the progress of the disease, interstitial contraction takes place, symptoms of cirrhosis of the liver will be developed. When a circumscribed gummata formation takes place, the gradual change in shape of the liver, - the lobulation of its tissue, - becomes one of the most marked symptoms, and, according to the seat of the process, icterus or ascites, together with other evidences of a disturbed portal circulation, will be present. The recognition of a syphilitic cirrhotic liver, especially in patients of advanced age or who suffer from marasmus to a marked degree, may be attended with some difficulty, since the projecting nodules upon the surface of the liver may bear a marked resemblance to those which occur in cancerous disease. As a rule, however, a syphilitic cirrhotic liver at this stage of the disease is smaller than normal, while a cancerous liver is apt to be enlarged, and by careful observation the increase in size may be verified. Furthermore, the rest of the symptoms, especially the marasmus, increase with great rapidity if the disease is cancerous, but if these symptoms owe their origin to syphilis, they are apt to remain stationary for a long time. The discovery of other symptoms pointing to syphilis, or at least signs of their former existence, is of more importance, of course, in making a diagnosis. The onset of pain in the region of the liver would strongly suggest the fact of involvement of the peritoneal coating of that organ. In new-born children, unless, possibly, there may be some enlargement of the liver, the only local symptoms, often, are those due to peritonitis, - which, again, may become diffuse, - as evidenced by the screaming, the drawing up of the legs, and vomiting.

SYPHILIS OF THE DIGESTIVE TRACT.

For the most part the lesions in the mouth have been already considered. It is common enough to find gummata in the tongue. The fissured appearances of the tongue and its whitish scarry coating sometimes observed are in no way characteristic of the disease. Tertiary syphilis sometimes gives rise to perforation of the hard palate; and the occurrence of gummata on the posterior wall of the pharynx may result in ulceration of

that structure, and this may end in erosion of one of the large vessels, such of the internal carotid, the patient dying rapidly from haemorrhage. Stenosis of the oesophagus may occur from the process involving that structure. Regarding syphilitic affections of the stomach we know very little. Gummata have been discovered in post-mortem examination of syphilitic subjects in whom no appreciable gastric symptoms were present during life. Gummatus infiltration of limited or extended areas of the mucous and submucous tissues may result in considerable fibrous thickening of the walls of the stomach. Above the rectum, the walls of the intestine may become the seat of gummata. They give rise to serious symptoms only in extremely exceptional cases, and are of superficial location. Of all parts of the intestinal tract the rectum suffers with greatest frequency, and, therefore, deserves special mention. At any time in the course of the disease these syphilitic affection of the rectum and anus may occur. Chancres are often found here, for reasons that slight reflection regarding possible perversions of the sexual act will suggest, in both sexes. If the chancre occur within the sphincter ani, it is rarely discovered. On the anal border, or upon the perineal surfaces, it presents itself as a firm flat or spherical lesion, somewhat resembling a small haemorrhoid.. It may also appear as an eroded surface, or as an anal fissure. The lesion may occasion the patient considerable distress when at stool, but otherwise it gives rise to little or no pain. Macules and papules are the forms of the early consecutive lesions which occur about the anus. They appear usually in conjunction with the first macular exanthem. Syphilitic lesions occurring in this region are often intensely pruritic. In consequence of the natural heat and moisture, papules about the anus are liable to be converted into mucous patches and condylomata. The secretion given forth by such lesions has a most offensive odour, and is most infectious in nature. The late affections of rectal syphilis consist of gummatus infiltration of the parts, and the free development of fibrous tissue; they are more commonly met with in women than in men. At any point within the rectum the gummata may be found. They may be single or multiple, and localised or extensive in distribution. Diffuse gummatus infiltration may envelop the entire surface of the bowel in a broad band, or extend along one of its sides for a considerable distance. When small, gummata are apt to be numerous. Their point of origin is in the mucous or submucous tissues. In their earlier development they feel to the tip of the finger like smooth, round, firm nodules set somewhat deeply within the rectal tissues. They become elevated, less firm, and often develop into papilliform structures later on. Ulceration may occur. Pain is not usually a feature of rectal gummata. The first symptoms of their presence is usually a prolonged and constant or intermittent diarrhoea. This is followed by obstinate constipation, with uneasy and painful sensations occurring in the rectum when at stool. When the gummatus infiltration encircles the gut, stricture is almost sure to result. This is accomplished by absorption of the gummatus material and the production of fibrous connective tissue. A chronic proctitis usually accompanies such stricture, and the discharges from the bowel are usually liquid in character. Steady and progressive contraction of such strictures is apt to continue until the lumen of the bowel is so greatly narrowed as to interfere in a dangerous degree with the discharge of the intestinal

contents. Examination with the tip of the finger shows the lumen of the rectum narrowed in various degrees; a roughened, corrugated; dense mass of contractile tissue encircling the gut, a pouch-like expansion above it, and tongue-like projections of rectal tissue beneath. Syphilis also induces sometimes another form of stricture in the rectum, which is characterised by the formation of dense fibrous tissue without preceding inflammatory conditions or exudative products taking place in the parts. It occurs long after the cessation of the symptoms of the disease, and in young and old syphilitic women. The history of the case, and the presence of other specific symptoms should suffice to make the diagnosis clear in most cases. In tubercular ulcer there will be other evidences of the disease. Cancerous growths develop higher up the rectum than gummata, and tends to form early and secure adhesions to the surrounding structures; and a section of the tumour under the microscope will show the characteristic malignant characteristics.

SYPHILIS OF THE LUNGS.

Except in its late stage syphilis does not attack the lungs. In the inherited form of the disease, however, pulmonary syphilis is more frequent. The anatomical alterations found after death are of the nature of either a chronic interstitial inflammation or of a gummatus formation, which may be circumscribed or diffuse; and the two forms may be distinct or associated. Neither give rise to any symptoms during life characteristic of syphilitic infection. The gummata vary in size from a pea to that of a hen's egg. They may appear singly or be distributed profusely throughout the substance of the lungs. They are especially to be found at the root of the lung. They are gray or yellowish-gray in colour. In their earlier stages they are firm, indurated, circumscribed nodules, surrounded by a dense connective tissue envelope, and well supplied with small vessels. These vessels later disappear, and the tumours take on the retrograde appearances which I have described elsewhere as characteristic of gummata. If softening take place rapidly, rupture and discharge into one of the bronchi occur. A cavity is then formed in the lung tissue, not differing in any character from that found in tuberculosis. The walls of small cavities unite, with the eventual formation of a cicatricial nodule. Large cavities remain patent. The gummata, instead of undergoing destruction by ulcerative, caseous, or hyaline degeneration, may become the sites of deposition of lime salts, with the formation of calcareous nodules. No change in the tissues about the gumma may occur, or a true diffuse broncho-pneumonia may be produced. When diffuse gummatus infiltration occurs, which is seldom the case, the course of the larger blood-vessels is usually followed by the destructive alterations. In some cases syphilis gives rise to a diffuse chronic interstitial sclerosis, the process consisting of the steady and progressive development of fibrous connective tissue within the lungs. The sclerosis commences at the root of the lung or in the pleura, and advances along the blood-vessels and the bronchi, invading large areas of lung tissue. The parenchyma of the organ is attacked; and the air vesicles are narrowed in size; and at times completely obliterated. The newly formed tissue is sclerotic. The areas affected become dense and hard, and do not furnish a vesicular murmur on auscultation. The surface

of the lung is uneven, owing to the contraction of the substance of that organ taking place in other parts. The process affects a large portion of one lobe, and sometimes of two lobes; and differs markedly from tuberculosis in being usually confined to the base of the lung instead of the apex. In the lungs of new-born children, with hereditary syphilis, a very characteristic change is found, in the form of a diffuse infiltration of the alveolar septa, which was described by Virchow (Archiv., B. I, 1847, p. 146) and F. Weber (Beitr. zur path. Anat. d. Neugeborenen, Kiel, 1852, 2 Lief., p. 47), as "White hepatisation during uterine life," but was first shown to be of syphilitic origin by Hecker (Verh. d. Berliner geburtshilfl. Gesellschaft, VIII, 1854, p. 130). Later, others, and more especially Wagner (Arch. der Heilk., B. IV,), have described cases of this kind, and Moxon (Guy's Hosp. Reports, S. 3, vol. xiii, 1867) has shown that it is probable that the same change occurs in adults. The lungs thus affected are very large, very heavy, and of a whitish colour, - hence the name "white pneumonia", - the alveolar septa being much thickened by a cellular infiltration; with abundant fat granules, so that the alveoli, in some parts, are quite obliterated, while at others they are much diminished in size. The air cells are choked with the debris of shed epithelium. Syphilitic lesions of the lungs give rise to no characteristic symptoms. The disease comes on slowly and without fever and pain. The respiratory act grows feeble. There may be dulness over limited areas at the base of the lung. Cough is usually mild, and accompanied by slight expectoration. At times, however, it may be severe. Bleeding from the lungs sometimes takes place. Asthmatic attacks occur. As the disease becomes thoroughly established many of the signs and symptoms seen in pulmonary tuberculosis may end fatally. The diagnosis depends mainly upon the history of the cases, the prior or coexisting syphilitic lesions, especially laryngeal processes, cutaneous syphilides, exostoses, perforation of the palate, substernal tenderness, and the thickening of the tibial periosteum or of that of the head of one or both clavicles. Family immunity from phthisical tendency, recovery from lesions usually incurable if they have any other than a specific origin, are suggestive of pulmonary syphilis. If a patient retains flesh and strength beyond the natural expectation considering the serious nature of the lesions of the lungs, the fact is of relative importance when considered in connection with other diagnostic features. The discovery of the tubercle bacillus has only one obvious interpretation. The early involvement of the base instead of the apex points to syphilitic infection, the diagnosis of which receives additional confirmation from the occurrence of dyspnoea at night - a typical phenomena.

SYPHILIS OF THE LARYNX.

In both the early and the late stages of syphilis the larynx may become affected. The harsh voice of syphilitics - the "raucedo syphilitica" - is a symptom to which attention was long ago called. The form of laryngitis which corresponds to the syphilitic nasal catarrh, and to the ordinary form of syphilitic angina, has no special characteristics, and is a somewhat rare affection. It is more common to meet with a chronic catarrhal process which has become fixed in the inter-arytenoid space, and which leads to thickening of the mucous membrane. In this early period it is

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possible, especially at the posterior commissure, to find erosions or ulcerations, which begin in the mucous glands. But these have nothing about them which is pathognomonic of syphilis, and their nature can be determined only from other concomitant symptoms. Flat condylomata of the laryngeal mucous membranes are more characteristic, and these may be situated on the epiglottis, at the entrance of the larynx, or even on the vocal cords. The condylomata, as well as simple chronic growths of the mucous membrane, may either vanish completely after the administration of anti-syphilitic remedies, or a permanent alteration of the voice may result from the changes which they induce in the laryngeal membrane. Ulcers may take up their position on the laryngeal mucous membrane in the later stages of syphilis, they may cause rapid destruction of tissue, and are surrounded by an intensely red and swollen edge, similar in every respect, in fact, to tertiary ulceration of the pharynx. The ulcer may be situated on the epiglottis, on one of the false vocal cords, in the posterior commissure of the cords (true), or on one or other of the cords themselves, though it is more apt to occur on parts above the cords. Although the ulcers are usually attended by deep and extensive swelling of the mucous membrane, they are not easily confounded with ulcerations of the larynx of tuberculous origin. The oedema attendant upon syphilitic ulceration is more limited; but still, under certain circumstances, it may produce such a high degree of stenosis as to cause suffocation. The influence of specific treatment upon such alterations is very striking. Even in cases which present a very unpromising appearance, the administration of the iodide of potassium soon produces a marked diminution of the swelling, and causes a speedy cicatrization of the sore. This may, of course, be attended by the formation of cicatrices, with various effects, according to the part where they are located. The laryngeal cartilages may sometimes be involved in the ulcerative processes. Necrosis of the cartilages results from an extension of the process to the perichondrium, and may give rise to abscesses which break externally by fistulous openings. The shape of the larynx may be so altered as to scarcely be recognised with the laryngoscope if these ulcerative processes have been very extensive, or if they have recurred many times. The epiglottis may be entirely wanting, or its place may be marked only by a small, irregular projection, and the cavity of the larynx may be converted into a cicatricial cone, with an opening not larger than a quill; or sometimes the passage may be reduced to a mere fissure, on account of the partial adhesion of the vocal cords. According to the degree of the destruction will the disturbance of the different functions vary, as of phonation, respiration, or swallowing.

SYPHILIS OF THE SPLEEN.

Syphilis of the spleen is to be classed, pathologically speaking, with the general affection of the glands which occurs in the course of the disease. Its involvement is of frequent occurrence, especially ordinary hypertrophic enlargement. This begins in the secondary stage, about two or four weeks after the appearance of the chancre, and lasts throughout the secondary stage of the syphilitic dyscrasia. I have never observed enlargement of the spleen in the tertiary stage. It gives rise to a peculiar localised pain - the so-called syphilitic pleurodynia. It is only very exceptionally that gummata of the spleen are observed.

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SYPHILIS OF THE HEART.

Syphilis manifests itself upon the heart in the production of gummata, or a specific arteritis leading to patches of fibroid degeneration. The gummatus growths form tumours of variable size, which usually occupy the septum or the ventricles. Possibly many of the caseous and calcified masses not infrequently met represent obsolete gummata. The syphilitic myocarditis probably originates in an affection of the arteries, and leads to patches of fibroid induration more or less extensive. In the production of fibroid heart it is highly probable that syphilis plays an important rôle. Syphilitic endocarditis is of a fibro-sclerotic type, not of the more acute verrucose or warty kind. The symptoms arising are those of organic valvular disease, as met with under other circumstances. The pericardium is sometimes the seat of miliary gummata, and the dilatation of an area of fibrous myocarditis, resulting from softening, may lead to an aneurysm into the ventricle.

SYPHILIS OF THE BLOOD-VESSELS

The veins to a large extent escape from the manifestations of syphilis. It is the arteries that are mainly affected, and both early and late in the course of the disease. With the exception of fatty degeneration and gummatus changes in their walls, little is known regarding the state of the capillaries in this affection. The walls of the arteries may show signs of the presence of obliterating endarteritis, gummata, arterio-sclerosis, or of aneurysm, - the first-mentioned being by far the most common and serious of their number. The smaller arteries are chiefly affected by this change, which is of the nature of a proliferation of the endothelial elements of the intima, leading, in due course, to a partial or complete closure of the lumen of the vessel so diseased - the so-called "Heubner's degeneration!" This, however, is not peculiar to syphilis, unless there be gummata in other parts, or the adjacent vessels be the seat of gummatus periarteritis. The arteries at the base of the brain and the coronary arteries suffer most frequently, but, still, any of the systemic arteries may be the seat of these lesions. The proliferation is excited by the specific virus or its toxins, circulating in the blood, setting up considerable irritation. Thickening of the intima takes place, layer after layer of the endothelial cells forming one within the other, until the vessel is nearly or entirely closed. The adventia is attacked, and gradually all the coats of the vessel become affected by the destructive lesion. A true inflammation may be excited, with subsequent production of granulation tissue. The latter is converted into fibrous tissue, having a marked tendency to contract. If the lumen of the vessel is still partly patent, the contractility of this newly formed tissue is usually sufficient to close it. The nutrient vessels are apt to share in the process, and are completely obliterated in time. The lesion is usually confined to limited and localised areas. Gummatus periarteritis is chiefly seen in connection with the larger blood-vessels, and in relation to the tunica adventitia chiefly. The inward pressure of the mass of gummatus tissue leads to partial closure of the lumen of the affected vessel, and this narrowing is still farther effected by thickening of the intima. Thrombi very often form at the point of constriction. The gumma now undergoes the usual changes - softens,

discharges its contents into the circulating blood, and then becomes the seat of an aneurysm. In the diffuse form the gummatous infiltration occurs between certain of the vessel's coats, such as the intima and adventitia. The entire circumference of the wall of the vessel may be involved, or only a part be affected, while the process may extend along the artery for some distance. Fatty or cheesy degeneration of the gummy infiltrate takes place, and later calcification, leading to the production of atheroma. The cerebral arteries are most often affected, and apoplectic attacks may result from sudden rupture of the weakened vessel wall. The carotids are not infrequently affected. Syphilis is an important factor in the production of arterio-sclerosis, - a condition most frequently seen in robust persons, between thirty and fifty years of age, who have suffered from syphilis in early life. The affection is apt to be generalised, and the lumen of the vessels is enlarged, instead of being narrowed as in endarteritis. The intima is thickened, and often becomes the seat of atheromatous change. The walls throughout are hardened and inelastic. They feel to the touch like whipcord placed beneath the skin. The symptoms of the malady are the same as when arising under other non-specific circumstances, and must be treated similarly, except that, in the present instance, iodide of potassium is particularly useful. Syphilis is also a prolific cause of aneurysm, which gives rise to the usual well-known symptoms.

SYPHILIS OF THE KIDNEYS.

As albuminuria often occurs in the course of a syphilitic attack, one's attention is naturally directed towards ascertaining the condition of the renal organs in this disease. At any stage of the constitutional disorder they may be affected; but it is the earlier manifestations that are sudden in their onset, and seldom announced by prodromal symptoms. Oedema, occurring in and beneath the lower eyelids, is usually the first sign of renal implication, and it is chiefly in the morning, on the patient getting out of bed, that this symptom is most noticeable. The limbs and other parts of the body become oedematous in the course of time. Micturition is frequent and scanty; the urine is turbid when first passed; it is of high colour and increased specific gravity. Together with these symptoms we observe that the patient is suffering from headache, vomiting, malaise, visual disorders, dyspepsia, and general hebetude. Should the patient die, the post-mortem examination will reveal well-marked organic changes in the kidney. It is enlarged, and appears gray or grayish-white on section. There is cortical thickening, the epithelium of the convoluted tubules is swollen, and the tubes themselves are filled in places with epithelial debris: in short, the condition known as the large white kidney exists. Changes in the kidneys occurring at a later stage are more severe and disastrous in their consequences than the earlier lesions. The process here is usually complex in character and referable to several distinct and separate conditions. Principal among these are the formation of gummata, amyloid degeneration, and inflammation of the interstitial connective tissue. These processes operate in conjunction in various degrees, though rarely one may exist singly. Usually both kidneys are affected. The symptoms depend on which one of the above conditions is most fully developed. If interstitial be the chief lesion, the urine will be increased greatly in quantity, its specific gravity will be low, and the quantity of albumin will be

small. If amyloid degeneration exist alone or exceeds the other complications in its gravity, the urine will be but slightly increased in its quantity, albumin will be abundant, hyaline and waxy casts plentiful, and free fat globules with degenerated cells will be present in the flocculent precipitate. Gummata are often found in the kidneys after death, although during life they have given rise to no definite suggestive symptoms. The lesion is usually localised when it is that of chronic interstitial nephritis. The surface of the kidney presents an irregular, uneven appearance, owing to the contraction of the affected areas of the organ, near which, again, gummata may be found, - single or multiple, of pinhead or walnut size.

SYPHILIS OF THE BONES.

The bones or their periosteal coverings may be affected by syphilis at any period in the course of the disease. The patient may have very sleepless nights from pains in the bones beginning as early as the period of the eruptive fever. On account of their frequently widespread, sometimes of a wandering character, and their tendency to occur only in the regions of the joints, these pains are sometimes described as rheumatic. But a careful examination of the articular system shows the joints often to be entirely unaffected, and that the points from which the pains really proceed are certain sensitive spots at the articular ends of the bones, especially at bony prominences to which muscles are attached. At this early stage no other changes are usually to be discovered in the affected bones. The pains may, however, be associated with a flat elevation at the affected spot, to which the tenderness on pressure is limited. A certain elastic resistance or a peculiar sense of fluctuation may be perceptible to the touch when the elevation in question is marked and situated on flat surfaces of bone, as on the top of the skull, or the inner surface of the tibia. This gives place, after some length of time, to an increasing hardness, so that at last finally a more or less even, hard, and permanent prominence is left behind. Such nodes or ossified prominences were termed by the old writers "tophi", and were distinguished from the gummatous tumours of bone which underwent gradual softening. Osseous gummata usually begin in the later stages of syphilis, generally appear in isolated form, without other symptoms often, and the prominences grow fairly rapidly into roundish tumours, or, upon the top of the skull, remain flat. Only exceptionally, and then in connection with destructive, pustular eruptions, do these tumours occur in the acute stage of syphilis. They have a rather firm, but elastic consistency when fully developed, and afterwards the course they pursue differs in different cases; either absorption gradually takes place, which leaves a depression behind, surrounded by a hard wall-like rim, or else the tumour advances in the direction of the skin, which it perforates in the same way as the subcutaneous gummata. The ulcer resulting in the latter case is, however, not confined to the skin and subcutaneous cellular tissue, but from the very first begins to encroach upon the bone, the destruction of which commences before the perforation of the skin; different-sized pieces of very porous bone are thus exfoliated. Upon the top of the skull, especially, extensive destruction is often the result of this process, which may even go on to a perforation of the bone. Radiating, contracting cicatrices are

formed if such ulcers heal. To the irregularly nodulated surfaces of bone beneath the former become adherent. The medulla of the bone may be implicated in the destructive process. For a long time deep-seated, violent, boring pains in the bone are the only symptoms. At a certain spot the bone gradually becomes swollen, or, it may be, in its entire circumference, where a thin, long bone is concerned, as the fibula, or one of the phalanges of the hand, and the like. Finally, only a thin, cortical shell surrounds the gummy tumour, yielding to pressure with crepitation; perforation of the skin soon occurs when this is broken through. This description applies to what occurs in one form of the so-called dactylitis syphilitica, where a roundish, nodular swelling of one phalanx gradually develops, and the skin over it becoming finally red, is broken through in one or more places, giving exit to a gummy-like fluid, mingled occasionally with a whitish, caseous matter. This affection is not very common, and though occurring in adults, it is observed particularly in children with hereditary syphilis, in the first few years of life, and constitutes a variety of the so-called spin. ventosa. Its outward appearance may also be produced by tuberculosis, enchondroma or sarcoma of the bone marrow. It readily yields, as a rule, to specific treatment. The condition does not always, however, originate in the bone; gummatous formations in the sheaths of the tendons and in the fibrous structures of the fingers may produce similar appearances. In syphilitic affections of the bones certain ones are more apt to be attacked than others: mainly at first those which are covered only by the integument, and are thus more exposed to external traumatic accidents, and to changes of temperature - as, for example, the skull, the clavicles, the tibiae, the ribs, and the sacrum. Then come the bony processes, as already mentioned, and especially the points of muscular attachment, which are subjected to strain during the contractions of the muscles. In contradistinction to these situations; it may be noted that bones which are enveloped in the soft parts are but rarely attacked; nevertheless, even the vertebral column is not always spared, and when this is assailed it must be esteemed a fortunate circumstance for the patient when bony elevations coexist in places accessible to inspection, thereby directing the physician's attention to the true nature of the affection, which might otherwise betray its syphilitic character by no subjective symptom. The small periosteal swellings of the secondary period are often the most painful of the syphilitic bone affections. The sensitiveness of the affected part may be so extreme that even the pressure of the bedclothes cannot be borne. Gummata, whether proceeding from the periosteum or the medulla, may run their course with but insignificant pains, or with pains which are violent and persistent - the *dolores osteocopi*. The pain of syphilitic bone affections has the peculiar-ity of occurring with its greatest vehemence at night. During the day it may be totally absent. The warmth of the bed probably excites the pain, for persons who stay up all night remain free from pain, but suffer if they lie down in bed during the daytime. Still, it is very probably alterations in the fulness of the blood-vessels which either occasion also or at least aggravate these pains; and another point which seems to me equally, if not more important, with respect to their cause, is the existence of an evening exacerbation of the fever, although it may be only slight in degree. It has seemed to me, in fact, that the patients who had fever complained more of periodically recurring pains than those in

whom bone affections ran their course without febrile symptoms; and, moreover, that the pains did not begin at so late an hour of the night as is generally stated (11 o'clock); but commenced gradually to increase from the latter part of the afternoon. The fact of the pains ceasing with an attack of sweating in the early morning hours, as mentioned by several writers, speaks in favour of their connection with variations in the bodily temperature. Under the influence of the febrile rise of temperature the peripheral blood-vessels dilate, and gradually, and at the same time there is a determination of blood to those parts of the periosteum and the bones nearest to the skin, so that a swelling is produced in these places. Pathologically, all the syphilitic affections of the bones are owing to changes either in the periosteum or in the medulla, and indeed, they may develop in one as well as in the other of these situations, whether the processes are irritative, hyperplastic, or gummatous. Belonging to a simple periostitis are the painful, though scarcely perceptible, swellings which occur principally in the early periods of syphilis, as early often as the fever of eruption, though by no means excluded from the later periods. This, after lasting for a certain length of time, leads to a deposition of new bone substance, and to a thickening of the adjacent cortical portion - to a hyperostosis. In this way there are formed, especially upon the long bones, but on the skull also, often considerable nodose elevations, which, after the acute process has spent itself, constitute the painless topi of syphilis. At first such portions of bone, - or, it may be, the whole extent of a long bone, - are of ivory-like hardness; but medullary spaces gradually appear in the sclerosed portions in the same way as in the normal osseous development, so that in the course of time the thickened bone may become even more porous than natural. In this variety of periosteal affection, suppuration rarely occurs, though it may doubtless take place in the severe forms, and also in that form of bone affection which is one of the peculiar features of congenital syphilis. The form of bone affection that I refer to occurs at the margins of ossification in the epiphyses and in the cartilage of the ribs. Its course is marked by thickening of the periosteum, formation of osteophytes, and by a speckled discolouration and softening of the spongy tissue of the bone in the neighbourhood of the epiphyses. The cartilage layer is enlarged and softened, the zone of ossification is thickened, and projects with irregular prolongations into the cartilage layer, the union of the two becoming thereby less firm, so that the epiphysis is liable to become entirely separated from the shaft of the bone, or the rib from its cartilage. Suppuration frequently occurs in the tissues surrounding such markedly altered bones, and in the adjoining articulation occasionally. As may be often seen at the autopsy, the affection generally exists in several bones at the same time, even though during life the affected extremity may apparently have been quite normal. Moreover, where changes to the naked eye appear exceedingly minute and insignificant, with the aid of the microscope they may be recognised as the characteristic marks of the affection - diminution or absence of the osteoblasts at the margins of ossification, and filling of the medullary spaces with gumma-tissue. The knowledge which has been gained of this affection I regard as an extraordinarily valuable contribution to the diagnosis of inherited syphilis. It is not infrequently the only symptom of it, and inasmuch as it begins even in uterine life, its presence may be demonstrated in still-born children, as well as those

who live for several weeks. Whether it occurs also in children with hereditary syphilis, in whom the disease does not manifest itself until later, I have not been able to determine, but it appears to be absent when the syphilis is acquired in infancy. In the later stages of syphilis gummatous tumours not infrequently develop. Their development is slow, often attended with but little pain, and they may be either small and circumscribed, or, - as upon the cranial bones, especially, - their occurrence may be more diffuse. These periosteal nodes have a lardaceous appearance on section, or they may be still softer, with the consistency partly of mucoid tissue or pus, and are composed of a delicate, fibrillar groundwork, with round and spindle-shaped, - or together with some stellate, branching, - cells, frequently mingled with a finely granular detritus. In the early stages of the process it is impossible to fix upon any anatomical difference between a simple inflammatory or hyperplastic growth and gumma tissue. There are obviously transitional forms, since the gummy tumour differs only in the peculiar change which the cell-growth undergoes in its subsequent course, from the processes of the primary and secondary period; which run their course like that of a hyperplasia of a simple kind. Where these growths develop the change which takes place in the bone is a double one. In the centre, an ulceration, a caries sicca takes place, which leads to a superficial excavation, and to a porous condition of the bone, while at the periphery, a hyperostosis is in progress, so that the central depression, which is often radiated or star-shaped, comes to be surrounded by a hard bony wall. During the extension of the process the periosteal hyperplastic growth can be lifted out of its depression, and its identity with gummatous tissue can be demonstrated microscopically. The adventitia of the blood-vessels, in this instance also, forms the matrix of the hyperplastic growth. By this means the encroachment of the growth upon the bone tissue, with atrophy of the latter, is made explicable. After the hyperplasia has undergone complete resolution, the depression still remains, with but little altered periosteum firmly adherent to it. The secondary changes at the periphery are not confined to the surface of the bone, but the subjacent spongy tissue, or, in the skull, the diploë, becomes sclerosed in like manner; indeed, effects may be seen upon the inside of the cranium, of a process taking place upon the outside, in the form of thickenings, and even upon the inner surface of the dura mater, in fibrous or slightly hæmorrhagic spots. The syphilitic changes in the medulla of the bone also proceed from hyperplastic cell-growths, as already mentioned with regard to the form occurring in hereditary syphilis. But while in the medullary cavities of the long bones the osteomyelitis appears in the form of circumscribed tumours, in the spongy tissue of the flat bones, and especially in the diploë of the cranium, it forms a sort of infiltration. The cell growth causes an enlargement of the canaliculi and lacunae of the bone, and in this way it may happen that a piece of bone is entirely separated from its osseous union with the surrounding bone. Such an exfoliation occurs frequently upon the skull, and the sequestrum is marked by a great porosity, corresponding to the processes which led to its separation. The actual separation takes place in consequence of the purulent or muco-fatty disintegration of the gummatous growth, and before this has progressed far, inflammatory processes commence in the layers above, which are soon followed by perforation of the skin. At the margin of the diseased bone there occur

in this instance also, in the bone as well as proceeding from the periosteum hypertrophic processes, sclerosis, and osteophytic formations. In small long bones, the gummatous formation in the medullary cavity causes a bulging of the bone, with gradual atrophy of the cortical substance, which finally encloses the growth as a mere thin shell; the most marked form of which is seen in the dactylitis syphilitica which I have already described above. Finally, I must mention the changes produced in the bone secondarily, through ulcerative processes in the overlying soft parts. Under this head belong especially the necrosis of the bones in the nasal cavities and of the hard palate, which proceed mostly from ulcers of the mucous membrane; the necroses of the superficially situated bones, due to ulceration in the skin, belong also to this category. When syphilis affects the bones it gives rise to numerous and varied sequelae. Not only mau permanent disfigurements result, as, for example, a sinking-in of the ridge of the nose, bulgings of the facial bones, protuberances and hollows upon the forehead, but bones may be so impaired in their strength that fractures are produced upon the most trivial occasions, e. g., the humerus and radius. Furthermore, through defects in certain bones, the safety of vital organs may be imperilled, as that of the brain; or organs may have their functions seriously impaired, as on account of defects in the palate. Again, these bone affections which are attended with enlargement and hyperostosis may occasion symptoms of compression of vessels and nerves. In this way the cerebral nerves may be affected, and the condition is then very serious. To determine whether an existing bone affection is really syphilitic or not is of vast importance as regards the question of diagnosis: this is the first problem to be faced in any given case. The syphilitic are distinguished from other affections of the bones through their points of predilection, already described, the nocturnal pains, the slight tendency to suppuration and their disposition to hyperostosis and anastosis; in necrotic processes, on account of the porosity of the sequestrum and the slight reaction in the surrounding parts. Next, the form of affection is to be ascertained, whether simple or gummatous periostitis or gummatous osteomyelitis; and here the relations as to time have to be chiefly taken into account. Gummatous processes proper, - that is, such as tend to mucoid softening, suppuration, or caseous degeneration, - belong, with few exceptions, to the tertiary stage of syphilis; processes occur in the secondary stage, which undergo a hyperostosis change, or even are spontaneously resolved.

SYPHILIS OF THE JOINTS.

The syphilitic patient may suffer, and very often does, from pains in and about the joints early in the course of his illness. They are not referable, however, to any organic change in the part, but are due to the circulation of specific toxins in the blood. Later in the disease a true synovitis may develop. This inflammation is characterised by slight pain, impairment of motion, and effusion of fluid into the capsule of the joint. The latter enlarges slowly. There is thickening of the fibrous parts due to hyperplasia of their elements. The synovial membrane may become the seat of circumscribed gummata, or of diffuse gummatous infiltration. The joint becomes tumid, hot, and tender to the touch. Pain is severe, and is worse at night. If unchecked, the thickening becomes permanent, and there is more or less loss of motion. Complete ankylosis

does not often take place, and ulceration with formation of sinuses is unusual. The knee joint is the part most frequently affected. The diagnosis depends upon the patient's history, or the discovery of evidences of syphilis elsewhere in the body. The condition is usually markedly relieved by the local application of heat; and the rest of the treatment consists of rest, mercurial inunction of the joint, and the exhibition internally of mercury and the iodides.

SYPHILIS OF THE MUSCLES.

Among the various manifestations of syphilis are muscular affections. These structures may become diseased, either in a somewhat diffuse manner, or in the form of a subcutaneous myositis, accompanied by considerable pain on motion, and tending to atrophy of the muscular bundles and fibrous degeneration of the portion of the muscle affected; or a gummy tumour, may develop in the interstitial connective tissue or in the muscular sheath, consisting in its fresh state of an accumulation of single nucleated cells, in the later stages of amorphous, fine granular substance. In this latter case the muscular fibres are likewise destroyed. The course of the affection in the latter form is more insidious, pain is wanting, and frequently the contraction which characterises the first form is also absent. Intractable fistulous ulcers may result from the occurrence of gummata which undergo softening, and break externally after the manner of subcutaneous gummata. Any of the muscles may be affected. The diffuse form has been found more especially in the flexors of the upper extremities, while the gummy tumours occur in the glutei, trapezius, sterno-cleido-mastoid, in the myocardium, in the tongue, and in the muscular structures of the soft palate. There is a risk of mistaking a gummy tumour of a muscle, grown to a large size, for a malignant neoplasm, especially if it projects above the muscle. But the tumour in question will respond to specific medicaments, even if the other signs of syphilis be absent.

SYPHILIS OF THE SUBCUTANEOUS CELLULAR TISSUE.

Gummata may originate in the subcutaneous cellular tissue as flat, roundish, and, - when not proceeding from the fasciae, - movable and perfectly painless tumours, which are often discovered only by accident. Gradually adhesion of the integument takes place, then the latter becomes red and painful, and the tumour softening, the skin breaks, and deep fistulous ulcers remain. Sometimes several of these tumours in the subcutaneous cellular tissue coalesce, so that the infiltration has more of a diffuse character. They vary in size usually from a pea to a goose's egg before this. I have already described the histological appearances of gummata elsewhere. According to its stage of development the tumour on section has a grayish-red, in certain places a more grayish-yellow, exsanguinated appearance, and is either softened in the centre to a gummy-like mass, or is partly or entirely dry, resembling colourless fibrin. The diagnosis may be doubtful if the gummata of the subcutaneous cellular tissue, or of the fasciae, occur singly, without other manifestations or evidences of syphilis; and when they soften and the skin above them is thinned, they may be taken for simple cold abscesses. Here the general history of the case must be taken into careful consideration, and the clinical findings duly weighed

and applied. Again, a large number of still hard subcutaneous gummata may be mistaken for multiple subcutaneous carcinomata or fibromata; and in the absence of any circumstances in the history of the case, or of associated manifestations which might throw light upon the diagnosis, the result of specific treatment, and the general course which the disease pursues, will be the main factors upon which the diagnosis will depend.

SYPHILIS OF THE TENDONS AND BURSAE.

The fibrous capsules and the ligaments of the joints may be the seat of gummata. Their presence will be indicated by swellings which are but slightly painful, though, according to their situation, associated with more or less disturbance of function. The sheaths of the tendons either become the seat of mere circumscribed effusions, which form painless, occasionally fluctuating swellings, an affection which is not uncommon in women, chiefly in connection with the extensor tendons of the hands and feet, or inflammatory appearances are superadded, with all the symptoms of an acute tenositis - tumefaction, redness of the skin, tenderness, pain, and a sense of friction on motion. The extensors of the thumbs, the tendons of the biceps, and of the peronei, and the extensors of the fingers are the most frequently attacked, although the affection is also met with upon the ligamentum patellae, the tendo Achillis, and in other situations. When the inflammation is situated near a joint, it may easily simulate an affection of the latter or of the periosteum, but the diagnosis will become clear if the case be properly examined and enquired into. The sheaths of the tendons may be the seat of true gummata, which may ulcerate through the skin, and evacuate their contents. They may also be located in the bursae, which may be filled with serous effusion, or the walls of these structures may show gummatous infiltrations.

SYPHILIS OF THE LYMPHATIC GLANDS.

When the syphilitic virus has thoroughly invaded the system swelling of the lymphatic glands takes place: we have already seen that the primary lesion is attended by an indolent swelling of the corresponding lymphatic gland. From the local affections of the skin, of the mucous membranes, of the bones, etc., the poison is conveyed in larger quantity to the next lymphatic glands, exciting in them the same changes which I have described in the indolent buboes of the primary stage of syphilis. Thus, in connection with affections of the mucous membrane of the mouth, we find the submaxillary glands enlarged; with eruptions upon the hairy scalp, the cervical glands; with papules of the palm of the hands, or with paronychia, the cubital glands. But this is not the only way in which the lymphatic glands of all the different regions of the body are made to sympathise in the syphilitic dyscrasia. It seems to me that the poison circulating in the blood causes hyperplasia of the lymphatic structures generally and directly, for sometimes we see the glands reacting to the poison before the skin or mucous membranes. The glands of the nape of the neck, those above the internal condyle of the humerus, or the small glands at the side of the breast often become enlarged before the skin eruptions have had time to make their appearance, or without any source of peripheral irritation being discoverable. The glandular swellings precede the syphilides of the skin and mucous

membrane especially in new-born children, in whom they are sometimes to be observed before any manifestations of the inherited syphilis have yet made their appearance. From this standpoint, however, it is still unexplained why, when the total volume of blood contains the poison in sufficient quantity to irritate the lymphatic glands, this irritation manifests itself only on certain ones; for that is a fact I have been convinced by a number of observations, directed to this particular point; in many individuals who have been unquestionably syphilitic for some time, the glandular affection was absent from, certainly, a large proportion of the glands accessible to inspection; indeed, only here and there were certain glands or groups of glands found to be enlarged, and even the cubital glands were not affected with any such uniformity as has been claimed by several writers on the subject. The fact is, that the individual disposition comes here into account, and, while in one person it is the integument which reacts first to the irritation of the syphilitic poison, in another it is the lymphatic glands. It is, moreover, to be observed further, that, even with the peripheral local lesions existing, the corresponding lymphatic glands do not necessarily become enlarged, and that in any two persons, the conditions in other respect being about the same, the glandular enlargements may be greater and more permanent in one than in the other. The tertiary local affections are said not to be attended by swelling of the glands, but yet it depends mainly upon whether these affections are accompanied by suppuration or not. Suppuration occurring, the usual phenomena of that condition are observed. In the secondary stage of syphilis it is probable that there is some intervening local lesion between the blood-poisoning and the glandular swellings. Sometimes the lymphatic vessels in the vicinity of these glands feel like hard cords, so swollen are they. This glandular affection, - which is peculiar to the secondary period, beginning to develop from the sixth week after the appearance of the initial lesion, - attacks by preference those glands which I have already named, but most commonly the posterior cervical, in the vicinity of which an occipital or a mastoidal gland is occasionally enlarged. Its occurrence in the lymphatic glands in the interior of the body, also, can be verified in post-mortem examinations. The course of the secondary affection is quite as protracted as that of the primary indolent buboes, from six to eight months passing before resolution begins: indeed, the glandular affections have been known to last for a lifetime. For the reason that, when dependent upon local lesions, different glands may vary considerably in their development as to time, it is occasionally possible to find swollen glands here and there for years, although a few months may cover the course of development of any single gland. The glandular hyperplasia may terminate otherwise than by resolution. The cell-growth may exceed its usual limits, and swellings result like those of scrofula; and, as in the latter, suppuration or caseous degeneration may ensue. This process is fairly common, only it is frequently not referred to its real source. But the events which I have just mentioned may assume a more peculiar syphilitic character; the hyperplasia may take the course of a gumma, and a fluctuating tumour become gradually developed which does not contain pus; but a gummy-like mucoid fluid. Amyloid degeneration may occur in the glands, and other lymphoid tissues, in the later periods of syphilis.

SYPHILIS OF THE THYMUS AND THYROID GLANDS, SUPRARENAL CAPSULES,
AND PINEAL BODY.

In the thymus of new-born children, with inherited syphilis, collections of pus are to be found sometimes, with which, however, the ordinary secretion of the gland must not be confounded. The occurrence of gummata in such cases is probable. The thyroid gland may be found enlarged with varying degrees of fatty degeneration, and gummatus infiltrations may be observed. Besides enlargement and gummatus formation, in the suprarenal capsules, a total fatty degeneration may be seen in rare instances. Gummatus deposits are said sometimes to occur in the pineal body.

SYPHILIS OF THE GENITALS.

The occurrence of the initial lesion of syphilis on the penis has already been mentioned and described. Oedema and diffuse swelling of the organ are complications likely to occur with chancre, especially if the lesion is large and subject in manner to irritation. Phimosi and paraphimosi are produced as complications. The organ is then swollen, hot, and tender. The lymphatics become inflamed and painful, and seem to feel like whipcords running along the dorsum of the penis and encircling its root. These conditions, while productive of some discomfort and much alarm to the patient, seldom occasion serious mischief. They are usually removed by rest, elevation of the organ, frequent immersion in warm boracic acid solution, and the exhibition of laxatives. A bluish colour, suggestive of gangrene, may be sometimes observed on the glans penis. This is due to interference with the return circulation by the chancre; and is apt to occur with large, deeply indurated chancres situated in the coronary sulcus. The discolouration varies with the resolution of the chancre. The irritating discharges from the primary sore may give rise to balanitis and posthitis. In the varying forms seen on the surface of the body consecutive lesions may occur. Scaling papules may be found at times upon the surface of the glans penis when no other lesions indicative of syphilis can be discovered. A slight catarrhal discharge from the urethra is sometimes noted as occurring in early syphilis. This is probably due to the presence of mucous patches within the walls of this passage. Gummata occur within the corpora cavernosa, as firm, spherical nodules. They develop slowly and without pain; the patient first noticing that the penis is not straight when erect, and later discovering a lump deep within the tissues of the organ. The tendency of such tumours is towards degeneration, with absorption of the products, and the subsequent development of circumscribed areas of fibrous connective tissue. Permanent deformity of the organ then results. Gummata are not apt to occur in the corpus spongiosum, but if they do a serious form of urethral stricture results. The development of fibrous tissue within the corpora cavernosa gives rise sometimes to a peculiar condition resembling a circular band placed about the penis, interfering with the perfect erection of the organ. This band may encircle the penis completely or in part.

The testicles are often attacked by syphilis, but are often overlooked as only very slight distress is occasioned. Disease occurring here may show itself early or late. The epididymis usually betrays some slight degree of irritation at the time of the primary eruption. It becomes somewhat swollen and is painful to the touch. Later in the course

of the disease a circumscribed area may become the seat of inflammation. This is a true specific epididymitis, and is to be distinguished from that due to gonorrhoea by its slow, insidious onset, and by the fact that the globus major instead of the globus minor is the part most often attacked. One or both organs may be affected. Circumscribed gummata, or diffuse areas of gummatus infiltration, occur late in the disease. They are painless and slow in growth. The gummatus infiltration may involve the entire epididymis, or be confined to a portion of the organ only. The discovery of a lump in the testicle is often the first indication given to the patient of existing trouble. Extension of the process to the testicle and to the cord often takes place. If neglected, irreparable damage may be done and a useless organ result; but, when discovered early, treatment is usually successful in removing the deposit and saving the testicle. Testicular lesions usually begin late in the course of syphilis, and due to the formation of gummata. These may appear first in the substance of the testicle, or they may begin in the substance of the tunica vaginalis investing the organ, and from this extend to the deeper structures. In the tunic they can be felt as small, round, firm, freely movable nodules. If deep in the testicles, they cannot be detected by touch until they have enlarged to a considerable extent. There is no pain. They may be single or multiple. The testicle may be invaded throughout its entire substance by the gummatus deposit, or the process be limited to a portion only of the organ. The gummata enlarge slowly. Their substance is dense, often as hard as ivory. The testicle increases in size, sometimes becoming as large as a child's head. Its weight drags upon the cord, producing uncomfortable sensations in the groin and abdomen. Aside from this, there is no pain. Pressure, unless excessive, elicits little or no response. The surface is smooth. In this it differs from tuberculosis, in which the organ is uneven and rough. Occasionally there is effusion of fluid into the tunica vaginalis with the formation of hydrocele. One or both testicles may be affected. The course of the malady is exceedingly slow, years often being occupied in the process. The trouble ends in absorption of the gummy exudate and the development of fibrous tissue, leaving a shrunken withered organ, or softening of the gumma may result in complete destruction of the testicle. This, however, is very unusual. Fungous growths sometimes arise. The sexual appetite undergoes no diminution during the progress of the affection. Specific remedies, if begun early and pushed, have a markedly beneficial effect upon syphilitic orchitis, unless, of course, when the seminiferous tubules are destroyed, when the iodides, etc., are useless in this respect. Mercurial inunctions locally are of decided service.

Excepting the primary and secondary affections of the vulva and neck of the uterus, but few changes can be referred to syphilis in the female genital organs. Inasmuch as fibroid degenerations of the ovaries, especially in advanced life, are so commonly met with, cicatricial changes in these organs can only be regarded as a result of syphilis when there are other circumstances present which point to the disease - as, for instance, in youthful persons, who bear decided evidences of syphilis elsewhere. Changes may be observed in the ovaries similar to those described in connection with the testicle, and the same is true of the uterus. In consequence of congenital syphilis, imperfect sexual development may arise, due to the ovaritis which is induced in early life. Gummata may also occur in the

Fallopian tubes. Gummata, having all the characteristics of the gummy tumours in the subcutaneous connective tissue, are not infrequently met with on the external genitals. Sometimes, when they ulcerate, they become very similar in appearance to soft chancres, but the other signs of tertiary syphilis will suffice to make the diagnosis clear. Syphilitic women are also liable to various functional disorders of the sexual system. These are partly dependent upon the anaemia caused by the disease; but they may also be, in part, due to certain unrecognised changes in the structure of the mucous membrane, or the substance of the uterus, or to disease of the ovaries. Irregularities of the menstrual function, of all grades, - from complete amenorrhoea to profuse metrorrhagia, - together with fluor albus, may occur in consequence of these various conditions; but frequently syphilis runs its course with no disturbance of menstruation. The capacity for conception may become impaired on account of certain conditions arising in the course of the disease, but in the majority of cases it remains unchanged. Pregnancy, however, is frequently not continued to its normal term; abortion and premature delivery are among the most common effects of syphilis. The cause of the abortion or of the premature expulsion of the ovum is seldom to be sought for in the changes in the chorion and placental tissue accompanying the disease; as a rule, they are mere local manifestations of the morbid condition existing in all the foetal structures, and frequently those of the mother. In the early months, during the period of chorion frondosum, abortion results from insufficiency of nutriment absorbed by the indurated villi of the chorion, lacking in vascularity and in succulent embryonic tissue; the structures are more dense, the villi hypertrophied, in the more aggravated cases the vessels entirely obliterated, whilst after the formation of the placenta in later months the existence of syphilis is made evident by appearances similar to those which accompany other chronic inflammatory conditions. The appearance presented by a syphilitic placenta is usually that of cellular hypertrophy, the centre in a state of whitish induration or fatty degeneration, according to the stage of the disease. But it is hardly possible to diagnose syphilis with certainty from the appearance of the placenta alone, nor is the placenta usually affected to such an extent as to appear as the prime cause of the foetal death. The placenta is usually larger as compared to the size of the child, in appearance similar to other inflammatory conditions presented by the placenta, the growth of the foetus being interfered with, whilst that of the placental structure continues until the retrograde metamorphosis is sufficient to result in expulsion. The placenta in a syphilitic foetus is larger than ordinary, 1 to 4, whilst usually 1 to 6. A myxoma, developing from the embryonic tissue, is occasionally found. We may with safety infer syphilis on the part of the father alone previous to impregnation if the foetal portion of the placenta alone is affected, or in the earlier stages the chorion and the decidua healthy.

SYPHILIS OF THE PANCREAS.

It is extremely rare for the pancreas (and the salivary glands) to undergo any characteristic lesions in syphilis. In the hereditary disease fatty degeneration of the parenchyma of the pancreas has been observed. In any case, it is manifestly difficult to discover any traces of gummata of the pancreas during life, though glycosuria, fatty diarrhoea, and deep-seated epigastric pain might suggest their presence in that organ.

SYPHILIS OF THE ORGANS OF SPECIAL SENSE.T H E E Y E S.

The syphilitic affections of the eyes are common and of great clinical interest and importance, and at times, too, very serious in their effects. The periosteum, and the orbital bones themselves, may be the seat of gummata, which by pressure may give rise to severe pain in the eyes, disturbances of vision, or displacement of the globe. Nodes are sometimes encountered. The bones may be affected by periostitis, osteitis, carious degeneration, and necrosis. The inflammation excited by such processes may extend to the eyeball, and give rise to deep-seated or superficial cellulitis. Abscesses may follow, with discharge through fistulous tracts in the eyelids. Such sinuses are frequently remarkably resistant to treatment, and may require the services of the surgeon before they can be closed. The adjacent cerebral structures may become involved. Pain is often intense, and there is frequently a considerable amount of constitutional disturbance. It is very necessary to treat promptly and energetically any gummata which may be found in or about the orbital cavity. Reliance must be placed upon the iodides, and they must be given often in the largest doses. Their action must be aided by mercurial inunctions. Tonics are strongly indicated, such as; iron, quinine, strychnine, cod-liver oil, and extract of malt. Dead bone should be removed, and the abscesses evacuated in the usual way. Hot fomentations of boracic acid, or cold applications if preferred, should be tried. Chronic catarrhal inflammation of the lachrymal gland is sometimes observed. This is usually associated with some thickening of the Schneiderian membrane or disease of the nasal passages. Stricture of the lachrymo-nasal duct is apt to follow. The diagnosis is established from the existence of evidences of syphilis elsewhere, and the general history of the case. Stricture of the duct requires probing, and the general condition the energetic exhibition of specific remedies. A chancre may take up its position on the inner surface, or the outer, of the eyelids; where it presents the same appearances as when occurring elsewhere. Sight may be seriously interfered with when in the former position. Enlargement of the pre-auricular, parotid, and submaxillary glands on the affected side forms the bubo. It is only comparatively rarely that the early consecutive lesions appear on both surfaces of the lids. Upon the mucous surface they are produced only after the part has been irritated in some way. Mucous patches appearing upon the conjunctiva usually follow a mild course and respond readily to treatment, as by shading the eye, the application of a mild solution of the nitrate of silver each day (3 grains to the ounce). Palpebral gummata usually occur late in the disease, and most often upon the free border of the lid. They usually involve all the tissues of the eyelid. Care must be taken to distinguish them from fibroid tumours, which they are apt to resemble. The ocular conjunctiva commonly shows signs of inflammation and injection in syphilis; and these conditions are usually accompanied by an iritis of the same eye. Chancre of the conjunctive is very seldom observed. Consecutive lesions may occur in connection with the primary cutaneous lesion. The conjunctival lesions appear as circumscribed macular spots or small papular elevations, coppery in hue, and without injection. They are seldom numerous. Gumrata are rare. They

are found oftenest in the palpebral conjunctiva, but may develop in the ocular portion at the border of the cornea. The tumours vary in size from a pinhead to a pea, and are usually spherical in shape. The inner surface is often reddened, while the outer is whitened or yellowish. If numerous, the nodules may interfere with the nutrition of the cornea in sufficient degree, to bring about destruction of the part and complete loss of vision - by pressure. They are also liable to terminate in ulceration. In hereditary syphilis especially, the condition known as interstitial or parenchymatous keratitis is apt to occur. The disease develops itself in patients with congenital syphilis, usually at the time of the second dentition, and also in girls, at the time of puberty. It manifests itself gradually, with photophobia and subconjunctival injection, which may be either slight or very intense, and a diffuse opacity advances from the edges towards the centre, by means of which the cornea finally becomes of a uniform milk-white colour; within the diffuse opacity there may be spots of a still whiter appearance. Ulceration never occurs in the course of this process. Gradually the cornea begins to clear up, proceeding from the circumference towards the centre again; though from five to seven months, or perhaps a year, may elapse, from the commencement of the affection, before the cornea becomes quite transparent again; or cloudy or striped opacities, whose appearance is very characteristic, or possibly an altered curvature of the cornea may permanently remain. In the course of the affection fluctuations may be now and then observed, and relapses are sometimes noted. This process, when prolonged, is associated with iritis, in the form of iritis serosa or of an adhesive iritis; in which the ciliary body and the choroid are implicated. In acquired syphilis this condition of keratitis is very seldom ever met with. Both eyes are usually affected - not, however, at the same time, but in succession. The diagnosis is of vast importance. The presence of either this disease of the cornea or of evidences of its previous existence, is sufficient to arouse at least a suspicion of congenital syphilis. Iritis of syphilitic origin is an exceedingly common affection. It belongs to the more frequent complications of the secondary period, and usually makes its appearance during the time that the cutaneous eruption is ripe. It occurs either in the usual adhesive form, with intense subconjunctival injection, great photophobia, sharp supraorbital pain, contraction or distortion of the pupil and punctate deposits - chiefly upon the inferior half of the posterior surface of the cornea; or else in the form of a yellowish-red papule, from the size of a pinhead to that of a pea, which is usually situated at the margin of the pupil, and consists of a circumscribed proliferation of cells - in short, represents a small syphiloma. In conjunction with this, the usual symptoms of iritis, and often hypopion, are present. This form, which is more usually confined to one eye than the former variety, generally occurs at a somewhat later stage of syphilis, and is found in conjunction with very well-marked papular or ulcerated forms of the cutaneous eruption. When iritis occurs in the later stages of syphilis - several or even many years after the infection - it is not generally the first attack of the affection, but a recurrent one, to which the synechiae left from the previous attack, which was, perhaps, attended by insignificant symptoms, render the eyes peculiarly liable. The iritis may be accompanied by an affection of the ciliary body and the choroid; or, in consequence of synechiae or total occlusion of the pupil, secondary changes may occur, in the deeper portions of the

eye, at a later period. Quite independently of iritis the choroid may be affected, and the inflammation may be either acute or chronic; nevertheless, there is no anatomical form which may be said to occur exclusively in syphilis - that is, there is nothing which may be termed pathognomonic of syphilitic choroiditis. The so-called choroiditis disseminata is a form of inflammation which frequently occurs in syphilis. It is marked by the occurrence of numerous, very small, white, roundish deposits of exudation, with red borders, which are scattered over the choroid, but are chiefly accumulated about the posterior pole of the bulb, though they may occur also in the neighbourhood of the equator, with the retinal vessels coursing over them, unchanged. These punctate deposits may either entirely disappear, or atrophic conditions in the choroidal pigment, leaving small spots, devoid of pigment and surrounded by a black border, which remains permanently. The subconjunctival injection, which I have alluded to above, is often present in slight degree. Opacities in the vitreous humour occur here as in every form of choroiditis. These give rise to derangements of vision, which, according to their seat, extent, and the duration of the changes, occasion a certain amount of variability. Like iritis, these affections of the choroid occur in the secondary period of syphilis. The affections of the sclerotic are episcleritis, parenchymatous scleritis, and gummata. The latter may be found in the choroid at the same time, as well as in the ciliary body, and encroaching upon the retina, in a globe which, in consequence of irido-choroiditis, has become atrophied. A patient in the secondary stage of syphilis may also have his retina attacked. He complains of a gradual diminution of the power of vision, moderate photophobia, and various other subjective symptoms; and, upon examination with the ophthalmoscope, the fundus looks as if it were veiled, this appearance being due to an infiltration of the retina. The boundary of the papilla is distinct at no part of its surface, and the papilla itself is more or less reddened; the veins are often congested, and sometimes also there are hæmorrhages. This affection usually attacks both eyes at the same time, and is chronic in its course, but amenable to treatment. Another syphilitic affection of this part is the so-called central recurring retinitis. In it slight exudations occur at the macula lutea, which rapidly disappear again, with a repetition of this appearance and disappearance several times. In hereditary syphilis the condition known as retinitis pigmentosa is sometimes observed. It is characterised by its rapid development, the early occurrence of amaurosis, want of symmetry - both eyes not being affected - the roundish form and irregular arrangement of the pigment spots, which are generally situated in the intervals between the larger vessels, and by the choroid being implicated. Retinal lesions may be secondary to those of the optic nerve, which are due to syphilitic changes taking place in the osseous or membranous envelopes, or in the substance of the brain. Atrophy of the optic nerve and retina then takes place, giving rise to a progressive diminution of central vision, with defects at various points in the field of vision. Gummatous growths in the neighbourhood of the retina may encroach upon its sheath, or even involve the substance of the nerve. The symptoms of optic neuritis are those of a choked disk. There is engorgement of the vessels; the nerve is greatly swollen and infiltrated; its colour is red or reddish-gray; and its retinal border is wholly obliterated. One nerve is usually affected, leading to partial loss of sight in many instances. Complete loss of the power of vision is of very rare occurrence.

The pharyngeal lesions may cause a temporary or permanent occlusion of the orifices of the Eustachian tubes. This is the starting-point for catarrh of the tympanum, and a frequent cause of deafness and tinnitus aurium, which are apt to occur in the course of syphilis. Such a catarrh of the middle ear may have the same issues as those due to other causes, and lead to perforation of the membrana tympani, purulent infiltration of the cells of the mastoid process, etc. These conditions are specially apt to occur in consequence of congenital syphilis; but there occur some cases of syphilitic deafness in which the history does not point to the occurrence of catarrh of the middle ear, and, upon examination, the membrana tympani and the Eustachian tubes are found in a normal condition. In cases of this character, the disturbance, to which the deafness is due, must be more deeply seated, either in the labyrinth or in the auditory nerve. Deafness may be caused by syphilitic affections of the external auditory meatus, in which moist papules sometimes develop; or syphilitic enlargements proceed from the perichondrium of the cartilages of the ear, causing a greater or less obstruction of the auditory canal. In the osseous meatus and the bony part of the Eustachian tube, syphilitic hyperostoses have been observed. Gummata may develop in any part of the auditory apparatus, giving rise to numerous and varied symptoms according to their location.

The various lesions of the nose and mouth have already been sufficiently described. These occasion various disturbances of the senses of SMELL and TASTE.

DIAGNOSIS.

Owing to the variety and complexity of the symptoms of syphilis at any stage of its evolution, the diagnosis is sometimes a matter of very considerable difficulty. Still, some stages of the affection, and some of the individual phenomena are, however, so characteristic that the diagnosis can either be made as soon as they are discovered, or rendered so probable that it is only necessary to seek some confirmatory proof to establish it. To this list of typical symptoms belong well-marked primary indurations on the genitals, some forms of papular eruptions, condylomata, symmetrical exudative ulcerations of the tonsils, gummy iritis, papules on the palms of the hands, serpiginous ulcers of the skin, and tertiary ulcerations in the throat. In addition to these almost characteristic symptoms, which belong almost exclusively to syphilis, there are many others which occur as well in the course of other diseases, and which, when considered by themselves, do not warrant a diagnosis of syphilis. It is often the case that the patient brings symptoms of this kind alone, or indeed but one such symptom, to the notice of his medical attendant. It then becomes necessary to make a diagnosis from such symptoms as are found on a close scrutiny, assisted by a careful investigation of the history of the case, and to assign a proper significance to the symptoms present. It is not enough to recognise a given symptom as of syphilitic origin; if possible its relation to the whole course of the disease must also be ascertained, and, as a conse-

ral thing, it is only when the history and the other points of the case lead us to suspect syphilis that a symptom of this kind can be regarded as specific. Symptoms of this kind often require, before we can recognise them as syphilitic, the presence of coexisting, or the traces of pre-existing symptoms, or a critical examination into the patient's previous health. In some cases it is necessary to wait for information derived from the result of treatment before a definite opinion or a strong probability can be affirmed. Often the history of the case furnishes information that is anything but satisfactory; for, even among patients whose condition calls for no particular precaution or reticence, the facts of their past medical history, which they are able or willing to give, are often quite insufficient. All such narratives must be subjected to the most careful scrutiny, and if this is true in regard to the histories given of themselves by men, it is doubly so in the case of women. Particular enquiries should be made in regard to such symptoms as are usually met with at an early stage of syphilis, such as cutaneous eruptions, falling off of the hair, sore-throat, pains in the bones, and iritis; as to the primary sore, it may be spoken of by men, but scarcely ever by women. The diagnosis of primary syphilis can then only be made when the initial lesion has become noticeable, and has been the seat of an induration of a more or less distinct character. If, after a well-ascertained period of incubation, there is found only an erosion seated on a parchment-like induration, which can only be felt by making pressure with the fingers at its edges, and if the confrontation shows the source whence the sore was contracted to be a syphilitic one, it is safe to make a diagnosis of syphilis; and this is rendered more certain if buboes appear in due course. It is often very difficult, and sometimes impossible, to arrive at a diagnosis when there are multiple lesions on the genitals, and when nothing certain as to their duration can be established, or when an ulcer or a vesicle has been formed within a few days after exposure to the contagion. Such lesions cannot be readily confounded with herpes of the genitals, since in this affection a group of small vesicles, seated on a red base, is usually met with. In these cases a diagnosis of syphilis cannot be made with certainty until the occurrence of indolent buboes, or of an induration at the base of the ulceration, or perhaps not until the outbreak of secondary symptoms. In such cases the medical attendant must express himself with great caution, and he will seldom be able to give a positive diagnosis during the first five weeks. It is important to remember that, especially in women, the primary sore may, at an early stage, present the appearances of a simple, benign-looking erosion. Again, a syphilitic primary affection, characterised by a well-pronounced induration, may sometimes be obscured through certain accidental circumstances, which may stand in a more or less close relation to the syphilis, or, indeed, have nothing at all to do with it. Thus, a laceration of the fraenum, or gangrene at the preputial ring in paraphymosis, due to inflammatory and oedematous infiltration, may produce an effect simulating the syphilitic induration. This is sometimes the case in a still greater degree in fistulous ulcers, such as occur in the glands of Battolini. Such callosities may develop about fistulous sinuses of the most various description, having no connection with syphilis whatever. Papules upon the genital mucous membrane, belonging to a general papular eruption on the body, may bear a marked and very deceptive resemblance to a primary papule, especially

where in certain favourable localities they ulcerate or become, - as is apt to occur in the female genitals, - indurated. In this situation the transformation into condylomata lata is of common occurrence. It is often necessary to resort to the microscope before making a positive diagnosis in certain other conditions simulating the primary affection, such as cancerous new growths, particularly epithelioma. To distinguish the inflammatory thickening of a chancre from the ulcerating lesion of syphilis, is not so difficult as to make a diagnosis between a primary papule, either dry or moist, and a papule belonging to the secondary stage. In a case of this kind the existence of indolent buboes would, to a certain extent, render the question more easy of solution; but especial attention must be paid to the period which has elapsed since the infection probably took place. Even when this cannot be definitely ascertained in uncomplicated cases, the symptoms which are met with in general furnish data sufficient to lead to a correct opinion as to the chronology of the disease. If, in a sore which made its appearance some days after infection, there is found, after some time, an induration accompanied by indolent enlargement of the glands, it is safe to suppose that from four to five weeks have elapsed since infection took place. If a dry papule, followed by a similar enlargement of the lymphatic glands, is met with - the same supposition is justifiable. The fewest difficulties in diagnosis are met with in the secondary stage of syphilis. Doubt may arise at this time from the occurrence of unusually active febrile symptoms, or of irregular forms of skin eruptions. The various points dealing with this question have already been discussed. It should be borne in mind that the longer the time that has elapsed since the eruptive stage, the more difficult is the diagnosis, since we have then to deal with symptoms which are of a more isolated character. Among these, then, are some which are characteristic of syphilis and which have been given above; they are others, however, which ought to arouse a suspicion of this disease, and lead to a search for other manifestations of it. Among these, paralysis of cerebral nerves, persistent neuralgias, headache, and pains in the bones, which are more intense at night, loss of hair, abortion, especially when it is of repeated occurrence, remittent febrile attacks, symptoms of a rheumatic character, and, finally, such as occur with equal frequency without the existence of syphilis, as anaemia, loss of flesh, nervous disturbances of the most varied character, and general weakness. In the tertiary period the diagnosis is apt to become particularly difficult, the more so when the symptoms are isolated ones, and are due not to lesions of accessible parts of the body, but of internal organs. In such cases the chance discovery of an exostosis, of a characteristic scar, or the like, often serves to put the physician upon the proper track. If we learn from a patient that he has recently, or at some time previously, suffered from syphilis, we should bear in mind that therein may lie the possible cause of an ordinary affection which he may present. A careful examination must be made of all parts of the body upon which the earlier manifestations of syphilis are apt to be localised, in all cases in which there is any suspicion of the disease. It is especially important that we examine the inguinal; the epitrochlear, and the cervical lymphatic glands, the skin, the mucous membrane of the mouth and fauces, the eyes, and such portions of the bones as are covered only by skin. Such procedure will, in almost every case of doubt that is likely to arise, reveal some symptom of the disease when it is of a specific

nature. The effect of treatment with mercury or with the iodides must likewise be noted. The remains of former affections, especially those of the bones, the fauces, and the skin, are frequently the only data for the formation of a diagnosis in cases of visceral syphilis and of the syphilitic cachexia.

As regards the diagnosis of hereditary syphilis, it seems to me that the differences between it and the acquired disease, which have been so much dwelt upon by certain writers, are apparent rather than real. The primary stage is, of course, missing, and this is readily comprehensible on any theory of the essential nature of syphilis. Whether the chancre is the first symptom of a constitutional disease, or, as I believe to be the case, is the simple accumulation at the point of original inoculation of the materies morbi, it would naturally be in the first case undiscoverable, and not existing in the second. The secondary stage, characterised in the acquired form chiefly by lymphatic engorgement and symmetrical, widely-spread, polymorphic cutaneous and mucous eruptions, and pathologically by a marked tendency to the proliferation of certain new small round cells, upon the presence of which depend all the manifestations of the disease, is in inherited syphilis strictly analogous. Eruptions of the same character make their appearance, differing only in minor points, as in the greater tendency to become moist or ulcerated, due to the more delicate texture of the infantile epidermis. To the same cause must be assigned the macroscopic peculiarities of the only syphiloderm said to be peculiar to infantile syphilis, - pemphigus, - which, however, conforms to all other secondary eruptions in the important respect that it has a papular basis. In the infant the lymphatic engorgement exists as in the adult, or has its analogue in the enlargement of the spleen and liver, - especially the former, which is almost as constant a phenomenon as is the general adenopathy in acquired syphilis. The same pathological changes occur, the same infiltration of cells producing papular, pustular, or mucous patches, or inflammation of such structures as the iris, the choroid, or the retina - according to the situation. Except in the fact that its phenomena may appear unusually early and may be commingled with those of the secondary period, the tertiary stage does not differ widely in the hereditary form from that of the acquired disease. It affects the same tissues, results in the same pathological formations, and is preceded by the same period of latency or quiescence of variable duration. Another point of close resemblance between the two varieties under consideration is the fact that there is no reliable evidence, so far at least as I can find out, that in this stage syphilis is either contagious or transmissible. It follows, then, from the foregoing remarks, that in considering the question of diagnosis, we have an excellent guide in the fact that the disease conforms in most respects to the general laws of acquired syphilis, and that a valuable aid to the recognition of the former will be our knowledge of the latter affection. In early childhood the diagnosis of congenital syphilis is seldom attended with any difficulty; the affection of the nasal mucous membrane, the papular or pustular rash, and the puny and aged expression of the child, form a group of symptoms that can scarcely be misinterpreted. It must not be forgotten, however, that children with hereditary syphilis may be well developed at birth and present the appearances of perfect health, only a few condylomata about the anus, perhaps, affording further evidences of syphilis

The question which sometimes arises subsequently, whether the subject of certain affections had, during early life, symptoms of hereditary syphilis, is of great practical importance. The diagnosis of the congenital disease from adolescence on through adult life will depend upon the following points: First, of course, the history of parental or of infantile syphilis, or of both. Then a group of physical and physiognomical peculiarities, which are not definitely characteristic, and are of little value when taken separately, but are of considerable importance when all or a majority are present in any given case. These are low stature or puny development proportionate to the severity of the intra-uterine and infantile symptoms; a pasty, leaden, or earthy complexion, a relic of previous syphioldermata, probably also a result of malnutrition; a prominent forehead, bulging to the middle line at and within the frontal eminence, and due either to thickening of the skull, or to a previous arachnitis and hydrocephalus before the ossification of the fontanel; a flat subken bridge of the nose, due to the coryza of infancy extending to the periosteum of the delicate nasal bones, and either interfering with their nutrition or partially destroying them; dryness and thinness of the hair, with brittleness and splitting of the nails; synechia and dulness of the iris, - a rare finding; ulcerations of the hard palate; and periosteal thickenings or enlargements of the shafts of the long bones near the ends, or slight angular deformities - the results of the osteochondritis occurring in infantile life. Admitting the value of these phenomena, a much more valuable group of symptoms, however, are the following, which I mention in the order of their importance: any one of the first three may be taken as almost conclusive evidence of the condition suspected: (1) Dwarfed permanent median upper incisors, broader at the top than at the cutting edge, which is crescentically notched, separated by an undue interval, and converging towards one another. (2) Evidence of past or present interstitial keratitis - a dusky and thin sclerotic in the ciliary region and slight clouds here and there in the corneal substance, there being no scars on its surface - or of disseminated choroiditis; patches of absorption especially around the peripheral border. (3) A radiating series of narrow cicatricial scars extending right across the mucous membrane of the lips, or a network of linear cicatrices on the upper lip and around the nostrils, as well as at the corners of the mouth and on the lower lip. (4) Periosteal nodes on one or many of the long bones; sudden, symmetrical, and complete deafness, unattended by pain, etc., and without otorrhoea.

P R O G N O S I S .

From what has already been said it will be readily understood that syphilis should always be regarded as an eminently dangerous affection, the more so, indeed, as it is active throughout the entire system; and as often as not leaves permanent injuries of the vital organs, acting in which way it may indirectly be the cause of death. It is seldom the direct cause of fatality, except among children with the disease in its hereditary form, a large majority of whom die at an early age. The baneful effect of the disease on the mortality can be appreciated on taking into account the fact that as many deaths occur from the same cause during intra-uterine life. I am unable to give any absolutely trustworthy data necessary to the estimation of the entire number of deaths from syphilis, for even deaths

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which are entirely due to this disease are not always put under this head in the mortality returns. Innumerable deaths among young children, which are really from syphilis, are, I believe, recorded under the terms "marasmus," "atrophy", and so forth. Among adults, deaths as an immediate result of syphilis are rare in the extreme; and when such occur they are usually due to exhaustion following an unusually severe course of the acute stage, or to loss of blood in consequence of ulceration. If all the cases in which syphilis, by causing affections of the brain, of the heart and blood-vessels, of the liver, or of the kidneys, becomes a remote cause of death, were attributed to their true source, the list of deaths from this disease would in many localities be much augmented. Thus far, all estimates of the proportion of deaths among those affected with syphilis are equally untrustworthy. No proper idea of this mortality can be obtained from the statistics of the venereal wards of hospitals, for fatal forms of syphilis are there found in but small number. So far as the prognosis in individual cases is concerned, I have already remarked that there are mild and severe cases to be distinguished. In these latter, in which the first eruption is frequently pustular, and in which the primary sore itself may take on a gangrenous character, the life of the patient is often in immediate danger. Within certain limits it is possible to estimate the severity of the future constitutional involvement from the character of the primary sore. If phagedaena, or rapidly destructive suppuration in the primary lesion be not due to contamination or to inappropriate treatment, the conclusion which must be formed as to the constitution of the patient must lead to grave forebodings as to the effects of the later stages of the disease. It is my opinion, based on a considerable clinical observation, that the presence of a very extensive primary lesion, with marked induration, indicates that the subsequent course of the disease will be severe. In so far as we are warranted in making the supposition that an intense and extensive induration is due to a more profound contamination of the tissues, and that there is thus furnished a more prolific source of the specific organism for infecting the rest of the system, to just that extent, do I desire the opinion given in the last sentence to hold good. Still, I must admit that I have met with numerous exceptions to this rule, in which, for example, a well-marked eruption follows an insignificant primary lesion. Furthermore, it must be allowed that to prognosticate anything beyond the acute stage is a bold undertaking. I have not yet been able to make up my mind whether the severity of the course of the disease is influenced by the locality at which the inoculation takes place. Some cases of infection on the fingers, of which I have knowledge of or which came under my observation, have given me the impression that such cases are apt to follow an exceptionally severe course. Numerous cases of this kind, moreover, are recorded in the literature, which were characterised by severe symptoms; and these have been attributed to the unusual way in which infection took place, as, for example, in the autopsy of a syphilitic subject, or the delivery of a syphilitic woman while there was a wound on the finger. (I know of the case of a medical man who became infected in this way, and whose subsequent syphilitic lesions were of an extraordinarily severe character - so much so, indeed, that he had to retire from his profession in consequence, and died soon after the this step.) In some of these cases, the severity of the disease may be due to the fact that the attack was not at first recognised and treated as syphilis, as has

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as has happened in many cases of syphilis from vaccination. The character of the eruptions which appear during the period of the cutaneous exanthem forms a trustworthy ground for the formation of a prognosis. Not only is a roseola in itself a lighter affection than a papular, or especially than a pustular eruption, but it has less influence upon the later course of the disease than the more enduring rash, since the latter, during its existence, is constantly infecting the blood by a fresh proliferation of syphilitic virus in the various local deposits. If this is true, it does not accord with the assertions of many authors, that there is a greater predisposition to tertiary affections, especially in the bones and internal organs, among those who had but slight cutaneous manifestations. This view, however, is not yet supported by a sufficient number of observations, and it must also be borne in mind, first, that there is no necessary relation of cause and effect in these cases, since the antecedent syphilitic affections are not the only elements which influence the appearance of the tertiary symptoms; and, second, that an important part is played by the constitution of the patient and external circumstances. The mildest form of eruption is roseola; papular forms are more or less grave in character, and a pustular rash, especially one that consists of tubercles, is of still more unfavourable interpretation. In all cases of syphilitic local affections the more nearly the results of the process approach the character of gummy tumours, that is to say, the greater their tendency to softening or to cheesy degeneration, rather than to resolution, the graver, as a rule, the prognosis. This distinction in the danger attending deposits of these respective characters, is due to the fact that those of the secondary period consist of simple infiltration of cells, which is persistent, but still capable of removal by absorption, while those deposits which are tertiary in their character undergo rapid changes which lead to destruction of tissue. This distinction is dependent, too, on the importance of the affected organ. A simple proliferation of cells, which after some time is either absorbed or converted into connective tissue, has a very different significance according as it affects the skin, or a bone, or the iris, or one of the cerebral blood-vessels. In spite of the fact, however, that the prognosis of cases of this sort must always be grave, it must, still, be borne in mind that many serious affections, more especially some of those of the nervous system, even such as epilepsy, various paralyses, aphasia, and the like disorders, when not of too long duration, are more favourable in their course when due to syphilis, since the specific remedies sometimes remove the morbid conditions, which would otherwise have been hopeless. Inasmuch that anatomical alterations which cannot be removed are often at the root of the mischief, or that a temporary cure is sometimes followed by a recurrence of the affection, - care must always be taken not to give a too favourable prognosis, especially in cases of syphilitic affections of the nervous system. The general condition of the patient must in a given case be carefully weighed in giving a forecast. If it bears a certain relation to the local symptoms, the prognosis is more favourable than when great weakness, anaemia, and wasting are met with in conjunction with apparently unimportant local manifestations. This statement is especially true with regard to the secondary period. In the tertiary period a cachexia of high grade may exist with limited affections of the skin or bones, and in a short time, under the influence of anti-syphilitic treatment, the local symptoms may vanish, with marked improvement in the local condition, and the patient may

ultimately regain his strength and present the usual appearances of health. But, if this result is to be obtained, there must be no serious visceral changes, especially of the liver and kidneys, and, above all, no intestinal ulcerations! While albuminuria may be relieved and even cured in some instances, dysenteric symptoms, when due to the lesions of syphilis, almost invariably lead to speedy death. Well-marked marasmus in syphilitic persons, particularly in those who are advanced in years, is of grave omen, even if the administration of iodide of potassium, or other remedies, suffices to remove some of the local symptoms. Pneumonia, and other intercurrent affections, frequently carry off such patients. In syphilis, as in all diseases, the constitution of the patient has an important influence upon the course of the affection, and, consequently, upon the prognosis. It is differences in this respect which explain the variations that are seen in both the primary lesions and also in the later manifestations. Pustular cutaneous eruptions, and suppurative affections of the mucous membranes, are apt to occur in persons who are prone to scrofula. The prognosis is also influenced by the age of the patient. The great danger to infant life from hereditary syphilis I have already pointed out, and this danger is not much less when children acquire the disease from their nurses, or in some other way, at an early age. With children, the danger is due to the intensity with which the disease develops and runs its course; in the ages, to the slowness with which waste is repaired in the decaying organism. In them the disease runs a more chronic course, even if the symptoms are not very severe, so that old persons are imperilled by a syphilitic attack. The type of the disease, more than its intensity, is influenced by the sex of the patient. Among women it is more apt to lead to anaemia of a high grade, and to functional diseases of the nervous system, than among men, and for this reason the symptoms of the early part of the secondary stage, in the former sex, often lead to the supposition that the patient is suffering from chlorosis, phthisis or some disease of the spinal cord. The course and prognosis of syphilis in women are also influenced by menstruation, pregnancy, and the menopause. The course of the malady, moreover, may be affected by the habits of the patient. For instance, those who spend their spare time in dissipation, more especially if they are addicted to the excessive use of alcohol, or are already suffering from alcoholism, are very unfavourable subjects for syphilis, and they often, when once attacked by it, are never entirely freed from some of its manifestations, and they do not have much chance of surviving to a great age. The influence of specific treatment on the prognosis has already been referred to, as, too, various other points bearing upon the question of a forecast, from time to time heretofore.

T R E A T M E N T.PROPHYLAXIS.

Syphilis being a disease that is spread principally by sexual intercourse there are difficulties in the enforcement of prophylactic precautions that have as yet never been fully surmounted. With the intimate relations existing at the present day between all parts of the world, the disease is constantly being transmitted from one place to another. If it is difficult in a small, enclosed district to limit to the infected individual a disease which for months is directly contagious, and for years communicable to his offspring, it is well-nigh impossible to effect it in localities which are in frequent and cross communication with others in which all prophylactic precautions are neglected. The necessity for preventive measures was recognised as early as the first epidemic outbreak of syphilis, as may be seen by the strict rules for the isolation and confinement of the syphilitic which were promulgated at the end of the fifteenth century. Inasmuch as prostitution is the source from whence the syphilitic poison is ever freshly drawn, the first efforts towards effecting any prophylaxis of syphilis should include some sort of supervision of prostitution. That it is an unavoidable evil, and impossible to obviate, the experience of thousands of years has amply proved. The fact that an official supervision of this kind has the most favourable effect in diminishing syphilis, has been shown by the results which have been attained whenever a strict control has been substituted for the freedom or insufficient sanitary rules which had previously existed. This was seen in Belgium and in England, where, about forty years ago, a supervision and examination of the notorious prostitutes of the garrison towns was practised, the condition of the troops being markedly improved thereby. In the year 1871, a Parliamentary Commission reported that, during the period from 1865 to 1870, in those districts in which the "Contagious Diseases Act" had been enforced, the number of soldiers affected with venereal disorders in 1000 had diminished from 125 to 54. To enter fully into this vexed question, which is of such extraordinary importance for the public health, would be out of place here. I must therefore limit myself to stating some of the principal points, which, however, as fundamental principles, are more or less generally recognised. It is the duty of the State, in the interest of the health of its citizens, not only to limit prostitution, but to exercise a supervision over it, for it has been found everywhere that the secret, unwatched prostitutes are far more active in the spread of syphilis than those who are subjected to regular inspection. For the attainment of this end, it has the right, in the interests of all, to limit the personal liberty of such persons as may be considered dangerous to the common welfare, and to use force, if necessary, to obtain an examination as to the condition of their health. Regular, frequent, and thorough examinations are necessary; and they are in most cases of great benefit to those who are subjected to them, since they afford them an opportunity of being cured by timely treatment. Although it is desirable and necessary to furnish all inducements to these unfortunates to enter the hospitals voluntarily, still, it has been found that few avail themselves of this privilege; and that it is just that class of

prostitutes who are the most apt to spread syphilis that will not subject themselves to treatment, except under compulsion. The State or authorities constituted for local government should here step in. Furthermore, prostitutes, when brought under the discipline of the establishments maintained for their treatment when diseased, can be subjected to influences which may induce, at least some of them, to give up their old calling and adopt some respectable means of earning a living. In any case, all prostitutes found to be syphilitic should be kept in a hospital until they are cured. An ambulatory treatment precludes the attainment of one important object, that of rendering them powerless for evil when their disease is at the most dangerous stage. The duration of this isolation is a matter for individual arrangement according to circumstances. Many syphilologists affirm that entire classes of men, who notoriously contribute largely to the spread of syphilis, as for instance sailors and soldiers, should be subjected to periodical examinations, and that sailors should especially be inspected before leaving a port, and again before entering another, and that if found infected they should be placed in quarantine forthwith. Personally I am strongly in favour of the punishment by the State of persons who knowingly infect others with such a dangerous and loathsome disease as syphilis, which is even more dangerous than such infectious diseases as smallpox, for which latter special enactments are in force. In view of the unlimited intercourse between different countries which has developed within modern times, thorough efficiency cannot be attained by means of prophylactic regulations that may be enforced by individual states. It is therefore the duty of all civilised countries to adopt a common course of action against these diseases, and to strenuously support an international code of regulations specially framed for their prevention.

In considering the question of prophylaxis it is very important to bear in mind the fact that syphilis is capable of being communicated, during a portion of its course, from its local manifestations, and that it can be transmitted to the offspring of those affected during a much longer period. Consequently, during the secondary stage, the use of such drinking utensils, plates, towels, etc., as are used by others, should be avoided by infected persons. Especial care should be taken to prevent the contamination of surgical instruments, which through negligence become the vehicles of contagion: antiseptic measures are here, as at all times, of the utmost importance. This remark, of course, applies with equal force to the operation of vaccination, which has been so often blamed for the spread of syphilis. In this connection also may be mentioned the responsibility which devolves upon the physician of choosing a wet-nurse for healthy children. It is not only necessary to make a thorough examination of a wet-nurse, devoting special attention to those parts of the person where traces of syphilis are apt to be found, such as the genitals, the mouth and throat, the lymphatic glands, and the bones; but, if possible, it is well to inspect also any children that she may have nursed previously. Any symptoms that arouse the least suspicion of syphilis, should suffice for the rejection of the nurse. It is no less necessary to prevent children with hereditary syphilis, or those upon whom a suspicion of latent syphilis rests, from being given to healthy wet-nurses. In countries in which the custom of employing wet-nurses prevails, the greatest care must be exercised in these matters, and strict laws, inflicting a severe penalty for careless inoculation of syphilis upon healthy persons, should be

rigidly enforced. A syphilitic child may be nursed by its mother, if she herself previously had symptoms of syphilis; but it is safer to forbid her to suckle her child (although the risk of her contracting the disease from it is but slight), if she has never had such symptoms. The pernicious habit of kissing must be interdicted on every occasion when an opportunity occurs of dissertating upon its contingent dangers.

From a prophylactic point of view the question as to the propriety of marriage of persons who have recently, or at some previous time, had syphilis, is of vast importance. This question is one that I have often been asked, and doubtless, too, every other practitioner. Though hard to believe, it is a positive fact that it is not of rare occurrence, especially in countries in which marriage is not surrounded by many obstacles, for men with active syphilis to marry, even in spite of medical advice, and speedily infect their wives. The course pursued by the disease will determine the length of time that must elapse between the time of infection and the date when matrimony can be allowed: in some severe cases the connubial state must be absolutely interdicted. Fortunately such cases are not numerous. With most persons infected in early life a happy time arrives when it is safe for the patient, whether male or female, to marry. For the individual who is sound and healthy at the time of infection, and who enters upon a thorough and effective course of treatment at once, following it faithfully for two or a half or three years, I would say that marriage could be safely entered upon at the end of the third or fourth year. This, however, should not be done unless the disease has shown no manifestations during a period of at least six months, in which all medication has been suspended. In no case, no matter how slight may be the earlier symptoms, would I give my consent to marriage before two years from the time of infection, and this only when specific treatment in the meantime had been energetic and uninterrupted. Furthermore, I would strongly insist upon the young man engaged to marry at the time of contracting the disease telling his future wife that he has had the misfortune in question, and at the same time would advise him to give her the option of breaking her contract with him. She ought to be made fully aware of the danger of her contracting the disease, even if she chooses to forgive the fault and to continue the engagement, and also the restrictions that will have to be placed upon her actions with reference to caresses and the like familiarities. A married person who has contracted syphilis out of wedlock should make a frank confession to his wife, and abstain from intercourse from her forthwith, and as long as his medical attendant may deem necessary. The rules which an individual should observe in order to protect himself from syphilis may be inferred from what has already been said regarding the different methods of contagion. One of the most curious cases of infection I have ever heard of is reported by M. Melot (Jour. de Méd. de Brux., Sept. 24, 1903), viz., that of a man who was struck on the tip of the nose by the whip of a cabman driving past, with the result that a month afterwards a typical chancre developed on the scratch so induced by the whip which the syphilitic cabman was in the habit of sucking. For hundreds of years various lotions have been recommended as preventives, but are apparently of little use. The application of carbolic acid, and other antiseptics, and caustics to the site of inoculation are justifiable in theory; but I have never been able to satisfy myself of their utility in actual practice, for in spite of them the syphilitic symptoms have developed.

The prophylactic measures, and those directed to the health and sexual relations of the parents previous to conception, I have already discussed. That of the mother during pregnancy, and after having conceived from a syphilitic husband, or having had antecedent syphilis, or having contracted it in direct contagion subsequent to impregnation, is simply that of acquired syphilis in either adult or child. Mercury, in its full physiological doses, is the drug indicated. It may not be amiss to combine with it iodide of potassium in moderate doses, but the practice of employing the latter to the exclusion of the former is both theoretically and clinically unsound. Care should especially be taken to give it in such a manner, either by inunction or vaporisation, or so guarded with opium, that it will not produce any irritating effect upon the intestines. In this connection it is important to remember that abortion may be induced from the sympathy which exists between the uterus and the intestinal canal. Having already shown that the pathology, the stages, and the general course of hereditary syphilis are all closely related to or identical with the same phenomena in the acquired disease, and consequently both dependent upon the same specific cause, - the fact that the same principles should govern us in the treatment of the one as in the other follows as a matter of course. There is no gainsaying the fact that mercury exercises an almost controlling influence over the secondary manifestations of acquired syphilis, whether by acting as a true antidote or as a tonic, or by virtue of its property of hastening destructive metamorphosis, and thereby facilitating the absorption or elimination of new cell-growths. It is likewise true that the iodide of potassium, probably by virtue of its powerful stimulating influence on the lymphatic system, has an equal power over the tertiary growths, which by their presence upon, or situation in, important tissues or organs may be so destructive. There is no reason, therefore, by analogy why these drugs should not, comparatively speaking, be equally beneficial in hereditary syphilis; and such is, indeed, found to be the case. In the latter affection, however, there are two elements which should modify the treatment somewhat, and must be taken into consideration: (1) The existence of a more or less profound cachexia influencing all the nutritive and formative processes, and in threatening life. (2) The not infrequent occurrence during the secondary stage of symptoms belonging to the tertiary period, - notably gummata. I am in the habit of meeting the first indication by making the treatment from first to last not only anti-syphilitic, but also supporting or even stimulating; and with this object in view I pay especial attention to nutrition. Axiomatically, for the same reason, whenever it is within the bounds of possibility, the nurse of the syphilitic child should be its mother. To her it is harmless - to every other woman, not already syphilitised, it is in the highest degree dangerous. In case, however, the mother should have died, or on account of ill-health is unable to suckle her child, the possibility and propriety of obtaining one who has already had syphilis must next be considered. This idea to many parents seems revolting, but will naturally be less so to those who have themselves had the disease, and is, besides, so almost vitally important to the child, that no hesitation should be felt about making the suggestion. If it is accepted, and if there is any opportunity for making a selection, it may be said that the better will be the chances of the child the more robust the present

condition of such a nurse, and the more remote the date of her syphilis! Sometimes neither mother nor wet-nurse can be had, to suckle the child: it must then be fed by cow's, goat's, or ass's milk, or by artificial alimentation; but its prospect of life will be greatly, immeasurably, reduced thereby. In addition to careful feeding, a little careful tonic treatment should be from the first employed in conjunction with specific remedies, of which the most useful preparations are the iodide of iron, cod-liver oil, and the combinations of the phosphates. A modifying influence of the second condition upon treatment is effected by the existence of the early appearance of the tertiary manifestations. In many cases this is due to an overwhelming of the lymphatic system by the new cell-growth, which not only greatly increases the amount of material to be transported by the lymphatics, but at the same time, by invading their walls and diminishing their lumen, greatly cripples them. Accumulations of nutritive matter, and of these new cells, then takes place, forming the characteristic new growths or deposits which are called gummata. This justifies us in combining with the mercury from the beginning, at least in all cases where bony or periosteal involvement, suppuration, or the existence of gummata points to this condition, small doses of the iodide of potassium, or some other convenient iodine salt. Mercury, then, should be given as soon as the diagnosis of syphilis is beyond the possibility of a doubt, and preferably by the method of inunction. Some practitioners give gray powder internally and mercury to the nurse. But the latter exhibited internally generally gripes and purges, seldom doing any good, and given to the wet-nurse it does not answer very well, and certainly is a great punishment to her. Furthermore, this, the so-called indirect method, is altogether unreliable, and should only be employed as a forlorn hope where gastro-intestinal irritation is caused by all other methods. The mode in which I am in the habit of treating cases is this: Mercurial ointment, - in the proportion of one drachm to an ounce, - is spread over a flannel roller and bound around the child once a day. The child kicks about, and, the skin being then, the mercury is absorbed. I have adopted this practice in many cases with signal success. When the skin is in an irritable condition the method of inunction is, of course, out of the question, and it is then necessary to give mercury by the mouth - in the form of gray powder, one-sixth to one-quarter of a grain three times a day. If preferred, the green iodide of mercury may be given, or even calomel, in the same doses, according to age. If purgation is caused, a small amount of opium, - one-hundred and thirtieth to one-sixtieth of a grain, - or a grain or so of Dover's powder, may be added to each dose. In cases in which the iodide of potassium is indicated, it may be given separately in a syrupy solution in doses of half a grain to a grain: it may have to be given in even much larger doses, three or four times a day, if there are any marked tertiary symptoms present. Iron, cod-liver oil, and general tonics are, of course, indicated in such cases. The treatment should be continued long after the specific symptoms have disappeared.

TREATMENT OF ACQUIRED SYPHILIS.

GENERAL HYGIENIC MEASURES.

The improvement of the patient's health by hygienic measures is next in importance to that of medication, and it is necessary to be as enthusiastic in the conduct of the one as of the other. Hence, I always direct my attention early to the patient's habits and mode of life, and if I find them faulty or vicious, endeavour to correct them. I do not neglect to carefully enquire into previous periods of ill-health, and provide against their recurrence or resulting sequels. A change of air and scene is strongly recommended if the patient be surrounded by unhygienic conditions, or engaged in business likely to produce ill-health. Such patients being depressed in spirits, hopefulness and the prospect of an almost certain cure should be accorded them. The more sound the patient in general health the better the chance of this: efforts should, therefore, be directed towards the improvement of the systemic forces. To this end proper nutrition is of prime importance. Digestive disturbances must be corrected at once, and dietetic regimen carefully arranged. In doing so it is necessary to study the patient's peculiarities, and meet any indications as presented. Generally speaking, a person suffering from syphilis needs a generous diet of nutritious and easily digestible articles of food which have been well and simply cooked. Meals should be taken at regular intervals, and should be eaten slowly, and with careful mastication of the food. Very hot or very cold dishes or drinks, as well as highly seasoned foods, or an undue amount of sweets, should be strictly forbidden. Fresh fruit, fresh vegetables, and fresh meats, if well cooked, may be permitted in abundance. Tea and coffee may be taken as usual, as also lemonade. Alcoholic beverages should not, as a rule, be allowed, as they may be taken to excess. For, a majority of individuals with syphilis are persons who have indulged their appetites with reference to alcohol freely, and limitation of its use is to them of decided advantage. When permitted, drinking should be allowed only with the meals, and then in small quantities of the lighter wines or liquors, such as claret or Rhine wine, and beer, ale, or porter. Drinking in a tap room or bar of a public house must never be tolerated. Alcoholic stimulants may be administered according to indications in weak and cachectic subjects. All syphilitic persons should take a certain amount of exercise daily in the open air, this being dependent upon the patient's habits and occupation. Sedentary persons should go out for at least one hour each day, when the weather will permit, and engage in walking, riding or rowing, etc. Outdoor sports that do not call for too great exertion, such as tennis, and golf, are of decided value, both in the exercise and in diverting the mind from the disease. Fatigue in exercise is absolutely injurious. The patient's skin should be kept in as hygienic a condition as possible. Hot baths, notwithstanding their much advertised specific properties at certain springs and resorts for the cure of the disease, have not found favour at my hands, for they are in the early stages of the disease attended with considerable risk to the patient. In no case do I allow the popular Turkish and Russian baths or hoy plunge baths; but instead of them I order sponging of the entire surface of the patient's body each

day with tepid water. If a small quantity of salt or of Condy's fluid be added, the result will be found decidedly refreshing and exhilarating. The bath should be taken in the morning immediately after rising. Such hygienic attention to the skin has a marked effect in warding off many of the severer syphilides. Smoking must never be allowed, as it is apt to give rise to troublesome oral complications, such as severe ulcers, mucous patches, and fissures of the lips, etc. Apart from this, it has a baneful effect upon the body generally. The indications for the care of the mouth and the protection of the throat should not escape our attention. After each meal the teeth should be carefully cleansed with the toothbrush and tepid water, to which, of course, an antiseptic may be added. The brush should be sufficiently firm to remove all particles of food clinging to the teeth, but not harsh enough to wound the sensitive mucous membrane covering the gums. The services of the dentist should be requisitioned when the patient has decaying teeth requiring extraction or filling or scraping free of tartar, or rough edges rounded off. In cold weather the throat should be amply protected, and the beard allowed to grow in men. Owing to the frequency of baldness in this disease, the scalp requires attention. The patient must not be allowed to indiscriminately wash his head with water every time he washes his face. Thorough cleansing of the part with warm water and a good toilet soap, - of which there are numerous advertised in the medical papers and elsewhere, - should be secured about once a week or fortnight. After each washing the hair should be well dried, and a few drops of olive oil applied, and the toilet of the hair finished up with a polish from a stiff brush. The hat should have holes made in it to allow of the proper ventilation of the scalp.

CONSTITUTIONAL TREATMENT.

Serum Therapeutics.

Numerous experiments have been conducted upon the lower animals, - which, with the doubtful exception of the ape, appear to be immune to syphilis, - with the object of manufacturing an anti-syphilitic serum - e.g., the serum of dogs, lambs, horses, and cattle have all been injected, but with no certain and satisfactory results. Even the serum of syphilitics, congenital and acquired, has been tried, and from those in the tertiary period, too, and here also with what can scarcely be regarded as positive results. Justin de Lisle (New York Med. Jour., Dec. 24, 1904), however, claims to have caused the disappearance of the lesions of secondary syphilis in several cases, by injecting a serum of the bacillus, discovered by Jullien and himself; obtained from animals inoculated with its cultures. The patients were afterwards to all intent and purpose entirely free from the disease. These results lack confirmation at the hands of others; and probably little or no advance will be made in this direction until the specific bacillus of syphilis is discovered and the catogenesis of the affection put on a more satisfactory basis than at present.

Mercury.

Of all drugs recommended for the treatment of syphilis none can compare with mercury for efficiency. It was used as early as the end of the fifteenth century, and by Widmann, in 1497, first of all. Since then the drug has been held in an esteem that has been varied in the extreme. While at one

time its action was regarded as akin to the miraculous, at another it was reviled as a deadly poison, and came to be regarded by some as the source of the symptoms of the disease itself. J. Hermann (Ueber die Wirkungen des Quecksilbers auf den menschl. Organismus, Teschen, 1873), indeed, went the length of demanding that the government should by law forbid its use. The opposition to the use of this drug, however, which has sprung up from time to time, had its origin, especially in former times, in its abuse. The employment of the drug requires careful direction. It may be given by the mouth or by the skin. These methods are termed internal and external respectively, and either or both are employed according to the indications of the special case. For the internal exhibition of the drug we use the perchloride, the biniodide, the protoiodide, blue pill, gray powder, and the subchloride. The protoiodide is of these the most generally satisfactory; few patients cannot tolerate its action, even in large doses, and its use can be continued for a long time without harmful effects or a diminution in efficiency. Various indications in the early stage of syphilis may call for an increase of the dose of this green iodide, a satisfactory formula for its exhibition being a prescription containing twelve grains, made up into a pill-mass with a sufficiency of confection of roses, and divided into sixty pills, one of which can be taken after meals. Should anything urgent arise in the treatment of the case, as when a well-developed eruption of the skin is accompanied by mucous patches and angina, the number of pills may be gradually increased until subsidence of the symptoms occurs, or constitutional effects of the drug make their appearance. It is advisable in such cases to order the patient to take one pill after each meal for the first three days; and then an additional pill after the midday meal for the next three days - making four pills during each day; then an additional pill can be taken after the noon meal, and one after the morning and evening meals. In this way the number can be pushed gradually until as many as twenty or more pills may be taken during each day without the production of any toxic symptoms. These large doses, however, are rarely needed and seldom reached. In general, it will be found that from six to nine pills a day are sufficient to bring the disease under subjection, or to produce gastric disturbances necessitating the relinquishment of the idea of a farther increase. During this time the patient must be kept under strict observation. The patient must be inspected each day, and as soon as any signs of toxic action of the drug are shown, the increase must be stopped, and the number of pills taken reduced by one half forthwith. These toxic effects are first shown by increased peristaltic action of the intestines. This need occasion no alarm if the number of loose stools does not exceed two or three in the day, but when they become more numerous and are accompanied by severe griping pains, the pushing of the drug must be ceased at once. A metallic taste in the mouth, a bad odour of the breath, and softening of the gums with the formation of a red line at their border, are sometimes the first effects of the green iodide in the production of hydrargyria. It should be discontinued, and some other preparation made to replace it, if the improvement in the syphilitic manifestations has not been noted before the beginning of toxic effects. The internal administration of the protoiodide may with decided advantage have combined with it a light course of mercurial inunction. About twenty grains of the blue mercurial ointment should be rubbed into the sole of one foot each night at bedtime, a light sock being worn to protect the bedclothes, and so on

for as many nights as necessary, the drug being withheld as soon as toxic symptoms appear. Most cases require some general tonic at the same time, especially if anaemic or cachectic. Iron is particularly indicated, and it is best given in the form of the citrate with quinine, in mixture with syrup of lemon, and distilled water, after meals. The lymphatic glands being the foci for the distribution of the specific virus and the products of the disease, attention should be early directed to the enlarged lymph nodes of the body and the bubo. An ointment, composed of mercurial ointment (1 : 2) may be rubbed over the site of each gland at night, the parts being bathed with warm water beforehand and thoroughly cleansed. Care must be taken not to produce irritation of the skin by too frequent application of the ointment, which latter, moreover, penetrates better if warmed before use. As the symptoms abate the use of the protoiodide may be decreased, care being taken that a dose is reached that will hold the disease well under control and check all symptoms of it. This dose should be continued without intermission, unless special indications are to be met. It may be combined with iron in a mixture, the preparation of the latter drug to be used being the *Ferri et Quininae citras*, or the carbonate of iron, or the ammonia-citrate. All these preparations of iron agree well with the stomach, and can, therefore, be taken over considerable periods, a change being sometimes made in the form prescribed for the sake of variety. To give the stomach a rest, the internal exhibition of mercury may be replaced by that of inunction, say, every three months. Should the protoiodide not agree well with the patient, or it be inconvenient for use, the perchloride of mercury can be tried, a convenient prescription being that with the tincture of the perchloride of iron, dilute nitro-hydrochloric acid, syrup of lemon, and water, - given after meals. In some cases there is a decided advantage in giving the biniodide of mercury, in pill form, in doses of one-fiftieth to one-twentieth of a grain. The subchloride of mercury or calomel can be employed, in doses of one-tenth of a grain every hour until catharsis is produced, when it must be withdrawn. Mercury with chalk, or gray powder, is a favourite method of administering the drug internally. One grain of it may be given two or three times a day, or more if the patient's system does not respond to its exhibition.

The exhibition of mercury by inunction is the oldest form of the mercurial treatment of syphilis; and although it has at various times fallen into disrepute on account of the improper way in which it was performed, it has again acquired considerable favour. For, although this method is not pleasing to the patient, and also uncleanly, it possesses the great advantage that it does not directly affect the digestive organs, and yet is very efficacious. It relieves the stomach and intestines of an enormous amount of work otherwise imposed upon them, and leaves it free to perform its natural function. Inunctions are specially indicated when, for any reason, the stomach cannot be made to tolerate the various mercurial preparations, or when the patient does not improve under such treatment. The method is best employed at bedtime. In the external use of mercury by this method, different parts of the body should be chosen for the rubbings on different days, so that no one part of the skin may be covered with the blue ointment for too long a time. If the skin is irritable, or if the rubbings are made in places where there is a free growth of hair, an eczema may be readily induced, which would require the inunctions to be discontinued. The hairy regions of the body must, therefore, be carefully avoided in procedure. Experience has taught me

that it is best to observe a certain order in making the successive inunctions. On the first day they should be made on the soles of the feet or legs; on the second day on the thighs; on the third day on the abdomen and the sides of the chest; on the fourth day on the back, and on the fifth day on the arms; and this regular course may be begun again at the expiration of this time, or after ten days, if the inunction is performed on but one side of the body daily. It is very necessary that the rubbings be done in a methodical manner; with moderate pressure of the palm of the hand; and, if the patient is too weak, they must be performed by an attendant. About a scruple of the mercurial ointment should be used on one or both of the places chosen for the day, the inunctions being made for ten minutes continuously there. The attendants who perform these inunctions run no risk of suffering themselves from mercurialism, even though they use the naked hand smeared simply with soap. The patient should have a warm bath before the daily inunctions are made; or at least the part to be rubbed should be thoroughly cleansed with warm water and soap. If these little details be properly attended to, it can be kept up for months without the appearance of any symptoms of mercurialism. Still, patients are affected by the drug in different ways. Thus, while many show an extraordinary tolerance of mercurial inunctions, others, after a short time, manifest symptoms of slight stomatitis. The character of the skin is, apart from other circumstances, of great influence in this respect, some having so tender a skin that the mercury is very readily absorbed through it. In such persons with a very sensitive skin, it may require but a small quantity of the ointment to produce troublesome eczema or extensive erythematous eruptions. Under these circumstances, however, it is not always necessary to put a stop to the inunctions, a temporary intermission being all that is required. The occurrence of stomatitis will call for their prompt discontinuance, and require the use of chlorate of potash as a mouth-wash, or some other astringent and antiseptic may be used instead or with it. I prefer the method of inunction before all others in cases of syphilis in which the condition of the digestive tract forbids the internal administration of mercury, and also in all cases in which it is desirable to obtain the action of mercury as speedily as possible, as when the destruction of important organs, such as the eye, the brain, or the larynx, is threatened by the disease. In cases of those who have very sensitive skins, with a tendency to eczema or acne, who have a thick growth of hair upon their bodies, or who are suffering from copious eruption, with exudation into the hair-follicles, it is, of course, contraindicated.

Mercury can be administered by another method through the skin: this consists in fumigation with the various preparations of the metal. It is a very quick method, and therefore specially indicated in cases in which a speedy action is desirable. It is of great utility in those cases of extensive syphilides, in which the lesions resist ordinary forms of treatment, or when the patient's desire for secrecy necessitates their rapid removal from the face and exposed parts. The method can be carried out in the patient's own house, in the following way: The person about to take the treatment is stripped of all his clothing, and seated upon a cane-bottomed chair. A heavy woollen blanket is fastened closely about the neck, the folds being allowed to fall to the floor in the form of a tent completely enveloping the person. Underneath the chair a pan of boiling hot water is placed over a largish spirit lamp, care being taken that the blanket does not come in contact with the flame. This can be prevented by placing weights upon the edges resting upon the floor and

pinning the opening in the rear. The steam from the boiling water induces a free perspiration of the body. As soon as the skin has become well moistened, the mercurial chosen for sublimation is placed over an alcohol lamp underneath the blanket. The receptacle in which the mercurial is contained is to be made of a piece of tin rolled up at the edges, and supported upon suitable rests. Calomel and the red bisulphide of mercury (cinnabar) are the two preparations of the metal best suited to fumigation; and they may be used singly, or with better results in combination. When used alone, from twenty to sixty grains of either preparation may be employed; if in combination, it is well to use about three parts of cinnabar to two of calomel. Thus a half drachm of cinnabar and a scruple of calomel may be taken. The fumigations should continue for from ten to thirty minutes if no untoward symptoms present themselves. If the patient becomes faint, or experiences unpleasant sensations, the process must be stopped at once, the body wiped dry, and a stimulant administered. The latter should be given before commencing operations in the case of weak and debilitated individuals. The patient should go to bed as soon as the fumigation is at an end; when, too, one must be on guard to see that he does not contract a chill. The sittings should not be given oftener than every other day, and all through this time he should receive good nourishment and tonic medicaments. In the case of obstinate syphilitic lesions appearing in the mouth and nose, fumigation is often indicated in connections with these cavities. Five to ten grains of calomel can be placed on a hot shovel or flatiron, and as they rise the fumes of calomel can be drawn slowly into the mouth and nose by inhalation. The process should not be repeated at too frequent intervals, nor prolonged, or irritation of the bronchial tubes will arise.

The constitutional effect of mercury can also be obtained by means of corrosive sublimate baths. This method, however, is rather uncertain in its effects; for, especially in the case of adults, I have not been usually able to convince myself that the sublimate finds its way into the blood by absorption. Only when the patient remains in these baths for a very long time can they be expected to serve the purpose intended. In the case of children they are more successful. They are especially indicated in the treatment of mucous patches, pustular and ulcerative lesions, i. e., cutaneous syphilides. As absorption is very slight, marked constitutional effects cannot be obtained by this method. A much better effect, however, can be obtained by the use of the corrosive sublimate baths in conjunction with electrical cataphoresis. For this purpose it is best to use Gaertner's bath of two cells, which should be divided by a properly fitting diaphragm separating the two cells. Each cell is attached to one pole of a battery consisting of some fifty Leclanché elements; the box which contains the battery is supplied with a finely graduated rheostat, a galvanometer, and a current changer. The bath should have a temperature of 95°F., and to it should be added from twelve to fifteen gm. of corrosive sublimate, which should be thoroughly dissolved. The patient is then placed in the bath, the diaphragm is then put in position, the poles are attached, and the current is gradually increased by means of the rheostat to from one hundred to two hundred milliamperes, and is allowed to pass for fifteen minutes, when the sitting is terminated. By this method of treatment a large quantity of mercury is absorbed and elimination is equalised. No inconveniences result from the baths, and their application is clean and easy.

The hypodermic use of mercury for the treatment of syphilis, although long practised, has of late found very considerable favour, but, still, there are many good authorities who do not believe in it. Its value is not definitely decided. The distinguishing features of this method are the production of a speedy action upon the syphilitic symptoms, which is frequently first manifested locally; the accuracy with which the dose can be measured; and, its cleanliness compared with the treatment by inunction. The severe suffering which it occasions is scarcely counterbalanced by the short duration of the treatment, which is said to require on an average only four weeks; and, moreover, this rapid disappearance of the external symptoms is by no means equivalent to a cure of the disease itself; and there is more apt to be an early recurrence of the manifestations when this treatment is employed than when others are chosen. Suppuration may occur at the points at which the injections are made; but, by observing due precautions, this can usually be avoided, except among patients specially predisposed to it. Corrosive sublimate is the salt of mercury most commonly employed, the solution being prepared by dissolving one quarter of a grain of it, and three quarters of a grain of common salt, in one ounce of distilled water, injecting from one half to one drachm of this every third day. Tartaric acid or glycerine may be used instead of the sodium chloride. The oxycyanide, gr. xv of 1.25 per cent. of mercury; asparagin-mercury in 1 or 2 per cent. of mercurial strength; the carbolate of mercury, gr. 1/8 to 1/4; and the pentonate, benzoate, and mercuric albuminate, are some of the other soluble salts of mercury that may be employed. Some use the insoluble salts, but they are less satisfactory than the soluble ones. Amongst them we have calomel; gray oil; yellow oxide, black oxide, salicylate, protiodide, biniodide, cinnabar, sulphate, and metallic mercury. The manner in which calomel is used can be taken as a type for the most of the compounds used. When suspended in glycerine and water, it can be readily injected; but it has to a greater degree than corrosive sublimate the disadvantage of causing abscesses in the subcutaneous connective tissue. This can usually be obviated by careful attention to the asepsis of the operation. The site of the latter must receive as thorough a preparation as for any surgical operation; the hands of the operator must be thoroughly cleansed, and the instruments and preparations sterilised. The injection should be made deeply into the tissues, the buttocks affording a favourable site. It is necessary to see that a bloodvessel be not penetrated by the needle, which should be about one half longer than that usually employed for hypodermic medication. The patient must lie on his belly during the operation.

A train of symptoms, to which the name of "mercurialism", or "hydrargyria", or "hydrargyrosis", has been given, may be expected to arise whenever the metal is introduced into the system. These toxic effects of mercury may be seen very soon after its ingestion, or not until it has been taken for a considerable period and in large doses. The first sign is usually a soreness and spongy condition of the gums. A distinct red line is formed at their border, and the mucous membrane bleeds readily. The teeth feel, as it were, too long for the mouth, and unpleasant sensations are experienced when the jaws are brought forcibly together. There is an increased flow of saliva, the tongue is heavily coated and swollen, and the breath has an offensive odour. These symptoms may come on rapidly or be late in appearing. If the drug be continued, all of the above manifestations become intensified. The saliva flows in a stream from the mouth, the swollen tongue fills the cavity of the mouth and

projects between the lips, necrosis of the jaw bones takes place, the teeth fall from their sockets, pain and discomfort are felt in every part of the body, there is high fever, and the bones and joints ache. To prevent the occurrence of these symptoms, it is necessary to keep the mouth perfectly clean and to remove from it every source of irritation. At the first signs of ptyalism the mercury must be promptly suspended, and tonics, such as iron, given. If severe symptoms come on, the patient must be made to remain quiet, the emunctories of the body kept open; and the diet should consist of easily digested foods, and the mouth treated with astringent and emollient lotions of myrrh and honey. A mixture of equal parts of tincture of myrrh and tincture of cinchona makes an admirable lotion for the gums, to which it can be applied several times in the day with a piece of lint. Potassium chlorate is also useful as a mouth-wash.

Iodine.

A case of syphilis could scarcely be treated without the administration of one of the compounds of iodine. The iodine compounds, however, cannot replace the mercurials in the general measures instituted for the relief of the disease; for the field in which they are useful is limited, and practically restricted to the treatment and control of the late symptoms that are to be regarded as sequelae rather than as actual manifestations of the disease. Consequently, they meet the following indications: (1) The appearance of the gummata; during any stage of the disease, in the skin or in the deeper and more vital organs. (2) In cases in which the patient cannot tolerate mercury in any form. (3) When mercury appears to have no effect upon the syphilitic manifestations. (4) To replace mercury at intervals when that metal has been given for some time. Any of the iodides can be used, for instance - of potassium, sodium, strontium, lithium, and rubidium. The iodide of potassium is the most generally useful, and next to it the iodide of sodium. The former may be given in daily doses of four to fifteen grains, and if necessary in even larger quantities. Certain obstinate cases require very large doses; thus, the dose may be gradually increased up to from two to five drachms in the twenty-four hours. Patients with severe cutaneous lesions can sometimes tolerate enormous quantities of the drug - even as large as ten drachms in the day. Under all circumstances I prefer to use solutions, and administer the same twice or three times daily immediately after meals; for no preparation of iodine ought to be given on an empty stomach. Should pain in the stomach or diarrhoea occur, opium may be added. Should disturbances in the kidneys, or marked constipation, occur, the drug must be at once withheld, and not resumed until these accidents have been properly treated. Iodine gives rise to toxic effects more readily than mercury. Iodism may be manifested in a great variety of lesions appearing upon the skin or in the production of salivation, - a metallic taste in the mouth, coryza, constipation, fever, and all of the symptoms of peritonitis; or it may occasion attacks of vomiting, which increase in frequency and severity, weakness, anaemia, and loss of sexual appetite. The commonest of the results of the drug's action is the iodine acne. The lesions appear upon the face, neck, chest, and back with greatest frequency, and are difficult to distinguish from the like symptoms of acne vulgaris. Frequently the smallest dose of iodide of potassium will cause the eruption to appear, while if the drug be pushed properly the lesions will vanish. Sometimes a severe kind of urticaria is produced. These accidents promptly disappear

when the drug is withdrawn, and tonics given.

Mercury and Iodine in Combination.

This is known as the mixed method of treatment, and is variously effected. Thus, the iodide can be given internally and the mercurial externally - by inunction, fumigation, or injection; the iodide can be given at any one time of day, and the mercurial at another; or the two can be given internally in the same dose. The latter method is really the mixed one. The development of tubercles, gummata, or osseous and cerebral lesions, calling for the exhibition of the iodides, would be advantageously treated in this way. Such form of medication should be begun by giving the iodide internally, and the mercurial externally, if the symptoms are urgent, - the drugs being one or both increased or diminished as indications arise. A useful formulae would be a mixture consisting of the red iodide of mercury (1 to 2 grains); potassium iodide (one-half to two drachms); syrup of liquorice (2 ounces); and distilled water (to 8 ounces), - of which a teaspoonful may be given in water after each meal. Or, for the potassium iodide the sodium salt may be substituted, and syrup of ginger for the like preparation of liquorice, and given similarly. Corrosive sublimate can be given, if preferred, in place of the red iodide of mercury; in fact, it is sometimes advantageous to do so. Neither mercury nor the iodides should be given on an empty stomach. It is worth remembering that a valuable method of exhibiting mercury and the iodide is to give them singly and at different times in the day. The iodide can follow the morning and the evening meal in either a graduated or fixed dose, while the mercurial can be given in pill form after the noon meal and when retiring to rest at night, at which time a light supper should be allowed, - for the reason just stated.

LOCAL TREATMENT.

When local applications are made, various local manifestations of syphilis, although they disappear under constitutional treatment, are much more quickly removed when.

Cutaneous Syphilides.

Should the affections of the skin be entirely isolated, the attempt may be made to remove them by local treatment alone. The roseolous eruptions disappear most quickly of all, and seldom leave a trace behind. In this form of syphilitic skin lesion, the prompt action of the mercurial preparations, particularly the blue ointment directly applied, is especially noticeable, and so acts by virtue of its constitutional effects, not locally. As a rule, the macular syphilide does not manifest itself by any troublesome symptoms, except when it has reached too great an extension, and when it is localised in places rich in sebaceous glands. In that case an intense seborrhoea is developed, - for example on the head, furrows of the alae nasi, etc., for the relief of which white precipitate or calomel ointment, may be used with good effect. The use of lotions and the application of cotton wool, soaked in a weak solution of corrosive sublimate, would meet the indications arising from the catarrhal condition which sometimes develops on such situations as the prepuce. When the hair is beginning to fall, and this may be at any stage of the disease, the head should be shampooed with a lotion, consisting of spirits of lavender and the tincture of green soap (3 ounces of the former to 2 drachms of the latter), every third night. Before

using, the head should be washed with as warm water as can be comfortably borne, and then, while still wet, a teaspoonful or more of this lotion should be rubbed thoroughly into it all over. Then the scalp should be washed clean with warm water and the following ointment applied, consisting of red sulphide of mercury (1 grain), precipitated sulphur 1 drachm), balsam of Peru (10 minims), and vaseline (1 ounce). In place of this, however, the head may be bathed with a lotion, the ingredients of which are corrosive sublimate (2 to 4 grains), tincture of cantharides (4 drachms), rectified spirits (2 ounces), oil of sweet almonds (2 drachms), spirits of rosemary (1 ounce), and rose-water (to 8 ounces). The hair should, of course, be cut short before using these preparations, at least in the case of men. Under proper treatment also the syphilitic papules, soon disappear. For the cure of an extensive papular syphilide local treatment is not usually employed, except as the eruption may be touched by inunctions, baths, or fumigations. Should, however, single papules reach too great a size, and also if they are situated in moist regions, where they may be troublesome by the amount of discharge and highly dangerous to other persons; or should they become painful to the patient by the formation of fissures or ulcers, by their localisation in movable parts, etc., local treatment is called for. Dry papules are removed by the application of calomel ointment or the tincture of iodine. The same treatment also serves for palmar and plantar syphilides, and for papules in callosities, or one may apply a one-per-cent. solution of the perchloride of mercury. Ulcerating papules on the sole of the foot, which are surrounded by horny callosities and run a very stubborn course, require, besides prolonged foot-baths, the shaving or scraping of a layer of the horny infiltrated epithelial border, and this should be repeated if necessary until the surrounding tissues have become soft and yielding; dressings of mercurial plaster will finally bring about a cure. For papulo-crustaceous spots, and for exuberant papules on the face or elsewhere, white precipitate or calomel ointment is useful. Papules which are complicated with fissures and ulcers, - at the anus; between the toes, etc., are best covered with mercurial plaster. For moist papules, cleanliness is the best treatment. The parts should therefore be bathed in carbolic acid, corrosive sublimate, or other solutions, or in sterilised water, and then kept dry by covering them with an antiseptic gauze or cotton wool; dusting them with calomel, salicylic acid, and the like powders. When the discharge is too profuse, sitz-baths of corrosive-sublimate solutions (one-half to one per cent.) are to be recommended, or perhaps later a water-dressing may be used; the lesions then assume a dry form, and should from thenceforth be treated as dry papules. Papules that are already permanently organised resist milder measures, and can be removed only by caustics, excision, or the actual cautery. Lotions of corrosive sublimate, and dusting with calomel, or the application of a suitable plaster or ointment, such as already named, are required for onychia and paronychia. In cases of ingrown nail, small pieces of antiseptic gauze, which have been cut into a proper shape, should be inserted under the border of the nail which is overgrown with a suitable instrument, and the part firmly bandaged. Local treatment, - the same as in the case of ulcerating gummata, - is required for pustular syphilides

GUMMATA.

It is very necessary that gummata should have prompt and energetic treatment, or rapidly destructive lesions may ensue. The iodides should be pushed

as rapidly as possible to their full doses. When the gummata have not undergone softening, or at least have not opened, can sometimes be checked from going any farther if they are painted over with tincture of iodine, or smeared with the blue ointment. The local injection of iodine or mercurial sometimes have the same effect in producing involution. Should, however, ulcers be already formed, the infiltration at the border and at the base should be scooped out, or thoroughly destroyed by lunar caustic, - following which mercurial ointment, or a weak solution of the perchloride of mercury can be applied, and iodoform gauze fixed with a bandage. It is sometimes necessary in these cases to re-cauterise the part. Gummatus cavities and sinuous fistulae, which extend far into the subcutaneous tissue or between the layers of the fasciae, usually require to be scooped out with the sharp spoon, and occasionally even drainage is needed. In many cases nothing short of a surgical operation will ameliorate these conditions. Thus, a permanent cure may sometimes be effected by extirpation and suture or skin transplantation - in the case of gummatus neoplasms which have long remained unchanged in spite of constitutional treatment, and also extensive infiltrations and ulcers, for which the iodides and the mercurials have been employed unsuccessfully. Cutaneous gummata sometimes take on a lupoid tendency, especially when of long duration: in these cases a cure is only obtained by the use of the sharp spoon, cauterisation with caustic potash, nitrate of silver, corrosive sublimate, ointment of pyrogallol, the Finsen light, etc.: in short, by the ordinary treatment of lupus.

Syphilitic Affections of the Mouth, Nose, and Pharynx.

The treatment of lesions in these parts often requires the exercise of very great care and caution. All parts of the mouth should be kept scrupulously clean, and nothing should be allowed to pass the lips that can in any way irritate the lesions. Smoking often causes a continuance of such, or a recurrence of them after they have been once removed, and must therefore be forbidden such patients. Systematic treatment, suitable for the condition, should be pushed to the point of physiological toleration. Combinations of the iodides and the mercurials are sometimes indicated. Silver nitrate, in solution or in pencil, is occasionally called for, in daily applications. Gargles of potassium chlorate, tincture of myrrh, carbolic acid, tincture of iodine, and other antiseptics and astringents, are of great service in these cases. The patient should carry about with him chlorate of potash lozenges, and such one or two occasionally when his mouth-wash is not at hand. Should the syphilitic affections of the nose not yield to the ordinary systemic treatment, fumigation with calomel or cinnabar should be tried. Good results usually follow inhalations of a mixture of carbolic acid (1 drachm), tincture of iodine (1 drachm), ammonia-water (2 drachms), distilled water (1 ounce), from a wide-mouthed two-ounce bottle half filled with cotton. Stimulation with the pencil or a solution of silver nitrate is of service when the lesions can be reached. Boracic acid lotion or weak solutions of potassium permanganate, in douche form, are of great value in cases of ozaena, the parts being kept thoroughly clean. It is also advisable to wipe the nasal passages with weak solutions of silver nitrate, and then apply the white precipitate ointment or the ointment of the yellow oxide of mercury. The pharyngeal cavity must be treated on the same general principles, and according to the indications presented from time to time.

The Larynx.

. In the treatment of this part the use of the mirror is of great importance. The catarrh usually readily yields to the inhalation of tannic acid, alum, or a spray of corrosive sublimate. Certain obstinate cases may require the galvano-cautery, under cocaine anaesthesia, especially when the syphilitic ulcers are prominent complications in these parts. Tincture of iodine, mercurial plaster, etc., make very serviceable external applications.

The Rectum.

Various astringent and anodyne suppositories can be used for the relief of syphilitic lesions of these parts, applied with the aid of the speculum. Obstinate ulcers may have to be incised before they will heal. Stricture of the rectum will have to be dilated with the rubber bougie or the tip of the finger, due care being taken that the gut be not ruptured by accident.

The Vagina and Uterus.

Strict cleanliness must be exercised when the vagina and uterus are affected by syphilis. Ointments and solutions can be applied by means of a rod and a pledget of cotton wool. Mercurial applications, alum, carbolic acid, and other drugs can also be similarly applied, a suitable speculum being employed. Various astringent powders may be dusted on the diseased parts, and antiseptic douches used as indicated.

The Bones and Joints.

The iodides must be administered in the fullest doses when the bones are affected. Usually it is well to combine mercury by inunction in the treatment. If the bone lesions are superficial, a small quantity of mercurial ointment, either pure or reduced with lanoline, may be gently rubbed into the part once a day, and a piece of mercurial plaster applied afterwards. Affections of the joints must be treated on general principles.

The Eyes.

Those measures which are considered indispensable in non-syphilitic affections of the eyes (and this applies also to the ears) should be taken according to indications when the eyes are involved in the syphilitic process. In every case of iritis a solution of atropine should be dropped into the eye, in conjunction with general mercurial treatment. If the inflammation is very severe, blood should be drawn from the temples, and the mercurial treatment should be energetic, and pushed even to the full physiological effect. Prompt and vigorous mercurial treatment is also required in cases of inflammation of the choroid and retina.

Intestines, Kidneys, Liver, and Spleen.

In all cases of intestinal lesions constitutional treatment by means of mercury must not be neglected, as the drug has a marked effect upon them. In the same manner a local action by the administration of specifics can be obtained in affections of the kidneys, as mercury is freely eliminated by these organs. The liver and spleen possess a great affinity for mercury, so that their lesions can be relieved by this metal.

The Heart.

Mixed treatment is usually required in cases in which the heart is syphilitic. Strychnine, digitalis, nitroglycerine, and the like, are also of great service, as in other heart affections.

The Bronchi and Lungs.

Inhalations of mercurial preparations in the form of vapour may be used in syphilitic affecti ons of the respiratory tract.

The Nervous System.

In syphilis of the nervous system the iodides must be given in increasing doses. Calomel is specially useful to commence with. A tenth of a grain may be given at a time for the first three days, and with marked effect. The administration of the iodide may be interrupted at intervals while a short course of calomel is given. A combination of the iodides of sodium and potassium, in equal parts, is sometimes more efficient in its action than when either salt is given singly. Tonics and supporting measures are strongly indicated. Stimulation of the paralysed muscles by the Faradic brush must be resorted to in order to maintain nutrition of these structures. Daily massage is also of great service, as, too, cold sponge baths every morning, followed by brisk friction.

Testicular Syphilis.

Mercury should be used locally and iodides internally when the epididymis and testicle are affected, and coitus forbidden. Every night the mercurial ointment may be rubbed into the organ, and a well-fitting suspensory bandage constantly worn.

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ILLUSTRATIVE CASES.

Case 1.- A woman, aged thirty-eight years, who had before suffered from all stages of syphilis was presented for treatment on the fifteenth day of January, with œdema of the feet and ascites. On examination of the abdomen, there was found a remarkable enlargement of the liver and spleen. On the right side there was dulness on percussion, extending from the fourth rib to about two inches above the umbilicus; on the left side, it appeared impossible to define the boundaries of the spleen. The surface of the liver was somewhat uneven; its margins felt hard and resistant. The spleen extended as far forwards to the anterior extremities of the tenth and eleventh ribs; higher up, its dulness was continuous with that of the liver. The appetite was normal; the bowels regular; the stools of a dirty, yellow colour, but free from bile-pigment; and the urine was scanty. The colour of the skin was a yellowish-gray; the nutrition was but slightly impaired; the menses had ceased for three months. Upon the shin-bones there were syphilitic nodes, which were painful towards night; and old cicatrices could be seen upon the velum palati. Diuretics and the syrup of the iodide of iron were prescribed after syphilitic lardaceous degeneration of the liver had been diagnosed. After some days the œdema of the lower extremities disappeared, as did also, in a great measure, the ascites; the liver and spleen, however, underwent no alteration in volume, although for ten weeks, the iodide of iron and iodide of potassium were administered with sustained regularity. For some time the patient's condition underwent no appreciable change; although a circumscribed pleural effusion, - but without the ordinary subjective phenomena of such a lesion, - causing displacement of the liver and of the heart, made its appearance in front of the right side of the chest. About the end of April examination of the patient showed that the right side of the thorax was distended; in front, the respiratory murmur was completely absent from the second rib downwards, and there was dulness on percussion from the same place down to a level with the umbilicus, and in a line with the mamma as far as about three inches below this; posteriorly, vesicular breathing was audible as low as the ninth rib. The fissure of the liver lay immediately behind the depression of the umbilicus, and from this point the left lobe extended to below the cartilage of the tenth left rib, where, in the axillary line, it was bounded by the stomach - as shown by the tympanitic sound elicited on percussion there. The heart was pushed upwards and to the left, and its pulsation could be seen and felt in the fourth intercostal space, about one and one-half inches to the left of the nipple. On the left side of the chest, there was slight dulness on percussion, and bronchial breathing could be detected at the lower and back part, - the remains of a pleuritic effusion, for which the patient had been under treatment on a former occasion; but otherwise, there was nothing abnormal. The surface and margins of the liver presented, as formerly, slight unevenness and a firm consistence. No depression of the lower margin of the organ upon a deep inspiration was observable. Dyspœnia was only complained of on going upstairs or upon moving. The general health was but little impaired, the digestion was unaffected, and the bowels were regularly moved, after a spontaneous diarrhoea which lasted for a fortnight. The use of mineral water, vaunted for their efficacy in liver troubles, for four weeks did not result

in any marked diminution in the size of the liver; its margin only became more flabby and soft, so that it was possible to double it in upon itself. With a certain amount of regularity, epistaxis appeared every month; and from time to time, there appeared symptoms of inflammation of the capsule of the liver, which perihepatic condition passed away either spontaneously, or after the usual external medication. Under the influence of simple symptomatic treatment the condition of the patient remained unchanged for several months. By degrees, however, the ascites increased, and the veins of the abdominal wall, especially those of the right side, became enlarged to a considerable extent. There also appeared below the right hypochondrium, a fluctuating bulging, surrounded by the solid substance of the liver; and a similar fluctuation could be detected in the lower intercostal spaces. The nature of this fluid appeared doubtful; whether it was serum which lay circumscribed between the liver and the abdominal walls in the meshes of fibrous bands, resulting from oft-repeated attacks of inflammation of the capsule of the liver, or whether it consisted of pus from a pleuritic effusion pressing down upon the diaphragm, or from an abscess of the liver, or, lastly, whether it was the thin, watery contents of an hydatid cyst. A specimen of the fluid, therefore, was drawn off on the eighth day of June, by means of a fine exploratory trocar. It consisted of a very yellow clear serum, which deposited scarcely a trace of albumen with the usual tests, but which contained leucine, and, so far as might be argued from its reaction with perchloride of iron, salts of succinic acid. Thus the fluid might have originated from the cysts of an echinococcus. The patient, having injudiciously exposed herself between the sixteenth and twenty-first of July, presented, on the latter date, oedema of the lungs, severe bronchitis, and oedema of the feet. Two mornings following, she had shivering, a pulse of 130, great dyspnoea, expectoration of frothy fluid mixed with blood, and general lividity; and died at noon from asphyxia. At the post-mortem examination, the diaphragm on the right side was seen to reach as high as the second rib. Above this, there could only be seen in front a bluish-gray membrane, destitute of air, and compressing the middle and upper lobes of the lung; the lower lobe lay pushed away to the posterior wall of the thorax, firmly adherent to this and to the diaphragm. In the left side of the thorax, the heart was pushed upwards and to the left, and had assumed a transverse position, its apex lying in the third intercostal space. The diaphragm upon this side reached nearly as high as the fourth rib, being pushed upwards by a considerably enlarged spleen, which had applied itself horizontally upon the upper surface of the left lobe of the liver and lay in contact with the blunt upper extremity of the suspensory ligament. The surface of the liver was united, at many places, to the abdominal wall and to the diaphragm by adhesions, partly recent, and partly of old date. The left lobe was intimately adherent to the spleen. The muscular tissue of the diaphragm appeared of a pale-yellow colour; upon closer examination, it proved to be an advanced stage of fatty degeneration. The upper part of the right lobe of the liver was made up of one cyst, the transverse diameter of which was estimated at about ten and one-half inches. It contained thirteen pounds of a bright-yellow, turbulent fluid, and a single large gelatinous bladder, having its inner surface covered with young echinococci. The fluid had undergone a great change in consequence of inflammation induced by the puncture; it now deposited, with the usual tests, an abundant quantity of albumen, which had not been present in the specimen drawn off during life. The surface of the liver was uneven, its substance granular, of tenacious consistence.

and of a light grayish-brown colour. The entire weight of the liver amounted to nineteen and one-eighth pounds; the longitudinal diameter measured fourteen and one-half inches; the transverse eight and one-half; the corresponding dimensions of the left lobe were six and four and three-quarter inches, and the thickness of the organ amounted to seven inches. The spleen was of firm consistence, and of a reddish-brown colour, with a glistening surface on section; it weighed fourteen and one-quarter ounces; its breadth was four inches, and its length six inches. On opening the skull nothing abnormal was found; the mucous membrane of the bronchi was of a bright-yellow colour, and covered with a bloody froth; both lungs were very cedematous; at the lower border of the left lung, the pleura was thickened, and the parenchyma was indurated and traversed by bronchi in a state of marked enlargement. With the exception of enlargement on the right side, the heart was found in a normal condition. The mucous membrane of the stomach and of the intestinal canal was pale, and that of the latter was covered with grayish-yellow faeces; a cicatrix, measuring one inch, was found in the rectum. The kidneys and generative organs were normal, and the same may be said of the other parts of the body examined.

Case 2. - A domestic servant, a woman of twenty-eight years of age, came under treatment on the twentieth day of February, and died three days afterwards. She had been ill on the evening of the eighteenth, with an attack of rigors - followed by pricking pains in the chest, cough, and expectoration of reddish, tenacious sputum. From expressions dropped during her noisy delirium, it was suspected that she had been previously addicted to the excessive use of ardent spirits, and in addition to this, she bore the marks of having previously been syphilitic. On examination there was found dulness with a consonating murmur over the upper portion of the right lung, both in front and behind. Over the upper portion of the left lung there was a somewhat muffled tympanitic sound on percussion, and indistinct respiratory murmur; over the lower portion of both lungs, the percussion note was clear and the respiratory sounds weak. She had hyperpyrexia, and a pulse of 120. The sputum was dark reddish-brown, and very tenacious. A mixture containing digitalis as its principal ingredient was prescribed. During the night the patient became very restless; at the same time, the upper lobe of the left lung became infiltrated with exudation, and both lungs were markedly oedematous, - the patient dying on the twenty-third at 6 a.m. An autopsy was held on the following day, and the following lesions observed: Congestion of the dura mater; blood in the sinuses - partly fluid and partly coagulated; the dura mater glued to the arachnoid by a thin layer of dry, gray, exudation; the arachnoid and pia mater greatly injected, and their vessels tortuous and winding. Cerebral substance much injected, and of normal consistence; only a few drops of serum at the base of the brain. Thyroid gland normal; bronchial glands melanotic. Larynx and trachea of a rosy-red hue; lining membrane of the bronchi dark-red; the upper lobes of both lungs glued to the surface of the chest by a recent fibrinous exudation both lobes non-crepitant, firm, and presenting at some places red, at others gray, hepatization; the dependent portions of the lower lobes congested and in an oedematous condition. Pericardium contained a little clear serum, Heart of normal size, and covered with a thick layer of fat; nothing abnormal about the muscular tissue and the valves of the organ. Abdominal cavity contained no serous effusion. The mucous membrane of the stomach and intestinal canal was pale, and free from any structural lesion. Omentum fatty. Mesenteric glands

normal. Spleen large, seven inches in length by three and one-half inches in breadth, of normal consistence, and somewhat anaemic in appearance. At many places the liver was adherent to the neighbouring organs. The left lobe was larger than the right; both lobes, on the upper convex, as well as on the lower concave surface, were very nodular, the nodules varying in size from a pea to a cherry. The peritoneal coating was thickened, and marked by cicatricial depressions. In consistence the organ was leathery and tenacious. The bile had a dark appearance. The fundus of the uterus was inclined to the left, and adhered to the left ovary, which contained a large corpus luteum filled with a chocolate-coloured pulp, likewise several smaller corpora lutea of a yellow colour, and a few cysts filled with serum. The left Fallopian tube was congested, and contained bloody mucus. The mucous membrane of the uterus was covered with a bloody mucus and hyperaemic. Right ovary atrophied; right Fallopian tube much dilated, tortuous, and filled with a serous fluid.

Case 3.- A char-woman, thirty-six years old, came under treatment on the twenty-fifth day of January, and died on the fifth day of the month following. The patient had previously suffered on several occasions from the symptoms of primary and secondary syphilis, and had gone through several courses of mercury. She had suffered from albuminuria and anasarca several times during the preceding two years, but always improved under treatment. When first seen on the present occasion, she was free from oedema, and her appearance was tolerably healthy. For fourteen days, she had complained of a slight cough without much expectoration; four days previously, she had been seized with rigors; pain in the left ~~right~~ side, and great dyspnoea. The right half of the thorax, as high as the third rib, was dull on percussion, and yielded no respiratory murmur; posteriorly, close to the spinal column, the dulness was less marked, and there was rough vesicular breathing with moist râles. The liver was pressed downwards, and the heart displaced towards the left. The exudation increased with tolerable rapidity; the dulness gradually extended at the lower and back part, but over the apex the respiratory murmur continued audible, and the sound on percussion was clear. The urine, which was passed in moderate quantity, was so loaded with albumen, that on boiling it became almost solid. Moderate fever; slight diarrhoea; no appetite. The use of acetate of ammonium, Dover's powder, and warm baths, certainly succeeded in producing abundant perspiration, and in effecting some diminution in the amount of albumen in the urine; but, notwithstanding, the anaemia rapidly increased, and oedema appeared in the legs. From the second day of February, the symptoms were: nausea, repeated vomiting, light, and very watery stools, and collapse, from which the patient could not be aroused, notwithstanding the administration of stimulants of various kinds. The stools became white and resembled whey. These symptoms were followed by praecordial uneasiness, coldness of the extremities, almost imperceptible pulse, and, finally, by delirium of several hours' duration, - death occurring on the morning of the ninth of February at eleven o'clock. Two days afterwards, an autopsy was held. Skull smooth, without any elevations, or loss of substance. Blood in the sinuses of the dura mater loosely-coagulated; cerebral membranes injected; brain-substance firm and dry; congested appearance of the gray matter. The only local remains of syphilis were a few condylomatous excrescences, the size of oat-seeds, upon the uvula. Larynx normal; trachea and bronchi moderately congested. Left lung loosely

adherent; its parenchyma normal, but at the lower and back part congested and somewhat oedematous. The right side of the thorax was filled up to the top in front with a purulent fluid; the liver was displaced downwards, and the heart was pushed to the left beyond the left mammary line, its apex lying beneath the fifth rib. The right lung was firmly connected posteriorly by old adhesions to the vertebral column, over an extent of two inches; its parenchyma at this place contained air at some parts, and at others was non-crepitant; the bronchi were filled with a quantity of muco-purulent secretion; the anterior portion of the lung was everywhere condensed and of a bluish-gray colour. The valves and muscular tissue of the heart were normal; the pericardium contained a small quantity of serum. The mucous surface of the lesser curvature of the stomach presented a small cicatrix, which produced a distinct constriction between the cul-de-sac and the pyloric portion; besides this, there were brownish-gray submucous extravasations of blood of an old date. The peritoneal coat of the small intestines was injected, and of a uniform rose-red hue; the mucous membrane was also very vascular, and the solitary glands prominent; a reddish-gray fluid was found in the lower portion. The larger vessels of the colon were injected in appearance. The mesenteric glands were partly calcified, and the pancreas firm. Spleen large, firm, brownish-red, very waxy, and containing saccharine bodies of a glistening character. Kidneys large; capsule separable; the parenchyma tinged yellow, partly firm, and waxy, and partly friable. Mucous membrane of the bladder normal; contained no urine. The liver was everywhere firmly adherent to the diaphragm; the left lobe was completely atrophied, and looked as if it were blended with the diaphragm; on the upper part of the convex surface were deep cicatrix-like depressions, enclosing portions of the hepatic tissue about the size of a walnut; the entire parenchyma nodulated, very firm, glistening, and reddish-brown. The bile thick, and of a mucous, almost gelatinous consistence, dark, depositing a quantity of colouring-matter, but did not give the reaction of albumen. Uterus and ovaries adherent to the neighbouring organs; cysts in the Fallopian tubes; great omentum adherent to the fundus uteri; parenchyma of the uterus normal. A recent corpus luteum in the right ovary. Vagina smooth; small losses of substance with haemorrhagic margins and base in its lining membrane. Labia majora very callous and marked by cicatrices and spots of pigment. Upon the right thigh were seen several white, radiating scars, which looked as if they had been formerly the seat of chancres.

Case 4.— A syphilitic female, turned forty-two years of age, on the twentieth day of April came under treatment, — two days before her death. Her appearance was pale and cyanotic; she had anasarca, cardiac palpitation, and hepatic pains. A loud systolic murmur was audible over the apex of the heart; the transverse cardiac dulness was considerably increased. There was a moderate amount of effusion in both pleural cavities, and a large quantity in the peritoneum. Urine scanty, pale-yellow, and very albuminous. The right lobe of the liver extended below the margin of the ribs, and could be felt on palpation; its margin appeared rounded, its consistence was firm, and its surface nodular, and, at some places, even lobulated. There was no dulness in the epigastrium. Spleen considerably enlarged. For three weeks the patient had suffered from diarrhoea; for a long time her digestive powers had failed, and she had been going about in a neglected condition. The dyspnoea and cyanosis rapidly increased, and were accompanied by the expectoration of a serous fluid.

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the extremities were cold; but still unconsciousness remained unimpaired. A continuous attack of general convulsions preceded death, which occurred in the early morning of the twenty-second day of April. Eighteen hours after death an autopsy was held. The remains of old syphilitic disease were discovered on the frontal bones; but there was nothing abnormal to be seen about the brain and its membranes. Several pounds of fluid were drawn from the pleural sacs; the pericardium contained ten ounces, and the peritoneum a large quantity of a yellow colour and gelatinous consistence. The margins of the mitral valves thickened and shrivelled; the right side of the heart hypertrophied and enlarged. Lungs oedematous, firm, and loaded with pigment. Pallor of the gastric and intestinal mucous membranes. The mesenteric and inguinal glands enlarged, and infiltrated with a material of a gelatinous nature. Spleen large, firm, and waxy. Both kidneys about one-third larger than normal; cortex pale-yellow; epithelium fatty; waxiness of the vascular loops of the Malpighian capsules. The weight of the liver was nearly fifteen pounds; its right lobe was remarkably enlarged and covered with cicatricial depressions, which enclosed nodules varying in size from a hazel-nut to a hen's egg, and, at some places, coarsely granular; the left lobe was shrivelled into a small nodulated appendage of leathery tenacious consistence. On section the cut surface of the organ presented stripes of connective tissue of greater or less width, which divided the yellow, waxy-looking parenchyma, at one place, into large, and, at another, into small, islets - imparting to the whole a consistency of remarkable firmness. There was considerable thickening of the sheath of the portal vein; the blood found in this vessel contained nearly as many white as red blood-corpuscles. The blood of the hepatic veins also abounded in white corpuscles. The larger branches of the portal vein were at some places narrowed and angular; the smaller twigs contained a dirty-brown blood-clot of old date, and some of them were obliterated. There was enlargement of the glands in the fissure of the liver, the same being also waxy. About the vaginal orifice syphilitic scars were found; but nothing of note could be seen elsewhere.

Case 5. - This patient was a widow, aged fifty-two years, who came under treatment on the fourth day of June, and remained so to the time of her death eight months afterwards. In the earlier years of her life she had often suffered from syphilis; the existence of the constitutional dyscrasia being indicated by a sunken nose, together with frequent attacks of pericardiac troubles quickly responding to the exhibition of the iodides. For weeks together she has a very distressing cough, and three months before her last illness, now being considered, she had an attack of profuse haemoptysis. Lower portions of both lungs normal; dulness and consonant râles over the apex of the left lung; quick vesicular breathing, with prolonged expiration over the right apex of the organ. Diminution of the hepatic dulness; frequent pain, increased by pressure, in the right hypochondrium. The spleen, owing to the existence of ascites, could not be felt. Appetite poor; tendency to looseness of the bowels; slight pyrexia; much anaemia; a moderate quantity of albumen in the urine; and cedema of the extremities. The therapeutic indications were met in the usual way. At a later date, the albuminuria increased, and a few pale fibrinous casts could be detected in it; but the respiratory symptoms remained unchanged; and the stools were pale and soft. The patient went into a state of collapse, and died on the third of February. Two days afterwards

and forty-three hours after the fatal issue, a post-mortem examination was held. The skull was thick and condensed, and flat ivory-like elevations were seen on its inner surface close to the median line. Dura mater opaque, and thickened along the longitudinal sinus; firmly-coagulated blood in the longitudinal sinus; arachnoid grayish-white and thickened; pia mater moderately congested; cerebral substance normal in vascularity and consistency. Laryngeal mucous membrane pale; that of the trachea and bronchi somewhat injected. Thyroid gland small and congested; calcareous deposit in some of the bronchial glands. A small quantity of serous fluid in both pleural cavities. The upper lobe of the left lung was firmly adherent, and infiltrated with gray tuberculous matter; and, in addition to this, there was a recent gelatinous-looking exudation, through which miliary tubercles were interspersed; at the apex, there was a cavity the size of a hen's egg with smooth, hyperaemic walls. The upper lobe of the right lung was firmly adherent, and contained a mass of yellow tubercle the size of a pigeon's egg. The lower lobe was congested and contained recent miliary tubercles. Pericardium contained two ounces of clear fluid; patches of opacity over the right ventricle; margins of mitral valves somewhat thickened; in other respects the heart appeared to be normal. The mucous membrane of the stomach pale; in the small intestine, near the ileo-colic valve, was a small, excavated, recent ulcer, and yellow tubercle beneath the mucous membrane; pale, pulpy, faecal matter in the colon and caecum, the mucous membrane of which was in appearance a slaty-gray. Spleen slightly enlarged, very lardaceous, dry, and reddish-brown; Malpighian bodies imperceptible. Surface of kidneys slightly granular and capsule firmly adherent; whitish infiltrations of firm consistence in some portions of the cortex. Bladder presented no lesions. The ovaries and the Fallopian tubes were adherent to the posterior wall of the uterus, which was atrophied; above the orifice of the urethra a very red excrescence like a cock's-comb; vaginal cicatrices. Liver remarkably small; its right lobe completely hidden by the tortuous curvature of the ascending colon. Surface of the liver uneven and covered with nodules from the size of a pea to that of a linseed; its margins shrivelled; parenchyma nodulated and firm. In the convex portion of the right lobe was a cyst, the size of a walnut, containing dead echinococci. Bile dark and inspissated. The liver was connected to the diaphragm and the adjoining organs by numerous bands, which were infiltrated with serum.

Case 6. - A labourer, thirty years of age, came under treatment on the seventh day of April, and the next day died in an epileptic attack. All that could be gleaned regarding his previous history was the fact that he was a drunkard, and, several years before, he had had an attack of primary syphilis. He was seen to be suffering from ulcers in the pharynx, pains in the bones of the head, and tibia, and rupia. The ^{epi}lepsy was of old-standing. The post-mortem appearances were as follows: At the base of the cranium, the left clinoid process was found to be very prominent, and furnished with a sharp angular point, whereas the right clinoid process was flat, and its surface smooth. The portion of the brain corresponding to the left process was somewhat softened. Elsewhere in the cranial cavity nothing abnormal was seen. From lateral curvature the thorax was narrowed; the lungs were congested and oedematous. The right side of the heart was enlarged, its muscular tissue was pale and friable - especially on the left side. The abdomen contained no fluid. The mucous membrane of the stomach was in part

recently injected and tumid, and in part, especially near the pylorus, grayish-brown and thickened. The coats of the small intestine were in some places intensely injected, and at other places paler. The mucous membrane in the reddened portions was covered with a bloody fluid. The faeces were of normal consistence and pale. The mesenteric veins were not enlarged to any great extent. The spleen was enlarged, soft, and engorged with blood. The liver was much shortened in its long, but scarcely in its transverse, diameter; its surface was uniformly granular, and adhered at many places to the surrounding organs. On section, its surface was found to be finely-granular and reddish-gray; the veins were enlarged, and the hepatic artery very considerably so. The kidneys were of normal consistence; the right, large and congested, and the left, small. No albumen was found in the urine, which was of normal hue.

Case 7.- Patient, aged fifty-eight, a clerk, was under treatment from the eight to the twenty-seventh day of February; but, five weeks before that, he had become dropsical; and, prior to that, again, he had suffered from respiratory troubles. He was pale and emaciated, and his legs were swollen as high as the knees. Great dyspnoea; respirations 56; pulse 94. The apices of both lungs were condensed, and the left apex presented the signs of a cavity; there was abundant expectoration. Cardiac sounds normal. Appetite slight; two or three thin pale stools daily. There was no hepatic dulness in the epigastrium; in the mammary line it amounted to five and one-half inches, and in the axillary to only four inches. The spleen was not enlarged. Urine scanty, depositing much albumen and a yellow sediment. Symptomatic treatment was instituted without delay. On the twentieth of February, the oedema had reached as high as the hips; the urine was very scanty; the diarrhoea had ceased two days before. Pulse 110, and small; respirations 58. The sputum was tenacious, and brought up only with very great difficulty. An expectorant mixture was given on the twenty-fourth, when the sputum became more copious and more easily expectorated. Three times diarrhoea. Pulse 116; respirations 48. Urine six ounces in the twenty-four hours. The patient now showed signs of great collapse, which gradually increased, and he died on the twenty-seventh from syncope. The patient appears to have suffered from syphilis many years before. The autopsy was held twenty hours after death; when a depression was found on the right parietal bone, one and one-half inches long and one inch wide, having the form of a flattened cone, and presenting a rough, eroded appearance; its margins were raised and thickened. The pericranium was normal, except that at this part it was firmly adherent. There was an excavation at the corresponding part of the vitreous table, about the size of a sixpence, of a porous character, with which the dura mater was firmly connected by means of ragged processes penetrating into the foramina of the bone. The dura mater at this place was three lines in thickness, and round about were observed velvet-like osteophytes covering the inner surface of the skull, but likewise intimately united to the dura mater. The latter in the middle fossa, as well as around the foramen magnum, was covered with a mould of bloody, fibrinous matter. The membranes and substance of the brain were in other respects normal, except at the part corresponding to the thickening of the dura mater, where the arachnoid appeared white, and the pia was firmly adherent to the somewhat atrophied cortical substance. Upon the uvula and in the pharynx radiating cicatrices were observed. On opening the chest, both lungs were seen to be firmly

adherent - the left by means of a thin membranous exudation. The apex of the left lung was indurated and infiltrated with yellow tubercles; in the apex of the right lung was a cavity the size of an apple. The heart and pericardium were normal. The mucous membrane of the stomach was pale. The follicles of Peyer's patches and of the solitary glands of the ileum were infiltrated with gelatinous matter; the villi and vascular loops presented distinctly the waxy reaction on the addition of iodine. The mesenteric glands were normal. The caecal and colic mucous membranes were pale and tumid. The kidneys were somewhat enlarged; their cortical substance was hypertrophied, and, at some places, infiltrated with a dense substance of a waxy lustre. Nothing abnormal was noticed in the bladder. An old radiating cicatrix was found on the corona glandis. The liver was seen to be enlarged and deformed. Its left lobe was very small, measuring only one and one-half inches in its transverse diameter, whilst the right lobe was five and one-half inches broad and seven inches long. The organ was connected by firm adhesions to the colon and diaphragm. The convex surface and the anterior margin of the right lobe were subdivided into rounded, nodulated lobules, by deep cicatrices, intersecting one another at many places; numerous fissures were also found on the under surface. The parenchyma was, at some places, congested, and at others, of a waxy lustre, and firm. The hepatic cells, and likewise some of the vessels, presented distinctly the red reaction of the lardaceous change with iodine, but in no place was the violet hue observed. The spleen was of normal size and firm; its cut surface was dry; the trabecular framework was increased; and glistening deposits, giving a feeble amyloid reaction, were observed in certain situations.

Case 8.- A Captain in the Navy had undergone repeated courses of mercury, for the cure of various secondary syphilitic affections. He had used the red oxide of mercury, corrosive sublimate, mercurial inunctions, and the iodide of mercury, in the most indiscriminate manner, and without any attention to diet. When the patient was presented for treatment, he was found to be suffering from pseudo-rheumatic pains; the ulcers in the pharynx had healed, but an obstinate attack of gastro-intestinal catarrh had existed for many weeks, and jaundice had likewise made its appearance, together with painful swelling of the liver. In the mammary line the liver measured eight inches, and in the sternal line five inches. The patient was ordered to Aix-la-Chapelle, where the gastro-intestinal catarrh was cured with the chalk and opium mixture. The jaundice disappeared, the liver returned to its normal dimensions, and the rheumatoid pains practically disappeared, after some weeks' bathing in the thermal springs, and the use of iodide of potassium internally. This case well represents the efficacy of a change of air and scene in the treatment of old-established and obstinate syphilis.

Case 9.- This patient was a baker, aged fifty-three years, and came under treatment on the fourth of July. He was of pale cachectic habit of body, and of flabby musculature. Twenty-years before, he had suffered from a chancre, and two years before from ulcers of the skin, which had left glistening, white, radiating cicatrices. Both tibiae were swollen and uneven, but were free from pain. Eight weeks before, cough had set in, together with pains in the larynx, increased by pressure. Swallowing was difficult and painful; the voice was hoarse; and gradually dyspnoea set in. The patient

had been treated for four weeks elsewhere, but without any benefit. Ulcers, covered with reddish-brown scabs, were observed in the nose. The pains in the larynx were of moderate severity; there was tenderness on pressure over the margins of the thyroid cartilage, but not over the trachea. Both surfaces of the epiglottis felt smooth; its margin was sharp. Digestion was normal. Nothing of importance was observed in connection with the respiratory organs on auscultation, though the sputum was muco-purulent, and tinged with blood at times. A solution of nitrate of silver was applied in the usual way to the larynx, and iodide of potassium prescribed in mixture. The blood disappeared from the sputum from the twenty-fourth, and only muco-purulent masses were expectorated. The breathing, however, still continued difficult; there was complete aphonia; the pains in the larynx gradually ceased under the use of the nitrate solution. On the twenty-ninth, there was considerable increase of the dyspnoea, which was not relieved by poultices and the inhalation of steam. On the morning of the thirtieth, the patient was found in a cyanotic condition; breathing labouriously, somnolent, and incapable of being roused. Tracheotomy was performed at six o'clock; but although the respirations continued for two hours, the patient died at eight o'clock without regaining consciousness. At the post-mortem examination, the skin over the skull was seen to be hyperaemic posteriorly. The longitudinal sinus contained dark fluid blood. There were about two ounces of serous fluid at the base of the brain. The arachnoid was opaque at many places. There was congestion of the substance of the brain and the choroid plexus. Two drachms of serous fluid were found in the pericardium; the muscular tissue and valves of the heart were seen to be normal. There was considerable distension of the lungs. There was considerable enlargement of the papillae at the base of the tongue. There was nothing abnormal in the velum palati; the left tonsil was somewhat enlarged; the mucous membrane of the oesophagus was pale. There was a moderate amount of atheroma in the coats of the descending aorta. The left lobe of the thyroid gland was somewhat enlarged. Viewed from above, the epiglottis and glottis were not thickened, and the aryteno-epiglottidean ligaments were not infiltrated. The glottis, however, was so narrow and rigid, as not to admit the tip of the little finger. The ventricles of the larynx had disappeared, and were filled with a dense mass of areolar tissue, two lines in thickness. Below this, ulcers were found on both sides, with smooth margins and glistening white bases; the surrounding mucous membrane was much congested. Anteriorly, between the ulcers on either side, was situated the wound resulting from the operation; and still farther down, the necrosed plate of the cricoid cartilage projecting through the soft parts which had been divided. There was lividity, softening, and thickening of the surrounding areolar tissue. A certain amount of injection was observed on the tracheal mucous membrane, which was also covered with brownish mucus. Gelatinous matter appeared to have infiltrated some of the bronchial glands. Especially at its margins was emphysema of the left lung observed, and a mass of tubercular material of old date was discovered in the centre of its apex. Emphysema was also found in the right lung, which at its apex presented slight puckered cicatrices; the lung was oedematous behind and below. A small recent extravasation was found in the left kidney beneath its smooth capsule. A patch, the size of a sixpence, of a yellowish-brown colour, but not penetrating into the parenchyma, was seen to be located beneath the capsule, at the apex of the right kidney. The epithelial cells of the uriniferous tubules were loaded with fat; the glomeruli were

waxy in no part There was notinh of note observed as regards the urinary bladder. The urine was pale, and non-albuminous. The pancreas was in a somewhat shrivelled and congested condition. The capsule of the spleen was thickened, and covered with numerous cartilaginous deposits, the size of a linseed. The organ was moderately congested, and of normal consistence. It measured in length seven inches, in breadth five inches, and in thickness one and one-half inches; and weighed twenty-two ounces. The surface of the liver was smooth; a yellowish-white cicatrix was observed upon the left lobe, which penetrated into the parenchyma to the depth of three lines, The parenchyma was firm, and the cut surface, glistening and pale-brown. Crills in a state of waxy degeneration were detected everywhere in the centre of the lobules, which were surrounded by pale fatty rims. Here and there were patches, where a large number of the lobules were uniformly degenerated. The right lobe of the liver measured transversely six inches, and from before backwards seven inches; the left lobe measured four and one-half inches transversely, six and one-quarter inches from before backwards; and the thickness was three inches. The organ weighed fifty-two and two-thirds ounces. The bile in the gall-bladder was of a deep-brown colour, and contained a number of black concretions. In the immediate vicinity of the of the cystic duct were several enlarged lymphatic glands. The gastric mucous membrane was tumid, and injected in the neighbourhood of the pylorus. That of the ileum and caecum was normal; and solid brown faeces filled the large intestine.

Case 10.- A charwoman, aged thirty-five, came under treatment on the sixth day of October, in a state of weakness and marasmus which rendered her almost unable to speak. This patient, whose skin was slightly puffed, presented a complete discoloration of the integuments. She had been suffering from diarrhoea for some days; on the lower lip was seen a deep ulcer, with perpendicular edges, and near the tip of the tongue was another ulcer, larger and not so deep, with a grayish, sanious floor. She had cough rarely followed by expectoration, extreme difficulty of breathing, resonance of the chest on percussion, indistinct vesicular murmur, and some râles at the base of the lungs. The change in the voice was very marked, but there was no dyspnoea. The patient, in spite of great effort could scarcely make herself heard; swallowing was easy, but attacks of cough sometimes supervened, which appeared to result from the passage of foreign substances into the larynx. Under the influence of the protoiodide of mercury with opium, and cauterisation with the acid nitrate of mercury, great improvement was observed in the state of the ulcers upon the lip and tongue, which showed a tendency to cicatrise. Nevertheless, the weakness resulting from the advanced state of cachexia and the difficulty of breathing rendered the condition of the patient always more alarming, and on the fourteenth day of October she died of syncope. A somewhat rough post-mortem examination was made, - when the ulcers of the mouth were seen to be in a state of cicatrization; the epiglottis had entirely disappeared, and it was with difficulty that some grayish or whitish gangrenous detritus was discovered at the point which it had normally occupied; one of these was turned back and rested upon the anterior surface of the pharynx. The aryteno-epiglottidean folds, which were partly destroyed, were not oedematous; the superior vocal cords were also partly destroyed, the inferior were intact.

Case 11.- Whilst travelling a young man had contracted syphilis, for which he took mercury, but in an irregular and inefficient manner. In the autumn he was attacked by disease of the throat, with hoarseness, ulceration of the velum palati, a coppery eruption on the skin, nodes, nocturnal pains, and profuse sweating. His condition gradually got worse, and, in the month of August, the patient, who was confined to his bed, was exceedingly weak and emaciated; he had frequent and very troublesome cough, copious and purulent expectoration, and symptoms which left no doubt as to the existence of laryngeal involvement. His chest was perfectly resonant, but a thick, mucous rhonchus was plainly heard throughout both lungs. He died from exhaustion on the fifteenth of September, in spite of every effort to save him. At the autopsy it was seen that small ulcerations existed on the mucous membrane lining the larynx; there was none in the trachea, but beneath the bifurcation they appeared afresh, becoming more and more numerous in the small ramifications. In the smallest divisions of the bronchi there was a continuous series of ulcerations; isolated ulcers had apparently run into each other. Purulent matter filled the bronchi, and there was slight congestion of the lower lobes of both lungs. This case is narrated to instance the morbid determinations of syphilis in the respiratory tubes.

Case 12.- A strongly constituted sempstress, aged forty-five, on the first day of April, presented herself for the relief of her dyspnoea. For the last month she had experienced uneasiness and depression, and some days previously was obliged to give up her employment. She pointed to her chest as the seat of her complaint; her short, anxious, and difficult respiration was performed in the upper part of the chest; the base of the thorax was motionless, and suggested the idea of some obstacle to the entrance of air into the lungs. Percussion fully confirmed this suspicion, by giving a dull sound which was more marked, however, on the left side than on the right; there was exaggerated resonance in the upper part of the chest. Auscultation revealed bronchial respiration, and a murmur in relation with the dulness at the apices of the lungs; the breathing was peurile, exaggerated and rapid; the pulsations 65. There was no heat of the skin; the tongue was pink, the face slightly congested; there was no headache; the intelligence was normal. A month previously, this patient had for two or three days spat a little blood; prior to that time she had never had a chest affection; she had no expectoration, no cough, no evening pyrexia, nor any night sweats. There was no emaciation nor any family history of pulmonary phthisis. For some months past, walking and climbing stairs had caused great discomfort and palpitation. She had on her body traces of syphilitic ecthyma and rupia, which gave evidence of very inveterate implication of her system. Thirteen years ago, while suckling a child of her own, she had given her breast to another child with ulcerations and mucous patches on the lips. Soon ulcers appeared around the nipple of the nurse, and a physician who saw her at that time affirmed that she had contracted the disease from the child. She was then subjected to mercurial treatment. The disease appeared to remain dormant for two years and then broke out with great intensity; there appeared mucous patches, ulcers upon the legs, then rupia, - the indelible traces of which were still to be seen, - but there were no osteoscopic pains, that were not of a very painful character. For these pains she took the iodide of potassium, which, though healing the ulcers, did not relieve her suffering. In the present instance she took the same drug in combination with antispasmodic

Still dyspnoea was very distressing in the evening. On the second, the patient could not breathe except in the sitting posture, the apices of the lungs dilated with force; the pulsations of the heart were more violent and rapid. On the third, these symptoms were still more marked; the same treatment was continued. On the fourth, the oppression was very great, the face cyanotic. At eight o'clock in the evening the patient died of asphyxia. Thirty-six hours after death a post-mortem examination was held; but there was nothing peculiar to be seen about the heart, the brain, the abdomen; the lungs alone were the seat of the lesions which had caused death; the trachea was filled with a frothy fluid, but its mucous membrane did not present any redness or ulceration. On making an incision posteriorly into the bronchial ramifications of the lower lobes, these were seen to be surrounded by an indurated mass of a bluish-gray colour, somewhat like slates. This colour was deeper on the left side than on the right. This indurated mass had replaced the pulmonary parenchyma which separates the air-tubes from each other. It presented great resistance to pressure; the rest of the lung was soft to the touch, elastic, yielding under the finger; it was slightly reddish, though much congested. There was no trace of tubercle, either at the apex or at the base, or in any part of the body. The bronchial glands were black and indurated, without any tendency to suppuration; the bronchial filaments of the pneumogastric nerves, on each side, entered the indurated tissue, so that they could not be dissected.

Case 13.— A laundress, aged forty-one, gave it as her opinion that her father had suffered from syphilis; he was ill shortly before her birth, and she did not doubt that he was the cause of the various sufferings she had undergone from an early age; she remembers that he had violent pains in one of his knees. Her mother was afflicted for seven years with pains in the legs and right arm successively; she was afterwards seized with cholera, and finally died after having had oedema of the lower extremities for one year. Of twelve children whom her parents had, only three survived, all the others died before the age of three or four years, but without the patient's being able to explain what was the matter with them. As regards herself, she said that she could not tell if she had suffered from convulsions from infancy, but remembers that, from eleven to twelve years of age, she had pains in the eyes and became almost blind; she afterwards had affections of the throat, and her voice became so much changed as to be almost lost. At fourteen, she was seized with deafness which partly disappeared, then returned and persisted. About this same period, attempts were made to produce menstruation, but in vain. At eighteen, she was taken with a slow continued fever, which gradually exhausted her. It appears she was then advised to marry, but refused. At twenty-two, she had intense pains in the head, with falling off of the hair. After that, until she attained her thirty-eighth year, she enjoyed tolerable health, suffering chiefly from her stomach, and sometimes from vertigo, but never from convulsions or loss of consciousness. In April she was seized with pleurisy; she soon resumed her work, but on the twenty-second day of June found herself obliged to present herself for medical treatment. She then complained of pains in the dorsal region, and some days after, had haemoptysis. This symptom afterwards recurred and did so at times for several months, so that she was often under treatment. From the February the fifteenth to June the fifteenth, of the next year, her health was pretty good, but then copious haemoptysis supervened; she affirmed that she spat up nearly a quart of blood in the twenty-four hours. In

October she again came under treatment. She was a woman of poor development and small stature. Her breasts were like those of a young girl before the age of puberty; the mons Veneris was completely void of hair, the vagina scarcely allowed of the introduction of the little finger; the hymen scarcely existed, but there were no signs of tearing. Her voice was hoarse and snuffling; her teeth were small and notched; her nose flattened towards the base; her head almost bald; she was pale without emaciation. Recent haemoptysis and the vomiting of food and medicine, -cod-liver oil which she took largely, -were the reasons for her seeking advice on this occasion. She complained, further, of pain in the shoulder and right arm, and of oppression in the region of the stomach. She was stone-deaf, but the ears on examination presented no lesions. Physical examination revealed at the upper and inner part of the chest, over an area of several inches, the existence of a dull sound; in this same region and towards the axilla was heard a soft, jerky murmur, very different to the bronchial murmur; a little further down, this murmur assumed a hollow character; from time to time, and especially during efforts to cough, or to take a deep inspiration, sub-crepitant or cavernous râles were heard. Posteriorly, but more deeply seated, the same phenomena were noticed. The left lung was everywhere intact. There was frequent, hacking cough, with abundant and often bloody expectoration. The heart was healthy; the spleen, liver, and the kidneys did not appear to be diseased. There was no lack of intelligence, but it was easy to see that the patient had almost entirely lost the sense of smell. This condition had existed for ten years, at least she said so. She had little appetite, and almost constant dyspepsia; fever at times, with exacerbations in the evenings. The usual tonics did not improve her condition, her appetite remained small, and the emaciation increased; but her face, although very pale, was full and puffy. During the months of November and January she underwent no change for the better or the worse, the haemoptysis recurred several times, and the patient discontinued the treatment in the following January. On the ninth day of March she again came under treatment. It was seen that the emaciation had increased in the meanwhile; the cough still continued and the expectoration was generally bloody. There existed in front, on the right side of the chest, a cavernous murmur, which began to be heard at two or three fingers' breadth below the clavicle; the same murmur was heard behind over a considerable extent of surface; there was dulness on percussion at these points, and mucous râles sometimes very large. The left lung did not present anything abnormal. The liver projected beyond the edge of the ribs; the heart was intact. The fever, moderate at first, increased in intensity; some days afterwards, the appetite became lost, and there was diarrhoea; the emaciation increased. The patient fell into a state of marasmus, and on the twentieth day of March died. At the autopsy the exterior of the body showed nothing remarkable except slight oedema of the lower limbs. The brain did not appear to be changed either in form or structure; the nerves arising from it were normal. The left lung was intact, or merely oedematous. In the right, however, was found an ulceration which occupied all the three lobes; the upper and lower lobes, however, were not invaded in their whole extent; at its apex, the upper lobe was still somewhat crepitant, but the lower down to this small lobe was indurated; several cavities were found in it. Analogous cavities were found in the middle lobe, and in the upper part of the lower lobe, separated from each other by septa which were frequently incomplete, or by fibrous bands of a greater or less extent; the largest of these cavities might contain a pigeon's egg; their

their walls were perfectly smooth and polished; they were situated in the midst of a grayish tissue, which was firm and resistant to pressure, and not easily either broken up or torn. Nowhere was the least trace of tubercle found, and these cavities cut out of the indurated tissue sufficiently showed, moreover, that it was a question of chronic pulmonary induration, and not one of tuberculation. The liver, larger than in the normal condition, projected beyond the false ribs; in colour it resembled a nutmeg; numerous yellow spots, slightly irregular, were seen on its surface, upon a brownish ground. Glisson's capsule, thickened in the vicinity of the suspensory ligament, adhered more or less closely to the diaphragm at several points. On the convex surface appeared deep furrows, running in various directions, and presenting and presenting around them a thickening of the capsule; the lips of these furrows were united by bands of connective tissue; the same change was again met with on the convex surface. Fibrous bundles lined the floor of these furrows; beneath them, the parenchyma of the liver was little changed, the cells were granular and atrophied; in the rest of the liver, there were a thickening of the fibrous web, and abundant fatty granulations in the interior of the cells. The spleen and thyroid gland were somewhat indurated and enlarged. The kidneys were healthy, the ovaries and uterus not more developed than in a child of eight years. The ovaries, in a rudimentary condition, did not contain any Graafian follicles; the uterus was comparatively very small, the mons Veneris extremely smooth. Menstruation had never taken place, and she had apparently never had sexual intercourse; moreover, this would have, owing to the extreme narrowness of the vulva and vagina, been almost impossible. The reality of the syphilitic affection of this patient might here be doubted; but the information furnished by her, and that on several occasions the premature death of most of her brothers and sisters, the arrest of development which she presented, the peculiar condition of her dental system, and the falling of the hair without appreciable cause, as well as the characters of the lesions met with at the post-mortem examination, are, in my opinion, so many proofs in favour of syphilitic disease; and, moreover, in what other way could the numerous symptoms presented by this woman, from her birth until the moment of her death, be explained?

Case 14. - This patient was a tall strong man, of fair complexion, and forty-two years of age, who came under treatment on the seventeenth day of January. The only diseases he had had formerly were gonorrhoea and a chancre. He did not remember to have had any symptoms upon the skin or mucous membranes. Some years ago, he was seized with pain in one of his eyes; examination of that eye showed sufficiently that he must have suffered from iritis, as evident traces of that affection remained: deformity of the pupil, and adhesions to the neighbouring parts. In the groin were found several small, isolated, hard and movable glands, but no cicatrix or trace of buboes. The expression of the man was dull and fixed, the sight weak, the speech embarrassed and slow; his walk unsteady and difficult; he could not remain long in an upright position; his lower extremities were feeble and oedematous, but the urine did not contain any albumen. The right tibia was the seat of an exostosis; the skin was smooth, pale, and thin. There was slight cough, with little or no expectoration, dulness on percussion two fingers' breadth beneath the spine of the left scapula, absence of vesicular murmur, and a slight blowing sound in the same neighbourhood; there were resonance and normal respiration on the other side. The heart acted regularly and did not appear changed; the liver and spleen

were normal. The appetite was small; there had been emaciation for some time, and his strength failed from day to day. There was no fever. After a few days of symptomatic treatment, ^{the embarrassment in} his speech appeared to diminish as well as the weakness of his memory and intellectual faculties, he reasoned and answered questions more clearly. Ten days after, he had diarrhoea, a white tongue, anorexia, and slight fever. The diarrhoea ceased upon the exhibition of opium and careful dieting, but the oedema of the lower extremities increased and reached the abdomen. Towards the end of February, the patient complained of more oppression; he coughed frequently, and had purulent expectoration streaked with blood, very analogous to that of phthisis; his breath was stinking and repulsive, there were large mucous râles in the posterior part of the left lung, commencing from the spine of the scapula, a murmur not well marked, slight dulness on percussion, and want of elasticity. The existence of these signs towards the middle and lower part of a lung, and the concomitance of evident syphilitic manifestations, gave rise to the supposition that it might be a syphilitic affection of the lung. Unfortunately, the wasting of the patient and the advanced state of the cachexia in which he was, rendered impossible any specific treatment. The oppression, the cough, and the expectoration continued; pyrexia with evening exacerbations supervened, the wasting rapidly progressed, and on the fifteenth day of March the patient died. Forty-eight hours after death the autopsy was held. The abdominal walls were slightly greenish; there was oedema of the lower extremities, scrotum, and walls of the abdomen. The peritoneal cavity contained a little serum; and the right tibia presented a slight degree of periostosis. There was very little hair upon the head, the cranium was normal, the meninges intact, the brain soft in places, there were brownish or yellow granulations in the course of the vessels of the gray substance, and also some granular bodies. On the left side, the iris was covered with a whitish exudation and adhered to the crystalline lens, the pupil was deformed, there were exudative and pigmentary choroiditis, and in the course of the retinal vessels some granulations. There were adhesions between the right lung and the wall of the chest and oedema at the base of that organ, which was otherwise healthy. The lower lobe of the left lung adhered closely, by means of thick false membrane, to the thorax and diaphragm. Two small softened tumours were found at the point of adhesion to the diaphragm. On section through its whole extent, this lobe, which was remarkably indurated, presented three large sinuous cavities filled with a white granular or caseous matter; hollowed out of the parenchyma of the lung, these cavities were lined with a layer of pultaceous matter, which did not differ from their caseous contents. In the vicinity of these cavities the tissue of the lung was extremely hard; it presented, when cut, a smooth, grayish, marbled surface, resistant like india-rubber, and impenetrable by the finger; the bronchi terminating in these cavities had their mucous membrane thickened, wrinkled, red, and granular. The upper lobe was not changed, but merely oedematous, and did not present the least trace of tubercle. Some of the bronchial glands were indurated, blackish, and smooth on section. Nothing abnormal was found in connection with the heart. No lesion was found in the liver; the kidneys presented, on their surface, some cicatricial furrows, but were otherwise healthy. The two layers of the tunica vaginalis adhered to each other; there was thickening in patches of the tunica albuginea; the substance of the testicles was yellowish and atrophied. The spleen and thyroid body was enlarged. Some of the peritoneal glands were larger and softer than normal: on section a pinkish or yellowish colour was observed.

Case 15.- A vigorously constituted man, aged forty, was the subject of ulcers, situated upon the velum palati, and of syphilitic osæna; he had osteocopic pains in the head and limbs, vertigo, weakness of the limbs, and deafness on the right side. He was afterwards seized with violent epileptiform convulsions, his fever increased, and he developed coma from which he died. At the autopsy it was seen that the membranes covering the right hemisphere were lardaceous, and adherent to each other and to the brain, chiefly towards the base. In the middle fossa, on the right side, there existed a tumour the size of a pigeon's egg, closely adherent to the bone, lardaceous, evidently formed of plastic lymph, and analogous, in all respects, to a gummy tumour; the brain was softened at all the points where adhesions existed; there were no apoplectic clots; denudation and wrinkling were observed upon the portion of the brain on which the tumour rested.

Case 16.- A female domestic servant, aged forty, unmarried, pale and puffy-looking, was brought for treatment on the fifteenth day of March. She had had for the last five months pains in the head with vertigo, and a partial loss of strength. An epileptic attack appeared four days after coming under notice. She had two attacks on the fourteenth of April, the last the weaker, and in which, despite the loss of speech, consciousness remained intact. There were lassitude, frequent cephalalgia, and puffiness of the face from thenceforth. She had another attack on the eighteenth of April; these attacks were repeated on the nineteenth and twenty-ninth, and on the fourth of August. On the fifteenth oedema reappeared. On the third and tenth of September, she had loss of consciousness without convulsions. She was ordered diuretics which reduced the oedema. In October the patient became melancholy; she had fits of oppression, crying, buzzing in the ears, and heaviness of the head. In February following the oedema was more considerable; the specific gravity of the urine was increased; this fluid contained fine fibrinous cylinders, numerous blood-corpuscles and a large quantity of albumen. The exhibition of cathartics was without effect; the dropsy increased and ascites supervened. There were no more convulsive attacks until the third of April. After an attack which took place on that day, she had heaviness of the head, sopor, involuntary stools, a small and frequent pulse, and erysipelas of the left leg, which had for its starting-point an excoriation of the skin. On the fifth, two epileptic attacks occurred, and she died the next day. At the autopsy it was found that the dura mater was closely adherent to the cranium on the left side. On separating it, there was seen to exist a firm layer of exudation, of a yellowish-white colour, situated between the bone and that membrane, to which it adhered. The internal surface of the cranium was spongy and without polish. The frontal bone was thickened and sinuous on the left side. On the external surface of the right parietal bone there was a depression as large as a five-shilling piece, ill-defined, with osteophyses at its edges. The dura mater adhered to the pia mater at this point, sometimes by cellular tissue with small areolae, sometimes by a callous exudation, and, at three different points, by solid, elastic, dry, and yellow masses, which penetrated between the convolutions from which they were in part inseparable. The medullary substance corresponding to these masses was injected and partially softened. There was no change elsewhere in the nerve-substance, and a small quantity only of serum in the ventricles. There was no cicatrix on the pharynx or velum palati, but a firm, transparent tumefaction on the external surface of the epiglottis, and on its middle

portion a dirty red protuberance which showed, on section, a yellowish and solid deposit, in thickness one line. The aryteno-epiglottidean ligament was slightly oedematous, the larynx healthy. There was a large quantity of fluid in the pleuræ. The lower lobes of the lungs were slightly compressed, and these organs were soft and infiltrated. The heart was small and dotted with red points; there were bloody striae upon the posterior surface of the left ventricle. There was pinkish serum in the peritoneal cavity, and the liver adhered to the diaphragm by means of bands of fibrous tissue. On the surface of that organ were numerous depressions, due to a callous tissue which extended from the serous membrane into the substance of the liver. There were granulations of a ~~character~~ nature, but no gummy deposits. The kidneys were somewhat hypertrophied, the cortical substance was tumefied, and of a yellowish-red colour; on section, this substance was injected and soft. There were adhesions of the genital organs to each other; the Fallopian tubes were distended with a watery fluid, the os uteri was the size of a pin-head. The external genitals were much as normal, and so were the tibiae. During the last few days of the patient's life, it was ascertained that she had belonged to the class of prostitutes, and that she had been in an hospital formerly for a primary ulcer of the posterior commissure, and for secondary symptoms later on.

Case 17.- During a period of several years this patient, a merchant, aged thirty-three years, had been treated for frequent relapses of secondary syphilis of a mild character. Believing himself cured, he married and became the father of a healthy child. In March, he was seized with cephalalgia, nausea, and vomiting, which symptoms were at first intermittent and afterwards continuous. The cephalalgia, bearable when he was at rest, was increased considerably by motion. The vomiting came on specially when the patient got up. There was abnormal acuteness of hearing, the patient starting at the least sound, and photophobia. The appetite was diminished. All the patient's food came back, his abdomen was retracted, he had a slow pulse, his intelligence remained perfect, he had pain when the skull was pressed, but neither convulsions nor paralysis were encountered. The patient gradually became worse, and died on the fifteenth of April, in spite of iodide of potassium and other specially indicated drugs. After death, it was seen that the body was emaciated, the dura mater bloody and tense, the brain firm and turgid, the lateral ventricles distended by a transparent liquid, and the ependyma thickened. The cerebellum adhered to the right side of the base of the skull, and, at the same point, the dura mater and the pia mater were joined together by a solid, transparent exudation, having at its centre an hard and yellowish nucleus. The trochlear nerve traversed the exudation, but its structure was not changed, any more than that of the other nerves. The basilar artery, which was somewhat drawn to the right, was not the seat of any lesion. The brain was healthy. The velum palati was in a normal condition. The lungs were infiltrated; there were adhesions of the pleura on the right side, with red hepatisation, and on the left side congested. There were milky patches on the surface of the heart. The left lobe of the liver was atrophied and shrunken; there existed on its surface several funnel-shaped depressions. On the upper and lower surfaces of the right lobe were found several yellowish and irregular gummy deposits, which penetrated into the substance of the organ. The spleen was soft, the kidneys were injected, but otherwise healthy. The mucous membrane of the stomach was of a greenish-yellow colour, thickened, and a little softened. The

inguinal glands were neither hard nor enlarged, but an indistinct cicatrix was found on the surface of the glans penis.

Case 18.-

A married woman, aged sixty, was presented for treatment on the fifteenth day of December. She was of good constitution and middle height, her skin dry and yellowish, she had cachexia. Pustules of ecthyma, arranged in a circle, and ulcerations, were seen on the skin, in the neighbourhood of the right shoulder. There was an exostosis on the tibia of the same side. This patient, on being questioned regarding her antecedents, admitted that she had had venereal disease. It was observed that her look was strange and stupid and her answers incoherent; moreover, she had not the full use of her limbs, and frequently let objects fall which were in her hands; she could sew with difficulty only, on account of the trembling of the fingers. Under the influence of an antisyphilitic treatment, the various phenomena underwent a very noticeable change for the better; but being worried by certain relatives, on the twenty-eight of December, she fell into a kind of coma, and was seized with convulsive attacks and died three days afterwards. At the post-mortem examination, the pustules of ecthyma were found healed in a great measure. The cranium was intact, and the meninges were healthy; some of the anterior convolutions of the brain appeared firmer than natural and a little atrophied; the hemispheres did not present anything special. The pons Varolii was the seat of a softening which occupied about one-half of its superior and anterior portion; at this point the nerve-substance, less firm than usual, encroached with its injection and colour upon the neighbouring parts; it was traversed by numerous vessels, and was of a reddish tint; the nerves themselves were friable, broken, granular, and very abundant round or oval nuclei were found in their intervals. Everywhere the internal membrane of the ventricles was covered with small prominent points, which gave it the appearance of the tongue of a cat; it was thickened, and contained numerous amyloid corpuscles; and one of the thalami contained these same bodies. A small cylinder, the size of a knitting-needle, was formed by the ependyma in the centre of the cord; it was composed of conjunctive substance and of numerous amyloid corpuscles, some of which turned blue on the addition of tincture of iodine. The medullary bundles were more firm in their upper portion than in the normal state. The cerebral arteries were intact and the trunk of the basilar free. The liver was fatty and had cicatrices upon its surface; the spleen and thyroid body were enlarged; but the other organs were much as usual.

Case 19.-

On the twenty-fourth day of July, this patient, a woman of forty-five years of age, was presented for treatment. She denied having had any syphilitic antecedent, and related that ten years before she had been seized with violent pains in the right side of the body, and more particularly in the right leg. These pains, which appeared to have followed the course of the sciatic and crural nerves, were not continuous; they were sometimes felt during the day, but frequently at night, together with a violent pain at the base of the skull; there was also insomnia. This state of things continued for about five years. During that time the patient was treated by several physicians, who exhausted the remedies usually employed for the cure of neuralgia. One of them applied the cautery to her thighs, the cicatrices of which are still visible, and show her to have been indeed the subject of obstinate

neuralgia. His successor was led to have recourse to the use of the iodide of potassium. The patient had not taken it for more than a week when the pains disappeared, and sleep returned to such an extent that she slept almost continuously, even during the visits of the physician and of strangers. The treatment could not be continued long, so that the patient left it off; but, since then, fresh pains appeared almost every month, which always yielded to the use of the iodide of potassium: the patient says that the very day after she began to take the medicine they vanished. Examined, on the thirty-first of July, the patient was seen to have a dry, scaly skin; difficulty in speaking, dating from the end of January, stupid expression of face, frequent weeping, weakness of memory, but intellect still clear; loss of muscular power on the right side, with difficulty of raising the limbs and carrying out the usual movements with them. Sensibility was intact. She had cephalalgia, insomnia and giddiness, but all the senses were perfect. She was prescribed twenty-two and a half grains of iodide of potassium in the twenty-four hours. On this she was kept for seven days, and the symptoms disappeared in a great measure; copious diarrhoea having supervened, it became necessary to discontinue the use of the remedy. Three weeks after, complete hemiplegia of the left side supervened in a few days. The sphincters were paralysed, and there was almost constant weeping. The patient scarcely answered to questions; at every word which was addressed to her, she began to weep and to utter cries, accompanied by very characteristic contortions, indicative of softening of the brain. She complained of intense pain with nocturnal exacerbations, localised at the back of the head, on the right side; she had insomnia, vertigo, and debility. Lying almost continuously upon her back, without strength and without will, she presented all the symptoms of an advanced cachexia. On the eight of September, the attempt was made to administer the syrup of the iodide of iron, and under the influence of this medicine, continued for five days, the diarrhoea ceased and the patient felt better in every way. On the fifteenth of September, the iodide of potassium was resumed, to the extent of fifteen grains daily; some days later, the dose was increased to twenty-two grains and a half, then to thirty-five and forty-five, with the addition of a little morphia. The patient bore this treatment, the appetite returned, and there was a speedy disappearance of the paralytic symptoms. On the twenty-third day of the same month, she could raise her arm to her head and move the leg more readily; the tendency to weep no longer existed; the pain in the head, the insomnia, and the vertigo had almost entirely disappeared; and during the following days the improvement continued. The iodide of potassium was, on the first of October, given to the extent of fifteen grains daily, and on the tenth, it was suppressed altogether. At that period, the patient still suffered from general weakness, a little more marked on the left side; nevertheless, she could get up and walk about the room, but not, however, without some falls. Some days after, there was loss of consciousness. About the eighth of October, she again complained of pain in the occiput, giddiness, and insomnia; the tendency to cry reappeared. On the twentieth, iodide of potassium was again given to the extent of fifteen grains. On the thirtieth, there was a decided improvement. The treatment was not continued beyond the month of December, and the weakness in the limbs and the headache soon returned. The muscular weakness increased, chiefly in the lower extremities, which became almost completely paralysed; the stools and urine were passed involuntarily; sensibility became lessened, the least movement provoking laughing or tears; she had frequent

headache; her memory was in great measure lost, and she spoke with difficulty. She was able, however, to recognise those about her up to the time of her death. The cachexia became more and more marked; the skin was yellowish and earthy-looking; there supervened oedema and profuse diarrhoea which, together with the debilitation, contributed to her death, which took place on the eighteenth day of September. Thirty-six hours after death the body was examined. The walls of the abdomen and part of the trunk were of a greenish colour; there was no rigor mortis. The lower extremities were very oedematous; there was no trace of cicatrices upon the body, but upon the nails were seen prominent longitudinal furrows. The hair was abundant, and the hairy scalp easily separated; the commissure of the lips was drawn slightly to one side; the bones of the cranium were hypertrophied, their thickness being more than doubled; they split under the hammer, but only on the application of considerable force. A limpid and abundant serum escaped as soon as the cranium was removed; the veins of the meninges were dilated and gorged with black blood. Some milky patches of slight extent were observed on the surface of the arachnoid on the left side; the dura mater on the right side was dotted with blood and lined to a small extent with a very thin and transparent membranous exudation. The cerebral substance was everywhere softer than natural, the cortical substance somewhat yellowish. The lateral ventricles were dilated and contained a turbid fluid; this same fluid was met with again in the fifth ventricle. The fourth ventricle was comparatively less dilated than the preceding; there were no granulations on the inner surface of this ventricle, but a yellowish plastic deposit near the fissure of Bichat (the cleft which separates the cerebrum from the cerebellum), behind the pineal gland; there was adhesion of the lympha to the isthmus of the encephalon. The gray substance of the brain appeared intact, except as regards colour. The brain was cut into thin slices horizontally; and there were seen in the white substance, particularly at a short distance from the gray substance, yellowish spots, or rather masses, of about three-quarters of an inch in extent, formed of numerous granulations mostly fatty, of nuclei and granular cells, and of an amorphous and granular matter; these masses were equally distributed in both hemispheres of the brain. On the surface of the right corpus striatum was a yellow patch, about one and a half inches in extent across, slightly prominent; the brain substance, softened in this neighbourhood, formed a yellowish-white pulpy mass. On cutting through the corpus striatum and optic thalamus of the same side, a greenish-yellow tint was observed in places. The corpus striatum of the opposite side was the seat of a mass of less extent than that of the yellow masses, but, like the latter, formed almost exclusively of molar and fatty granulations and also of granular globules; nowhere did any trace of haematin exist. In several parts of both the gray and white substance were seen collections of fatty granules. These were most numerous in the course of the vessels. Some of the convolutions of the cerebellum were of a yellow colour and somewhat soft. The pituitary body was large, firm, and yellowish; there was no change at the origins of the cranial nerves. There was abundance of serum in the vertebral canal; and there were hyperostoses found on some of the lumbar vertebrae. The spinal cord was not examined. In the pleurae was found some turbid fluid; there were membranous adhesions between the lungs and thoracic parietes. The apices were healthy; some lobules in the anterior part of the base of the right lung were indurated, and the corresponding bronchi were dilated. Some fibrous and

plastic tissue could be distinguished in this locality. The heart was soft and flabby. The liver was small and slightly granular on its surface; there were some milky patches in the vicinity of Glisson's capsule, and multiple cicatricial furrows on the surface of the organ. Few in number on the right lobe, except towards its lower edge, the cicatrices were much more abundant on the lesser lobe, and especially in the neighbourhood of the suspensory ligament; they ran in a horizontal or vertical direction, and formed furrows of greater or less depth, the edges of which were slightly united by means of cellular bands. The parenchyma of the liver was slightly resistant when cut into, and creaked under the knife; the fibrous tissue appeared to be more abundant than normal in it; fatty granulations were seen in a large number of the hepatic cells. The spleen also creaked under the knife; it was enlarged, firm, and resistant. The prevertebral glands were for the most part increased in volume; on section they presented a whitish colour and medullary consistence. There was found hypertrophy of the thyroid body. The kidneys were enlarged; the fibrous covering was opaque and difficult to remove. The external surface of the organ was granular, or rather studded with a large number of small depressions, which rendered it very uneven. On section, the cortical substance presented a marked yellowish tint; the tubular portion was brownish. Some of the Malpighian corpuscles were enlarged, others smaller and circumscribed by a web of thickened conjunctive tissue; in the interior of the canaliculi existed destroyed epithelial cells and numerous granulations. The mucous membrane of the bladder was brownish and thickened; the Fallopian tubes were adherent to the uterus. The ovaries were atrophied and fibrous; their covering was whitish, thickened, and resistant to the touch. There was nothing abnormal observed in connection with the stomach and intestines; nor in the veins of the extremities, the cerebral sinuses, and the pulmonary artery. The aorta was the seat of some yellow patches in the neighbourhood of its upper curvature; the left internal carotid artery was partly obliterated near the cavernous sinus, by a membrane which terminated in a point and adhered closely to the wall of that vessel. This membrane, which was formed of nuclei and cells of conjunctive tissue more or less changed, presented at some points a rusty colour, due to the presence of numerous grains of haematin and crystals of haematoidin. The walls of the artery were not atheromatous at this point. In the right carotid was a coagulum which, adherent at both ends, obstructed only a small part of the calibre of the vessel. Fibrine, nuclei, and cells of conjunctive tissue made up its structure.

Case 20.- A woman of healthy appearance sought medical advice for neuralgic attacks and baldness. This woman, who believed that her husband had had syphilis, did not pretend that she herself was quite free from any symptoms connected with that disease. She had had four children, of whom one died at seven, another at three, and a third at two years of age; she had had four miscarriages, three at seven months and a half, and the fourth at two months. The only child left was ~~three~~ ^{two} years old, and did not look more than six or eight at most. His head was extremely small, and already the bones of the cranium appeared firmly united. This child walked when led, and was almost completely deprived of intelligence and memory. He did not speak, and it was with difficulty that he could be made to count aloud. He could not put out his tongue, although that organ was as mobile as usual. He was obstinate, had

contracted habits of masturbation, and from two years of age had had epileptiform attacks. The organs of sight and hearing were intact, the nose rather large and flattened. The two first incisors were notched and studded with depressions, the two other incisors and canines scarcely protruded from their sockets. There was true arrest of the development of the teeth. A fistulous opening and necrosis, of several months' standing, could be seen on the upper part of the tibia.

Case 21.— This patient had lost her father from disease of the chest, and her mother from cancer of the stomach, and appeared for treatment in the month of March. She was now twenty-five years of age, and had been healthy until her marriage at sixteen; she perceived, about a month afterwards, some pimples upon the genital organs, which were followed in due course by roseola and angina, for which she took the usual remedies. She had a miscarriage at six months. A second pregnancy took place, and she was delivered at nine months of a child now living. This child, which was very thin when born, could not be suckled by its mother. It does not appear to have presented, during the first years of its life, any cutaneous eruption. Later on, it had measles and a hard tumour in the neck, which terminated in suppuration. At present ten years old, he has for two years had kerato-conjunctivitis, which very notably interferes with vision. The cornea is opaque at several points and also ulcerated. The eyelids, glued together at both angles, leave an opening which permits of seeing, at most, the field of the cornea. The incisor teeth are bicuspid, large and short, with transverse striae. The head is small, the child is irascible, and his general development very incomplete. The mother became pregnant a third time, and was delivered of a female child at seven months and a half. Now nine years old and healthy, she has the teeth bifid and separated, and the nose flattened at its base. There have been three fresh pregnancies since then, of which two were at the full term. The children died in two days. The third pregnancy terminated at six months. In spite of treatment, syphilitic tubercles showed themselves in the mother in the course of the last pregnancy.

Case 22.— A nursing mother, free from all venereal disease, was suckling a healthy child, when she had connection with her husband, who had contracted syphilis a month before. Six weeks later, confluent spots appeared upon the body of the child, and the same spots upon the body of the mother, accompanied also, in her case, by headache. The nipples and mouth were healthy; the child had neither enlarged glands, sores, nor cicatrices. The mother entrusted her child to a young, fresh-looking nurse, who lost her hair and was covered with pimples on the arms and hands. But the nipple, which was submitted to careful examination, did not present any lesion. Two months later, this nurse was sent away, and, fifteen or twenty days later, the child had six moist papules about the anus, which were found to be mucous patches; it had, further, spots upon the body, but no glandular enlargements in the groins or neck, and no ulceration or cicatrix of the mouth.

Case 23.— A woman contracted an ulcerated chancre on the breast from having suckled her neighbour's child, which had syphilitic lesions of the mouth. This woman continued to suckle her own child under these circumstances. In the latter was observed, a little to the right of the tip of the tongue,

an opaline papule scarcely raised at all, which rapidly increased in size and formed, at the end of four days, a small patch of the size of a lentil, harder than the tissue of the tongue, painless, with corresponding swelling of two submaxillary glands. During its existence the papule never became ulcerated; and there finally remained a small livid spot.

Case 24.- A woman contracted syphilis from her child, which had been suckled four or five times by a neighbour affected with ulceration of the nipple from having nursed another infant. Three weeks after, this neighbour presented two ulcers at the angles of the lips, and a purulent sanguineous discharge from the nose; also ulcerated mucous papules in the fold of the neck, and upon the buttocks. These symptoms still existed when the child came with its mother for treatment. The latter was not then infected; the breasts, axillae, and vulva were all healthy. She continued to suckle her child. Four days after being seen, she presented at the outer side of the areola of the left breast, a reddish spot slightly elevated, of the size of a lentil, dry, painless, and without induration. On the following days, this spot became gradually raised, and was accompanied by induration of four corresponding axillary glands. Sixteen days after the first manifestation of the papule on the breast, her child was cured of the lesions of the mouth, and the papule itself was beginning to throw off its crust. Under the detached scales of the epidermis was seen a prominence of the size of a small pea, soft red, and free from ulceration. After cauterisation with nitrate of silver, this small swelling disappeared.

Case 25.- Under circumstances very similar to those of the preceding case, a young woman, aged twenty-five, saw appear on the outer part of the areola a small red spot, such as is observed in measles. In five days, this spot increased to double the size, and began to be raised; some of the glands in the corresponding axilla then became affected, and soon presented all the phenomena of ordinary bubo. The mammary papule soon attained the size of a lentil, and assumed a dark-red colour, but it always remained dry and perfectly intact. Papular syphilides and other secondary symptoms supervened in the usual way; and the ordinary antisyphilitic medication had the expected remedial effect.

Case 26.- Boy age 14, who had just left school was brought to my out patient department on the 21st. of October 1905; suffering from a raised infiltration of the skin of the right cheek of a copper-red colour. This infiltration occurred in nodules-feeling soft to the touch, some of which were isolated, whilst others had coalesced together, forming one large pustule. The boy presented the usual signs of Inherited Syphilis, for instance:-

- 1st. The central Incisors were notched and narrowed.
- 2nd. The lateral Incisors similar.
- 3rd. Bridge of nose depressed.
- 4th. History of snuffles and cutaneous eruption.

The chief point of interest in this case was its marked resemblance to Lupus Vulgaris, in fact the local signs, were quite inefficient to allow one to make a diagnosis. The diagnosis was first based on the other signs of Congenital or Hereditary Syphilis and finally completed on the effective action of Mercury and Iodide of Potash.

In order to abbreviate my description of its chief characteristics, I shall tabulate its points of resemblance to Lupus and where it differed from a Syphilitic Infiltration:-

Under a specific or general name, while at present, which is a general name, which is a general name.	Aspecified case.	Lupus Vulgaris	Syphilitic Lupus.
1st. Age of first occurrence.	When the boy was eleven years of age.	Usually in childhood or under 20 years of age.	Adult life.
2nd. Region affected.	Right Cheek.	Especially the cheeks and nose - those parts most exposed to the air.	May occur on any part of the body.
3rd. Multiplicity.	occured in one patch.	generally occurs in one or two patches.	More tendency to be multiple and widely scattered.
4th. Form and colour.	The patch consisted of small nodules, which were soft to the touch and of copper-red colour.	The Lupus patch consists of small nodules of a pinkish colour.	The infiltration is far more extensive and of coppery hue.
5th. Progress.	Seems to have extended rapidly.	very slowly destructive.	Extends very rapidly and when once cured does not readily relapse.
6th. Scars left.	Shows a tendency to be of a Keloid nature, with its clawlike processes.	Thick and congested, liable to necerate afresh.	Supple white and thin.
Other symptoms, History etc.	Unable to obtain any definite history; but other signs of congenital Syphilis were ample.	Often history of Phthisis in family.	Other signs of Syphilis.

Under a specific treatment this case showed immediate signs of improvement, marked cicatrisations occurred in the centre of the patch, whilst the margins (for a time) had a tendency to spread in a serpiginous manner, which is characteristic of Syphilitic infiltration. This marked infiltration which was undoubtedly of a gummatous nature, brings back to one's memory the old theory brought forward by Leloir's, that scrofulous tuberculosis and Syphilis may be combined in the same lesion.

This special case was treated as follows:-

The pustules were opened, scraped and finally cauterised, the small cavities thus produced were daily covered over with Iodoform on a piece of Lint, and \mathcal{R} . 10 grains of Potassium Iodide thrice daily.

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