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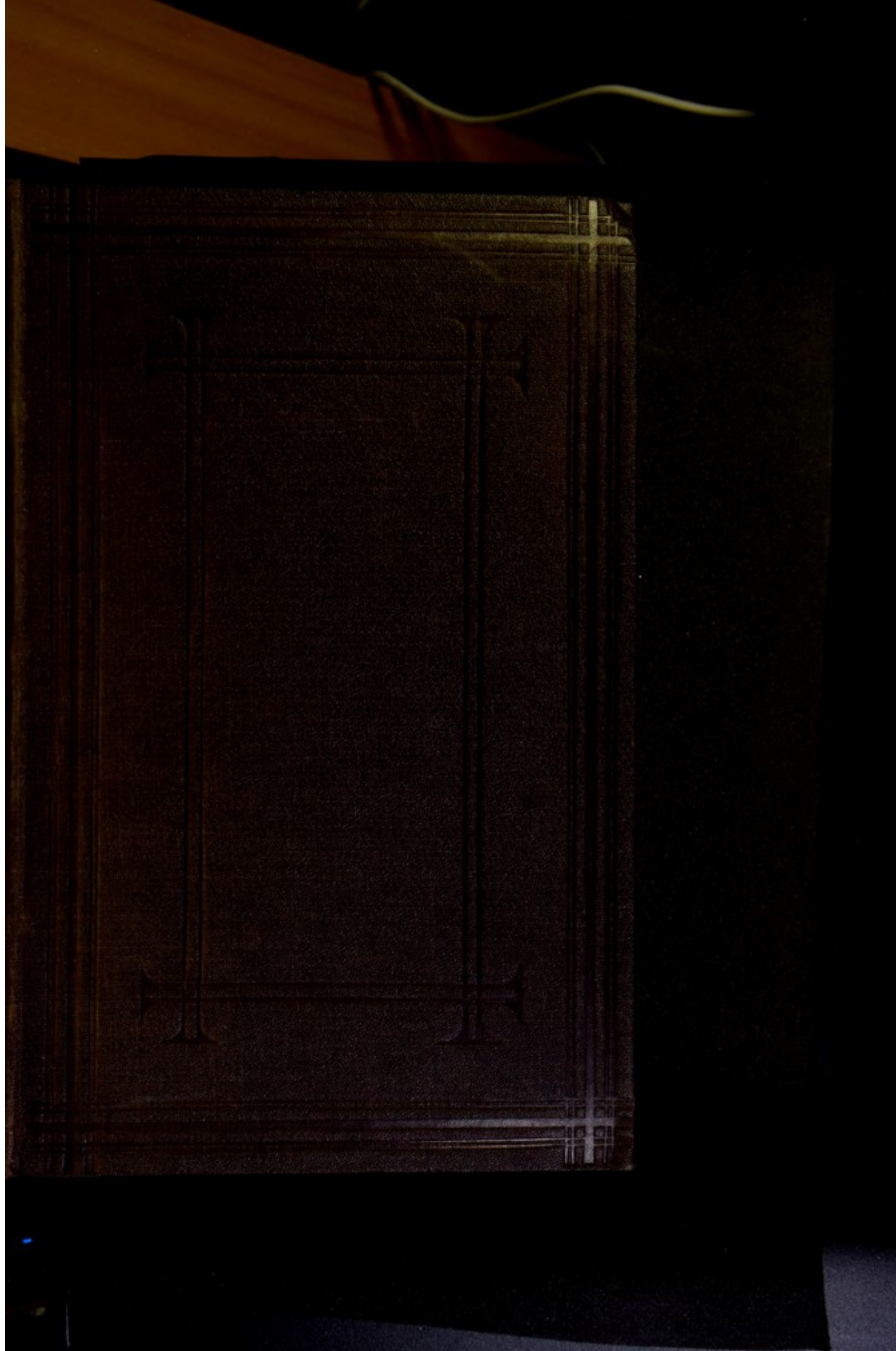
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SYPHILIS

AND

LOCAL CONTAGIOUS DISORDERS.

BY

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TO

SIR WILLIAM JENNER, BART., M.D., D.C.L., F.R.S.,

I Dedicate this Book.

HOW MUCH I OWE TO HIS TEACHING I CANNOT ESTIMATE,

BUT THE EXAMPLE HE HAS SET ME OF PURITY OF PURPOSE AND OF
UNFLAGGING INDUSTRY

HAS ENCOURAGED ME TO PERSEVERE AGAINST DIFFICULTY
AND DISAPPOINTMENT ;

WHILE THE ENJOYMENT OF HIS FRIENDSHIP HAS BEEN FOR TWELVE YEARS
A SOURCE OF THE HIGHEST HAPPINESS TO ME.

BERKELEY HILL.



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PREFACE.

I HAVE attempted to arrange in a systematic description of Venereal Diseases, the large contributions which recent research has brought to our knowledge. In doing so I have striven to render the work complete, while keeping it concise and suitable for the student as well as the practitioner.

As the Syphilitic virus is not now supposed to be the cause of all venereal sores, the local contagious ulcer, or chancre, is treated in a separate division of the book.

Syphilis is a constitutional disorder from the first: the effects of the virus may penetrate every organ of the body while the disease is in progress, and continue perceptible until the poison grows inert or languishes in some local sequela. Not long ago it was impossible to describe the whole course of Syphilis, for it is only recently that we have been able to assign to their true origin the numerous lesions which are now recognised as common sequences of the disease.

To each chapter, where the amount of detail in the description requires repetition, a summary has been added to aid the beginner in fixing the important points in his memory.

A distinct chapter has been reserved for the Treatment of Syphilis; this includes, besides the therapeutic directions, a sketch of the sanitary restrictions, or preventive treatment.

In conclusion, I must express my sincere thanks to Mr. Ernest Hart, for revising the chapter on the Affections of the Eye, and to Dr. Morell Mackenzie for doing the same to that on Affections of the Larynx.

BERKELEY HILL.

14, WEYMOUTH STREET, PORTLAND PLACE,

October, 1868.

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ERRATA.

Page 93, foot note, *transpose* q and p in "symptomati

ues."

Page 132, line 12, *for* "are" *read* "is." Also, line 15, the sentence beginning "The size," &c., is wrongly punctuated. It should be as follows :—
 "The size of a syphilitic liver varies much ; when the cirrhosis is widely extended through the organ, the liver is usually much contracted ; Frerichs mentions one no larger than a man's fist. But when amyloid," &c.

Page 165, line 10 from foot, *for* "only" *read* "chiefly."

Page 232, line 9, *omit* "to or."

Page 266, last line, *for* "1866" *read* "1868."

Page 311, line 9 from foot, *for* "20" *read* "50."

Page 377, line 12, *drop* the s from "membranes."

DIVISION I.

INTRODUCTORY.

CHAPTER I.

HISTORY : Ancient ; Hindoo, Greek, Latin, Chinese—In the Middle Ages, till the 15th century, Epidemic of 1494—Confusion of Syphilis with other Diseases—Immemorial antiquity of Syphilis—Distinction between Venereal Diseases—Unrecognised forms of Syphilis, Yaws, Sibbens, Scherlievo, and others—Geographical Distribution—Summary.

VENEREAL diseases are the contagious disorders propagated from one person to another, generally during sexual intercourse, and exceptionally, by other means of close contact between individuals.

There are three principal complaints—gonorrhœa, chancre, and syphilis. Besides these, some less characteristic affections of the generative organs, depending on excessive or impure sexual intercourse, will receive a notice in these pages.

No question in the history of medicine has been more keenly debated, than the time at which one venereal disease, syphilis, first appeared. The descriptions of these affections left to us by the ancients, are only sufficient to satisfy us that they were familiar with ulcers, and other affections of the genitals, communicated by sexual intercourse, though they make it highly probable that syphilis also was endemic at the time they wrote. In describing the shameful maladies, ancient writers do not distinctly attribute to ulcers

of the pudenda power to produce a sequence of general bodily disease. For this reason, syphilis was believed until recently, to have originated in the Old World about the time it was first methodically described, namely, on Columbus's return from his discovery of the New World, in 1495. The persistence of this belief is mainly due to Astruc, who, in the middle of the eighteenth century, ransacked ancient medical literature for his *History of Syphilis*, in which he endeavoured to prove that a constitutional disease like that we recognise as syphilis, did not exist earlier than 1492-5, when a plague raged throughout Europe, which he believed to be syphilis, reaping its first harvest. But efforts have been made recently to controvert this theory, more especially by Casenave,¹ Follin,² and Lancereaux.³ These writers enter into the question at some length, and adduce not only quotations from the ancient authors to whom Astruc had recourse, but also from others of which he was ignorant, to support their opinion, that syphilis is of great antiquity. They review the various writers of antiquity—medical, historical, poetic, and obscene—who allude to affections of the genital organs. In the latter class, of course, research has been most abundantly rewarded with the discovery of new matter. In order to make as complete a survey as possible, Follin and Lancereaux divide the historical records into three divisions: first, those of antiquity; second, those of the middle ages; and, third, those of the period reaching from the end of the fifteenth century to the present time; divisions that may be usefully retained.

In following this arrangement, we must not expect to find in the few medical books of antiquity a systematic descrip-

¹ *Traité des Maladies de la Peau*. 1843.

² *Pathologie Externe*, tome i. 1862.

³ *Traité Historique et Pratique de la Syphilis*. 1866. Lancereaux's work contains the most complete bibliographical record that has appeared on this subject in any language.

tion of the disease, because the ancients were ignorant of several of its features. But numerous quotations show it was well known that certain local affections were communicated by impure intercourse. They are so clearly described, that they appear identical with what we now know to occur in the outset of syphilis. Other diseases of a constitutional character are also described, such as caries and ulcers of the fauces, which physicians of that epoch attributed to being, in some obscure manner, consequences of intercourse with diseased persons.

It must not be forgotten that syphilis does not always immediately attract the attention of those inoculated to its presence, for the immediate effects, in many instances, quickly heal without any treatment. This character adds difficulty to the task of demonstrating a connection between the later forms of the disease and those of its invasion. Only lately, even, several obstinate affections of the skin, prevailing in different parts of the world, called variously sibbens, yaws, radezyge, &c., have been shown to be simply varieties of syphilis; previously, they were believed to be totally distinct from it, in spite of some attempts by older observers to point out their true nature.

Literature of remote antiquity.—The earliest notice of syphilis, hitherto met with in the literature of India, is in a Sanscrit treatise of medicine, written at the commencement of our era, entitled the “Ayurvedas” of Suçrutas, and translated into Latin by Dr. Hessler,¹ a copy of which is in the British Museum. In the chapter on diseases of the pudenda, Suçrutas describes, as consequences thereof, certain cutaneous affections, ulcers, ophthalmia, eruptions of the sole and palm, pustules of the scalp, swellings of the groin and

¹ Suçrutas, Ayurvedas, id est medicinæ systema venerabili Dhanvantare demonstratum, a Suçrutas discipulo compositum. Nunc primum ex sanscrito in latinum sermonem vertit Fr. Hessler. Erlangen, 1844—1850.

armpit, &c. (Vol. I., ch. xiii. p. 196). Elsewhere he says that buboes should be allowed to open themselves; also, that sloughy parts of the penis should be removed with the knife, and the wounds anointed with oil. Follin appears inclined to accept this description of venereal disease in the "Ayurvedas," as quite satisfactory that the Hindoos understood the connection between general syphilis and local disease. From my examination of the "Ayurvedas," it seems to me that the writer attributed the affections he describes, as much to the consequence of dirty habits as to any special poison transmitted from patient to patient; and the picture of the consequences of venereal taint is not a very close description of ordinary syphilis. Hence, though this evidence must not be altogether rejected, it is hardly conclusive.

Hippocrates mentions various affections which correspond to those belonging to constitutional syphilis, but does so without distinctly ascribing to them a venereal origin. The Greek and Latin physicians whose works remain to us, also describe with more or less exactness the local ulcerations of the genital organs. Celsus, in chap. xviii. of lib. vi., describes phimosis, and the ulcers one often finds on turning back the foreskin, which he even separates into the clear dry ulcer, and the moist suppurating one. He also observes that some ulcers spread deeply and widely; but the evidence of Celsus might be more distinct on this point. It is not plain he was not describing cancers, and ordinary ulcers of the genitals. Aretæus mentions, without giving it a venereal origin, sloughing of the uvula and soft palate, &c. In Galen, the two following constitutional affections are mentioned, psoriasis scroti, and periosteal pain of so deep and fixed a kind, that the patient believed the disease was in the interior of the bone. This, even in Galen's day, had received the name of osteoscopic pain. Oribasis de-

scribes two moist and dry ulcers of the pudenda and anus. Aetius also ascribes to aloes, used as a local application, the virtue of healing sluggish ulcers, fissures, and carbuncles of the anus and pudenda. Lastly, Marcellus Empiricus speaks of ulcers of the tibia, which eat their way inwards. These quotations, which have been collected by Casenave, Follin, and others writing more recently still, are held by them to be sufficient proof that the ancients were familiar with contagious ulcers of the genitals, and that there were in their time two species of sore, the dry and the moist, which correspond to our infecting and non-infecting chancres. Be this as it may, there can be no doubt that those who contracted venereal ulcers were also sometimes sufferers from other bodily ailments, closely resembling the syphilitic eruptions of the present day.

The satiric or erotic poems furnish abundant allusion to, and even descriptions of, venereal diseases, not only of the genitals, but of the mouth, face, groin, &c. In the poems of Martial, Juvenal, and the *Priapeia*, mention is made, also, of these constitutional diseases being communicated by kissing as well as by sexual intercourse.

The various myths relating to the introduction of the worship of the god Lingam from India, and of Priapus into Greece, are important proofs of the ancients being thoroughly aware that sexual intercourse with infected persons communicated the disease to those so indulging. It is recounted in the Myth of Lingam that this scourge, originating in Civa, was propagated thenceforth by transmission from women to men.

The sacred writings of the Bible contain no trustworthy account of venereal diseases. They merely furnish a few allusions to venereal affections of uncertain character.

Klein, in a Latin treatise on the mode of treatment practised in India for the cure of the venereal disease,

written in 1795, states that Malabar physicians, who wrote about the tenth century, describe in their books, not only the disease Syphilis, but also its cure by mercury.

The amount of knowledge of venereal disease thus proved to have existed among the Hindoos, Greeks, Alexandrians, and Romans, may be fairly held to equal that possessed by them of other diseases that are still extant, of which the existence at that period is denied by no one.

The ancient medical literature of China is expected to furnish convincing proof of the antiquity of syphilis, but, as yet, indisputable evidence has not been obtained thence. Recently, le Capitaine Dabry¹ has published a work on Chinese Medicine, consisting chiefly of translations of their medical treatises. Verneuil has written an excellent digest of this translation, for the "Archives Gén. de Médecine, 1863," vol. ii. p. 625, whence my information is derived.

According to Dabry, the Emperor Ho-Ang-Ti, who reigned 2637 years B.C., caused the medical writings of that day to be collected into a systematic treatise, which still exists, and has been amended from time to time, but it does not appear from Dabry's book whether an original edition still exists; his intention is rather to give an account of the present condition of Chinese medical knowledge than to trace the antiquity of their doctrines. Notwithstanding these emendations, little change seems to have taken place until quite recently, in their knowledge of disease for 2000 years. Therefore, it is probable that the very complete description of venereal disease in this book has at least that much antiquity.

Gonorrhœa was distinctly described by Ho-Ang-Ti himself 4500 years ago; and the later editions contain clear accounts of chancre, phimosis, bubo, ulcers of the tonsil,

¹ La Médecine chez les Chinois, par le Capitaine Dabry, Consul de France, &c., 8vo. Henri Plon, Paris, 1863.

sores around the anus, coppery eruptions of the skin, ulcers of the nose, and the cure of them by mercury. Even remedies for mercuric ptyalism are not omitted. Such evidence is very strongly in favour of the great antiquity of syphilis. Still, in consequence of Dabry not being aware of the importance his account of Chinese medicine would have in settling the question, he does not expressly state how early this precise knowledge of constitutional syphilis was possessed in China. Further researches will no doubt set this point at rest.

Syphilis in the Middle Ages.—Little of the medical literature of this period remains. Daremberg¹ quotes a manuscript of the ninth century, now in the Imperial Library at Paris, which contains a very complete enumeration of ulcers, fissures, warts, and condylomata, of the anus; these affections, it further says, may also spread to or affect the genitals. In the thirteenth century, Richard the Salernitan, called by a host of names besides, in a "parvus micrologus," says that the penis and testicles often ulcerate from contact with the foul inflammatory humours secreted during menstruation. These ulcers, he remarks, are distinguished from others by their colour, by pustules of the skin, by the discharge, and by their itching, pricking, and heat. William of Saliceto also speaks of ulcers and fissures, which attack the penis after intercourse with a foul woman, or a prostitute. In mentioning buboes, he describes the acute and indolent swellings of the groin, and says they are named "bubones," or "dragoncelli," and come when the penis is corrupted through coitus with a filthy infected woman, or from any other cause. Clerc² thinks this only shows that the ulcers, &c., of the penis were not specific, but the consequence of common irritation.

¹ *Annales de la Syphilis*, vol. iv., p. 275.

² *Traité des Maladies Vénériennes*. Paris, 1866. Premier fascicule, p. 256.

Lanfranco of Milan (1295) even separates ulcers which attack the penis into three varieties, calling them ficus, cancer, and simple ulcers. Ficus was the old Roman name for pox. Lanfranco expressly states that these ulcers came from contagion as well as from other sources. He further speaks of ulcers that thicken the foreskin. This anecdote goes to show that syphilis existed in the thirteenth century; Bernard Gordon, who taught at Montpellier in the latter end of the thirteenth century, mentions a certain countess, suffering with lepra, whose couch a bachelor of medicine was accustomed to share. The lady became pregnant, and the student leprous. Others besides Gordon mention the contagious character of this kind of leprosy, which, it is reasonable to suppose, they confounded with syphilis. Michael Scotus and John of Gaddesden also distinctly state that scaly eruptions of the body and ulcers of the genitals result from intercourse with leprous women.

Thus it would appear that from the earliest time many of the affections have existed which at the present day are universally attributed to syphilis. The characters of some are those most distinctive of the disease,—the indolent bubo, the painful ulcers of the bones, the dry ulcer, the scaly eruptions of the body, especially of the sole and palms. Besides, in the tenth century Indian physicians used mercury to cure a disease of venereal origin. This evidence being written a hundred years earlier than the outbreak of the plague in 1490-6, proves that not to have been the first appearance of syphilis in Europe, and goes far to establish its immemorial antiquity.

Syphilis at the end of the Fifteenth Century.—With respect to the hypothesis, that Columbus's seamen brought syphilis into Europe from America, there is no doubt that an epidemic of some kind raged in many countries of Europe about the time of the discovery of America; but there is no

doubt, also, that this plague reached its height in several countries before Columbus returned. Writers contemporary with the pestilence of 1494, speak of one very similar to it having raged in Spain and Germany in 1457, or thirty-five years earlier than Columbus's voyage. The later epidemic, nevertheless, was cutting down hundreds in Naples in 1494, though Columbus's crews did not reach Naples till 1495. In 1496 the parliament of Paris enacted measures to be taken against "the spread of a disease called the 'Grosse Verole,' which has been raging during two years in this kingdom." Hence, even if the pestilence of 1457 was not the same disease as that which spread over Europe forty years later, this second pestilence had extended through Germany, France, and other countries in 1493-4, and before Columbus returned.

Fracastor,¹ a Veronese, the author of the Latin poem, "Syphilis," wrote, in 1555, a "Lucubration concerning the French Disease," taken from his second book on contagious diseases; and his description of the epidemic which spread among the soldiers during the siege of Naples in 1494, shows that it was most probably syphilis. According to Fracastor it was contagious; frequently communicated during sexual intercourse, but inherited by children from their parents. The first symptoms were fretting and chafing of the pudenda, where hard ulcers formed; then came scabs in the skin, some dry and hard, others moist; ulcers of the throat, nocturnal pains in the bones, and further consequences of syphilis succeeded.

Follin, on the other hand, is satisfied that the epidemic of 1494 raged over Europe before Columbus's return from America, and hence is no proof that he imported syphilis. Thinking it also tolerably well established that syphilis has existed from time immemorial, he believes it to be very

¹ Turner's Extract of the Aphrodisiacus, p. 35. 1736.

unlikely that this disease, having such distinct characters should suddenly assume new and epidemic virulence. He therefore, suggests that the plague of 1490-6 was not syphilis at all, but a malignant typhus, complicated with sloughing of the nates, genitals, and extremities, as occurs even at the present day in severe forms of typhus.

If this plague really was syphilis, it must, when becoming again endemic, have quickly laid aside the symptoms and consequences it possessed while epidemic, for writers of the beginning of the sixteenth century describe the disease in characters pretty much the same as those it has retained without alteration ever since it has been accurately described at all. When syphilis appears in a district where previously unknown, it is said to assume a quasi-epidemic form. The outbreak in the sub-Appennine valley of Rivalta in 1860 has been given as an instance of this kind, besides others of more remote date. The only epidemic characters on this occasion were, its rapid spread among the inhabitants, and the very general appearance of a pustular eruption. But the prostration with fever, the extensive gangrene, and the high mortality both among adults and young children, caused by the plague of 1494, were completely absent in the epidemic of Rivalta.

Again, when syphilis was introduced into the Society Islands, it spread with great severity, and became so general as to threaten the population with extermination. Still, it did not become a virulent plague, but was marked by the same characteristics and by the same mode of propagation it has in Europe at the present day. Luckily for the Islanders, its ravages are now so far subdued by the preventive measures the French have instituted, that according to Mr. Sloggett, Staff Surgeon, R.N., the children are rapidly increasing in

¹ Evidence given before the Committee on Contagious Diseases in the Army and Navy, 17th Feb. 1865. Q. 1516.

number, and are generally free from syphilis, though among the adult population the traces of its attack are still very evident. Mr. Sloggett also describes the state of the Sandwich Islanders, where no means for preventing its spread are in force. There the disease is very general throughout the population, but completely retains the characters which distinguish it in Europe.

This summary of the arguments to prove the immemorial antiquity of syphilis does not put the matter absolutely beyond dispute; but they enable us, while awaiting further evidence, to believe it highly improbable that syphilis originated at a period so recent as the fifteenth century. It seems more likely that if syphilis was really a new disease in Europe in 1494-6, it was introduced from India, or some Eastern country, where there is little doubt of it being an old-established affection. When the literature of India and China is more fully opened to us, there will be discovered, let us hope, indisputable evidence to decide this point.

Several treatises of the sixteenth century give a correct description of syphilis, and clearly define the nature of the disease. Fernel says, in 1545, "The cause of the pox is a hidden contagious quality contained in an essence which serves for its vehicle and permeates the whole body." In the sixteenth century, Fallopius, and in the seventeenth Thierry de Hery, described the aspect of syphilitic eruptions of the skin and the indurated ulcer with accuracy.

Authors contemporary with these writers unluckily confused syphilis with other causes of ulcer of the genitals. Bassereau¹ quotes Georges Villa, who wrote at the beginning of the sixteenth century, and was the first to attribute all ulcers of the genitals to one virus. This theory was

¹ Bassereau : *Affections de la Peau Symptomatiques de la Syphilis*, pp. 239, 240. Paris, 1852.

further established by Nicholas Massa in 1532. Notwithstanding their errors, contemporary writers were aware of the local character of the sores which excited suppurating buboes, and their independence of the morbus gallicus or syphilis. Massa's view was gradually adopted by succeeding writers till the beginning of this century. Thus the belief in the unity of the virus of venereal affections was a work of time and repetition.

The independence of the local chancre from syphilis was in 1783 again suggested in Hensler's¹ "History of the Venereal Plague, which broke out in Europe at the end of the fifteenth century." In this work, Hensler has collected extracts which clearly prove that local venereal ulcers, and urethral fluxes, were perfectly familiar to medical writers before the end of the fifteenth century; he also remarks that mercury is not necessary for the cure of non-syphilitic venereal diseases.

John Abernethy² has often been credited with distinguishing between non-syphilitic venereal sores and syphilis because in his "Essay on Diseases resembling Syphilis," he reserves the term syphilis for cases where the disease begins with a hard elevated ulcer, and is sufficiently obstinate to need mercury for its cure. Observation showed him that the venereal disease, when left alone, would often recover without treatment. Sometimes this took place even when the sore was accompanied by well-marked syphilitic eruptions. He gives an example at page 10 of the Essay:—"A man had intercourse with his friend's mistress, and a few days afterwards found several ulcers on his penis, for which Abernethy urged him to take mercury to prevent constitutional disease. The patient objected, because both the

¹ Geschichte der Lustseuche, die zu Ende des XVten Jahrhunderts in Europa ausbrach. Altona, 1783. See also Clerc, loc. cit., p. 247.

² Abernethy's Surgical Works, vol. i. 1811.

friend and the mistress were healthy. In course of time the ulcers healed, and nothing more came of his sores. The patient yielded to temptation a second and even a third time, with a like result on each occasion. This, Abernethy supposed not to be a case of syphilitic contagion, because mercury was not necessary for its cure; but unfortunately for his reputation as a discoverer, Abernethy included cases of undoubted syphilis in the list of pseudo-syphilitic affections, because they recovered without mercury, and when left to themselves.

Though not staying to enumerate many other authors who wrote on venereal diseases in the eighteenth century, we must not omit John Hunter. In 1786 he published his celebrated "*Treatise on the Venereal Disease*," a work so far surpassing its contemporaries, that it has scarcely ceased to be a text-book. It contains proofs of the truth of many doctrines at that time undreamed of in syphilitic pathology. Of these may be mentioned; contagion from secondary infection, and the incubation period of the syphilitic poison. Though these facts were not recognised by Hunter himself,¹ they can be easily discovered in his accurate descriptions of the course of the disease.

After Hunter, B. Bell increased our knowledge by separating gonorrhoea from syphilis and chancre.

In the present century Rose, Hennen, and other English writers, pointed out that the majority of venereal ulcers heal by simple non-mercurial treatment, and are not followed by any general eruption, without, so far as can be learned from their writings, indicating that such local affections have a separate origin from syphilis.

In 1814, Carmichael, perceiving that general disease did not always follow contagious ulcers, subdivided venereal affections into four chief classes, each of which had a dis-

¹ Palmer's edition, vol ii., pp. 471 and 475. 1835.

tingent excitant poison, a peculiar primary manifestation, and a separate series of constitutional affections. Further, while attributing the different series of symptoms to particular kinds of venereal ulcers, he decided that many were not syphilitic, because their primitive ulcers were not the Hunterian chancre. His doctrines, which were completely refuted by Bassereau's careful observations published in 1852, are somewhat like those supported by Diday in his "Histoire Naturelle et Thérapeutique de la Syphilis," published in the "Gazette Hebdomadaire," June 21, 1861.

During this long period many theories of the nature of this disease have been set up at different epochs—theories of most various and contradictory kind, among the most paradoxical of which, was, perhaps, that of Broussais and his school, who maintained, during the early part of the present century, that what is called syphilis is an artificial collection of a number of distinct diseases, there being no such thing as a syphilitic poison. This doctrine was, for a short time, supported in this country, and lately has been again advocated without success by a retired army surgeon, Dr. MacLoughlin.

Forms of unrecognised Syphilis called by different names.—Several endemic maladies, limited to certain districts, were, in the seventeenth and eighteenth centuries, supposed to be peculiar affections; but they are now generally believed to be syphilis. Among the difficulties that prevented earlier recognition of these affections as syphilitic, was the absence of suppurating chancres, buboes, and gonorrhœal affections at that time considered parts of syphilis, but which are only accidental complications. Again, these diseases were commonly propagated by kissing, suckling diseased infants, using spoons employed by syphilitic persons, as well as the ordinary one of sexual intercourse. These modes of contagion do not favour the production of suppurati-

ulcers and discharges. Syphilis, like small-pox or measles, when introduced into a new district, spreads rapidly and acquires a somewhat epidemic character. Hence the peculiarity of the disease in the Bay of St. Paul, where it rapidly spread among a fishing population. Some of these affections were localised in secluded districts, and, spreading among individuals of similar habits, acquired special characters, somewhat varying from ordinary syphilis, or they became confounded with other diseases, like the radezyge of Norway, which consists of syphilis and leprosy.

Yaws (frambœsia, pian) is the best known and described of these diseases. It prevailed among the negroes of the coast of Guinea; and by the transport of negroes to the West Indies, it also spread among those islands and through the Southern States of America. Many authors, chiefly English, Dutch, and French, wrote on this disease in the eighteenth century. Sir Hans Sloane describes what he saw in a voyage to Madeira, St. Kitts, and Jamaica. John Hunter,¹ writing "on diseases resembling the lues venerea, which have been mistaken for it," describes a case of yaws that was clearly syphilis, for the very reasons he advances to prove it could not have been that disease. Lancereaux² has made an excellent abstract of the literature on this subject, including, with many others, the essays of James Thomson,³ Paulet,⁴ Rollet,⁵ and Boeck,⁶ on these unrecognised forms of syphilis. Both Thomson and Paulet practised in the West Indies, having medical charge of the negro labourers of different estates. Boeck, at the direction

¹ Hunter's Works, Palmer's edition, vol. ii., p. 471.

² *Traité Historique et Pratique de la Syphilis*, p. 27. Paris, 1866.

³ Thomson: *Edinburgh Med. Surg. Journal*, vol. xv., p. 321, and vol. xviii., p. 32. 1819.

⁴ Paulet: *Archives Générales de la Médecine*. 1843-1849.

⁵ Rollet: *Recherches sur la Syphilis*. 1860.

⁶ Boeck: *Traité de la Radezyge*. 1860.

of the Swedish Government, investigated radezyge among the fishing population of certain parts of Norway and Sweden. Rollet has digested the writings of various authors on these obscure diseases. These investigations show how completely they are identified with syphilis.

The first symptoms of yaws are lassitude, malaise, and even fever; presently little buttons (papules) or pustules follow, which ulcerate under the scab. The papules are scattered over the body, often becoming prominent and vascular, and bleed easily; in this state they resemble the wild raspberry, whence the name frambœsia. Yaws is contagious. Paulet inoculated an infant with the matter of yaws. The punctures healed, and retained the appearance of light scratches for three weeks, then became hard and unequal ulcers. Seven weeks after the inoculation, an eruption broke out on the body which lasted nine months. Children inherit the disease from their parents, and communicate it to those who suckle them. Again, this affection occurs but once, and its most effectual remedy is mercury. There are other points showing its identity with syphilis, such as ulcers of the throat, and pains in the bones. Though both James Thomson and Paulet were aware of the good effect mercury had in this disease, they seldom employed it, as they feared the mischief salivation caused among the negroes. They separated the sick from the healthy, fed and housed them well, and found that the disease often subsided altogether in seven months, though it was sometimes prolonged for two or three years by relapses of various kinds.

Sibbens, or *Sivvens*, was a disease confined to the south-west of Scotland, Dumfriesshire, and Galloway. It was very prevalent through the seventeenth century, and was popularly supposed to have been introduced by the troops of Charles the Second's army in their campaigns. It much resembled

yaws in its eruption, and has long ceased to be distinguished as a separate disease.

Radezyge, which first attracted attention in the eighteenth century, is a variety of syphilis endemic in certain fishing towns of the north of Norway and Sweden. Boeck shows it differs in no way from syphilis, though often confounded with elephantiasis grecorum or leprosy, which is very prevalent in the same district.

Scherlievo.—On the coast of the Adriatic, Dalmatia, and Croatia, where the people are ill-fed, very dirty, and ignorant, syphilis, at the beginning of the present century, again assumed some distinguishing peculiarities which obscured its real nature, and procured it a local name before its true character was discovered.

Mal Anglais, Mal de la Baie de St. Paul.—In the middle of the eighteenth century syphilis invaded the upper part of Canada. Several tribes of Indians, hitherto strangers to the disease, were rapidly and widely infected by it. The sudden increase and extent of the evil diverted men's attention from its real nature, and it was variously described. It spread also among the fishing population of the Bay of St. Paul, whence it has received its various names.

Several other local names have been given to various other outbreaks of the disease, of which Amboyna Button, *Maladie de St. Euphemie*, &c., are examples.

GEOGRAPHICAL DISTRIBUTION.—With one or two exceptions syphilis is met with throughout the world, being most general among communities on the coast, where there is much communication with ships from foreign parts, whose sailors spread the disease among the population. Throughout Europe, especially in all large cities or thickly populated districts, it is rife. Out-of-the-way country places are still almost free from it, but none absolutely so. Iceland is said, notwithstanding the frequent introduction of syphilis

by the sailors of whaling ships, to be very little subject to it. Travellers among savages, mention syphilis to be spread wherever Europeans have reached them, while there is no doubt that it is widely disseminated among the old civilised races of China, India, and Japan.

Data respecting the proportion syphilis bears to general disease, are not easy to obtain; as, even where statistics are procurable, they do not show how much the amount of venereal disease varies if the conditions be only slightly changed. Nevertheless, there is no doubt that a very large proportion of sickness in the human race is occasioned by the ravages of this disease.

SUMMARY.

Venereal diseases are three: chancre, gonorrhœa, and syphilis. The two first have immemorial antiquity, being described in Chinese systems of medicine 4,500 years old; also in Hindoo, Arabic, Greek, and Latin literature. There is much reason for attributing to syphilis an equal remote origin, though the proof is not incontestable. In the middle ages a general eruptive disease called leprosy was often propagated by sexual intercourse with local venereal disorders. This was probably syphilis. In the year 1490-6 a disease spread rapidly through Europe, which was also possibly syphilis. At the time, it was called the "Great Pox," was contagious, and communicated most readily during sexual intercourse. As this disease had extended to several countries of Europe before Columbus's return, there is no foundation for supposing he brought it from America. Six years after this outbreak, its description by Fracastor and others shows that syphilis was then what it is now. About the same time, or in the middle of the sixteenth century, authors began to attribute all venereal disorders to one source, having previously drawn a distinction between syphilis

lis and other venereal disorders. This confusion reigned until the present century, when Benjamin Bell demonstrated the non-identity of gonorrhœa with syphilis; and further researches show that syphilis and local chancre are distinct diseases. Ignorance of this fact, and also of the capability of the secretions of the general eruptions to convey the disease, helped to mislead physicians of the eighteenth century respecting the true nature of various endemic forms of syphilis, namely, yaws in the West Indies, sibbens in Scotland, radezyge in Norway, scherlievo in Dalmatia, and similar affections in other parts of the world.

INTRODUCTORY.

CHAPTER II.

Doctrines of recent Date.—The Unicist Theory, there is one exciting Virus of all forms of Venereal Disease—The Dualist Theory, Gonorrhœa is distinct from Syphilis—Bassereau's Demonstration that the Syphilitic Virus does not cause the suppurating local Ulcer—Clerc's Chancroid Theory untenable—Summary.

Doctrines of recent Date.—If we pass from the opinions of our ancestors to those held by contemporary authorities we find the majority hold syphilis to be a specific disease produced solely by contagion, and never spontaneously; though this hypothesis is even still upheld by some surgeons. Beyond this, there is no general agreement; creeds of every conceivable phase have yet their followers. Happily, but one or two theories are rapidly falling into oblivion.

There may be said to be two main schools of syphilitic writers. The *Unicist theory*, or, the one holding syphilis to commence by a chancre, or a urethral discharge (gonorrhœa or a bubo, or as a constitutional affection without any local or so-called primary manifestation. According to those who hold this doctrine, between the moment of infection and the outbreak of the disease, whatever form that may take, a incubation of the poison, of varying length, occurs. Even if a chancre therefore appears after infection is incurred, and its cauterisation is useless to prevent future disease. The poison of the disease is contained in all the secretions, however late the eruption is in the course of the disease. The blood also is a vehicle of contagion. Devergie, Velpeau and Casenave, more particularly represent this school.

Dualist theory; the opposite school, allows that one virus exists for all forms of syphilis, but it separates from syphilis certain varieties of venereal disease that are included by the unicist school as part of syphilis. This school, far more numerous than the other, and daily adding to its strength, is itself split up into groups of advocates of theories on points respecting the relation of the syphilitic virus to different contagious venereal ulcers. Ricord, Rollet, Cullerier, and others, all belong to this school.

Ricord, nearly thirty years ago, completed Benjamin Bell's proof that gonorrhœa had no connection with syphilis. In 1858 he acknowledged himself convinced by the arguments of his former pupil, Bassereau, that there are two kinds of contagious venereal ulcer: one of necessity a part of general or constitutional syphilis; the other but a local disorder, without any general action on the system.

Bassereau,¹ in seeking the cause of the different results that follow venereal contagion, for several years examined the sources of infection whenever it was possible to trace them. These researches convinced him that bodily temperament, good or bad hygienic condition, age, or sex, the size, situation, multiplicity, and duration of the chancre, have all no influence in determining whether general syphilis does or does not follow contagion. The only ruling condition is this: if the *infected* person has constitutional syphilis, the *infecting* person is similarly affected; and conversely, if the *infected* person escape general disease, the *infecting* person is also free from any but local disorders, incapable of affecting the constitution. The views of Bassereau have received attention in all countries, and are pretty generally adopted.

While admitting the truth of Bassereau's conclusions, it must be observed that at present we do not know the whole of the connection between venereal ulcers and constitutional

¹ Bassereau: *Traité des Affections de la Peau Symptomatiques de la Syphilis*, pp. 197, 198. Paris, 1852.

syphilis. But, when acknowledging this incompleteness, is not necessary to refuse to believe in the essentially distinct nature of the principle exciting local chancres, from that of the virus of general syphilis.

In 1853, and the following years, Clerc of Paris published his hypothesis to explain the different effects of inoculating venereal ulcers. He has also quite recently (1866) in the first part of an excellent treatise on venereal diseases, explained his opinions with the arguments in his favour.

Clerc considers that the principle exciting the local ulcer is a hybrid of the virus of syphilis; he likens it to abortive vaccine, or abortive variola (varioid); and believes that has been generated thus: the pus of a primary syphilitic ulcer when implanted on a healthy person, first passes through dormant incubation, then produces the infecting ulcer, and subsequently the general disease. If the same ulcer be resorted to for a second supply of matter, which is inoculated on a person who has previously suffered from syphilis and recovered, a different result is attained; the matter now makes no delay, but at once irritates the point of introduction to inflammation, producing a vesicle in forty-eight hours, and shortly after, the ulcer known as the soft chancre. The matter of this sore, taken to a person who has never had syphilis, produces a similar result in him, namely, an immediate ulcerative inflammation, and usually no subsequent general disease. *Usually no general disease*, because Clerc admits, and, for the perfection of his theory, even requires that it shall sometimes confer general disease, plus the immediate ulcer. Thus, by his reasoning, the principle of the local contagious ulcer is established as a separate entity and shows its connection with the parent virus of general syphilis, by occasionally propagating that malady.

Clerc endeavours to establish his peculiar form of "unit of the syphilitic virus," by comparing this bastard syphilis with "varioid" and "vaccinoid." He assigns to these

affections a complete course and series of symptoms, some of which are of very doubtful reality. He scarcely succeeds in explaining the very remarkable changes the syphilitic virus must undergo, if his theory be correct. A poison in its original and graver form is so little irritant, that it produces *no effect at all* until a certain stage of quiescence is passed; and when awakened to activity the amount of local irritation it excites is unimportant. On the other hand, this contagious principle, if implanted in a soil unsuited for the general disease to germinate in, becomes a violent local irritant, exercising its influence without any delay. This influence, however intense, is entirely confined to local action. A change so surprising is probably too extraordinary to actually take place.

The analogy between chancre and the vaccinoid fails too in this respect; for vaccinoid, granting it a real existence, is not more, but less irritating than genuine vaccine lymph; its effects may be reasonably supposed due to the purulent condition of the matter inoculated, and would equally well arise if any other irritable secretion had been used. The sole effect of abortive vaccination is to excite immediate irritation amounting to the formation of a pustule, which cannot be propagated from individual to individual, or continued in a second inoculation even on its bearer; properties that notoriously belong to the discharge of the simple chancre. A more extended analysis of Clerc's theory is unnecessary; it should be studied in his own work, perhaps the best and most complete description of the local contagious venereal ulcer, and of the primary manifestation of syphilis, that has yet been written.

It will be inferred from the foregoing, that one form of the dualist theory will be adopted in my description of venereal diseases. The term chancre will be applied solely to that affection which is characterised by sharp irritation and ulceration, with the secretion of contagious matter at

the point of infection. The furthest complication of this inoculation is inflammation of the nearest lymphatic glands, either from sympathy or from entry into the gland itself of irritant matter from the sore. The term *syphilis* will be confined to the general or constitutional disease, that has phenomena at the point of inoculation, totally distinct from chancre. Any resemblance to that disorder, which the manifestations of syphilis occasionally assume, is entirely of an accidental kind, due sometimes to inflammatory irritation, or to concomitant infection of chancre with syphilis; an event often taking place.

SUMMARY.

The unicist theory, fast falling into oblivion, maintains that one common principle excites constitutional syphilis, gonorrhœa, and local contagious ulcers. Benjamin Bell and Ricord demonstrated gonorrhœa to be distinct from syphilis. In 1852, Bassereau brought proof to show that of the two kinds of venereal ulcer, one is a local disorder, the other a part of the constitutional disease, syphilis. Those who agree with Ricord and Bassereau are *dualists*, and they form a constantly increasing majority. Clerc, acknowledging the existence of a non-infecting sore, supposes it to be excited by a principle degenerated or hybrid from the syphilitic virus. In this way, if the purulent secretions of a syphilitic sore are inoculated on a person who, from having had the constitutional disease, is incapable of again contracting that disease, the inoculated matter changes its character in the exhausted soil. It becomes a local irritant, contagious indeed, but confined in its influence to the neighbourhood of the insertion. This theory is not generally entertained. The view adopted in this book holds the principle producing the local contagious ulcer to be distinct from that producing true syphilis.

DIVISION II.

SYPHILIS.

CHAPTER I.

Definition—Course—Unity—Repetition—Duration.

Synonyms.—CONSTITUTIONAL SYPHILIS: Pox; Verole; Lustseuche; Maladie de Naples; Französische Krankheit; Morbus Gallicus.

Definition.—Syphilis is a specific disease communicated to the sound solely by contact with the fluids of the diseased. A certain interval exists between the absorption of the poison, and the manifestation of its effects. This poison is conveyed throughout the body by the blood; as all the tissues are contaminated, its effects are displayed on the surface as well as internally. The natural course of the disease is to recovery. After one inoculation the individual is exempt from repetition of the disease by new infection. The foregoing characters are common to all specific diseases. Syphilis differs from the others in its poison being strictly non-infectious; in its course being chronic, and liable to frequent relapses, but also capable of being greatly influenced by certain drugs.

OUTLINE OF THE COURSE OF SYPHILIS.—When the syphilitic poison has been inoculated, it gives no evidence of its presence for three weeks or a month; this period is

called its incubation. Then it reveals its presence by induration of the tissue at the point of inoculation, and by the formation of an elevated papule, which may, or may not, become an ulcer with a hard base. While this change is going on, and about eleven days later than the appearance of the papule, the group of glands nearest the point of infection slowly and painlessly enlarge. Within a few weeks from this, usually four to six, a coppery red macular eruption appears on the chest and abdomen, which lasts a few days. It may be unperceived by the patient before it fades, as it causes no discomfort. This rash is often preceded by loss of appetite, and even by fever or headache. After the disappearance of the first eruption various others appear, chiefly of a papular character, scattered over the surface of the body and the mucous membranes, especially the fauces and tonsils. Emaciation, and loss of strength, sometimes set in at this period, but more often the patient preserves his appetite and bodily power. Having made this progress, the disease may subside completely, and never revive. Nevertheless, it often happens, after two or three months of apparent quiescence, that a fresh eruption of a scaly, or less commonly, of a pustular character, appears on the skin, with excoriated patches on the fauces. They are accompanied in the more severe cases by rheumatoid and periosteal pain of the bones, iritis, &c. The affections become either continuous by fresh crops of eruption following closely on each other, or, they alternately vanish and return, during a period varying between two or three months, and two or three years. In which time commonly, the patient's strength and vigour are greatly lessened. Thus the second period of the disease terminates. Should it go further, as sometimes happens, a new series of morbid processes then occupy the body. If they attack the skin, hard tubercles appear in that tissue, which are very prone to ulcerate.

But the internal organs—liver, lungs, brain, or muscles,—may be also the seat of similar solid formations, which materially impede and destroy the capability of the organ so afflicted to perform its functions. Syphilis, *per se*, is rarely fatal in adults; but by altering the structure of the organs of vital importance, it renders the patient unable to resist the inroad of inflammatory action set up accidentally. The course, severity, and selection of the organs to be attacked by the disease, are greatly influenced by external circumstances; thus, low diet, exposure to weather, season, climate, the strength of the patient's constitution, condition of his skin and mucous membranes, may all determine what particular organ shall be the locality in which the disease assumes activity.

These independent causes, to a great extent, determine the duration and severity of the disease in individual cases. The intensity of the action of the poison in the person from whom the contagion was obtained is probably quite powerless to influence its course when transmitted to others. This statement is true respecting acquired syphilis; but there appears some reason for believing that the offspring of syphilitic persons suffer from the disease, the more severely, the greater the activity of the poison in their parents.

Though the earliest symptom is as much a part of the general disease as any of the later ones, it has been found convenient, from the distinct character of the symptoms, to arrange them in three groups. First, those developed at the point of contagion—the so-called primary symptoms; next, the general superficial ones, called secondary; and lastly, those attacking the deeper structures, named tertiary affections. These sets of symptoms are usually separated by pauses. Not invariably; for now and then patients have symptoms proper to all three periods present together,

showing that the distinction is more artificial than real. The close connection of the processes of these three periods is shown by Virchow, who finds the histological structure of the morbid productions to be identical throughout the different organs at all stages of the disease. Under the microscope the change is the same in the indurated site of the inoculation of the poison, as that in the soft tumour of the liver and other parts developed in cases where the disease has long existed. Mr. Hutchinson thinks differently: he considers the distinction is great between the nature of the disease in its earlier and later stages. In his opinion syphilis properly ends with the cessation of the secondary symptoms. The later effects, the gummy tumour of the bone, or testicle for example, are sequelæ, or consequences rather than component parts of the disease itself. Similarly, he looks upon many so-called scrofulous affections as consequences of a like condition of the body produced by scarlet and other acute specific fevers. He has set forth his views on this subject in the essay on syphilis for Reynolds' System of Medicine.

Contagion is not repeated.—The poison of syphilis can be received by the individual once only. By this it is meant that a man who has had syphilis thereby gains an immunity for the future, and further inoculations have no effect upon him. This law, commonly true, is not absolutely so; undoubted instances exist of patients who have had syphilis, and, after a lapse of years, again contracted the disease by a fresh contagion, which is followed by incubation, induration of the point of inoculation, enlargement of glands, and cutaneous eruptions. Such instances are extremely rare; many of those brought forward as examples of this kind are simply relapses of the old disease; many of Diday's cases belong to this category.

Syphilis is repeated in two ways; in the least con-

troverted but least common mode, a regular recurrence takes place, namely, incubation, indurated initial lesion, enlarged glands, and eruptions of the cutaneous and mucous surfaces. Hutchinson narrates a case of this kind,¹ remarkable for the short interval elapsing between the two attacks. A young surgeon, attacked in 1860, suffered syphilis severely for two years, and was treated by Hutchinson with mercury copiously. In 1865 he contracted a sore, which indurated, was followed by a distinct roseolous rash, and erythema on the tonsils; another fact also of note is, that this patient had two attacks of small-pox within a period of four years. Follin² recites two cases. In one, twenty-one years, in the other, three, elapsed between the two attacks. Rodet³ relates, among others, two undoubted cases; in these, eight and four years were the intervals between the two attacks. Bouley,⁴ who is also quoted by Vidal, successfully inoculated syphilis in a woman suffering from what was believed to be severe tertiary syphilis, with the intention of syphilising her in the sense of the term when it is employed by Auzias Turenne, Boeck, Sperino, and others; but instead of exciting a suppurating contagious ulcer, the constitutional disease was produced. Dr. Hardie,⁵ Surgeon to the 73rd Regiment, in his evidence before the Venereal Committee, described an instance occurring under his own observation, of a surgeon, who, eleven years after recovering from his first attack, consisting of indurated ulcer, indurated glands, and rash upon the skin, with other syphilitic affections, inoculated himself a second

¹ Hutchinson: Reynolds' System of Medicine, vol. i., p. 293.

² Follin: Pathologie Externe, vol. i., p. 740.

³ Rodet: Union Médicale. 1857.

⁴ Bouley: Annales des Maladies de la Peau, et de la Syphilis. Nov. 2, 1851; and Vidal: Maladies Vénériennes, p. 275.

⁵ Minutes of Evidence of Venereal Committee of the Admiralty, 1864 and 1865 (QQ. 1833—1849).

time at a wound on the finger, and thereupon underwent a complete repetition of the disease. These cases suffice to show that the repetition of syphilis is an actual fact, and the paucity of recorded cases that it is also a rare event.

In the second mode in which syphilis is said to be repeated, the course is much modified. According to Diday,¹ the earlier stages of the disease do not appear, but the disease advances at once to the later forms, and nodes, rheumatic pains, affections of the liver and other viscera, are the first signs of this second infection. Notwithstanding Diday's essay more knowledge on this subject is wanted. An instance which came under my own observation will illustrate this mode of repetition of the disease.—A gentleman, in 1854, had indurated chancre, enlarged glands, and cuticular eruptions; he was treated with mercury, and after a time recovered. He then entered the army, and underwent much privation and exposure in foreign service. During this time, and for three subsequent winters, he was frequently subject to rheumatism, that iodide of potash always relieved. He regained his health, married, and became the father of two healthy children. A third died of tubercular phthisis. Eleven years after his first attack, in handling a suppurating sore of a syphilitic patient he inoculated a scratch on his left forefinger. Irritation at once ensued, followed by slow suppuration at the tip and in the nail-matrix, with violent pain and throbbing, that were especially severe at night. The axillary glands were swollen and tender for a short time only. After several months of this painful suppuration, the inflammation subsided, and the finger resumed its ordinary appearance. The patient's strength then failed, emaciation and loss of

¹ Archives Générales de Médecine. Juillet, Août, 1862.

appetite began, and with it violent throbbing pain in the loins, which, like the first pain, was worse at night, and usually confined to one spot. The pain was relieved at first by iodide of potash; but after a time this lost its effect. Subsequently he had slight enlargement of the liver, considerable enlargement of the spleen, attacks of jaundice, copious lithates and bile in the urine. The pain occasionally shifted from one point to another, but always settled in the muscles. During this time most varied treatment was tried in vain until mercury was given; when the gums became tender, the pain departed, the jaundice subsided, the urine grew natural, and the appetite being restored, the patient soon regained his weight and strength. The mercury was omitted after taking it for six weeks; in a few days the pain returned, and the appetite was lost. Resumption of mercury quickly restored him to his former condition, and the drug was continued for some months longer, to be again laid aside, and again resumed to ward off the aching pain, dyspepsia, jaundice, and debility, which returned if mercury was long dispensed with. If it be granted that this case was a repetition, and not a relapse of syphilis, it proves that the action of the poison in a second attack may be modified in its course by a previous one. The ordinary symptoms were certainly absent in this case; frequent examination did not discover any cutaneous eruption, sore throat, or enlargement of the glands. The point of inoculation was never an indurated ulcer, nor did the disease extend beyond the symptoms described. The points in favour of its being a second inoculation are—First, the interval of several years' freedom from all syphilitic symptoms, even of rheumatism; supposing this latter symptom was syphilitic in early years, and not caused by the exposure and hardship the patient underwent at that time. Second, the violent continued pain at the point of inoculation, and the chronic course of the sore,

a peculiarity in second attacks observed by others besides myself. Lastly, the relief afforded by iodide of potash, and still more by mercury, are strong evidence that this disease was really in origin syphilitic.

Duration.—The length of the period in which the syphilitic poison may be kindled into activity, and, consequently, capable of transmission by contagion or to the offspring, varies much in different persons. For this reason different lengths are assigned by different authorities. Ricord says six months should elapse after a complete mercurial course has terminated, and during this six months no relapse must occur; Bärensprung, who did not employ mercury, says three months' freedom from symptoms before the disease is probably at an end. This interval is certainly far too short a one for an average estimate, though it possibly suffices in exceptional cases. Zeissl¹ speaks with little exactness on this point, but thinks the disease sometimes does not endure more than three or four months in a small number of patients. In the army and navy,² where better opportunity exists for continuous observation of the same individual than in civil practice, it is stated the men are frequently under treatment eighteen months or two years. Dr. Heron Watson, of Edinburgh,³ having observed the disease in several persons, where it has been left to itself, says, the papular eruptions appeared six weeks after contagion, they faded in four months, and the glandular enlargements shrunk again to their proper size in about two years.

In the second half-year of 1867 I noted the duration of the disease in 104 female out-patients at the Lock Hospital. In 41 it was under one year, though, of course, as the

¹ Zeissl: *Constitutionelle Syphilis*, p. 77. 1864.

² Evidence before the Venereal Committee of the Admiralty, 1865. (QQ. 1543, 2037.)

³ Idem. (Q. 4671.)

disease was still in progress, these cannot be given as instances of the duration of the disease.

In 63 it exceeded 1 year.		
49	„	2 years.
31	„	3 „
23	„	4 „
19	„	5 „
13	„	6 „
12	„	7 „
9	„	8 „
8	„	9 „
6	„	10 „
3	„	11 „

One woman had been subject to relapses during twenty-six years.

The exceedingly small number in whom the disease endured more than four years, shows that a much shorter period may be set down for the average.

Mr. Hutchinson¹ assigns a year as the common time, with numerous exceptions of much longer duration.

As a practical rule *one and a half or two years* should be fixed as the probable period in which a patient may expect relapses of eruptions on the cutaneous or mucous surfaces. It must, nevertheless, be borne in mind that the disease is sometimes life-long, and the longer it lasts the more difficult it is to cure, though even in these cases success is usually the reward of perseverance, for the number of incurable cases of syphilis lessens year by year as our knowledge of the disease becomes more exact.

¹ Evidence of Venereal Committee (Q. 3443).

SYPHILIS.

CHAPTER II.

CAUSES:—*Predisposing*: Climate, Starvation, Dirt, Overcrowding, New Districts or Races, Age, Individual Liability;—*Exciting*: Contagion, Necessary conditions for—Modes of Communication: *a.* Coitus, *b.* Suckling, *c.* Kissing, *d.* Glass-blowers, *e.* Parent to Child, *f.* Child to Mother. Vehicles: *a.* Secretions of Syphilitic Affections, Natural Fluids, *b.* Blood, *c.* Milk, *d.* Saliva, *e.* Semen—Secretions of Co-existing Disease: *a.* Simple Chancre, *b.* Vaccination, *c.* Leucorrhœal discharge, *d.* Interval elapsed before Poison is absorbed—Summary.

Predisposing Causes, or conditions that facilitate the spread, or increase the severity of the disease.

Climate.—Cold climates render the disease more severe by lowering the vital energy of the patient, and promote its spread by encouraging dirty habits and promiscuous herding together. In hot climates the disease attacks Europeans more severely than at home, but though the evidence is somewhat contradictory, its course is probably not more severe for the natives of those climates than it is in temperate regions. In central Europe, a temperate climate, the course of the disease is apparently little influenced by the temperature.

The Condition of the Individual evidently in great measure determines the gravity of the disease. *Starvation*, *Dirt*, and *Overcrowding*, also increase its spread and severity. The influence of insufficient food over the progress of syphilis is very evident in young children. Zeissl¹ says, that amor

¹ Constitutionelle Syphilis, S. 19. 1864.

the Polish Jews the matted tufts of hair called *plica polonica* are often densely glued together by the discharges of spreading syphilitic ulcers of the scalp. *Intemperate Habits* greatly aggravate the disease in all countries.

Influence of Race.—Syphilis appears to afflict all races of mankind, but is reported to be usually less severe among the dark than the light races. Whenever it attacks a new race, or new district, it spreads rapidly, and becomes more severe, approaching the form of an epidemic. Thus, when conveyed to the South Pacific by Captain Cook's exploring ships, it destroyed large numbers of the population. This virulence has not become a permanent character, for Mr. Sloggett,¹ who, when surgeon to the *Calypso*, visited those islands in 1858, found the disease to have assumed the form it maintains in northern climates.

Age.—It is met with at all ages, most frequently between eighteen and twenty-five years, next oftenest during the first year of life, when it causes a large mortality, though how large we cannot exactly estimate. (See Prognosis of inherited Syphilis.)

Individual Liability to Contagion.—Persons vary in aptness for contagion. Probably there are many who escape syphilis, as they escape scarlet fever or measles. On the other hand, some persons suffer twice from many contagious diseases. The poison also may not be always taken up with equal rapidity, though when contagion takes place at all, it does so shortly after contact.

Principle Essential for Communication.—Syphilis is propagated solely by contagion between the infected and the non-infected. The virus of syphilis is a subtle matter of unknown constitution. It is not volatile, hence the disease is never spread by infection. This principle, when introduced into the solids and fluids of healthy persons, multiplies

¹ Evidence before the Venereal Committee of 1865 (Q. 1515).

indefinitely. It is rendered inert by any agent capable of destroying the chemical constitution of its vehicle; viz. putrefaction, high temperature, mineral acids, or caustic alkalis. On the other hand, its vehicle may be very greatly diluted, without losing its contagious property.

Modes of Contagion.—The poison enters the body through a breach of surface. Long contact with an unbroken epidermis may possibly suffice for absorption of the virus, but this is very unlikely. Mr. Ceely, of Aylesbury, has succeeded in causing absorption of the variolous virus in animals by keeping the contagious secretions long in contact with the delicate parts of the skin, where no broken surface existed. On the other hand, the effects of venereal contagion display themselves, in the great majority of cases, on those situations where abrasions are specially frequent. The disease is usually communicated during coitus, when the close contact of frequently abraded surfaces is exceedingly favourable for contagion. But other modes are not rare, namely, kissing, sucking diseased nipples, and other occasions of close contact between individuals. All the situations for inoculation are also common sites for breach of surface.

Among the numerous instances of nurses being infected by their foster children, one reported by Barillier¹ is very striking. A healthy wet-nurse was engaged at a nursery, and given a child to suckle, that was apparently healthy, and whose mother was certified to be healthy. When the child was twenty-five days old, thrush appeared in the mouth and a syphilitic ecthyma on the body, and it afterwards died. The nurse's nipples were made sore by the child's mouth, the ulcerating papules formed on the areolæ, and syphilitic eruptions followed. Meanwhile a second child had been suckled by the wet-nurse, along with the first for a few days, and

¹ Barillier: Gazette des Hôpitaux, 1860, No. 65.

it could be sent into the country. Eighty-five days later the second child was brought back covered with papular eruption, together with ulcerated throat and other symptoms, of which it also died. The country wet-nurse, who had received the second child, also contracted syphilis through the nipples. Lastly, a third child, who had sucked the first nurse, caught syphilis of her and died. This rapid contagion of syphilis between nurse and child caused Dr. Barillier to examine the first child closely. He found it covered with pustular eruptions. Post mortem the liver and other organs were discovered to be very extensively diseased. When he examined the mother of the first child he also found her to be syphilitic, and that she had been so before the birth of her child. Mr. Johnson¹ relates an instance of similar kind; a man with a syphilitic sore on his mouth gave the woman he intended to marry syphilis, by sucking her breast. An indurated papule of the areola and general syphilis was the penalty the woman paid for this indecent familiarity.

Rollet² has collected examples of this kind, several being of women inoculated on the breast by giving syphilitic children suck. In one, a man received the disease through a bite on the nose given by a syphilitic man with the avowed intention of infecting him; two cases were young ladies inoculated on the lips by the kisses of their lovers. Rollet also narrates several cases of glass-blowers being contaminated at the mouth when passing the tube from one to another in inflating large globes of glass. In one instance of Rollet's, a lady contracted syphilis on the lip by tasting soup with the same spoon as her cook, who had syphilitic sores on the mouth. Ricord also furnishes such examples.

¹ British Medical Journal. Aug. 18, 1860.

² Rollet: Archives of Medicine, vol. xiii. p. 307, 1859. See also Tardieu's Annales d'Hygiène et de Med. Légale, 2nd series, t. xxi., p. 371; and Viennois, Gaz. Hébdomadaire, 1863.

One is an account of the spread of syphilis among Jewish infants, in consequence of the person who performed circumcision sucking the foreskins to stop bleeding, while he had syphilitic ulcers in his mouth. It is well known that uncleaned catheters and other instruments have occasionally conveyed the disease.

Contagion by Inheritance.—Syphilis may be transmitted from parents to the offspring before its birth:—from the mother to the child; or from the father to the child. The reality of the second of these modes of contagion is not granted by many authorities; still there is no disagreement concerning the first. The father is doubtless the source of the disease, but as the mother so commonly participates in the disease, the contagion comes as much from her as from the father.

Contagion from the Mother.—If the mother is infected at the time of conception, the ovum almost certainly participates in the disease. Cases of this kind, where the father was clearly free from disease, are to be met with in Diday's¹ work. If the mother contracts syphilis in the first six months of pregnancy, she probably infects the child. If on the contrary, infection is delayed until after that time, the child may escape, and this the more probably, the nearer the time of parturition is reached before contagion. Cullerier believes that children may be infected by the mother at any period of intra-uterine life. Ricord² and Bärensprung believe that children are rarely, if ever, affected by the mother after the seventh month of gestation, unless it be infected at birth or during lactation, by the secretions of syphilitic affections. The child does not necessarily contract

¹ Infantile Syphilis. Sydenham Society.

² Cullerier: De l'Hérédité de la Syphilis, Mémoires de la Société de Chirurgie, p. 253. Paris, 1854.

³ Ricord: Diday quotes him, loc. cit., p. 25.

⁴ Bärensprung: Hereditäre Syphilis.

the disease if its mother be syphilitic before conception, even though she be suffering with various forms of syphilitic eruption during pregnancy. I have notes of three cases of this kind.—In the first, the mother had been infected four years before, and during her pregnancy had palmar psoriasis, and iritis. The child was born quite healthy, and has remained so for eleven months. The mother took mercury during the seventh and eighth months of gestation.—In the second case, the mother had been infected three and a quarter years, had ulcer of the tonsils, and a few scattered patches of lepra on the right shoulder; she had taken mercury previous to her pregnancy; during it, she took iodide of potash. I have had opportunity of seeing her child frequently for two years and a quarter, during which time it has remained healthy.—In the third case, the mother had been infected one year and three-quarters; during pregnancy she had a relapse of desquamating papules and mucous patches round the vulva, for which she took mercury; her child is now nineteen months old, and has been quite healthy from birth. These women all attributed their syphilis to the fathers of the children; but the latter were, according to their wives' account, free from disease at the time the women came to me. It will be noticed that the children who escaped (previous ones had suffered) were all born when their mother's disease was well nigh extinct.

The transmission of Syphilis from father to child is an accident of frequent occurrence when the mother also participates in the infection before or during pregnancy. In such cases, it is impossible to say the virus does not reach the child directly through the mother, and only indirectly from the father. It is also believed that the child can inherit the disease direct from the father, while the mother remains intact. The evidence in support of this view is at present imperfect, because syphilis in women often causes so little

inconvenience, that its presence passes unnoticed. Notwithstanding this uncertainty of the proof yet brought forward, the balance of opinion is greatly in favour of the possibility of syphilis being transmitted from father to child without also implicating the mother. Diday¹ and Lancereaux² have collected the authorities whose observations support this theory, but they do not decide the question. In all, the escape of the mother is inferred from the absence of symptoms of syphilis sufficiently prominent to attract her attention.

For an example of the kind of cases brought to prove this theory, Trousseau,³ in a clinical lecture on syphilis in young children, relates that a patient with syphilitic laryngitis told him that his wife, though always in excellent health, had been pregnant six times, but her children were all born prematurely, some of them being marked with blotches on the skin. Trousseau had no opportunity of examining the mother himself, and the health of both parents, excepting the laryngitis of the father, is not stated. It is not clear that the mother in this case escaped disease; on the contrary, the continued abortions are strong presumptive reasons she had syphilitic disease of the womb, which prevented maturation of the ovum.

Bärensprung⁴ essays to overthrow the doctrine with his own observations. His conclusions are: if the father has active syphilis at the time of conception, neither the mother nor the child escape; if the father has recently had syphilis, but is free from disease, the mother and child are frequently, but not always infected. He points out the weakness of the evidence in favour of the mother ever escaping if her child is attacked, and quotes Bouchut,⁵

¹ Diday's *Infantile Syphilis*, p. 15, et seq.

² Lancereaux: *Traité de Syphilis*, p. 653.

³ Trousseau: *Union Médicale*. 1857.

⁴ *Die Hereditäre Syphilis*. Berlin, 1864.

⁵ *Maladies des Nouveau-nés*.

Cullerier,¹ and others who have studied this question. Colles long ago remarked, that mothers are never inoculated on the breast by their children, though wet-nurses not unfrequently are so, undoubtedly because the mothers are already syphilitic. Even if syphilis be not in active progress in the father, it is held by many that the ovum may receive syphilis with the semen. This is an extremely uncertain point, and must await further investigation.

When syphilis is active in both parents, the child, should gestation be completed without abortion, is always syphilitic, but in these cases, the influence of the father is doubtful, probably the condition of the child depends chiefly on the condition of the mother.

Impregnation of the mother through the fœtus is closely connected with the question of contagion from parents to offspring.

Mr. Jonathan Hutchinson² is of opinion that this method of contagion not unfrequently takes place. If his view is correct, it must be granted, first, that the semen, *per se*, will transmit syphilis directly to the child, but only indirectly to the mother, *viâ* the child; second, that syphilis transmitted from the father through the child to the mother, can skip over the earlier stages in the latter victim, so that both parents suffer simultaneously with the later forms of the disease. Primaries, and even the earlier general symptoms, may by this mode of contagion be altogether absent in the mother, according to Mr. Hutchinson. His argument is supported by fifty cases of syphilis occurring in mother and child.

¹ De l'Hérédité de la Syphilis, Mem. Soc. Chirurgie, 1854, p. 230. See also Notta, Archives Générales de la Médecine, Mars, 1860; Beyran, L'Union Médicale, 1862, p. 457; Renard, L'Union Médicale, Dec. 24, 1862.

² Medical Times and Gazette, Oct. 11th, Dec. 20th, 1856, and Jan. 10th, 1857. See also Reynolds' System of Medicine, article Syphilis, 1866.

It is yet uncertain that a man can pass the disease to his child without infecting the mother. Until this point is settled, it cannot be employed to establish the next deduction, that the child, being syphilised by the semen of the father, may then confer the disease on the mother. Mr. Hutchinson places much faith in the fact that women cohabiting with syphilitic men, often escape the disease until they happen to become pregnant. But this may be explained by another hypothesis. It often happens that a man having syphilis, is misled by a temporary subsidence of the symptoms to suppose himself cured. If he marries while he is apparently free from disease, his wife keeps healthy, until some relapse of eruption in the husband furnishes a contagious secretion which inoculates his wife, her pregnancy being a coincidence.

Cullerier¹ and Notta relate instances of men procreating healthy children, and not infecting their wives, even though shortly before their intercourse they were suffering with general syphilis. Hence it is rational to suppose, that the wife of a syphilitic man escapes, chiefly because her husband does not furnish the virus in a contagious form till a relapse occurs. In these cases the rekindled activity of the disease renders the semen contagious for both mother and child, either as it is secreted, or more probably by mixing with it the secretion of some syphilitic affection of the husband's genitals. This course of events, undoubtedly happening in some instances, is probably the one occurring in all cases where infection of the wife is delayed until pregnancy occurs. Zambaco² gives instances of families where healthy and diseased children are born to one father, according to his state of health at the time of procreation.

In such cases the healthy vigour of the mother is supposed to shield her offspring from the influence of the

¹ Note 1, on p. 41.

² *Maladies Syphilitiques Nerveuses.*

father's disease. This supposition is difficult to reconcile with the fact that mothers in perfect health and vigour are unable to shield themselves from syphilis, nor does syphilis *infect* the weakly more readily than the robust; though it may take a more severe course in the former than in the latter.

Syphilis is supposed, when it passes through the foetus to the mother, to attack her at once with the later forms of the general disease, without passing through the earlier manifestations. Among the fifty cases of Mr. Hutchinson already quoted, in Nos. 6, 12, 16, 20, 23, 26, 33, 41, and 45, the patients had not been infected more than two years, and some for a much less time, *before* they came under observation. They had suffered from sore throat, papular scaly eruptions, fall of the hair, condylomata, &c., which are the ordinary symptoms in persons who have been infected in the common way. Deep ulcers of the throat, serpiginous ulcers of the skin, disease of the bones, and such like, were remarked only in women who had been married many years, and had suffered a long time from syphilis. Several of these latter cases besides had suffered from the early rashes also. These cases contradict the inference that syphilis, if ever communicated from the child to the mother, differs in its course from the disease propagated in the common way; on the contrary, they fully show that syphilitic women, when pregnant, pass through the same forms of the disease as women not pregnant, and so far as the general character of the disease is concerned, it is immaterial whether they be infected during or previous to pregnancy. The primary disease was not looked for at the time likely to be found, hence it cannot be assumed to have been absent. Again, the foetus affects the mother with the disease in its later forms, and it is strange that the young child, when it infects other persons, its wet-nurse for

example, transmits the disease in a form exactly similar to that communicated between adults. At present our knowledge enables us to say that inherited syphilis passes readily from the mother to the child, probably also that when the original source is the father, the child gets it from the mother, who has been inoculated previously to the child's taking the disease. Lastly, there is little reason to suppose a foetus ever infects its mother in utero.

Vehicles of Contagion.—Of these the most undoubted are the secretions of syphilitic affections; the thin fluid of mucous tubercles and the discharge of the initial ulcer, developed at the point of inoculation, are perhaps the most frequent sources, because these affections are situated on the genitals and around the mouth, parts ordinarily and intimately applied in contact between individuals. Narratives of experimental inoculations of syphilis, from mucous tubercles and indurated chancres, are contained in the writings of Vidal de Cassis,¹ Gibert,² Hübennet,³ Bärensprung,⁴ and many others, of whom Wallace,⁵ of Dublin, was the earliest who employed this means of investigation. The works of Hunter, Rollet,⁶ Diday,⁷ Langston Parker,⁸ Langlebert,⁹ Jeffrey Marston,¹⁰ Henry Lee,¹¹ are stored with instances of incidental transmission of the disease by contamination with the secretions of secondary affections.

¹ *Traité des Maladies Vénériennes.*

² *Traité des Maladies de la Peau et de Syphilis.* 1853.

³ *Die Beobachtung und das Experiment in der Syphilis.*

⁴ *Annalen der Charité, Berlin; and Friedreich, Lehre vom Schanker.*

⁵ *Lancet*, vol. ii. 1837.

⁶ *Archives de la Médecine*, 1859; et *Traité de Maladies Vénériennes.*

⁷ *Histoire Naturelle de la Syphilis, and Infantile Syphilis*, 1859, pp. 154—158.

⁸ *Langston Parker on the Modern Treatment of Syphilis.*

⁹ *Langlebert: Du Chancre produit par la Contagion des Accidents Secondaires de la Syphilis.*

¹⁰ *Marston: Medico-Chirurg. Trans.*, vol. xlv.

¹¹ *Henry Lee on Syphilis.* 1863.

Diday, in his account of the transmission of syphilis from children to their nurses and attendants, has collected a number of instances of this kind.

For an illustration of contamination by the secretions of the general disease, the following examples, taken from my own notes, may serve:—J., 33, applied to me for relief with the following history. Some time before, while fighting, he had received a blow on the cheek and eye which drew blood; to prevent a black eye, the wound was sucked by his antagonist; after this treatment it quickly healed and disappeared. No further inconvenience occurred till six weeks later, when pimples appeared; these gradually enlarged, and a scab fell off from them. When he came under my care, there were elevated flat tubercles on the upper part of the cheek and lower eye-lid of the right side; they varied in size from a shilling to a split pea; they were not ulcerated, but desquamating and quite dry; they had a dull brownish red hue; the lymphatic glands at the angle of the jaw on the same side, were enlarged. The man was pale, but he had a rosy rash across the forehead, along the chest, and on the abdomen; there was no sore or scar on the penis, no enlargement of the inguinal lymphatic glands, and no history of any such having been present; he took mercury, and ultimately recovered. While he was under treatment, he brought me his former antagonist, whom I examined, and took the following note. F. M., 31, a wheelwright, related that when he sucked J.'s cheek, he had a sore mouth, and also some sores on his penis which had existed for six weeks or two months before he struck J. He recollects that the lumps now in his groin were there then; has never noticed any rash on his skin, or sore throat; he has been very well ever since. On examination the sore proves to be a fissure at the angle of the mouth, and one or two enlarged papillæ round it, which are moist

and scaling, but devoid of any induration. There is no ulceration of the mucous surface of the mouth and fauces, the lymphatic glands are not enlarged under the jaw at the back of the neck. The body is free from eruption of any kind, save one or two acne spots that have a coppery tint. On the penis are two scars with well-marked induration, the site, the patient says, of the sores he had at the time of his scuffle; the lymphatic glands in both groins are plainly enlarged, not at all tender, and the skin over them has its natural colour. He has never taken any medicine for his ulcers, and the only other inconvenience he has been conscious of is the persistent sore of the mouth. Small doses of mercury and iodide of potash were given for a few weeks, and the sore healed, while the induration on the penis much diminished. So far these cases have been already published in the "Lancet" of June 18th, 1864, but in addition to them I have notes of J.'s wife and child. When J. had been two months under my care, he brought his wife for an eruption on her chest, neck, shoulders and arms. These were covered by a fine lichenoid eruption of coppery colour, some of the minute papules being surmounted by a small clear vesicle. The inguinal glands were severally enlarged on both sides; one of the *carunculæ myrtiformes* was indurated and superficially ulcerated. Subsequently this woman had the scaling papular eruption, pustules of the scalp, sore throat, &c. J., when interrogated afresh, said he had not observed any eruption on his privates, but had not desisted from intercourse with his wife, though advised to do so when he first applied to me. On examination the privates were clear of eruption, and there was no gleety discharge. The wife brought her child on one of her visits. This child was born before its father had been inoculated, was healthy, and well-grown. The mother, though ill herself, had continued to suckle it until the day she brought it to the

hospital, this being done because the child was pale, and had lost its appetite. On examining him, I found a sore on the left side of the mouth at the inner border, hard, elevated, and as large as a sixpence; the mouth elsewhere was quite healthy. Under the jaw on that side the glands were enlarged and knotty, very different to those on the opposite side; when the child was undressed there was no rash to be found elsewhere. The nostrils and the anus were clear, and there was no snuffling; the mother did not know how long the lump had existed on the mouth, or under the jaws. I examined the breast of the mother, and found on the right one at the outer side of the areola an elevated moist patch, from which a fissure passed to the nipple. This, I conclude, was the ground whence the child sucked in syphilis with his mother's milk.

Wishing to see the disease more clearly developed, I told the mother to wean the child, and feed him well; meanwhile, only giving him some steel wine. In a short time blotches appeared on the trunk, and sores at the anus and throat. The symptoms readily subsided with small doses of grey powder, and the infant regained his health and strength. Both mother and child have shown themselves to me, twelve months after their last symptoms, in the enjoyment of good health. My reasons for considering these three cases to have been communicated by the secretions of general syphilis are, that in the first and third cases, the primary disease began at the points to which these secretions had obviously been applied. In the second, the evidence is not conclusive, as the woman might have been infected by another man with an indurated chancre on his penis. She was a respectable married woman, and her husband was undoubtedly syphilitic; hence, we may consider it at least highly probable that she received her disease from him.

To adduce examples of contagion of syphilis, through the inoculation with the secretions of indurated chancre would occupy space uselessly; the more so, as the question has been fully discussed by Alfred Fournier¹ in a small pamphlet, and in Ricord's "*Leçons sur le Chancre*" edited by him. Both of these works contain a large number of observations to show that the general disease is contracted from persons with indurated sores.

The virus commonly loses its contagious quality when the *tertiary period* of the disease is reached. Hitherto attempts to propagate the disease with secretions taken during this period have failed. I have met with but one exception to this rule, namely, a case mentioned by Bumstead² (and a doubtful case of Vidal's³). The former says, a surgeon operated on a patient for syphilitic necrosis of the skin who had had no secondaries for years. An abrasion of the finger was inoculated, a chancre and general symptoms followed in due order. After hearing full details of the case, little doubt was left in Bumstead's mind that this was an instance of inoculation of the blood in the tertiary stage of the disease.

The Natural Fluids of the Body.—Besides the discharge of the syphilitic eruptions, &c., some of the ordinary fluids contain the virus in a communicable form. *The blood* has been successfully inoculated in several instances. Of these the most clearly established is that of Dr. Bargioni, who was publicly inoculated on the 6th of February, 1860, by Professor Pellizari, of Florence, with the blood taken from a vein of the arm of a woman suffering from syphilitic eruptions. By this inoculation he contracted syphilis, a

¹ *L'Incubation de la Syphilis*. A. Fournier, 1865. And *Leçons sur le Chancre*, 1858. *Pièces Justificatives*.

² Bumstead's *Venereal Diseases*, p. 465. 1864.

³ Vidal's *Maladies Vénériennes*.

underwent the various stages of the disease; first, incubation of twenty-five days, then a papule which developed to an ulcer by the forty-fourth day. The lymphatic glands simultaneously enlarged, and macular eruption appeared on the sixty-fifth day on the trunk.¹ Lancereaux² quotes this case at length, and has also collected the results of twenty-three inoculations by different experimenters: of the twenty-three, six were successful, the rest aborted. Among the observers were Waller,³ of Prague, Gibert,⁴ of Paris, Pellizari, of Florence, and Lindwurm,⁵ of Munich. They were each successful in one of their attempts. There were three other successful cases by the anonymous person whose observations were published in the Proceedings of the Medical Society of the Palatinate, in 1856,⁶ and which gave rise to so much discussion at the time. A little doubt, perhaps, on account of their anonymous publication attaches to those of the Palatinate, but those of Waller, Pellizari, and Lindwurm are free from uncertainty; for their inoculations were made in public with the blood of persons suffering from general eruptions.

It is still unknown how long this fluid remains contagious, but all experiments made with the blood of persons tertiarly affected have failed to impart syphilis. The blood is also the vehicle of the poison whenever the disease is transmitted from the mother to the foetus in utero.

The milk and saliva of a syphilitic person may possibly contain the virus in a communicable shape. Still there is no authentic case of syphilis being transmitted by such means.

¹ Gazette Hebdomadaire, p. 349. 1863.

² Lancereaux: *Traité Historique et Pratique de la Syphilis*, p. 619.

³ Casenave's *Annales de la Syphilis et des Maladies de la Peau*. 1850, 1851. p. 184.

⁴ Gibert: *Traité des Maladies de la Peau, et de Syphilis*.

⁵ Auspitz, *Die Lehren v. Syph. Contagium*. S. 217. 1866.

⁶ *Archives Générales de Médecine*, t. i. p. 603. Mai, 1858.

For, in the instances where these fluids have hitherto proved contagious, they have been mixed with secretions of syphilitic eruptions or excoriations.

The Semen.—We cannot safely assert that the semen *per se* is or is not contagious with the knowledge we at present have. Sexual intercourse should not be permitted to a man in whom the poison has been recently in activity, even when he is quite free from eruptions, or unhealthy secretion. Langston Parker¹ and others are firmly convinced that semen alone will communicate syphilis to a woman without rendering her pregnant also.

Contagion occurring when the Virus is mixed with the Secretions of co-existing Diseases.—The frequent co-existence of syphilis with the local simple chancre is an instance, and without reiterating the arguments for and against the identity or non-identity of the contagious principles in these affections, the following results of observation may be briefly stated:—If matter of a soft chancre be inoculated on a person who is also suffering from syphilis, it is very often contaminated with the syphilitic poison; and thus, if again transplanted, it may convey to the new soil both diseases. Should the fresh patient have already suffered syphilis, he is not capable of a second attack, and the fresh inoculation produces no repetition of syphilis. The effects are confined to the production of a local ulcer. On the other hand, if he is virgin from syphilis, the poison probably takes effect, his chancre hardens when the incubation period of syphilis has elapsed, and general eruptions ensue. The explanation in this case being, that to the characteristics of the local ulcer, those produced by the activity of the syphilitic virus are added, and the sore becomes the seat

¹ Evidence before the Committee on Venereal Disease in the Army and Navy, 1865. Q. 3339.

two different diseases. There is good reason for believing that the virus of syphilis, and the principle that excites local ulcers, are not antagonistic, because Sperino and Baumès, by mixing pus of soft chancres with vaccinal lymph and inoculating the mixture, produced both a chancre and vaccine disease.¹ Boeck,² however, failed in attempting to do the same thing: his chancreous pus took, but the patient had no symptoms of vaccinia, and was subsequently successfully vaccinated.

Vaccination has long been accused of communicating syphilis. Some remarkable outbreaks of syphilis among newly-vaccinated children have recently given rise to much discussion of the subject. Viennois,³ of Lyons, has collected and published an analysis of two different instances on record, which is also included in a reprint⁴ of a discussion on this question in the French Academy of Medicine in 1865, published by Baillière, to which are added Pellizari's experiments in inoculating the blood of syphilitic persons. Though many of the cases are evidently only instances of syphilis breaking out in children about the time of their vaccination, in some of them syphilis was positively inoculated by the vaccination. A well-authenticated instance is recorded in the *Medizinische Zeitung* of Berlin, for the 3rd of April, 1850.—At the beginning of 1849 small-pox prevailed in the town of K—. Ten families were re-vaccinated on the 14th and 15th of February from one infant, who, six days after, was discovered to have syphilitic eruptions on his body.

¹ *La Syphilis Vaccinale*, p. 279.

² *Idem*, p. 386.

³ *Gazette de Hôpitaux*, Mars, Avril, Mai, 1862.

⁴ *De la Syphilis Vaccinale*. Communications de Depaul, Ricord, Blot, Jules Guérin, Trousseau, Devergie, Briquet, Gibert, Bouvier, Bousquet, Pellizari, Palasciano, Philipeaux, et Auzias Turenne. Baillière, Paris, 1865.

Nineteen, being nearly all these persons so vaccinated, had syphilis: three or four weeks after the vaccination, ulcers appeared at the site of the inoculation, and in most of the nineteen, sore throat, headache, and eruptions on the skin appeared in due course, and mercury was employed for the cure. The vaccinator, a veterinary doctor, was sentenced to two years' imprisonment and a fine of fifty thalers.

Another authentic instance¹ is that where a second German doctor (Hübner) was tried and punished for having, in 1852, inoculated thirteen children with vaccine lymph from a syphilitic child; of these five escaped entirely. In the rest the points of inoculation became slow spreading ulcers, and three months afterwards general eruptions appeared over the body. In New York, in August, 1854, Monnet published a minute account of the ulcer on the arm, and the subsequent eruption of the body, that followed a case of vaccination.

Henry Lee, in his work on inoculation of syphilis, and in the "Lancet" for 1863, has related some observations collected by Viennois, in support of the doctrine; since then, Lancereaux² has collected 19 observations of syphilis being propagated by vaccination. They include 351 individuals vaccinated from syphilitic children: 258 of them were inoculated with syphilis, the rest escaped. The most remarkable outbreak of syphilis by vaccination, of late years is that which occurred at Rivalta, near Aquis, in Piedmont in 1861. Dr. Pacchiotti,³ of Turin, who was employed by the Italian Government to report on the attack, has published an account of it. The facts are shortly these. I

¹ Reported by Sée, in the *Gazette Hebdomadaire*, 9 Mars, 1855.

² Lancereaux: *Traité Historique et Pratique de la Syphilis*, p. 643. 1860.

³ Pacchiotti: *Sifilide Trasmessa per Mezzo della Vaccinazione in Rivalta presso Aquis*. Turin, 1862. Quoted by various writers; Viennois, in the *Gazette des Hôpitaux*, Lancereaux, loc. cit., Henry Lee, and others.

May, 1861, an apparently healthy child, named Chiabrera, was vaccinated at Rivalta with lymph sent from Aqui for the purpose. Ten days after this vaccination (June 7th), 46 healthy children were vaccinated at one sitting from this child. Again, on the 12th of June, 17 other healthy children were vaccinated from one of the 46. Thirty-nine of the 46 received syphilis with the vaccine disease, and seven of the second series of 17, making a total of 46 out of 63 children in a mountain village simultaneously inoculated with syphilis. Some months elapsed before the vaccination was suspected to be the source of the children's bad health. By the 7th of October, when attention was drawn to this spreading disease, six of the 46 syphilised children had died, without receiving any treatment, 14 were recovering, and three were in a precarious condition. Twenty-three were dispersed through the country, and their condition was unknown until further researches traced them out. In addition to the children, twenty women suckling them were inoculated with syphilis from the children. Through the mothers the disease had reached some of the husbands, and even the elder children of the different families.

The mode in which the first child, Chiabrera, was infected has remained unexplained. He did not receive it through the vaccine lymph, because he had the vaccine disease in its regular course, and the changes proper to the point of vaccination were duly developed in the vaccine scar. It did not come from his mother, because the first manifestation of the disease (initial syphilis) did not appear in her until the 8th of October, some time after the child had been marked with general eruption. This shows she took the disease from her infant. Neither was the child, in all probability, infected by his father, because the latter was quite free from the disease when the mother contracted it, and continued so during the two years which elapsed after

Chiabrera was born. Dr. Pacchiotti, who thoroughly investigated all the points of this case, believes the disease was communicated to Chiabrera by a strange woman, known to be syphilitic, whose breast he had sucked a few times. The other children, without exception, showed by the form and course of the disease, that their infection had taken place at the site of the vaccination.

From the analysis of the various instances of contagion by vaccination, the following conclusions are gained:—That syphilis is undoubtedly propagated by vaccinating healthy children with the vaccine matter of syphilitic children. When a batch of children are vaccinated in this way, some escape, others receive, syphilis. To explain this, Viennot supposes that the vaccine lymph *per se* does not contain the syphilitic virus, but that it requires the admixture of the blood; hence, when the child escapes syphilis, he has had no blood inserted with the lymph. On the other hand, when he takes syphilis in this way, a drop of the syphilitic child's blood has been mingled with the lymph.

When vaccinia and syphilis are simultaneously inoculated, the former runs its course during the incubation of the latter, so that the child has the two diseases independently. When the incubation of the syphilis has expired, a hard, elevated excoriation, or ulcer, forms at the point of inoculation, the glands of the axilla enlarge, and subsequently the general eruptions appear.

Vaccination appears also to have another influence. If syphilis be latent in a child, the vaccinal fever hastens its appearance; hence, syphilis sometimes makes its appearance in children shortly after vaccination, and has been supposed to have been communicated by the vaccination, instead of only being roused to activity.

In support of the belief that the special secretion of co-existing disease do not contain the virus, Lanc

reaux¹ says that Diday attempted, without success, to communicate syphilis by inoculating the discharge of pustules excited in a syphilitic person by over-doses of iodide of potash; whence Diday infers that the secretions of specific eruptions in syphilitic persons only are contagious.

Besides these better defined affections, which are occasional sources for multiplying syphilis, the fluid discharges of ordinary inflammation of mucous surfaces will convey the virus. Cases are on record where a vaginal discharge, without ulceration, appearing in a syphilitic woman, has sufficed to communicate syphilis to her companion, who had previously approached her with impunity. Gonorrhœal discharges in syphilitic persons probably also impart syphilis to healthy individuals; leading to the belief in former times that gonorrhœa and syphilis were the same disease.

Leucorrhœal Discharges.—It is a question of much practical interest whether chronic vaginal and leucorrhœal discharges, from which prostitutes are seldom entirely free, may not become vehicles of the disease if the woman is also syphilitic. There is no positive evidence to decide this question, but it is unsafe to pronounce a woman so afflicted not liable to communicate the disease. Whenever the discharge proceeds from ulceration of syphilitic origin, it is certainly very contagious.

Interval which elapses before the virus enters into the system.—Clerc, of Paris, made some experiments on children² respecting this. He vaccinated children by a single puncture through the skin: one hour afterwards he destroyed the tissues for some distance round the puncture, with solid nitrate of silver. Notwithstanding this caustic application, vaccinia followed in due course, and a second inoculation of vaccine lymph had no effect.

Somewhat different results followed the experiments of

¹ Loc. cit., p. 614.

² Oral communication.

Aimé Martin,¹ who has published notes of seven cases of vaccination he performed on infants. The punctures were destroyed with Vienna paste, at periods varying from one hour to twenty hours after their insertion. This treatment prevented the development of proper vaccine vesicles in all of the seven; but the children were all vaccinated again, to ascertain whether they had undergone the constitutional vaccinal fever, or whether the poison had been removed before absorption. In five children this repetition had a negative result; in the sixth a genuine vaccine pustule formed after thirteen days' incubation; and in the same a pustule appeared three days after the second vaccination, which had no distinctive character of vaccinia. Bouley and others found a very short time necessary for absorption, by experiments at the French Veterinary School of Alfort. At that institution horses were inoculated with glanders, and the inoculation was cut out one minute after insertion, but not before the glanderous poison was absorbed, and the disease followed. Sheep also were subjected to a similar experiment, for *variola ovina*. In them also the disease followed in due course. The more investigation is carried on in this direction, the more reason is there to believe the interval between insertion and absorption of the poison to be very short. The following case shows that twelve hours is ample time. In July, 1858, a gentleman applied to me with the following story:—That morning, about four o'clock, during violent intercourse, he had felt a sudden snap. On awaking, a few hours after, he found the bed and his clothes much stained with blood, so that he must have bled freely. He discovered the frenum to be torn across; this made him anxious to know if there were any means to insure him against the chance of syphilis. At 3.30 p.m. of the same day, I examined the part, and found that the frenum was

¹ Thèse de Paris, p. 23. 1863.

torn down, the wound slightly swollen, but otherwise quiet enough. Ricord's views were then in vogue—that destruction of the sore within five days of its existence would prevent syphilis, and I assured him that cauterisation would remove all danger of the disease. To make sure, I destroyed a considerable layer of tissue with fuming nitric acid. In due time the eschar I made separated. The surface healed very quickly, and my patient's satisfaction was extreme. This was the end of July. In the latter part of August he called again, and showed me the cicatrix, which he said that morning he noticed to have altered. It was clearly indurated. Presently the glands in the groin enlarged, and general syphilis followed, which lasted a couple of years. The induration increased in the cicatrix, but it never ulcerated again.

Clerc¹ recites instances of the uselessness of ablution after intercourse, to prevent absorption. Among others, he relates the case of one of his pupils, who says:—"On the 10th of July, 1853, I had sexual intercourse with a prostitute, and *I washed myself immediately afterwards*. The following days I examined myself with much care. I detected absolutely nothing. On the 15th of July I left Paris for my father's house. I still took care to examine myself for the first few days after my arrival, but as nothing appeared, I thought myself free of any venereal disease; when, on the 7th of August, while I was being shaved, a smarting pain on the penis attracted my attention. I went home at once, to see what was the matter, and I found on the right of the frenum a very small excoriation, slightly prominent, of yellowish-grey colour. I cauterised it, that day and the following, with solid nitrate of silver, all to no purpose, for in the beginning of October the general eruption followed."

¹ Traité Prat. des Maladies Vénériennes, pp. 45, et seq. Paris, 1866.

It is thus certain that the poison is inevitably absorbed in a very short time after contagion; consequently, it is utterly useless to attempt to prevent general infection when venereal ulcers are already in development. Several of the witnesses before the Venereal Committee, 1865, stated the ill success of their attempts in this direction.

SUMMARY.

The causes of syphilis are *predisposing* and *exciting*. Predisposing causes are conditions facilitating the spread or increasing the severity of the disease. Syphilis is more severe in cold than in temperate climates: and in hot ones for natives of cooler climates. Any cause which enfeebles the condition of the individual, increases the severity of syphilis, among which are starvation, drunkenness, &c. All races are subject to the disease: when it invades a district not previously accustomed to it, its course is like that of other contagious diseases, becomes for a time more severe. Probably individuals exist who are insusceptible to syphilis, and escape contagion of that disease as they escape contagion of small-pox, &c.

The sole *exciting cause* of syphilis is a subtle principle called the virus. It must be passed from the infected to the non-infected. It is non-volatile, easily destroyed by altering the chemical constitution of its vehicle, by acting on it with heat or acids. The poison almost always enters by a breach of surface: experience is against its absorption through unabraded surfaces.

The vehicles of the virus are—The *secretions of all syphilitic eruptions and the blood*; but they usually cease to be contagious when the disease is almost extinct, and the so-called tertiary affections are left. It is unknown whether the saliva, milk, or semen, unless mixed with syphilitic secretions, convey the disease.

The *secretions of co-existing diseases* in syphilitic persons may be also contagious; certainly the disease is often transferred when vaccine lymph, matter of soft chancre, or vaginal discharges, are inoculated.

Close contact between individuals is eminently favourable though not necessary for communicating the disease; hence sexual intercourse, kissing, and suckling, are the usual modes of *immediate* contagion; while passing of spoons, cups, or glass-blowers' tubes, from mouth to mouth, and vaccination, are modes of *mediate* contagion.

There is probably no appreciable interval between the application of the virus to a denuded surface and its absorption; hence washing, or cauterisations, after contagion, in the hope of preventing the disease are useless, because the mischief they should prevent is already done.

Contagion by inheritance.—Our knowledge is imperfect respecting the ways in which syphilis is transmitted from parent to child. There is no doubt that if the mother is infected before or at conception, the child is very likely to receive the disease. Probably the child may contract the disease, if the mother is infected in the early months of pregnancy. If she is infected after the seventh month the child often escapes. As the disease subsides in the mother, the chances of escape for the child greatly increase, and after the second or third year of the mother's infection the child commonly escapes.

Infection from the father.—There is no doubt that the child may receive the disease from the father if the mother is also attacked. It is believed, also, that the child may inherit the disease from the father, while the mother escapes; but this is not established beyond doubt. It is supposed that the mother may become infected from the foetus; the evidence is much against the truth of that hypothesis.

SYPHILIS.



CHAPTER III.

PROGRESS OF THE DISEASE.

Incubation—The Initial Manifestation.

Incubation.—The consequences of contagion are not immediately manifested. The time that intervenes between inoculation and activity of the poison is called the *incubation period*. It may be employed in three ways:—First. When the vehicle containing the virus is of a non-irritating character, the broken surface heals, and all trace of the inoculation disappears until the incubation is completed. Bärensprung's and Pellizari's cases of artificial inoculation are instances of this kind. Secondly. As the vehicle of the virus is often pus or discharge of an irritable kind, inflammatory action at the point of inoculation takes place immediately. This irritation subsides in a short time, and the part then remains quiet until the incubation is complete, when the syphilitic poison betrays its presence by characteristic phenomena. Vidal¹ relates an instance of this: he inoculated the matter of a pustular eruption on the arm of a medical student, which produced a pustule in a couple of days; this healed completely in about a fortnight, and the experiment was supposed to have failed until the thirty-fifth day; action then recommenced by the development of a papule, which subsequently ulcerated, and general syphilis

¹ Casenave's *Annales des Mal. de la Peau et de Syph.*, p. 115, 1850, 1851; Vidal's *Maladies Vénériennes*, 1855.

followed in due course. Thirdly. If the syphilitic virus be carried in the pus of a contagious chancre, the time of incubation is occupied by the course of a chancre, which may or may not be concluded when the syphilitic poison begins reaction. This mode of beginning is perhaps almost as common as inoculation without the irritant matter of chancre, but the two diseased actions have no connection with each other, and are only accidentally co-existent.

The existence of a period of quiescence, first indicated by Cazenave,¹ but obvious in some of the cases narrated by John Hunter in his "Treatise on the Venereal Disease," though he did not suppose it to be a necessary phenomenon, has been incontestably demonstrated sufficiently often by experimental inoculation for us to estimate its average length. The following series of artificial inoculations show the length of the incubation under these circumstances: they are selected instead of cases of accidental contagion, because, unlike the latter, there is no possibility of mistaking the time of contagion. Cases of accidental contagion tally in this point in every respect with those where the poison has been experimentally inoculated.

The cases in the adjoining table include all the trustworthy reports of experimental inoculation I have been able to procure. They number thirty-nine cases, of which the incubation is stated with exactness in thirty-six. In these the average delay before the poison became active was twenty-four days. The most common periods were twenty-five and twenty-eight days, and the extremes ten and forty-six days. In a case of accidental contagion, Rollet² believes it to have been only nine days; this is the shortest yet recorded. An instance of extreme length is that of Aimé Martin,³ who relates a case where a chancre appeared

¹ Casenave: *Traité des Syphilides*, p. 144. Paris, 1843.

² *Pluralité des Maladies Vénériennes*, p. 26.

³ *Thèse de Paris*, p. 28. 1863.

TABLE OF THIRTY-NINE CASES OF EXPERIMENTAL INOCULATION OF SYPHILIS; showing the Source of the Contagious Vehicle, the Length of Time that elapsed between the Insertion of the Poison and the Appearance of the Initial Manifestation, and the Date of the Development of the General Eruptions.

OBSERVER.	No. of Case.	Source.	Length of Incubation before Change at Site of Inoculation.	First appearance of General Eruption after Inoculation.	Form of First Eruption.
Bürensprung ¹	2	Indurated ch. Mucous tubercles	28 days 28 "	55 days	Roseola.
Cullerier ²	1	Indurated ch., 2 inoculations	39 and 17 days	71 "	Roseola.
Galligo ³	1	Mucous tubercles	17 days		
Auzias Turenne ⁴	2	Mucous tubercles	18 "	55 days	Vesiculæ.
Wallace ⁵	3	Condylomata	25 "	37 days (circa)	Roseola.
"		Ulcerated tubercle	28 "	75 " (circa)	Maculo-papular.
"		"	21 "	77 " (circa)	Papular.
"		"	15 "	75 " (circa)	Maculo-papular.
Waller ⁶	2	Mucous patches	25 "	52 days	Macular.
"		Blood	34 "	65 "	Macular.
Rinecker ⁷	2	Pustules of a new-born child	28 "	159 "	Mucous tubercles.
"		Mucous tubercles	23 "	76 to 80 days	Lenticular.
Guyenot ⁸	1	Mucous tubercles	28 "	82 days	Papular.
Gibert ⁹	1	Bloody serosity of a tubercle on forehead	35 "	73 "	Scaly eruption.
Pellizari ¹⁰	1	Blood from vein of arm	25 "	65 "	Roseola.
Lindmann ¹¹	1	Secretion of ulcerated tissue	10 "	84 "	Roseola.
Vidal de Cassis ¹²	1	Secondary pustule	35 "	174 "	Roseola.
Danielssen ¹³	1	Indurated chancre	46 "	About 15 weeks	Herpetic eruption.
Anonymous surgeon of the Palatine ¹⁴	12	a. Mucous tubercle	18 "	45 days	Maculæ.
"		b. " "	23 "	130 "	Maculæ.
"		c. " "	15 "	83 "	Maculæ.
"		d. " "	17 "	61 "	Maculæ.
"		e. " "	17 "	43 "	Maculæ.
"		f. " "	25 "	64 "	Maculæ.
"		g. " "	31 "	64 "	Maculæ.
"		h. Sore of an inoculation on another patient	23 "	58 "	Maculæ.
"		i. " "	16 "	64 "	Maculæ.
"		k. Blood	—	93 "	Maculæ.
"		l. " "	—	111 "	Maculæ.
"		m. " "	—	134 "	Maculæ.
Kussmaul ¹⁵	1	Ulcer at corner of the mouth	25 "	A few weeks	Roseola.
Lindwürm ¹⁶	4	a. Ulcer	15 "	33 days (circa)	Papular.
"		b. Ulcer of an inoculation	19 days (pustules in 36 hours, lasted 6 days)	67 " (circa)	Roseola.
"		c. Mucous tubercle	21 days	...	Macular eruption.
"		d. Blood	4th week	...	Maculæ.
Hebra & Rosner ¹⁷	3	a. Mucous tubercles	16 days	76 days	Maculæ.
"		b. Soft ch. inoculated on a syphilitic man	36 "	69 "	Papulæ.
"		c. Indurated ch.	22 "	73 "	Papulæ.

¹ Annalen des Charité-Krankenhauses, Berlin, 1860. Bd. IX.

² Alfred Fournier: L'Incubation de la Syphilis. Paris, 1865.

³ Idem.

⁴ Gibert's Reports on Contagion of Secondary Syphilis. Bulletin de l'Académie de Médecine, p. 888. 9 Mai, 1859.

⁵ Lancet, vol. ii. 1837.

⁶ Prager Vierteljahresschrift, 1851. Annales des Maladies de la Peau, t. iii. p. 185.

⁷ Archives Générales de la Médecine, 1858; Verhandl. der Würzburger ärztl. Ges., Bd. i. S. 117. u. Bd. iii. S. 375.

⁸ Gazette Hebdomadaire, 1860; Thèses de Paris, 1859; Follin: Pathologie Externe, vol. i. p. 735.

⁹ Rapports à l'Académie de Médecine. Bulletins 1859, 1860.

¹⁰ Lancereaux: Traité de la Syphilis, p. 620; Gazette Hebdomadaire, 1863, p. 349.

¹¹ Casenave: Annales des Maladies de la Peau, et de la Syphilis, t. iv. p. 47.

¹² Vidal, Maladies Vénériennes, 1853, p. 358; Cazenave, Annales des Maladies de la Peau, et de la Syphilis, 1851, 1852, p. 115.

¹³ Danielssen: Deutsche Klinik, 1858, p. 322. ¹⁴ Canstatt's Jahresbericht, 1856, vol. iv. p. 337.

¹⁵ Kussmaul: Untersuchungen über den Constitutionellen Mercurialismus und sein Verhältniss zur Constitutionellen Syphilis, von Adolph Kussmaul, Würzburg, 1861. S. 30.

¹⁶ Die Lehren von Syphilitischen Contagium; Auspitz. Wien, 1866. S. 217. ¹⁷ Idem, S. 225.

on the labium of a girl, after she had been confined in St. Lazare prison seventy-two days. If there is no error in this case, it is the longest yet recorded.

There is no reason to suppose the incubation varies according to the source of the poison. More probably, within certain limits, it is determined by some peculiarity of the patient. In corroboration of this view, it should be recollected that the incubation of small-pox and vaccination, allied diseases, is not always the same to a day.

Alfred Fournier,¹ besides giving a long list of cases of accidental syphilis, where the period was noted, discusses this question carefully, and his essay may be read with great profit. Some excellent examples are also related by Bumstead² and Clerc;³ the latter recites seven observations where opportunity occurred for marking the incubation. These gave an average of twenty-one days. To cite many instances of the length of the incubation period in accidental inoculations is unnecessary. I shall confine myself to the following, which came under my own observation.—A physician attended in her confinement a lady with a mucous patch on the vulva; he himself had also an abrasion on the finger. For a few days, the abrasion showed a little irritation, and then subsided until the thirty-fourth day after contagion. Irritation then began again, a papule formed, and constitutional disease followed. A second case is that of J., related at page 45, the man whose cheek was cut and then sucked by a man with syphilitic secondary sore on his mouth, a fortnight before Christmas, 1863. The wound healed, and remained quiet till the latter end of January, when papules formed, and constitutional syphilis followed.

The initial manifestation.—The morbid changes which

¹ Incubation de la Syphilis. Paris, 1865.

² Bumstead on Venereal Disease, p. 405. 1864.

³ Maladies Vénériennes, pp. 45, et seq. Paris.

occur at the site of inoculation vary in their aspect to a certain extent, even when solely due to the awakening activity of the virus; but as they are often diversified through irritation of different kinds, the resulting affections have received various names, such as, infecting chancre—not suppurating chancre—indurated chancre—primary, or primitive syphilis. Perhaps the term *initial manifestation* is the least objectionable, because it comprises all the various phases in which the disease reveals its presence, without describing them, or attempting to distinguish one from another. As these initial manifestations are often slight and of short duration, it has been maintained that they may be completely absent, and that the disease may run its course without any indication at the point of inoculation. This is erroneous, *some change always takes place at the point of inoculation.*

In 1856, 826 patients with constitutional disease were treated at the Midi Hospital; in 815 of these, the initial lesion could be clearly traced; in only eleven could its presence not be unquestionably proved, but it was extremely probable that it had appeared in every one.¹

Varieties of the initial manifestations of the awakened activity of the virus.—These differ from each other in degree of development, not in essential diversity of structure—they are three: a. *The elevated desquamating papule*; b. *The superficial ulcer*; c. *The indolent ulcer with a hard base.* All are quite independent of any change produced by the admixture of irritating matter to the vehicle of the virus, to wit, that from suppurating chancre, or inflamed ulcers, which materially affect them. When irritating matter is inserted with the virus, the changes at the point of inoculation are either those set in action by these latter affections, or

¹ Fournier: Ricord, Leçons sur le Chancre, p. 325.

compound of them with those proper to syphilis; the chief of which is induration of the tissue around the inoculated point. The changes observed to take place when immediate irritation at the point of inoculation has been prevented will first be described; next, the aberrations from these typical changes that local irritation of different kinds produces. Too much weight must not be attached to the differences of these sores for the purpose of diagnosing the absence or presence of syphilis in any given venereal ulcer. This can be done readily in most cases, but it is quite impossible to do so in some, where the amount of irritation masks or destroys any character that is peculiar to syphilis, and not shared by ordinary ulcerative inflammation.

1. *The desquamating papule* begins by forming a small solid elevation at the point of inoculation; this, at first the size of a pin's head, extends until it may reach that of a sixpence or a shilling. The skin around retains its natural aspect, and no inconvenience, except now and then a little itching, is felt. The colour is reddish coppery, or reddish purple, like raw ham. The surface, slightly raised above the skin, is flat and smooth, being covered by a few thin scales of dry epithelium. Not unfrequently the papule undergoes no further change, but after five or six weeks grows pale and subsides, leaving no trace of its presence. When the site of inoculation is the scar of a previous chancre, the cicatrix is thickened by this new deposit, which then frequently assumes an irregular form; instead of round or oval, it becomes angular, or linear; in these cases the coppery tint is often altogether absent, and the surface retains then the same hue as that of the surrounding skin. This form is most common on the skin in situations which are kept dry and not chafed.

2. *The superficial erosion* comes between the dry scaling papule and the well-marked ulcerating papule; common

localities for it are the under surface of the foreskin or in women the opposed surfaces of the nymphæ, where the parts are constantly moist. For its production the surface of the elevated papule becomes red, secretes plentiful fluid, usually thin and serous, but occasionally puriform. These eroded surfaces are similar in appearance to the mucous patches of the general eruption which like these, owe their character entirely to the constant moisture. Sometimes on the skin or sheath of the penis the induration is very scanty, the surface consequently is only slightly raised; and it usually secretes a little viscid discharge, but has no tendency to extend, nor, unless irritated by dirt, to suppurate. Its edges are clearly defined by this peculiarity, with the absence of induration, causing it to slightly resemble the simple contagious chancre.

3. *The indurated ulcer* begins exactly in the same manner as the papule; but the surface instead of stopping short at desquamation, ulcerates. The ulceration begins at the centre and spreads outwards through the indurated papule but does not extend beyond the papule, whence the cicatrix is very small when the ulcer heals, and often imperceptible. The fully developed sore has the typical appearance of an indurated chancre. The base is hard and resisting, feeling between the finger and thumb like a cup of gristle set in the skin; its surface is covered by a scanty adhesive yellow discharge, the edges are sloping, rounded and the induration extends a little beyond the extent of the ulcer. The progress is always slow and, if the sore is kept clean and free from irritation, terminates by cessation of the ulceration, cicatrization of the surface, and absorption of the indurated deposit. The period of existence of the initial manifestation varies from three or four weeks to, in rare cases, a duration of several months, if not shortened by treatment.

Effects of local irritation on the initial manifestation.—When pus of a soft chancre, or even pus of any kind is inoculated with the syphilitic virus, irritation and inflammatory action set in without delay at the breach of surface to which the matter has been applied. Vidal¹ applied the discharge of syphilitic ecthyma to the arm of a medical student. The irritation of the pus produced a pustule in three days, which, however, healed in fifteen days; the remainder of the incubation was passed in tranquillity until the thirty-fifth day, when the initial manifestation began with the production of two papules which ulcerated after they had formed, and were the prelude to general eruption. The immediate irritation in this case was exactly similar to what the same matter produced when Vidal² inoculated it on the syphilitic patient whence he obtained it, though in him, of course, this immediate irritation was the sole result of the inoculation.

A parallel change takes place, if the syphilitic poison be mixed with that of the suppurating chancre; irritation begins immediately, producing a soft chancre with purulent discharge in two or three days, which runs its course, irrespective of the incubation of the syphilitic virus. If the sore is still open when the incubation ends, it acquires an indurated base. The double cause of the affection is shown by the immediate inflammation and ulceration that takes place immediately after contagion, and the induration that is developed some weeks later. Sometimes, an ulcerating papule, which does not form till after the lapse of incubation, will suppurate if accidentally irritated, and the ulcer closely resembles one in which irritation has been excited at the outset.

¹ Vidal: *Maladies Vénériennes*, p. 358. 1853.

² Vidal, *loc. cit.*, p. 356.

The reader is referred to the chapter on Syphilisation, for explanation of the results of inoculating the secretions from these ulcerating surfaces. It suffices here to remark, that the mixture with the matter of a soft venereal ulcer, is not the only way to make the syphilitic ulcer furnish a contagious pus, which, when inoculated, produces a succession of pustules where the matter is inserted. Mechanical irritation has been employed for this purpose by Lee,¹ Bidentkap and myself. This question is more fully discussed in the chapter on Syphilisation; here only the different ways the local ulcer may be altered from typical characters are described.

The suppurating ulcer, with an indurated base and a non-inoculable discharge, is called by Rollet³ the mixed chancre. This term denotes that both contagious principles are present in the sore. This explanation appears to me to be satisfactory, as there is no theoretical reason why the two should not be present, and Rollet, Laroyenne, Sigmund and others, have succeeded in making indolent hard ulcers inoculable on their bearers by touching them with pus from soft chancres. Indeed the advocates of syphilisation (Boeck and Bidentkap) prefer a suppurating indurated ulcer for the source of their inoculating pus.

The disease begins its course in these various ways; and the varieties, when uncomplicated with local irritation, are mild affections, disturbing the system very little, and, therefore, in many persons altogether overlooked.

Acute inflammation, violent suppuration with sloughing, and abscess in the lymphatic glands, occasionally attack the initial manifestation in the early stages of syphilis.

¹ Syphilitic Inoculation. 1865.

² Wiener Med. Wochenschrift, 1865, No. 34; Auspitz, Die Lehre von Syphilitischen Contagium, p. 322. 1866.

³ Rollet: Pluralité des Maladies Vén. 1860.

These are only present when the patient has, in addition to the infection of syphilis, some local irritation not part of syphilis. Inflammation and phagedena are generally consequences of irritating matter acting on an exhausted or debilitated constitution quite independently of syphilis. Recently, I had among the out-patients of University College Hospital, a man who lost by sloughing chancre of the frenum a considerable part of the under side of the glans, the urethra being laid open for a short distance; the chancre healed, and while healing indurated very widely. The inguinal glands enlarged, scaly and pustular eruptions of the arms and trunk followed closely on the induration, and formed part of a very severe attack of syphilis.

Number.—The initial manifestation is usually single. Now and then several are met with on the same person. Chance favours absorption at one point rather than at many; still, if the virus happens to be applied to several breaches of surface at the *same time*, several papules subsequently appear at these points of contagion. When the patient has had herpes preputialis at the time of infection, by which a wide surface of the foreskin was denuded, the prepuce often assumes a leathery consistence. Their singleness is a very characteristic distinction of syphilitic sores from soft chancres, which are usually multiple, because the acrid condition of their discharge enables them to repeat themselves wherever a breach of surface may chance to occur.

Seat.—The initial lesion has been found on every part of the surface of the body, least frequently, of course, in parts seldom brought in close contact with other individuals, and also best protected by thick epithelium. Within the body¹

¹ Fournier: *Leçons sur le Chancre*, p. 364.

it has been seen in the mouth as far as the tonsils, and in the last two inches of the rectum it is occasionally met with. Along the urethra it penetrates a short distance, the furthest I have observed being an inch and one eighth from the meatus. Fournier relates a post-mortem examination of one in the fossa navicularis. They are not uncommon at the meatus, where the induration of both sides gives the meatus a pouting funnel-like shape. The lips, being easily excoriated and frequently exposed by contact, are common points for the contagion to enter by. The nipple, too, in women suckling syphilitic children is often the seat of inoculation, while, in accoucheurs, the finger is sometimes the point of infection. The genitals, of course, far precede all other parts of the body in frequency of inoculation. Of 472 cases of syphilitic inoculation in men, Fournier¹ found 314 on the prepuce and glans; 60 on the sheath of the penis; 32 on the meatus; and 17 within the urethra; 12 on the lips; 6 on the arms; and the remainder on other parts of the body. Clerc,² also, of 403 local manifestations with general disease, found 234 on the inner aspect of the prepuce and furrow behind the glans; 58 on the sheath of the penis; 33 at the meatus; and the remainder on various parts of the body. Besides these 403 cases, Clerc had in the same period (two years and a half) nine other cases of early syphilis, in which the situation of the primary manifestation could not be traced. The eyelid, nostril, and navel are among the extremely rare situations which are noted by Fournier as points of inoculation.

Of the situations frequently inoculated in women, Clerc³ gives 113 cases in which it was noted: 29 were on the nymphæ; 25 on the labia majora; 16 on the fourchette;

¹ *Leçons sur le Chancre*, p. 364.

² Clerc : *Maladies Vénériennes*, p. 97. Paris, 1866.

³ *Loc. cit.* p 100.

and the remainder scattered about all parts of the body. In women the local manifestation so frequently escapes notice, that Clere has failed to find it in a fifth of the women admitted with recent syphilis. At the Lock Hospital it is extremely unusual to find the point where the disease entered. Probably the initial manifestation is, in many cases, situated on the vagina, and is cleared away before any examination is made. Indurated ulcer of the vaginal portion of the uterus is extremely rare; when present it renders the latter tough and hard; if the surface is lightly pressed, the colour is said by Zeissl¹ to resemble mother-of-pearl.

Induration.—The hardening of the area immediately around the point of infection varies much according to its situation, and according to the individual, but is very rarely, if ever, wholly absent. It is best developed in the skin, not so well in the mucous membranes. It is sometimes ill-marked on the glans penis and the nymphæ, but even there it may be abundantly developed. It takes the form usually of a circumscribed nodule set in the tissue, varying in size from a pin's head to a large bean, and feeling between the thumb and finger hard and elastic like a cup of cartilage. Sometimes, on the inner aspect of the foreskin, instead of being developed in a mass, it is spread in a thin layer over the surface as large as a sixpence or a shilling; this form is called by Ricord "Parchment induration." A prepuce so thickened has a peculiar appearance as it is turned backward. Now and then the induration is confined to one or two sebaceous follicles, which then feel like small beads set in the deeper part of the skin. The blanching all the varieties of syphilitic induration undergo, if pressed, is very characteristic: the indurated skin loses

¹ Zeissl: Constitutionelle Syphilis, S. 39.

its colour much more readily than the healthy tissue round it.

When the induration has developed to a certain extent, it disintegrates by degeneration of its component parts; this slow process, when free from irritation and congestion, forms the ulceration which sometimes takes place on the surface of the papule.

The course of the initial manifestation is slow. After an interval of desquamation or ulceration, the tubercle subsides, shrivels, and disappears, leaving sometimes a cicatrix, generally no more than a stain in the skin which, also, after a while, is wholly lost. A common time for it to subside is the appearance of the macular eruption, &c. Zeissl¹ and Clerc² believe that a papule may reform, and even ulcerate again after having subsided, this is a distinction between this and the simple chancre hitherto overlooked.

The duration of the induration in Zeissl's cases was never less than ninety days, counting from the moment of its first detection, and the hardness often continued eight or nine months. Puche³ says from sixty to eighty or a hundred days is almost the rule, and mentions a case where even after nine years the induration could be detected. Clerc⁴ says the duration depends greatly on the amount and form of the thickening; when considerable, or pea-shaped, it often continues six or eight months after its formation. On the other hand, when the induration is but small, it soon disappears. He once lost all trace of an indurated papule in twelve days after it first appeared.

The anatomical characters of induration-tissue have been carefully described by Virchow, Robin, and others. The

¹ Zeissl: *Constitut. Syph.*, S. 36.

² Clerc: *loc. cit.*, p. 72.

³ *Leçons sur le Chancre*, p. 136.

⁴ Clerc: *loc. cit.*, p. 83.

skin when seen on section is found permeated with nucleated cells massed together by proliferation of the cells of the deeper part of the corium, which pass between the papillæ, and lift them up above the general level. These cells have no further development, no defined tissue results from their production; but they quickly degenerate, and are mingled with oil globules, granules, and pigment. The last is especially abundant at the point where ulceration is going on. Virchow finds the structure of these primary indurations to be identical with the so-called gummy tumours of the viscera and other parts of the body in cases of long standing syphilis. Lately an attempt has been made to consider this morbid deposit peculiar to syphilis, and Wagner¹ has given it the name of *syphiloma*. He looks upon this hard, elastic, transparent structure to be as much a peculiarity of syphilis as tubercle of tubercular, or cancer of cancerous disease. His views have not at present found much favour with pathologists.

Complete absence of induration.—In considering this still much disputed point, it must be borne in mind that induration of the primary manifestation is only a symptom of the general disease, and not a necessity for the absorption of the poison, therefore, being nothing more than a symptom, it may be absent or vary in intensity like any other symptom of the disease. Luckily for the diagnosis it very rarely indeed is wanting. Excellent authorities believe such want of development is sometimes met with, others again, searching for it carefully, have always found it. Clerc,² who believes in the occasional absence of induration, met with, in two years and a half, ten cases of early syphilis where he could find no primary manifestation whatever; but he also

¹ Wagner: Das Syphilom. Archiv der Heilkunde. 1863—4—5.

² Loc. cit., pp. 78, 98.

records a case where induration disappeared completely in twelve days. Consequently, it is probable that the induration, when supposed to be absent, is unobserved.

The exceptions are so few, even if they exist at all, that practically, induration is constantly formed at the point of contagion. Bassereau,¹ in 170 cases of syphilitic initial manifestation, found 157 plainly indurated; in 13 it was doubtful; but he did not pretend to say induration had been absent throughout in any of these.

It is often thought that much induration of the initial papule is a sign of a severe course of syphilis. Bumstead,² who is of this opinion, quotes Babington, Bassereau, and Diday, to support this view. I have notes of nine cases of severe protracted syphilis, where I had the opportunity of observing the condition of the initial manifestation. The induration was extensive in six; in two it was moderate, but they were weakly lads of eighteen to twenty. And in the last, the induration was so ill-marked, that I waited till the roseola showed itself before I could be sure syphilis had been contracted. Again, I have notes of two more cases where induration was great, and in one a lump formed on the prepuce as big as a horse-bean, and in the other, a woman, the induration extended deeply over an area as big as a shilling, on the right labium majus. The male patient usually showed himself twice a-week for six months, never allowing a longer interval than a week between his visits. His syphilis was confined to this copious induration to enlarged inguinal glands, and to superficial ulceration of the tonsil, with inflammation of the fauces. The woman had sore throat, papular eruption on the shoulders, and some mucous tubercles. The general health of both these

¹ Bassereau, p. 130.

² Venereal Diseases, p. 415. 1864.

persons remained excellent the whole time. They were infected in January and March, 1865, and they have been free from relapses since August and December of the same year until the present time, end of 1867.

Indolent Enlargement of the Lymphatic Glands (Indolent bubo, chronic adenopathy, Pleiade ganglionnaire), communicating with the infected locality. This symptom comes next after the formation of the initial manifestation. This change is a most important one for the diagnosis when the characters of the commencing papule do not decide whether syphilis is present. The glands begin to alter shortly after induration commences at the point of contagion. In the cases of artificial inoculation, where the changes of the glands were closely observed, ten or eleven days¹ elapsed before the glands began to enlarge. They continue to increase slowly until they have doubled their original size. No pain accompanies the enlargement, at most only little passing tenderness, which soon ceases. The skin retains its natural colour and suppleness, because it is not implicated in the changes going on in the glands beneath, and there is complete absence of inflammatory action. The anatomical alteration consists in irregular hypertrophy of the cellular tissue that composes the framework of the gland. This change is essentially the same as the induration of the primary manifestation. On section the gland is firm, dense, and pale, unless very recently enlarged, when it has a pinkish hue. The cellular tissue around the gland is unaltered. The gland of the group affected, which is nearest to the point of contagion, begins the enlargement, and attains a greater size than the others. If the inoculation take place near the middle line, on the frenum, for

¹ Fournier, Incubation de la Syphilis, p. 20, et alibi; Follin, Pathologie externe, vol. i. p. 736; Zeissl, loc. cit. S. 51; Bärensprung, Annalen des Charité Krankenhauses, Bd. 9, 1tes heft.

instance, glands in both groins enlarge, being influenced by the lymphatics running from this point to each side.

Swelling of the glands is not always confined to those immediately connected with the primary manifestation, it extends often to the superficial glands of the back of the neck and other parts. This general enlargement of the lymphatic glands occurs in young persons of lymphatic temperament, before, or during the evolution of the papular eruptions. Marked anæmia, or leucocythemia, from the great increase of the colourless blood-corpuscles, accompanies this change in the glands, and gives the complexion a muddy or pasty hue. After a while, the glands resume their usual size, and the white-cell condition of the blood diminishes. Malaise, pallor and indisposition to exertion sometimes accompany swelling of the lymphatic glands, and to these are often joined flying rheumatic pains in the head, shoulders, limbs, or along the course of a particular nerve. Such are usually all the constitutional disturbances complained of by patients, but the febrile action which accompanies the appearance of the eruption on the skin is occasionally present here too; the headache at this time may be even agonising. Usually the glands of different regions change only when eruption exists on the parts with which their different ducts are connected. Early anæmia is not always present; patients often retain a flourishing appearance through the whole course of the disease. And malaise is often absent; the patients are so far as their sensations go in excellent health. The swelling of the glands continues three or four months, after that they commonly regain their natural size. Sometimes they even shrink from atrophy, fatty degeneration, and calcification, and their function is more or less completely prevented.

Suppuration of these enlarged glands occurs, but probably never through the influence of syphilis alone. In young,

weakly, or strumous persons, after violent exercise or fatigue, abscess may form in these indurated glands, as it does when syphilis is not present. The gland which enlarges first is that which usually suppurates, but the pus it secretes is not inoculable, for the bubo is sympathetic and never virulent. In 1400 cases of venereal disease, Mr. Henry Lee¹ found 98 of secondary symptoms with suppuration of the inguinal glands. Still, in all but 6 of these, some cause presumably distinct from syphilis occasioned the suppuration. At the Midi Hospital of Paris in 1856, there were in Ricord's² wards three cases of suppuration of the glands accompanying constitutional syphilis, but they were scrofulous patients. Bassereau³ gives 380 cases of constitutional syphilis where he could mark the condition of the glands. Of these 19 had suppurating buboes, and 323 had general enlargement; in 35 no enlargement was observed. At the Royal Naval Hospital,⁴ Plymouth, in the years 1861-2-3-4, 1600 cases of venereal ulcer were admitted. Of these 209 were complicated with suppurating bubo, and followed by syphilis; but as no mention is made of the nature of these chancres, it is fair to conclude that many were simple chancres co-existent with syphilis.

It is not yet quite agreed if enlarged glands are always present in syphilis. Ricord asserts they are a necessary phenomenon. Bumstead does not know of an exception. Sigmund believes them to be the only unfailing pathognomonic sign of syphilitic infection. Clerc, on the other hand, says, that in rare exceptions the lymphatic glands undergo no alteration at any period of the disease; he says, moreover, that the glands

¹ Medical Association Journal, Dec. 7, 1865.

² Fournier: *Leçons sur le Chancre*, p. 157.

³ Bassereau: *loc. cit.*, pp. 147, 301, 378, 398, 445.

⁴ Dr. Beith's evidence before Committee on Venereal Disease in the Army and Navy, 1865, p. 152.

are most enlarged where the primary manifestation approaches the typical papular form, and are least developed when induration is ill-marked or wanting at the point of contagion. I have myself now under my care a patient whose primary manifestation was never distinctly and satisfactorily indurated, and in whom the lymphatic glands of the groin have been unchanged, though his body is now marked with papular eruption. Bassereau, in his 380 cases, found that in 35 the glands were not enlarged at the time of observation, while the amount of enlargement varied much in those where it was distinctly present. This makes it probable that the glands in a small number of cases escape alteration.

One of the *lymphatic vessels* now and then forms a hard string, the size of a crow quill, along the penis; it is painless, and rolls under the fingers. The enlargement is due to thickening of the coats of the vessel very similar to that they undergo in leucocythemia; this chronic affection is distinguished from ordinary lymphangitis by absence of pain, and redness.¹

Diagnosis of the Initial Manifestation.—This is usually easy notwithstanding the occasional confusion of the initial manifestation of syphilis with local venereal ulcers. It is made in ordinary cases by the presence of the four following characters:—First. The time of quiescence, usually about twenty-four days before induration begins at the point of contagion. Second. The presence of induration. Third. The superficial character of the ulceration; and, lastly, the painless general enlargement of the nearest group of the lymphatic glands speedily following the induration of the point of contagion. The discharge is viscid, adherent, and scanty, quite unlike the secretions of local ulcers; but if a syphilitic ulcer suppurate, its discharge is as purulent

¹ See Zeissl, *Die Constitut. Syph.*, and Bassereau, *loc. cit.*

as that of the local sore. The primary syphilitic ulcer is likely to be confounded with simple chancre, herpes preputii, excoriations and chafings, warts, and epithelial cancer. The distinctions between *simple chancre* and syphilitic sores, are given in the description of the Local Venereal Sore, and need not be recapitulated here. *Herpes* is distinguished by acute inflammation of an itching area and copious secretion, the irritation and traces of which subside in a few days with cleanly local treatment. Similar treatment brings the same result in excoriations also, which moreover show themselves in a few hours after the chafing that occasioned them. None of these have the induration, the viscid discharge, and the enlarged glands of the syphilitic ulcer. In such cases, nevertheless, whenever a risk of exposure to syphilis has occurred, a positive diagnosis must be reserved until time for the incubation is passed; as the induration may come on after the patient has shown his sore to the surgeon.

Epithelial growths are sometimes, by their obstinacy and long existence, mistaken for syphilitic sores. They are distinguished in their early stages by their margins being raised into prominent tubercles, and by being cracked and fissured; by the neighbouring glands not being enlarged, for they remain unaffected a long time unless the cancer progress rapidly, when the disease is not likely to be mistaken for an indurated sore. If the sore has existed a few weeks, other symptoms of syphilis will be present if the ulcer has a syphilitic origin; but induration alone of the syphilitic ulcer can by no means be trusted, for epithelial growths frequently extend into the surrounding tissue, and closely simulate syphilitic induration. Epithelial growths are most often taken for chancres when placed on the glans penis, or vulva, where they are far less common than syphilitic ulcers; on the other hand, a syphilitic initial papule is more frequently mistaken for an epithelial growth when

forming on the lower lip, where it is comparatively rare, and cancer very common; but attention to the distinctions just given usually renders the diagnosis clear, especially for a syphilitic induration of the lower lip, which is early accompanied by enlarged submaxillary lymphatic glands. To recapitulate the characters of the syphilitic ulcer:—They are, 1. The smooth, scanty, viscid secretion. 2. The sloping edges. 3. If induration be marked at the base of the ulcer, it is also evident in the neighbouring lymphatic glands. 4. In six to twelve weeks after infection, other symptoms of syphilis, papular eruption, sore throat, pallor, &c., appear.

Patches of the general eruption of syphilis are sometimes mistaken for initial ulcers, when situated in suspicious localities. Papular eruptions occasionally indurate on the penis, and if neglected even ulcerate, thus resembling the initial manifestations exactly. Dr. Hardie¹ has seen this take place in two individuals, while they were under his care in hospital with general syphilis. In the lower class of prostitutes, who have been suffering with syphilis for years, tough indurated cicatrices are common at the entry of the vagina, and they closely resemble the ordinary commencing indurated sore of syphilis when irritated by neglect.

The *fibroid gummy deposits* beneath the surface, when occurring in the glans penis, or other parts of the pudenda of both sexes, after breaking on the surface, often assume an eroding action, which gives them very much the aspect of a sloughing chancre. They are distinguished by the unenlarged condition of the glands, by the absence of local congestion, the glairy discharge, and by the presence or traces of syphilitic disease elsewhere. Old scars of rupia, nodes on the shin, and nearly always the peculiar pallor that attends long-standing syphilis, also help the diagnosis.

¹ Evidence before the Venereal Committee, 1865 (Q. 1896).

When this kind of ulcer is seated on the tongue, it is also mistaken for the initial lesion. An instance recently came under my observation:—A woman, married some years, in whom there was no history of general syphilis, but a very distinctly syphilitic complexion, was treated with mercury for two months without benefit before she came under my care. When I saw her I found the ulcer to be on the right side of the tongue near the tip. It was not elevated above the surface in the least; on the contrary, it formed a ragged cavity in the muscular substance, with some thickening and hardness around it. The patient said that it had existed as a hard lump in the tongue for some months before it burst; some matter then escaped, and the hole remained open ever since. She recollected, moreover, that for the last two years she had had lumps in the tongue not exactly where this one was, and that one burst leaving a sore, which was very painful when she had hot or sharp-tasting food in her mouth. No other symptom of syphilis had been observed; but though she had been married eight years she had no children. The earthy pallor of the face and soft palate was very distinct. This circumstance, with the history of the nodules in the tongue, induced me to diagnose them as gummy swellings of the muscular substance. She took iodide of potass, and in six weeks the cavity filled, and the thickening almost entirely disappeared.

The diagnosis is also uncertain, when the patient is ignorant of the date of infection, and shows a fresh sore which suppurates and has no multiple enlargement of the neighbouring glands. In this case even a positive opinion cannot be expressed until the ordinary incubation of syphilis is passed, and time allowed for the induration to develop, should it have been inoculated.

Comparison of Venereal Ulcers with their Source.—Some observers, at the time when it was believed that syphilis was

propagated only from indurated chancres, thought much would be gained by comparing a given indurated sore with the lesion from which it was contracted. Bassereau and Fournier showed by this plan, that whenever a person was infected with an indurated sore, the person whence he contracted his disease had syphilis; and vice versâ, whenever the sore was simply suppurating, the source of the contagion was free from syphilis.

Inoculation of the discharges of the sore on the bearer (the so-called auto-inoculation) was at one time upheld by Ricord as an unerring distinction between the simple chancre and the syphilitic sore. The simple ulcer is easily reproduced by inoculation, but the thin discharge of the syphilitic sore always fails to produce any effect when inoculated on its bearer. This distinction is now shown to be untrustworthy, for two reasons: first, the syphilitic virus may be present in a patient suffering with local ulcers also, and the pus of these ulcers might be inoculable, notwithstanding the presence of general syphilis; secondly, the thin discharge of the ulcerated papule of syphilis is not inoculable on its bearer; nevertheless, if the papule is made to suppurate by any kind of irritation, the pus from it sometimes becomes freely inoculable. Thus Ricord's test to distinguish venereal sores is a useless guide in diagnosis. This question is more fully discussed in the chapter on Syphilisation.

The *prognosis* is that of syphilis, and the patient must expect further development of the disease.

SUMMARY.

The interval between the introduction of the poison and the commencement of its activity is called the *incubation*. This period has an average of twenty-four days. In a series of cases where its length could be accurately marked, it was never shorter than ten days, nor longer than

forty-six days, and probably is nearly always about twenty-four days. The reasons of its variation in different individuals are yet to be learned; but in this respect it is analogous to other contagious diseases where the incubation varies within certain limits.

When incubation is passed, some change always takes place at the site of inoculation. This change, the *initial manifestation* has three forms: 1, the elevated desquamating papule; 2, the superficial ulcer; 3, the indolent ulcer, with a hard base. These three forms are quite independent of any local irritation present with them. All varieties of the initial manifestation begin by forming a solid papule, which remains dry, losing the cuticle from its surface, without reaching ulceration. In the superficial ulcer or erosion, the induration of the tissue beneath the ulcerating surface is less abundant, and the surface secretes a thin discharge. In the third, induration is well marked, and also the ulceration, though the discharge is not copious or purulent. This is the most easily recognised form. When fully developed it has a hard, resisting base; the surface is covered by a scanty adhesive discharge; the edges are sloping, rounded; and the induration extends a little beyond the ulcer.

Effects of local Irritation on the point of Syphilitic Inoculation.—If chancrous pus or matter from any irritable sore be inserted with the syphilitic secretion, immediate action of this irritant begins, the intensity and continuance of which depends on the source of the irritant. If it has been drawn from a suppurating ulcer, a similar ulcer is produced in a few days, which runs a course identical with that of the sore it sprang from. If the irritant matter be drawn from a feebly irritating source, the action is less violent, and subsides in the course of a few days. Similar effects ensue if the irritant be applied to a syphilitic ulcer after it is developed. Chancrous pus laid on the surface of an indurated ulcer, sets it

to suppurate freely, and to acquire the character of a suppurating chancre. This is the mixed chancre of Rollet. Sloughing action at the point of inoculation is no preservative against syphilis.

Syphilitic ulcers are usually single. Their seat is spread over any part of the surface of the body, the prepuce and glans penis being the most frequent. The induration at the point of inoculation varies, according to its situation and the sex of the patient: it is rarely, if ever, wholly absent. The stay of the induration is long—ninety days being commonly a short period. Its anatomical structure is like that of syphilitic productions of any other period of the disease; it consists of nucleated cells and ill-formed fibres massed together. These cells do not develop into a defined tissue, but degenerate into granules and pigment, especially when ulceration is going on. Copious induration at the seat of contagion is not always an indication of a severe course of the disease, though the two often go together.

The *lymphatic glands* connected with the point of contagion begin to enlarge, slowly and painlessly, about eleven days after the induration of the point of contagion itself. This enlargement results from general congestion and irregular hypertrophy of the glands. The cellular tissue around them remains unchanged, and they can be plainly felt as a *group* of enlarged glands beneath the skin. In weakly persons this local change is sometimes followed by enlargement of the lymphatic glands throughout the body, of which the most plainly affected are the nuchal lymphatic glands. This further change in the glands is accompanied by increase in the colourless corpuscles of the blood, pallor and languor. Enlargement of the lymphatic glands is sometimes ill marked, and escapes observation. When it departs, the glands shrink back to their original size, or even, by fatty and calcareous degeneration, lose their normal structure.

Suppuration in these glands, so common a complication of the local chancre, is unusual, and is the consequence of artificial irritation being applied to the sore; never dependent on the disease alone. The number of cases where the glands suppurate, is very small. The opinion once generally held, that suppuration of the lymphatic glands is protective against general infection, is quite devoid of foundation. The lymphatic vessels sometimes thicken as they run along under the skin to the glands.

The *diagnosis* of a syphilitic initial lesion depends on the incubation of the sore, the induration, the languid, superficial quality of the ulceration, should that be present, and the painless, general enlargement of the nearest group of lymphatic glands. In all venereal ulcers where the presence or absence of these characters cannot be ascertained, the diagnosis must be uncertain.

The *prognosis* is that of syphilis.

SYPHILIS.

CHAPTER IV.

ERUPTIONS ON THE SKIN.

Preliminary Period : Malaise, Fever—General Sketch and Points of resemblance of the eruptions : Macular, Papular, Vesico-pustular, Pigmentary, Tubercular : Gummy Nodules, Serpiginous Ulcers, Alopecia, Nails—Summary.

Period preliminary to the exanthematous Stage of general Eruption.—When the initial lesion and the enlarged glands are developed, an interval commonly ensues before further phenomena of the disease appear. If this is counted from the first appearance of the papule to the first appearance of the general eruption, in sixteen of the cases of artificial inoculation detailed in page 62, the shortest interval was 19 days, the longest 131 days. In nine it was between 20 and 40 days. In cases of accidental inoculation, the period is reckoned to be between four and six weeks. (Sigmund.) This is about the average of those cases of experimental inoculation in which no uncertainty exists concerning the interval before the eruption. Lancereaux¹ assigns, on the authority of Leudet, a space of 60 to 70 days after contagion, or 40 to 50 after the appearance of the primary manifestation. Zeissl² has never seen the eruption appear before the eighth week after contagion. In ten cases of my own, where I was able to ascertain the date of contagion with probable exactness, the interval between contagion and

¹ Lancereaux, loc. cit., p. 116.

² Zeissl, loc. cit., p. 170.

eruption in the shortest was eight weeks, and in the longest fifteen after contagion. It may be concluded, then, that the first general eruption of the skin takes place about ten weeks after contagion, or seven after the commencement of induration of the initial lesion; and between five and six after the enlargement of the neighbouring lymphatic glands.

Febrile Disturbance.—The appearance of the rash is frequently, though by no means invariably, attended by general disturbance of the functions, such as inappetence, nausea, flying pains in the body, persistent frontal headache, depression of spirits, irritable temper, &c. In some, and probably most persons, the bodily temperature rises for a short time; still, this elevation may be entirely absent from first to last. Güntz,¹ who has examined the temperature, finds that no rise takes place until the occurrence of general disturbance of the system and the eruption. It then rises to 100°—102° F. at night, falling in the morning to 99° F., and continues this alternation during a few days, or even weeks, while the rash is appearing. The degree of elevation depends on the amount of eruption, coryza, &c. present. Acceleration of the pulse also takes place, while the temperature is increased. A few observations of my own confirm the statements of Güntz concerning this elevation of temperature. In observations on six patients, taken at the outbreak of the eruption, I found the temperature rise in the evening to 100°—101 $\frac{2}{3}$ ° F., 100° F., and 102° F.; in two others, where the eruption was scanty, it did not reach 100° F., yet these patients complained of headache and dullness similar to that felt by the other four. In the morning the temperature of all was 98° to 98 $\frac{2}{3}$ ° F. I found also the temperature in two other cases of widely-spread rupial eruption to be raised to 100° and 101° F. while the eruption was extending, though these patients had suffered some years

² Schmidt's Jahrbuch für 1863.

from the disease. In very rare cases this febrile re-action acquires a periodic character. Among Zambaco's¹ cases is one in which the fever was particularly well marked: it was that of a woman, 26, who was attacked with pain in the limbs and slight fever. A fortnight later the fever became severe. Every day, at 5 p.m., she had a shiver lasting fifteen minutes, then followed by heat and sweat. This ague-fit was repeated during a week, after which a papular eruption over the whole body, and other unmistakable signs of syphilis appeared. The fever continued unabated during seven weeks, in spite of \mathfrak{Oj} of quinine per diem and other febrifuge medicines. When mercury was given, the fever subsided in four days, and in six had entirely left her; her recovery of strength and appetite was so rapid that the patient left the hospital in a short time, relieved of all her symptoms. Yvaren² recites a case, and Zambaco inserts another case reported by Lasègue, where this intermittent character was well marked. Lancereaux,³ too, has collected similar examples from the works of Boyer and others. Reaction so intense as that of the foregoing cases is exceedingly rare, but a short period of general malaise and loss of appetite is usually present. MacCarthy (quoted by Lancereaux) states that he found premonitory febrile reaction in forty out of sixty cases of early eruption. A curious feature of these constitutional derangements is, that they all, from the lightest to the severest, subside at once under the influence of mercury.

This preliminary febrile stage of a few days' duration, is continued by an exanthematous eruption, which runs its course, and is followed by, or transformed into, other erup-

¹ Zambaco: *Maladies Nerveuses Syphilitiques*, Case 74, extracted from the *Archives de la Société Méd. d'Observation*.

² Yvaren: *Metamorphoses de la Syphilis*, p. 173.

³ Lancereaux, *loc. cit.*, pp. 121 and 123.

tions with tolerable regularity. The eruption first assumes the macular form; as such it subsides, or, while fading, is replaced by varieties of the papular eruption. In many cases, the disease terminates with the subsidence of the papular eruption, at the end of the exanthematous period, and about six months after contagion.

If mercurial treatment is employed before the appearance of the eruptions, the preliminary fever is completely prevented, and the rashes are postponed, or assume a slower course, and are limited in extent; but mercury seldom wholly prevents the general symptoms. Another character of the rash is, that the first eruption often appears suddenly, or greatly increases its extent, after bodily excitement, such as a night's dancing, or supper-party, or sexual enjoyment. Besides this one, there are doubtless other ill-understood reasons affecting the time at which the eruption appears. The excitement of the system produced by vaccination probably arouses latent syphilis into activity in children inheriting the disease from their parents. But neither season, nor age, nor sex, has power to occasion its appearance or prevent its absence.

ERUPTIONS ON THE SKIN, OR SYPHILIDES.

General Remarks.—Syphilitic eruptions resemble many of the ordinary cutaneous eruptions; hence, the various forms have been named accordingly. They are distinguished from the latter, however, by characters they have in common, and by some peculiar to each: thus their diagnosis is rarely a matter of much difficulty.

Characters possessed in Common by the early Forms.—

1. The *papular* is the commonest eruption. All the other, even the macular, eruptions are mingled more or less with papules, and for this reason the papule becomes the type or basis of all syphilitic eruptions. With this tendency to

produce papules, the different rashes do not develope into typical examples of the kind among which they are classed. The vesicles are abortive, and the scaling patches desquamate but scantily.—2. *Symmetry of the rash.* In the early stages both sides of the body, both arms, both legs, are beset with spots, because the virus producing them pervades all parts of the body.—3. *The colour of the eruptions.* At first, this is often bright red, but it changes quickly to the hue of raw ham, or assumes a coppery tint. As the eruption fades, the brown colour becomes more distinct, and ultimately turns to brownish-grey before disappearing altogether. In vascular or dependent situations, like the face or lower limbs, a purplish tinge sometimes pervades the brown, but this is less common than the coppery-red hue. The rapid change of the bright redness to the peculiar coppery-red or raw ham-like colour, is very characteristic.—4. *Rarity of irritation.* Syphilitic rashes are almost always entirely free from heat, itching, or smarting, symptoms of which one or other is a common character of most non-syphilitic affections of the skin, and is often their prominent symptom. This peculiarity in syphilis is in part owing to the usually slow progress of the eruption, for a little transitory itching does accompany a syphilitic rash when that is very rapid in development.—5. *Favourite localities.* Most frequently the trunk, the forehead, especially along the border of the scalp, the margins of the nostrils, and the nape of the neck are chosen by the eruption. The outer aspects of the extremities more often escape, and the backs of the hands and feet are rarely marked. On the contrary, the palms and soles are frequently attacked by syphilis—situations commonly avoided by non-syphilitic rashes. Again, the favourite localities of the non-syphilitic eruptions are not those of the corresponding syphilitic rashes. For instance, simple macular eruptions prefer the extremities, syphilitic maculæ select the

trunk of the body. Non-syphilitic psoriasis, when it is scattered in patches over the surface, always prefers the outer and rough aspect of the limbs. In syphilitic scaly eruptions, the desquamating patches are often widely spread over the body, without attacking the special sites of simple psoriasis, and show a preference for the inner over the outer aspects of the limbs.—6. *The form and arrangement* of the spots and patches in syphilis are often arches or circles, or segments of circles; a disposition less frequent in non-syphilitic skin-diseases.—7. *Multifarious character of the eruption.* A character seldom failing to the syphilitic eruptions is their *association together*; the papules appear among the maculæ, the scaling patches co-exist with mucous patches, or with pustules and vesicles of the scalp. This intermingling of different eruptions is very unusual except in syphilis, where they have a common exciting cause. In 153 patients with maculæ, Bassereau¹ found only 28 free from some other eruption.—8. *Transformation of one form into another* is often observed when there is opportunity for watching the progress of the disease. It is not unfrequent to perceive smooth papules become rough with desquamation, or, if kept moist, develope into mucous tubercles.—9. A most important diagnostic sign is the *presence of other syphilitic affections in other organs*, for instance, in the lymphatic glands, the throat, &c. These peculiarities more or less accompany all the early syphilitic eruptions.

The later eruptions, which appear when the disease is losing its activity, have not so goodly a collection of special characters. They are seldom spread widely over the body, but more often limited to a very small part of its surface. The brownish tinge is well marked from their chronic course. They often cause considerable destruction of tissue by slow

¹ Affections de la Peau Symptomatiques de la Syphilis, p. 58. Paris, 1852.

ulceration or suppuration, and therefore their sites are marked by scars. They are often the sole evidence of active syphilitic disease. Under proper treatment they commonly heal rapidly. They have an exceedingly slow course, and are apt to recur again and again.

Relative Frequency with which the various Eruptions occur.

—The table of admissions into the Royal Naval Hospital afford some means of estimating this point. In 931 cases of general syphilis, there were—

Roseola	225
Papular and tubercular	141
Squamous	112
Pustular	159
Iritis	63
Rheumatism	178
Tertiary ulcerations	44

These tables do not tell us how often each eruption occurred, but only the number of patients admitted, with each particular affection. The course previous or subsequent to admission is not given, and obviously those affections which more readily attract attention will stand highest in the order of frequency.

After this sketch of the general characters of syphilitic eruptions, the description of their individual forms may be more minutely given, beginning with—

Macular Syphilide ; Syphilitic Roseola.—*Roseola* being the earliest general eruption, is usually preceded or accompanied by the constitutional disturbance described as syphilitic fever. Its appearance is often sudden, sometimes immediately after violent exercise, or occasion of debauchery, and then develops to its full extent in twenty-four hours ; or, if much slower, it does not reach its acme in less than a week or ten days. According to Hardy,¹ it is

¹ Hardy : *Maladies de la Peau*, p. 156.

rarely, and according to Zeissl,¹ never absent in the early stages of syphilis. There is no doubt it is nearly always present, and when apparently wanting, it has escaped observation.

The eruption may be divided into two varieties, differing from each other in the size of the spots. 1. *The small maculæ* are the commoner form of the two; their size is usually that of a hempseed, or a little larger; they are scattered over the anterior aspect of the trunk, extending sometimes along the flanks and the back; less often the inner sides of the arms and thighs, and even the forehead along the scalp is spotted by them. Bassereau² met with maculæ in the hairy scalp twice in 153 cases. Now and then the whole surface of the body from top to toe is covered with these maculæ. The hue of the spots is first rosy, then brown or purple, fading through brown to grey, and ultimately disappearing altogether. 2. *The larger patches* vary between the size of a sixpence and a shilling; are slightly elevated, and their borders often irregular or notched. The tint is like that of the smaller ones, but they rarely attain a full brown colour. The spots, both large and small, fade under pressure completely at first, but only partially when they have become old. At times they are so pale as to be imperceptible, unless seen obliquely, or, as it were, in profile, when the slightly elevated spot can be distinguished. If the surface of the body is chilled they retain their colour, and then become distinct on the surrounding white surface.

The duration of maculæ varies greatly, from three or four days to as many weeks, when uninfluenced by treatment. When they disappear, a brownish stain is left, which some-

¹ Zeissl: Constitutionnelle Syphilis, p. 108.

² Affections de la Peau Symptomatiques de la Syphilis, p. 58. 1852.

times desquamates. The roseola, like all syphilitic eruptions, is liable to relapse, but when doing so does not bring with it a repetition of the fever. It then seldom exceeds a few patches on the chest and abdomen, or along the forehead, which depart in a few days, and do not return.

The macular eruption is not unfrequent on the foreskin and glans penis, especially where the prepuce is habitually forward. Thus exudations, caused by irritation of the accumulated secretions, may be mistaken for soft chancres, and erroneously supposed to be the point of infection of the disease. Like other syphilitic rashes, roseola is entirely free from itching, smarting, or irritation of any kind. Being an early manifestation, its usual accompaniments are enlarged inguinal lymphatic glands; sometimes the cervical glands also. At this time the fauces, too, are commonly marked by exanthematous reddening, or even excoriation of circumscribed raised patches on the mucous membrane. Fall of the hair sometimes occurs while the roseola still remains, but is usually later. Small and scaling papules are very commonly developed about the root of the neck, the bend of the elbows, and the nape of the neck, before the roseola has departed. The spots usually appear about ten weeks after infection. They remain commonly one or two weeks, but may delay their departure for one or two months, according to Zeissl, even in spite of appropriate treatment. When their course is run, they gradually disappear, and leave no traces on the skin.

The *prognosis* is quoad the eruption excellent, but it betokens the poison is active in the system, and other forms of eruption must be expected.

The *diagnosis*. The syphilitic origin of the maculæ is marked by the spots being most abundantly scattered over the bosom and belly, the face is often wholly free; by the absence of heat and itching; by the presence of enlarged

glands, and often of the induration at the point of contagion. The small amount of fever, and the slow course of the eruption, distinguish syphilitic erythema from measles, scarlet fever, and simple erythema. The itching and smarting, the large size of the patches, and their bright red tint, distinguish *Roseola balsamica*, occasioned sometimes by using copaiba, from the syphilitic roseola. The stains remaining after the departure of the roseola may be confounded with Pityriasis versicolor, if it be not recollected that syphilitic stains are beneath the cuticle—the pityriasis on its surface; but there is little resemblance between the two affections.

Papular Syphilides comprise *S. miliaria*, *S. lenticularis*, *S. psoriasis*, *S. lepra*, Mucous patches, and Psoriasis palmaris. Though adopting many guises, they have essentially the same structure and several symptoms in common. In the earlier stages of the disease the papules are scattered over the trunk, head, and limbs pretty widely, and appear usually within the first four months after contagion. In the later stages the eruption consists usually of a few isolated groups of papules on the limbs or face that may be repeated over and over again for several years after infection. The early varieties appear while the poison is in full activity, hence they are accompanied by some other evidence of the presence of the virus, muddy complexion, sore throat, falling hair, and enlarged lymphatic glands. Their outbreak is occasionally heralded by febrile reaction. The course of every form of this eruption is slow, often continuing several months if not subjected to treatment; even when mercury is employed they are sometimes very obstinate. Relapses are exceedingly frequent, but the succeeding papules are generally of the larger scaling variety. The structure of the papules is very similar in all, the essential part being a solid elevation above the sur-

rounding surface of the skin, which sometimes (according to Zeissl, always) takes its origin in a hair follicle, or sebaceous gland. In the smaller varieties the development of the papule does not extend beyond the follicle; in the larger ones, a small papule enlarges rapidly, or several coalesce. The colour is the same in all, bright rosy at first, then brownish red, or purplish red, growing pale again as the papule subsides, and gradually disappearing altogether. As the papule reaches its full development the cuticle separates, usually in dry scales, as in *S. psoriasis*; sometimes a vesicle forms on the summit of the papule, as in *S. miliaria*. Where the papule is exposed to much moisture, for instance, on the labia majora, desquamation is replaced by a secretion of viscid fluid, and the papule assumes the aspect of a mucous membrane; hence, is called a mucous patch or tubercle.

After this general notice of the papular eruptions the different varieties may be more minutely described.

Miliary Papules, or S. lichen, commences with the rapid appearance of minute specks, thickly scattered together over the forehead, neck, and shoulders. Bright red at first, they soon turn brownish red; the colour fades under pressure when the papules first come out, but soon becomes permanent. If closely examined, a minute vesicle can often be detected on the summit of the papule as it rises, but papule and vesicle are together not larger than a pin's head. After a few days the vesicle shrivels to a silvery scale that soon drops, then the papule subsides to a bluish red stain or depression. Sometimes the development is sufficiently acute to render the vesicles small pustules, a form called syphilitic acne is then presented.

The *seat* of this eruption is usually the forehead, neck, shoulders, and breast; it rarely spreads over the whole of the trunk or upper limbs. The eruption attains its full development in a week, and commonly departs in twenty or

twenty-five days ; but even when carefully treated, it sometimes, by fresh crops succeeding the departing papules, continues for three or four months. Ultimately the stains of the rash disappear completely.

Miliary papules are always accompanied by some other affection, such as larger papules, mucous patches, enlarged lymphatic glands, sore throat, and fall of the hair. This last symptom is, Zeissl says, more copious with lichen than with any other of the early eruptions. The lichenoid is not a common eruption ; Zeissl ascribes ten per cent. of papular syphilides to the miliary form. In my own notes of ninety-nine cases of papular eruptions, three were of the miliary form ; two of the patients being women. Repetitions of the miliary eruption after its first departure are exceedingly rare, though they are said to occur ; relapse of the disease after this eruption most commonly assumes either the pustular or the larger papular forms.

The larger papular eruption, Lenticular syphilide, or Syphilitic psoriasis, is a very common form, and the commonest eruption during the first year after contagion. In this variety the papules vary in size from a lentil to a sixpence. Like the smaller form, they begin in rosy red spots, starting generally from a hair follicle and extending laterally. In a few days the colour loses its brightness, and the cuticle scales off. If the papule is small, and the desquamation confined to a silvery border of loosened cuticle, it is termed Lenticular syphilide. If the papule is large, and desquamation extends all over its surface, it takes the name of S. psoriasis. No part of the body altogether escapes this eruption, but it generally first appears across the forehead from temple to temple close to the scalp, where the eruption is called "corona veneris." The nape of the neck, the shoulders, trunk, and inner aspects of the limbs are usually occu-

pied by scattered groups of papules of varying size and development, some remaining simple papules, others reaching the form psoriasis. During the first year after contagion the eruption pervades the body widely, and is seldom grouped in definite figures. But, later in the course of the disease, when a relapse of a previous eruption, the papules often arrange themselves in a circular or figure-of-eight form, or in large round patches that extend from their centers. These constitute *Lepra syphilitica*. The number of the groups present at once is not great; two or three on the arms or the shoulders, face, or legs, commonly form the whole extent of the eruption.

This eruption is quite chronic, and continues four or five months, by fresh groups of papules replacing the earlier ones. It returns more frequently than the smaller form, either by a repetition of isolated papules in different parts of the body, or by the development of one or two leprous patches on the shoulders, arms, or some other part of the body. This uncertain duration makes it impossible to assign a definite limit to the papular eruption. The *lenticular* and *scaliform* rashes do not recur usually when eighteen months have elapsed after contagion; but they may, as exceptions, much exceed this period, and reappear several years later. *Lepra* is common in the second year, and for five or six years after infection.

Enlargement of the lymphatic glands connected with the point of contagion often still remains, and also the glands at the nape of the neck and in the armpit frequently swell at the time of this eruption. The tonsils and soft palate are generally the seat of mucous patches, which are common too at the anus and vulva. As the larger papular eruption of long duration, it is the frequent attendant of syphilitic disease in other tissues; hence iritis, periosteal pain, a fall of the hair, are very often associated with it. Iritis

according to Zeissl, is present in six per cent. of those suffering with papular syphilides.

The prognosis of the papular syphilides is good; the papules rarely ulcerate, and, even when left to themselves, disappear in a few months completely.

Diagnosis.—The aspect of the patient is peculiar. The only other eruption at all resembling it is psoriasis vulgaris; nevertheless, the distinctions between the scaly eruptions of syphilis and simple psoriasis are numerous. In the syphilitic affections, the papules bearing scales are raised firm patches, the scales are scanty, and easily removed; the surface when cleared of them is not raw; the desquamating patches do not cover a large area, but having reached a moderate size remain stationary or dwindle slowly away. When syphilitic papules form on the scalp the desquamation is not widely spread, and the scales are mixed with scabs, which make papules resemble isolated pustules. Syphilitic desquamating papules also affect the inner aspects of the limbs. The delicate skin at the flexures of the joints is seldom entirely free from them, while the outer aspects of joints, especially the knee and elbow, the favourite seats of psoriasis vulgaris, commonly remain free from syphilitic papules. Moreover, if the papular eruption is so closely spread over the body as to resemble psoriasis vulgaris, it occurs at a period when other syphilitic affections are invariably present to remove obscurity from the diagnosis.

Simple psoriasis contrasts with syphilitic scaly eruption as follows: the patches scattered over the body are level with the surrounding skin, and vary in size from a lentil to a half-crown, having more often the larger than the smaller dimension. This eruption prefers the coarser parts of the skin, and spreads along the outer aspect of the limbs most readily, especially over the knees and elbows. The patches in psoriasis vulgaris are never much, usually not at all,

raised above the level of the skin. The scales are plentiful, adherent, sometimes so thickly imbricated as to give the patches a white nacreous aspect; when the surface is cleared of them it is pinkish red, not coppery, and easily bleeds. The palms and soles always escape in simple psoriasis, unless the whole of the body is covered, when these parts also are invaded by the eruption. Notwithstanding the very wide extent of the eruption, the patient's general condition is often excellent in simple psoriasis.

Psoriasis Palmaris Syphilitica.—The papular eruption on the palms and soles is so much altered in appearance by the peculiarities of the skin of these localities, that it has been distinguished as a separate eruption by many observers; but when examined carefully it is found to possess characters identical with those common to all papular eruptions. The papules commence as dull red spots, at first disappearing under pressure, but soon losing that character. They are distinctly circumscribed, and of a size between a hemp seed and a threepenny piece. The elevation above the surface is often inappreciable, but the red spots are easily seen through the thick cuticle of the palm and fingers. The tint of the patches soon fades to a brownish hue, and often becomes quite obscured as the cuticle thickens over them. The cuticle, being very dense and hard, remains some time more or less adherent and continuous with that around the papule; eventually it is lifted or loosened in one layer, and peels slowly off, cracking into bits, instead of fine scales as elsewhere. The cracks in the loosened cuticle frequently follow the natural folds of the skin and make painful chaps. While the thickened cuticle, though lifted from the papule, remains attached by its margins, the palm acquires a peculiar blistered appearance. This syphilitic eruption of the palms and soles is a most obstinate and characteristic symptom of the disease. Ordinary psoriasis is not met with

on the palms and soles, except when the whole body is covered by the eruption. Syphilitic psoriasis palmaris, on the contrary, is sometimes the only mark of the activity of the poison, but usually there is some other. Zeissl believes papules can generally be found elsewhere over the body. In nine cases of palmar psoriasis, I found mucous patches of the tonsil in five, iritis in two, and ulcers on the side of the tongue in three. Seven had a few papules on the nucha or shoulder. Both hands and both feet are generally attacked if this eruption be present at all. This eruption is usually a late one, being most frequent in the first and second years of infection. In a small number of cases it accompanies other papular syphilides a few months after contagion. The duration of psoriasis palmaris is very long and obstinate: relapses are constant even under the most assiduous careful treatment.

The prognosis of this syphilide is not good; it is a sign of great obstinacy in the disease, and its duration, when no treatment is pursued, is very long.

The diagnosis is simple. If the scales are large, it may be mistaken for chronic eczema. Eczema always extends beyond the palm to the backs of the hands and arms, and does not form isolated patches distinctly defined from the healthy skin.

Moist papules. — Mucous patches, mucous tubercles, broad condylomata, "*plaques muqueuses*." This eruption is a most frequent form of syphilis. The patch begins as a flat elevation, inclining to circular, from a fifth to half an inch in diameter. The colour is at first red, sometimes rosy red, but soon passes to that of raw ham, and when the papule declines, to a brown hue. If several papules lie near together they often coalesce into one patch. Sometimes, on the contrary, if the papule originate in a hair follicle, it remains solitary and becomes an indolent pustule. The thin pellicle over

the papule is soon replaced by a viscid purulent secretion, which readily decomposes, smells offensively, and produces similar patches or even ulcers where it trickles. If the surfaces, on the contrary, are kept clean with proper astringent remedies, the secretion ceases, the papule sinks down, leaving a stain which gradually fades away altogether.

Mucous patches are met with both on mucous membranes and on the skin, especially at the junction of the latter with the former, also on any part of the skin likely to be kept moist by exudations or secretions. The most common sites are the female external genitals, the anus, the perinæum, and scrotum, the angle of the mouth or nostrils, the fauces, and inner side of the cheeks, especially if a ragged tooth chafe the part. They form also, but less commonly, between the toes, in the axilla, in the folds of the groin, and breast, at the navel, or under the chin; situations that, in many stout persons, are kept constantly moistened by perspiration. When seated round the anus, they often spread along the perinæum in groups of half a dozen patches at once. Here, too, they may assume a rough granular wart-like appearance, and be broken up by cracks and fissures (rhagades). Constant chafing of the skin opposite a patch, converts the irritated part into another surface of similar size and form. They occasion much soreness, whence they attract the patient's attention sooner than any syphilitic eruption. In both sexes the initial lesion may, when kept moist, change to a mucous tubercle, by spreading a broader surface and secreting a thin fluid. The secretion of mucous patches is very contagious through its abundance, and through the early period of the disease at which the discharge is produced. In women the mucous tubercle is frequently the first symptom observed, and sometimes the only one detected in the whole course of the disease.

Diagnosis.—There is very rarely any difficulty in this;

the patches are characteristic in themselves, and are usually accompanied by other syphilitic affections. Sometimes overgrown warts, with excoriated flattened surfaces, resemble mucous tubercles; but these warts have a more or less pedunculated attachment to the skin, and are rugged and irregular, whereas the mucous tubercle is as broad at the base as at the summit.

Vesicular and Pustular Syphilides have been distinguished by the names of *S. herpes*, *S. eczema*, Varioliform Syphilide, *S. impetigo*, *S. acne*, *S. ecthyma*, *S. rupia*. This long string of epithets has been applied to the various forms according to their resemblance to the similarly named simple eruptions. Though no essential difference exists between syphilitic vesicles and pustules, division into two groups is useful. The vesicular forms are much rarer and belong chiefly to the earlier; the pustular, on the contrary, are usually, though by no means invariably, developed among the later consequences of the disease. They also are more frequent in debilitated than in robust persons.

Common characters of the vesicular forms.—A vesicle, varying in size between a pin's head and a bean, forms on the summit of an elevated areola (a papule), and fills with clear fluid. In this condition it remains one or two days, and then shrinks, the areola being covered by a small scale, which next falls and leaves a coppery-red papule. Sometimes, though less often, the fluid of the vesicle quickly assumes a puriform condition, and the pimple then becomes a pustule. These eruptions are scattered over the body without much predilection for locality, though certain forms are more commonly seen in particular parts than in others. The primary papules are well developed in some cases, less in others; but only in *S. rupia* is it ever completely wanting. The colour of this papule is full red at first, soon changing to a coppery tinge, like all syphilitic eruptions. The papules,

moreover, are in most instances surrounded by a reddish halo. The vesicular eruption is sometimes rapid in appearance, in which case a considerable number of vesicles break out together, and are accompanied by feverish action. This is very rare: usually the eruption is scanty, and prolonged by fresh crops of vesicles and papules, until the syphilide has run its course. The existence of a vesicle lasts about three weeks from the beginning to the subsidence of the papule, but the eruption continues from three weeks to three or four months. The vesicular eruptions mostly appear during the first six months of the disease. Still, they are sometimes delayed or repeated a year or more after infection.

Prognosis.—If the patient is well cared for, the eruption seldom works any very serious effect. If neglected, or if the patient is very greatly debilitated, the skin ulcerates beneath the scabs, and troublesome sores are formed.

The *diagnosis* is seldom difficult, notwithstanding the similarity often seen between simple and syphilitic vesicular eruptions; but it is rendered distinct by the invariable presence of other evidence of syphilis, namely, the enlarged glands, the papular base of the vesicles, the slow progress of their development, and the absence of any predilection for the parts of the body selected by the corresponding simple eruptions.

Certain varieties of syphilitic vesicular eruption have received separate names: 1st, *Syphilitic eczema* consists of little vesicles, sometimes scattered irregularly over a limited area, sometimes very distinctly collected into groups. This area is rosy-red, and extends somewhat round the vesicles, which are slightly raised from the skin, as if they were summits of commencing papules. They remain small, and are flat on the top, and do not burst; nor does the cuticle crack, as in true eczema. After four or five weeks, during which period they make comparatively little progress, the

general redness of the surface fades, and the fluid dries out of the vesicles, the papules on which they were seated become separate, and assume the ordinary coppery hue.—In a patient, a woman of 35, recently under my care at the Lock Hospital, this eruption began on the flexures of the wrists, ankles, and soles. Very minute closely-set flattened vesicles formed on a bright-red area, that itched and tingled much at night. The vesicles did not break, and no fluid escaped; but after four weeks the eruption spread in scattered groups of papular vesicles beyond the red areas, and in six weeks the arms and legs were spotted over with unmistakable syphilitic lenticular papules, and the red areas were altogether gone. I purposely withheld specific treatment in this instance until the general papular eruption appeared, in order to observe the course of this rare form. Very rarely the development is acute; the vesicles then fill with pus, burst, and thick scabs form, under which the papules ulcerate slightly. This course, which resembles ordinary eczema more closely than the other, is still far less rapid and less irritating than genuine eczema.

Syphilitic herpes.—So called from its resemblance to the common herpes—both *H. phlyctenoides* and *H. circinnatus*.¹ Vesicles, as large as a pea, form in a group pretty closely together, their contents being yellow from the first. They quickly break, and the fluid dries and forms a thick yellow crust, which forms again if removed. Beneath the crust the skin ulcerates slightly, and is raised either into a broad coppery-coloured papule if the vesicles had amalgamated, or into a group of several papules if the vesicles had remained separate before breaking. The course is very chronic, there is no smarting or itching, or, until the crust gets heavy, much soreness attending the eruptions.—On a woman of

¹ Hardy, loc. cit., p. 162.

27, who had this rare eruption, lately under my care, the crusts had existed for six weeks, in spite of local applications of ointment, used for common herpes; but the eruption readily healed when the patient was brought under the influence of mercury. The rash is usually confined to one, or at most two, such patches on the face. In two cases I have notes of, the group was situated on the upper lip, and was accompanied by mucous patches on the vulva and anus. In both, the main distinction from common herpes was the hard leathery papule in which the vesicles were seated. In the other form, according to Hardy, the vesicles arrange themselves in rings and serpentine lines. They are distinguished, like the first, by the thick crusts which occupy the rings. They differ from herpes circinnatus parasiticus in leaving the skin inside their rings unaffected. Both forms have a very slow course, but subside readily with mercurial treatment. Mr. Hutchinson¹ has described a variety of herpes appearing in syphilitic persons which is easily mistaken, by the aspect and arrangement of the vesicles, for herpes zoster. An unvarying character of this syphilitic eruption is its bilateral symmetry, a distinction almost never possessed by herpes zoster. *Prognosis.*—In themselves a trifling affection, the vesicular eruptions are said to foretell a long and very severe course for the disease.

Pustular Syphilides, which, beginning as vesicles, soon become pustular—syphilitic acne and syphilitic ecthyma. The common characters of these are the same as those of the vesicular forms. The *acneiform* eruption is an exaggeration of the vesicular form, and occurs at an early period of the disease. It consists of an elevated non-suppurating base and areola, bright red in colour at first, but becoming more characteristic afterwards. A vesicle is developed on this

¹ London Hospital Reports, 3rd series.

base, containing a puriform fluid; it dries into a yellowish crust, which falls and leaves an elevated spot that is sometimes ulcerated. Though selecting the face and shoulders, the pustules are found all over the body, except the palms and soles; where they are never seen. They are very slow, and last several weeks.

Syphilitic Ecthyma, unlike the preceding, seldom appears soon after infection. It is almost wholly confined to cachectic subjects. Still larger pustules than those of *S. acne*, form with more solid bases, and in considerable numbers. Each pustule originates commonly in a hair follicle, and develops slowly till it is as large as a pea. It then bursts, and dries into a scab, which, falling, carries the hair with it, and leaves an ulcerated surface. This heals, and slowly disappears. These pustules differ from simple ecthyma, in being much slower of development, and in having a coppery areola. The individual pustules last two or three weeks, and the eruption is usually continued, by the outbreak of fresh pustules, for as many months. Ecthyma is met with all over the body, but more especially on the lower limbs.

Syphilitic Rupia.—The last variety of pustular syphilides does not appear until long after infection, if the disease observes the usual course; but it may appear six months after infection, when the progress is very rapid. Most commonly before rupia appears two or three years have passed since infection, and the patient has undergone, at different intervals, various eruptions or affections of other parts of the body. Zeissl¹ says it never appears in inherited syphilis.

Like other pustular eruptions, it breaks out when the patient's system has little restorative power. It consists of large pustules or bullæ, varying in size from a pea to that of a cherry. The fluid, almost clear at first, quickly becomes

¹ Zeissl, loc. cit., p. 171.

puriform. Then an areola appears round the bulla, but the elevated base, so characteristic of the other forms, is sometimes absent in this syphilide. The vesicle by the second or third day becomes flaccid, part of its contents ooze out, dry into a crust, under which the skin ulcerates. Fresh secretion dries as it forms, until a large scab, of a yellowish green, or even brownish green colour, results. When this crust falls it leaves an indolent and spreading ulcer, with sharply-cut, irregular borders, that, if left to itself for a long time, enlarges instead of healing. In some cases, the crusts remain long adherent, growing thicker by increasing their base, and by the discharge drying beneath, until they assume the form of a limpet shell or cone. These crusts are often rough and furrowed on their surface, and may conceal the ulcer completely, or the ulcer may extend beyond their margin. The scars of these ulcers are indelible, white and reticulate in appearance. The crops of bullæ succeed each other for a period of two or three months. Sometimes they are arranged in rings or groups, sometimes mixed with leprous papules, sometimes scattered irregularly over the body, generally with greater profusion on the limbs than on the trunk. When the eruption is grouped, the coppery or purplish areola is well marked, and frequently creeps along in a serpiginous manner, leaving, as the ulcer heals, white scars in its course. This affection, though late in its appearance, is, according to Zeissl, generally preceded by febrile action. I have marked this rise in temperature on a few occasions also. More common accompaniments are periosteal affections, and great bodily debility.

The *prognosis* is grave, for the eruption is slow, leaves indelible cicatrices, and denotes that the constitution is severely affected by the disease.

The *diagnosis* is commonly easy. Syphilitic rupia is

distinguished from common rupia by the areola, by the slow course of the eruption, and by the presence of other syphilitic affections. The diagnosis, now and then, is difficult, when the eruption breaks out many years after the disease has apparently subsided. In these cases the areola is often purple, the suppuration is copious, and the presence of other symptoms indistinct. In such cases, it is hard to decide sometimes between the syphilitic form and the rupia that is said to originate in scrofula.

Pemphigus.—This eruption, when a symptom of syphilis, is almost never seen in adults. But Bassereau¹ and Zeissl² record instances where its connection with syphilis was clearly established. In the first of Bassereau's cases, a girl of 20 (figured in the 25th plate of Ricord's "Iconographie"), the eruption attacked the soles, and was accompanied by other unmistakable signs of syphilis. In his second case, the patient was a young man of 21. The pemphigus appeared only on the palms, and was accompanied by mucous patches round the anus. Both symptoms belonged to a relapse that followed six months after mucous patches of the throat, roseola, crusts in the hairy scalp, and enlarged cervical glands had disappeared. The bullæ in this case projected little above the surface, and, but for the serum effused between the cuticle and the cutis, resembled palmar psoriasis. Zeissl's case was particularly satisfactory. The patient, a young man, suffered for some months from the bullous eruption and other forms of syphilis, which yielded readily to mercury when other treatment had failed. The bullæ in this case developed on the palms, backs of the fingers, and hollows in front of the elbows.

Tubercular Syphilides are solid rounded elevations of the skin and subcutaneous cellular tissue. They are late af-

¹ Bassereau, loc. cit., p. 401.

² Zeissl, loc. cit., p. 154.

fections, appearing usually in those who have the syphilitic dyscrasia well marked, when three or four years have elapsed since infection. The tubercles are of two kinds, superficial and deep. The *superficial*, in reality only exaggerated papules, are prominent on the surface, of coppery-brown, or purple-brown colour. Usually they are grouped together; when this is the case, the skin between the tubercle has sometimes their colour also. The projections vary in size between a pea and a bean. They occasion no pain or irritation in their uncomplicated condition. They are met with on all parts of the body, but most often on the face, especially the forehead. This eruption is seldom widely spread, but confined to one or two groups of tubercles, for their appearance is delayed till the general infection of the blood is beginning to subside. Its course is slow, and marked by the reabsorption of the first tubercles, and the production of new ones, while the eruption migrates over the surface for a long time before disappearing. Ulceration sometimes takes the place of reabsorption, the tubercles are then covered with thick scabs, and become very tender and painful. The scars of the ulcers are permanent, white and depressed. The tubercular syphilitic eruption is very apt to recur again and again, forming a very obstinate affection.

The *diagnosis* of this variety is easy; the seat, the coppery aspect, the slow, painless course, and the presence or history of other syphilitic affections readily distinguish its nature.

Deep Tubercles, or subcutaneous gummy tumours.—This form, much rarer than the last, is seldom seen until some, and often many, years have elapsed since the infection. Solid swellings form in the subcutaneous cellular tissue the size of a pea, over which the skin is at first moveable and of its ordinary colour. For some time it is not elevated by them, so that they must be felt for rather than seen. They give no pain, and are often unde-

tected until they have enlarged to the size of a nut, when they raise the skin over them into little prominences. Having developed thus far, the skin changes colour and the tumour softens; in this stage they resemble abscesses. The skin eventually breaks, a thin viscid fluid escapes, and a deep ulcerating cavity remains that is difficult to heal. If absorption is obtained before ulceration is reached, they gradually dwindle away, and leave no trace of their presence. They are most frequently developed on the neck, shoulders, or chest, but occur on all parts of the body. These deeper tubercles are identical with the so-called gummy swellings of the internal organs. They consist of nucleated cells, nuclei, and granules packed together in a scanty network of cellular tissue. They are usually separated from the surrounding parts by a close covering of blood vessels and cellular tissue, that forms a limiting membrane.

This eruption is not a common one. When present, though often the sole symptom of the disease, it may be accompanied by other affections, enlarged testis, nodes, or general lardaceous enlargement of the lymphatic glands.

Serpiginous Tubercular Syphilide, or Syphilitic Lupus.—A variety of the tubercular eruption, always attended with serpiginous ulceration, has received the above name. Its course is as follows: on any part of the body, but most often around the angle of the nose, on the chin, or forehead, a tubercle appears, rising above the surface and spreading at its margins, where successive little tubercles, merging into each other, are developed. As the group of tubercles attains an area of a shilling or half-crown, degeneration begins on the older ones, which quickly ulcerate, and their secretion covers the ulcerating surface with a thick scab, commonly of yellowish or brownish colour. If the scab be removed a creeping ulcer is found, that, healing at one corner, spreads outwardly with a sharply cut margin; the ulcer is not deep, and does

not secrete a very great quantity of discharge, but it continues to spread so long as the tubercles are formed in the shape of little coppery elevations along its margin in the previously unaltered skin. The scar, left by the ulcer as it heals, is permanent, of a shining white colour, and somewhat depressed below the surface of the healthy skin. In this way the disease lasts for years, travelling over a great part of the face before it is arrested.

Diagnosis.—The main characteristic is the tubercular elevations in the skin which precede the ulcers; added to this are the colour, chronic course, and history of other syphilitic affections; points which together distinguish it from scrofulous lupus, where the ulcers result from suppuration and softening of the subcutaneous cellular tissue, as well as of the skin, and solid elevations above the surface are not developed.

Pigmentary Syphilide usually appears, according to Hardy,¹ between the earlier and later eruptions, when the disease has about six months' duration. It is not a well marked affection, and consists of pale brownish-grey stains in the skin, the size of a sixpence, grouped together over a more or less extended surface. There is not the slightest elevation or desquamation of these spots; their commonest seat is the neck, and the bosom in women; but they have been seen on the flanks and thighs.

Affections of the Hair and Nails; Alopecia.—The hair of the scalp often withers and falls during the exanthematous period of the disease, at a time when the nutrition of the body is much disturbed. This phenomenon occurs also in other diseases, such as typhoid fever, and probably in the same manner. The condition of the scalp appears little changed, the hairs lose their brilliance, loosen, and

¹ Hardy: *Maladies de la Peau*, p. 154. 1858.

fall, or are dragged out by the brush ; if examined, the roots are found shrunken and withered. The hair does not always fall when it assumes this withered appearance ; the individual hairs sometimes remain tightly attached to the scalp for a long time. After a few weeks, new small hairs can be seen growing among the old, but they do not reach a great length before they also wither and drop out. Ultimately new vigorous hairs grow on the scalp ; baldness is not permanent. Shedding the hair is not confined to the scalp ; sometimes the brows, lashes, and pubic hair falls also, and the patient becomes for a time completely bald.

The hair is not necessarily shed, when the scalp is the seat of syphilitic eruption, though this is very commonly the case, because the hairs are then loosened by inflammation in the follicles, and, adhering to the scabs, are carried off with them. In this way bald places are produced, over which the hair generally returns.

Onychia.—The nails are attacked in three ways, but all three are comparatively rare affections in syphilis. The most frequent form consists of papules in the nail matrix or on its border, which arrest the further growth of the nail at that point, and the dead nail sometimes irritates the part beneath into an obstinate ulcer. Another form is met with in cases of syphilitic psoriasis. The nail gets brittle, loosens, and cracks along the margin. This ragged condition of the nail is also observed in infants as well as in adults. Lastly, the splitting has been described by Casenave¹ and Hutchinson² to attack only the surface of the nail, which scales off at places, and is marked by opaque spots. Several nails on both hands suffer together, and the disease accompanies the scaling papular eruptions of the body.

¹ *Traité des Syphilides*, 1843.

² *Pathological Transactions*, vol. xii., p. 259.

SUMMARY

The period of general eruptions begins about ten weeks after contagion, six or seven after induration of the point of inoculation, and four or five after the lymphatic glands begin to enlarge. Malaise and pyrexia precede or accompany the outbreak of the rash. At this time the temperature of the body is sometimes a little raised. The febrile action and pain may even be intense, and the former has been known to assume a periodic intermitting course. The fever subsides when the eruption is fully out.

General Remarks on Syphilides.—The various aspects of syphilitic rashes resemble those of non-syphilitic character in some degree. Hence they have been named accordingly. There are several characters common to all. 1. The papule generally forms the base on which the scaling, pustular, and suppurating rashes develope. 2. The rash may appear on any part of the surface. 3. The colour is peculiar. 4. Irritation, smarting, or itching are rarely prominent symptoms, and are usually altogether absent. 5. The rash has favourite localities, of which the trunk, the forehead along the scalp, and the nape of the neck may be mentioned. 6. The favourite localities of syphilitic rashes are not those of the corresponding non-syphilitic eruptions. 7. The different forms run much into each other. 8. Several are usually present together, and other syphilitic affections accompany the cutaneous rashes.

When the disease is losing its activity, the eruptions which appear then are seldom spread widely over the body. Their brown tint is well marked. They are prone to ulcerate, slow in progress, and the ulcers leave indelible scars. They are often the only syphilitic symptoms present. They commonly heal readily by proper treatment, but are apt to re-occur when the treatment is discontinued.

Special Syphilides ; Roseola is the earliest rash after infection, probably always present, though often overlooked. It consists of spots, rosy red and fading under pressure at first, then coppery brown, usually slightly elevated, sometimes desquamating as the rash subsides. The eruption lasts two or three weeks. Before it disappears some papules form among the roseolous spots. There are two varieties of spots, the large and the small. The flanks and chest are the common seat of the eruption, but in rare cases it spreads all over the body, head, and limbs. It relapses now and then. The diagnosis from other roseolous eruptions, depends on the accompanying enlarged inguinal glands, the induration of the point of contagion, erythematous redness of the fauces, the small amount of constitutional fever, the rash being always most fully developed on the trunk, and the slow course of the eruption.

Papular Syphilides.—When the papules are minute they are called *S. miliaria*, or lichen ; when small, *S. lenticularis* ; when large, desquamating, and irregularly scattered, *S. psoriasis* ; when arranged into groups of circles or figures of eight, syphilitic lepra ; when on the palms and soles, *psoriasis palmaris* ; when altered by exposure to continual moisture, mucous patches. Lichen and *S. lenticularis* are most frequent in the first six months after contagion ; *S. psoriasis* comes rather later ; syphilitic lepra and *psoriasis palmaris* are most often seen when the disease is of long standing ; mucous patches are met with both early and late in the disease. The papules attack all parts of the body, and are the eruptions which most frequently relapse ; in this way they often succeed other forms. The structure of the papule consists in a solid elevation of the skin, which commonly begins in a hair or sebaceous follicle, that grows in a less or greater degree in the smaller or larger papules. The colour common to all papular eruptions is bright rosy

at first, then fading to coppery or purplish brown. When the papule reaches full development, the cuticle separates in dry scales. The usual accompaniments of these eruptions are periosteal pains, fall of the hair, iritis, ulcerated papules on the fauces, and enlarged lymphatic glands on various parts of the body.

Miliary Syphilide is an eruption of minute specks thickly scattered over the forehead, neck, and shoulders. The spots are bright red at first, then brownish red. A silvery scale is often seen on each speck, which drops and leaves a brown stain. This eruption lasts usually about three weeks, sometimes several months. It is always accompanied by other signs of syphilis, and is a rare form of disease.

Lenticular Syphilide.—Small lentil-sized papules, with a silvery border of loosened cuticle, scattered across the forehead at the roots of the hair, down the neck and shoulders, and at the bends of the elbows; less commonly on other parts of the body.

Scaling Syphilide.—Here the papules are larger, and tolerably well covered with loose scales of cuticle. They are indifferently scattered over the body and limbs.

In Lepra Syphilitica, the papules form in groups, which seek a circular or figure-of-eight arrangement. This variety is not common before a year or a year and a half after infection, and is ordinarily confined to a small number of groups of papules.

In Psoriasis palmaris, the papules appear as dull red spots, are circumscribed, and generally only slightly elevated. The skin over them does not peel in branny scales as on other parts of the body, but is slowly separated, and comes off in large thick masses like the healing of a blister. Fissures form round it, which follow the natural creases of the skin.

Moist Papular Eruptions.—When the papules form at the

outlets of the body, or where they are kept moist, they assume a brighter red, and secrete a thin purulent fluid. They then form flat smooth elevations, inclining to circular; when near to each other they coalesce into larger patches. If the patches are kept clean and free from irritation, they soon sink down into dry scaling surfaces. They are most frequent about the anus, the mouth, and other parts. In women, mucous patches on the vulva are often the earliest and sometimes the only symptom of syphilis which attracts the patient's attention. The discharge of mucous patches is highly contagious. When developed around the anus, they are often subdivided by fissures called rhagades.

Vesicular and Pustular Syphilides have no essential difference between them; the vesicular forms are more often seen in the earlier than in the later stages of the disease. Both are observed in feeble rather than in robust persons. They possess in common a vesicle, varying in size between a pin's head and a bean, forming the summit of an elevated areola (the papule). After one or two days the vesicle shrinks, leaving a small scale on the areola, which falls and leaves a coppery-red papule. Sometimes, instead of drying up, the liquid becomes purulent, and the congestion of the areola increases, converting the vesicle into a pustule. A marked predilection for locality is not shown generally by vesiculo-pustular forms, though a few, *S. herpes* for instance, are confined to particular localities. The eruptions appear usually during the first six months after infection, their course is marked by fresh crops of vesicles succeeding each other while the eruption continues; each vesicle and papule lasts about three weeks, the eruption three or four months. If the patient is well cared for, the serious effect is seldom produced; if he is neglected, very deep ulcers often form where the pustules began. The diagnosis is rendered distinct by the presence of other syphilitic disease elsewhere,

and by the characters this eruption shares with all syphilitic rashes.

Syphilitic Eczema.—Small groups of vesicles spread over a red areola, which soon become small papules of a coppery hue.

Syphilitic Herpes.—In one variety, vesicles as large as a pea form a group pretty closely together; as the vesicles form, the skin beneath is converted into a group of coppery papules, or if the vesicles unite, into one broad one. In the other variety, the vesicles group in rings and serpentine lines, leaving the skin inside the lines unaffected. According to Hutchinson, the vesicles sometimes assume an arrangement like herpes zoster, but it has a bi-lateral symmetry which simple herpes zoster hardly ever possesses.

Pustular forms.—Syphilitic *acne* occurs only at an early period of the disease. A vesicle with puriform fluid is developed on an elevated base, with halo. The eruption is found all over the body except the palms and soles.

Syphilitic Ecthyma is an exaggerated variety of the *acne* and is met with in very debilitated patients. The slow development and coppery areola distinguishes it from ordinary ecthyma. It occurs on the lower limbs chiefly.

Syphilitic Rupia.—A form rarely seen till some years have elapsed after infection, unless the general progress of the disease is very rapid. Large bullæ form, and an areola spreads round the bulla. The vesicle shrinks, the contents dry into a crust, the skin ulcerates under the crust, the fresh secretion dries also, and the ulcer extends beneath, until a thick scab is formed of a brownish-green hue. Crops of bullæ succeed each other till several months have elapsed. Rheumatic and periosteal pains and bodily debility ordinarily accompany this eruption.

Pemphigus is of exceeding rarity in adults. It develops on the palms and soles, and extends up the arms and legs;

it is accompanied by mucous tubercles of the anus, and by other syphilitic affections.

Tubercular Syphilides.—Solid, rounded elevations of the skin and subcutaneous cellular tissue. They are late affections, and appear usually in persons infected three or four years at least. There are two kinds, *superficial* and *deep*. The superficial are prominent nodules, the size of a pea, coppery or purple-brown in colour, collected commonly into groups, most frequent on the face, but occurring on any part of the body; this eruption is never widely spread. The tubercles are very liable to ulcerate and then leave indelible white scars. The course is slow, for fresh tubercles appear as the old ones subside, and the eruption recurs again and again.

The deep tubercles are known as subcutaneous gummy tumours, much rarer than the last; they are met with only in cases of long standing syphilis. Solid nodules form beneath the skin, presently the skin becomes absorbed over them, and bluish-red in colour, and they reach the surface by slow ulceration. The contents then escape, and a round swelling with a ragged ulcerated interior is left, ending in depressed white scars. Sometimes they are re-absorbed before ulceration is reached, when they leave no trace. They are found oftenest on the neck, but occur on any part of the surface; they are identical with the gummy tumours of internal organs.

The Serpiginous Tubercular Syphilides.—A tubercle forms above the surface of the skin of purple or brownish tint; at its margins little tubercles develope and merge into each other. The earliest tubercle soon ulcerates, a scab is formed, under which an ulcer creeps, that heals where it first began while spreading by the destruction of the tubercles at its margin. The course of the affection is indefinite unless controlled by treatment. These syphilitic lupoid ulcers are characterised by the solid tubercles in the skin which pre-

cede ulceration; by the age of the patient (they are rarely seen before middle age); and usually by the presence of the syphilitic pallor of the complexion, and previous syphilitic disease.

Pigmentary Syphilide.—A rare eruption appearing about six months after infection, consists of brownish-grey spots the size of a sixpence, in groups on the neck and bosom, also on the flanks and thighs. There is no elevation or desquamation, and the discoloration, unlike that of chloasma, is beneath the surface. It disappears in time completely.

Alopecia.—The hair becomes dry and withered at the outset, or during the course of the cutaneous eruptions. It often falls partially from the scalp; but the eyebrows, lashes, and down of the body occasionally fall too, and complete baldness is reached. In a few weeks new woolly hairs grow among the old, and in the course of a few months the hair is completely restored. The pustular eruptions which beset the scalp sometimes loosen the hair; it then comes away in patches and produces bald spots, which ultimately regain their covering.

Onychia.—The nails are attacked in three ways. 1st. The matrix, while a scaling rash is present elsewhere, is beset with papules; these ulcerate and destroy the nutrition of the nail, which acting like a foreign body, causes obstinate ulcers. 2nd. The nutrition of the nail is altered, it becomes brittle, and its edge notched and ragged. 3rd. The superficial layers of the nail split or peel off, so that the nail becomes spotted and opaque at places where the nail is breaking away.

SYPHILIS.

CHAPTER V.

THE ALIMENTARY CANAL.

The Tongue: Excoriations, Fissures, Papulo-sealy Eruptions, Gummy Nodules, Distinctions between deep Syphilitic Ulcers and Cancer—Mouth and Pharynx: Erythema, Deep Ulcers, Scars, Necrosis of Hard Palate—Gullet: Ulcer, Stricture—Stomach and Small Intestine—Rectum: So-called Syphilitic Stricture—Spleen—Thyroid and Pituitary Bodies—Pancreas—Liver: Cirrhosis, Gummy Nodules, Amyloid Degeneration, Symptoms of Hepatic Disease—Summary.

ON the *Tongue*, the most common affection is the *superficial ulcers along the border*, sometimes rounded, sometimes forming vertical fissures. They usually appear during the first year after infection, and are particularly obstinate, being repeated for several months by continual relapses. They are excessively sore, especially if they expose the muscular fibres, when every movement of the tongue causes pain. Less common than these are *sinuous fissures of the dorsum* of the tongue, which by penetrating to the muscular tissue are extremely painful. They are very characteristic of syphilis, and are frequent during the third and fourth years after infection; but may continue harassing the patient for many years, if not subjected to proper treatment.

Coppery papules form on the dorsum of the tongue at the time of the papular eruptions on the skin, with which they are identical in structure and appearance. Unless they ulcerate, which they seldom do, they produce no inconve-

nience to the patient. The papules subside after remaining on the tongue for an uncertain period, between a few weeks and as many months, and leave no trace of their presence. Except that they do not desquamate, and are a much more frequent affection of the tongue, they resemble the next affection.

Plaques Muqueuses of the Tongue.—This is a common name for a peculiar hypertrophy of the epithelium of the tongue, usually confined to that part, but sometimes it is seen on the interior of the cheeks and fauces. It presents itself as small dead white patches of epithelium scales, closely adherent to the mucous membrane, but a little raised from the surface. It is an obstinate affection, requiring a long continued course of treatment for its removal. Between the patches, white shining cicatrices of former ulcers are often seen. Usually, no pain or tenderness accompanies these patches. Now and then, excoriations form on the mucous membrane, that smart exceedingly when hot or acid food is taken.

Nodules in the muscular tissue are not uncommon: they form most frequently at the base of the tongue, but are also found at the fore-part, among the muscular fibres. Those placed near the surface sometimes ulcerate into deep ragged cavities. Usually, after lasting several months, they subside and disappear without any further ill-consequences, and others form again from time to time. When the gummy tumour liquifies and escapes by ulcerating through its coverings, the irregular cavity which is left extends beyond the area of the ulcerated surface; but it slowly shrinks, and when closed leaves a very small scar.

Diagnosis of syphilitic affections from non-syphilitic affections of the Tongue.—The scaling eruption is liable to be confounded with non-syphilitic psoriasis, but the latter

completely covers the tongue with a dense white layer; and though it may be removed for a time, is an incurable affection that soon relapses to its original condition. The syphilitic scaling papules are distinctly circumscribed, are accompanied by syphilitic disease elsewhere, and are readily influenced by treatment. A ragged tooth sometimes produces an ulcer on the part of the tongue chafing against it, but such ulcers exactly correspond to the irritating projection, and are readily healed by removing or filing away the tooth, and keeping the mouth clean.

Epithelial cancer of the tongue is commonly distinguished by hard infiltration, spreading widely beneath the ulcer, and by the elevated borders of the sore. Cancer is also commonly met with in persons of forty-five to sixty years old. Whereas syphilitic disease, being so often contracted in adolescence, in the majority of cases, develops its later effects before forty. A most important symptom is the shooting pain which commonly accompanies cancer of the tongue. The pain of syphilitic tumours has never this character; it is rather a sensation of stiffness, or impediment to mastication and speaking, produced by the bulk of the tumour in the tongue's substance.

Affections of the Mouth and Pharynx.—The syphilitic affections of the mucous membranes closely resemble those of the skin, but are not so numerous.

The erythematous eruption corresponds to the roseolous eruption of the trunk; it spreads over the fauces as a general reddening of those parts, causing a slight sensation of dryness of the throat, and pain in swallowing. The uvula swells, and by hanging down increases the discomfort. Sometimes the inflammation extends to the pharynx; but it has not been traced further than the alimentary canal. According to Türck, the nasal mucous membrane is occasionally attacked, by extension through the posterior nares,

and acute bronchitis is said sometimes to accompany the erythema in the pharynx. This rash on the fauces usually appears with the eruption of the maculæ on the skin. Lancereaux,¹ says Pilon observed this erythema 65 times in 114 cases of early syphilis. It does not last long, and after a few days the mucous membrane regains its normal condition. Now and then the congestion is sufficient to cause slight excoriation of the inflamed surface, but this readily heals as the congestion subsides.

Ulcers of the mucous membrane are superficial and deep. The superficial ulcers are most commonly ulcerated mucous tubercles. They are rather erosions than ulcers, having no depth, and not spreading beyond the elevated area of the mucous tubercle on which they are seated. When that subsides the ulcer readily heals and disappears. Besides the erosions of mucous tubercles, small shallow ulcers form on the fauces and tonsils. They are not placed on a papule, being simply roundish excoriations, with sharply-cut uneven borders. The mucous membrane around them is somewhat reddened, but not thickened. Their surface is covered with a greyish exudation. They are seen in the mouth, at the angles of the lips, the inside of the cheeks, but by far most commonly on the pillars of the fauces and the tonsils. They rarely reach the pharynx.

Deep Ulcers.—These most frequently are degenerated syphilitic nodules in the submucous tissues of the mouth and pharynx. These nodules are produced chiefly in the soft palate and tonsils. They do not always ulcerate, and, until they do so, cause very little inconvenience, and often reach a considerable size before they are noticed by the patient.

They begin in the submucous tissue, as the subdermic ones do in the subcutaneous cellular tissue with which

¹ Loc. cit., p. 155.

they are identical in structure. They can be felt as firm roundish swellings as large as a pea or bean, not tender when touched, nor otherwise causing any pain, and if near the surface can be seen as yellowish spots. When about to ulcerate, the mucous membrane over them grows dark red, swollen and stretched, and soon gives way to an ulcer that deepens very rapidly from disintegration of the deposit: a deep irregularly excavated sore, with sharp edges, ensues, which is very characteristic. It looks as if a portion of the mucous membrane, or tonsil, had been scooped out with a sharp tool. Sometimes, when the gummy nodule is formed in the velum palati, ulceration takes place at both surfaces, and thus perforation of the soft palate is caused; if this happen at the base of the uvula, that is separated, or left hanging by a shred of mucous membrane and resting on the epiglottis and tongue, when it mortifies and drops off. These ulcers cause great distress when on the fauces, pain and difficulty in swallowing, &c. When the soft palate is perforated, the voice is altered, becoming nasal, and fluids slip through into the nose during deglutition. The pain is severe when the ulcerated surfaces are stretched by the action of swallowing, or chafed by the passage of food; if the ulcer is exempt from this, pain is sometimes wholly absent, and the patient makes but little complaint, or is even unaware of the existence of his ulcers until informed of it by the surgeon.

The *posterior wall* of the *pharynx* is the seat of chronic induration with ulceration of the mucous membrane. The ulcers are concealed by viscid muco-purulent discharge lining the whole pharyngeal cavity, interfering with respiration, producing painful cough, and so much pain in swallowing that very little food can be taken: this pharyngeal ulceration is always seen in persons long infected, and whose bodily strength is exhausted. The ulcerating action

extends often to the periosteum and bones beneath to the base of the skull, or to the vertebræ, where they may occasion post-pharyngeal abscess, and jeopardise the life of the patient, or cause irritation of the spinal cord. The disease excited in the bone, at the base of the skull, may extend through to the endocranium, and give rise to epileptic fits by causing irritation of the brain.

This was the case with a patient who had suffered during twelve months from tertiary syphilis, extensive ulceration of the palate, pharynx, and larynx. After he had taken large doses of iodide of potassium the ulcers healed, except one spot at the top of the pharynx, where the pharyngeal mirror showed the bone to be exposed. During the time which elapsed before the exfoliation of this necrosed bone, the patient had three severe epileptiform fits. He then took seventy-five grains of iodide of potassium per diem, on which the bone healed, and the fits were not repeated. The tough contracting scars following these ulcers, often, as in the foregoing case, seriously interfere with the motions of deglutition and speaking.

Serpiginous Ulcers of the Fauces.—The soft palate is sometimes attacked by chronic induration, on which ulcers form at several points; and spread slowly from one part to another, giving the soft palate and fauces a sieve-like seamed appearance. The superficial ulcers and the mucous patches appear on the interior of the mouth and pharynx during the first and second years of contagion, when they correspond to the papular eruptions of the skin appearing about the same time. The deep excavated ulcers and the serpiginous ulcers of the fauces are always late in appearing, being rarely seen before three or four years after contagion, and commonly much later than that. Babington supposes them to be connected with the rupial eruption of the skin.¹

¹ Palmer's edition of Hunter's Works, vol. ii. p. 416.

In the Œsophagus cases of dysphagia occurring during the presence of syphilitic palmar psoriasis, &c., have been described by Follin.¹ In one it disappeared altogether with the subsidence of the palmar eruption; the other was not relieved till specific treatment was employed.

Permanent stricture follows severe syphilitic ulceration and contraction of the scars. West² has reported three cases of this stricture. In two he found the gullet contracted by tough fibrous cicatrices resembling those produced by syphilitic ulcers of the pharynx and elsewhere. Virchow³ has a specimen of the gummy nodule ulcerating by the side of tough contracting scars. Wilks⁴ also has met with cases of stricture of the Œsophagus in syphilitic persons. The pathological changes in these cases appear to be identical with those observed in the larynx and pharynx; namely, the formation of gummy nodules and fibrous induration in the submucous tissue, which slowly degenerate, ulcerate, and finally heal into rigid contracting cicatrices. The seat of stricture appears variable. In one of West's cases the stricture was at the lower part; in another at the upper part of the gullet. In Virchow's and Wilks' observations, the stricture was in the upper part also. Lancereaux⁵ has collected about ten other cases of a doubtful kind where stricture of the Œsophagus has been attributed to syphilis.

The Stomach and Intestines.—No satisfactory knowledge exists of the ways in which syphilis attacks these organs. Wagner⁶ and Lancereaux⁷ describe submucous indurations,

¹ Pathologie Externe, vol. i. p. 696.

² Dublin Quarterly Journal, 1860, Feb. and Aug.

³ Krankhafte Geschwülste, Bd. ii. S. 415.

⁴ Guy's Hospital Reports, vol. ix. p. 41. 1863.

⁵ Traité sur la Syphilis, p. 307. 1866.

⁶ Archiv der Heilkunde. 1863.

⁷ Loc. cit., p. 311.

and Frerichs has noted amyloid degeneration in the coats of the stomach and intestines. Lancereaux has also found an ulcer of the pyloric end in a patient who had well-marked syphilitic disease in the liver and testis. Andral¹ and Trousseau,² with others, describe instances of obstinate vomiting, epigastric tenderness, &c., being readily cured by mercury in persons who either had syphilitic affections present elsewhere, or had previously suffered syphilis. This is all that is known of syphilis in the stomach and smaller intestine.

The great intestine has been found to be the seat of ulcers along its whole length in persons suffering with long-standing syphilis; but neither the symptoms during life, nor the condition of the gut post mortem, differ from those of ordinary dysentery, with the exception of the *rectum*, where an affection is met with of a peculiar character.

Stricture of the rectum is held by many observers, among whom Gosselin³ has published the best description of this affection, to be a local one, arising from long-enduring irritation of mucous tubercles or ulcers of the anus; consequently not a product of the syphilitic diathesis properly so called. This affection is almost, if not quite, confined to women. It is incurable, for the contraction of the gut always returns when dilation is discontinued. When examined, the anus and the skin immediately around are found beset with moist pink elevated patches that suppurate freely, and among which rhagades and fistulæ are often present. One or two inches within the anus, but never much higher up, the rectum is commonly narrowed, the little finger will sometimes pass through it, but often nothing larger than a No. 12 urethral bougie will enter.

¹ Clin. Médicale, vol. iv. p. 138. 1835.

² Traité de Thérapeutique, vol. i. p. 230.

³ Archives Générales de Médecine. Dec., 1854.

The stricture is caused by a tough fibrous ring set in the submucous tissue, and infiltrating, to some extent, the muscular layer also. The mucous membrane over it is often ulcerated, a condition greatly aggravating the patient's sufferings. Above the stricture, the bowel is not simply dilated, but its mucous membrane is red, eroded, and its submucous tissue condensed by a fibrous layer for some inches above the contraction. The boundary between the affected and unaffected part is marked by a festooned edge around the gut. On the indurated surface the folds of the rectum are generally eaten into sharply-cut greyish ulcers, in some of which granulations spring up when healing has commenced. Gosselin supposes this affection is confined almost entirely to the rectum; but in a case described by Paget¹ the ulceration extended a considerable distance up the colon beyond the rectum. It is possible that dysentery was conjoined with the stricture in this case. When the ulcers form, their course is slow, tending to increase rather than to diminution, and producing extensive destruction through the whole thickness of the gut, abscess around it, and fistulæ into the vagina and buttocks.

The symptoms are those of stricture and ulcer of the rectum. Diarrhœa is common, constipation unusual. When the mucous membrane is ulcerated, the pain on and after defecation is severe. Before the ulcer forms the patient sometimes refers her symptoms to the uterus and not to the bowel. A discharge of pus, pure or mixed with fæces, is a constant and characteristic symptom. Occasionally blood in small quantity mingles with the discharge.

The diagnosis is made from the soft suppurating papules, the tight stricture immediately within the anus, the purulent discharge, and the history of previous venereal affections.

¹ Med. Times and Gaz. March, 1865.

In the treatment of syphilitic stricture of the rectum specifics are of little value. The general health must be invigorated by tonics, rest, and sufficient diet; the local irritation allayed by astringent applications; the stricture relieved by small incisions and continued use of bougies. When the ulcerated surfaces are healed, the patient should be trained to pass a moderate-sized bougie for herself at regular intervals, or the stricture will speedily contract again, and the pain and ulceration return.

The Spleen.—Little is known respecting the affections of the spleen in syphilis. Lancereaux¹ narrates cases of the spleen being enlarged, indurated and adherent to the diaphragm or kidney in patients whose liver, bones, and brain, were also extensively diseased. The spleen undergoes partial inflammation, that renders the organ tougher and more consistent than natural. Gummy tumours also have been found in the spleen, but the most frequent change is general enlargement of the organ, from hypertrophous development of the trabecular structure and amyloid degeneration of the blood vessels. This change Dr. Gee² has observed in about one-fourth of thirteen cases of inherited syphilis. According to this observer, if the spleen be very greatly enlarged the patient always dies. But where recovery takes place, he says, the organ regains its normal size, as the child's strength is restored.

Of the affections of the thyroid, and the pituitary bodies, very little is known. Some authors relate them to be enlarged and indurated where syphilis was elsewhere evident, but without satisfactorily assigning these changes to syphilis.

The *pancreas* has been found indurated; and in a case

¹ Loc. cit., pp. 332, 346, 376.

² Medico-Chirurgical Soc., March 6, 1867, and Brit. Med. Journal, April 13, 1867. See also Arnold Beer, *Eingeweide Syphilis*, Tübingen, 1867.

recited by Lancereaux,¹ two apparently gummy nodules were found in the pancreas of a patient, who had several in the muscles and one in the breast. Death in this instance took place fourteen years after the infection.

The Liver.—It has been long known that syphilis produces disease of the liver, but only of late years has it been accurately described; the labours of Gubler,² Dittrich,³ Wilks,⁴ Virchow,⁵ and others, have greatly contributed to our knowledge of the true origin of these affections of the liver. There are several methods in which the liver tissue is attacked. Perihepatitis, that is circumscribed inflammation of the capsule and serous coat; interstitial hepatitis, gummy hepatitis, albumenoid or waxy degeneration of the glandular structure; and, lastly, acute yellow atrophy. Of these affections, the interstitial inflammation and the gummy inflammation are peculiar to syphilis, the rest are excited by other causes besides syphilis, though very frequently met with in persons suffering with that disease.

Perihepatitis.—A limited area of the tunica albuginea inflames and forms adhesions with adjacent parts, most commonly with the diaphragm. These adhesions are, at times, so strong and so numerous that it is difficult to extract the liver from the abdomen.

Interstitial hepatitis consists of an increase of the connective tissue of the capsule of Glisson along particular branches or radii of the portal vein. This new fibrous tissue shrinks together, and while contracting it draws in and puckers the liver's surface, taking apparently for a starting point some of the thickened patches of the peritonæal

¹ Loc. cit., p. 320.

² Gubler: Mémoires de la Société de Biologie, tome iv.

³ Dittrich: Präger Viertel Jahreschrift. 1849, 1850.

⁴ Guy's Hospital Reports. 1863.

⁵ Ueber der Natur der Constitutionellen Syphilis. 1859.

adhesions. Besides contraction and cirrhosis, this fibrous tissue undergoes partial fatty degeneration, and affords a site for development of gummy tumours, the gummy hepatitis to be presently described. A liver that has undergone this cirrhosis has the following aspect: it is much firmer than natural; the surface is uneven, being drawn and puckered into large lobes or bosses by the fibrous bands pervading it. The puckers or seams between the bosses are grey and hard. Section shows that seams and lines ramify through a great part of the organ from these contracted masses of fibrous tissue. The liver tissue is pale, yellowish, atrophied; here and there the position of occluded bile ducts are marked with tawny spots of inspissated bile. Under the microscope, the liver cells in the territories subjected to puckering, are withered and partly destroyed. The size of a syphilitic liver varies much when the cirrhosis is widely extended through the organ; the liver is usually much contracted. Frerichs mentions one no larger than a man's fist; but when amyloid degeneration is present the liver is often enlarged beyond the natural size, or one lobe may be shrunken and another enlarged according to the way it is affected. Frerichs believes that, besides these indurations and contractions of particular tracts of the liver, the gland may undergo general hypertrophy of the fibrous stroma, like that produced in chronic alcoholism.

Gummy hepatitis.—When this is present in a syphilitic liver, nodules of a roundish or irregular shape form along the course and in the substance of the fibrous seams. Their size is between a pin's head and a cherry; the masses are yellow, firm, dry, and often easily separated or dug out of the tissue in which they have grown. Being unconnected with the bile ducts, they are not tintured with bile pigment. The connective tissue where they are imbedded is found to be continuous with them, and varies from them chiefly in the

closeness of the fibres and the absence of cells. In the gummy masses the meshwork of the fibres is wider, and in their centre the fibres disappear. The loose stroma is packed with cells, well formed, distinctly nucleated, and multiplying by division. In the very centre, proliferation of the cells has ceased; there they are shrunken, granular, and pervaded with oil globules. These changes it will be seen, are precisely those met with in gummy disease of bone, and elsewhere. The further progress of these changes is not yet known—it is probable that they are frequently absorbed; they do not suppurate or calcify.

The most frequent form of disease peculiar to syphilis is the cirrhotic; the gummy nodules are often wanting, though as they are the most characteristic, so are they the most frequently recorded. In inherited syphilis, according to Gubler, the gummy nodules are rare; the most frequent change is induration of the capsule of Glisson, which on section appear as fine streaks or fibres accompanying the portal veins. Virchow says, that in these streaks minute yellow spots may be sometimes seen, which he calls miliary gummy nodules.

The contractions of the liver, excited by syphilis, are distinguished from non-syphilitic contraction by the following characters: the cirrhosis, produced by drunkenness though uneven, is finely nodulated, whence the name, hob-nail liver; the viscus is not drawn into uneven masses by strong bands like the syphilitic liver, and peritonæal adhesions are generally wanting. Again the induration of the nutmeg liver accompanying morbus cordis, is distinguished by its general evenness from a syphilitic cirrhosis.

The gummy nodules differ from tubercle of the liver by their larger size, by their being located along the course of the streaks of fibrous tissue, and by the absence of translucent miliary tubercles, or grey granulations, around them.

Before these changes were recognised to be syphilitic, Oppolzer and Bochdalek supposed the gummy nodules to be retrograde cancers, an error pointed out by Virchow, and subsequently by their assistants, Pleischl and Klob.¹ In cancer, peritonæal adhesions are wanting, the liver is enlarged rather than diminished, and the circumscribed cancerous masses scattered through the liver have no obvious connexion with the fibrous structure.

Amyloid Degeneration.—Frerichs² says constitutional syphilis is one of the most common predisposing causes of waxy degeneration. It is met with very frequently in combination with the other forms of syphilitic disease both in adults and new-born infants. The liver or parts of the liver so affected are large, smooth, and firm; on section the diseased lobules are pale and translucent. This translucent tissue turns dark brown if touched with iodine, while the unaffected tissue remains a light yellow. Lobes or groups of lobules are often attacked by amyloid degeneration while surrounded by the contraction of the capsule of Glisson. In new-born infants, amyloid degeneration is much more frequent than the other forms of syphilitic disease; but it is exceedingly common in adults also.

Acute Yellow Atrophy is a rare complication in syphilitic persons, and has only been observed in cases of advanced disease. It is accompanied by severe jaundice, fever, tenderness over the liver, and death. A case, reported by Dr. Hilton Fagge,³ apparently is one of this kind. A woman, æt. 23, in Guy's Hospital, with a general syphilitic eruption of six months' duration, was attacked by jaundice, sickness, thirst, and high-coloured urine. Post mortem the liver was opaque, bright yellow, dense, and weighed forty-six ounces.

¹ Wiener medicinischer Wochenschrift, S. 113, et seq. 1860.

² Diseases of the Liver. Trans. Syd. Soc., 1861, vol. ii. p. 175.

³ Pathological Transactions, vol. xviii. p. 136. 1867.

Parts of the section were liver-coloured, and in these the liver tissue remained; parts again were bright yellow, and soft; in these the liver-tissue was destroyed. The left lobe was pale and semi-pellucid from replacement of the liver cells by fibroid matter.

The Symptoms of Hepatic Disease are rarely successfully discerned during life. Respecting alteration of the bulk of the liver: in a case in Oppolzer's Clinic, described by Pleischl and Klob, the liver was for a short time larger than natural, but while the patient was under observation it diminished until he died. The inequalities of the surface are sometimes sufficiently distinct to be detected during life—pain and tenderness are seldom present. But Frerichs¹ had a patient with syphilitic hepatitis whom the pain compelled to discontinue using the springs at Aix-la-Chapelle. Jaundice is rare, and commonly transitory when present. Two of Pleischl and Klob's cases had jaundice before death. Frerichs, Gubler,² and Lancereaux³ record others. Dr. Fagge⁴ mentions two instances; in one of which, that already cited, the patient died of acute yellow atrophy; in the other, the patient regained his health. Frerichs in one case found the gall-ducts obstructed, but in other cases the cause was not evident. Jaundice is most frequent during the outbreak of a syphilitic eruption at an early period of the disease, and does not last more than a few weeks; after then it slowly subsides. Ascites is a much more frequent consequence of the cirrhosis; its course and termination need not be dwelt on here. Epistaxis, hemorrhoidal flux, disordered digestion, anasarca, are all occasionally consequences of cirrhosis.

¹ Loc. cit. p. 156.

² Mémoires de la Soc. de Biologie, tome v. 1853.

³ Lancereaux, loc. cit., p. 360.

⁴ Path. Soc.'s Transactions, vol. xviii. p. 138. 1867.

Like other syphilitic affections, those of the liver are rarely the only effects of the poison in action; there commonly are also ulcers of the palate, caries of the bones of the skull, ulcers of the skin, &c. The course of syphilitic disease in the liver is obscure; always slow, ending sometimes in death, but also sometimes in recovery.

SUMMARY.

The Tongue very commonly is attacked, most frequently by excoriations and fissures along the borders and tip, which appear in the first and second year after contagion. Papules of the surface, copper-coloured when denuded of epithelium, white when scaling freely, are not unfrequent. They accompany the papular eruptions of the skin. They are apt to ulcerate and creep over the surface of the tongue, leaving white shining scars. Among these excoriated patches, sinuous fissures form, which cause much pain. Lastly, gummy nodules develop in the substance of the tongue; when superficial, they break on the surface, and leave large, ragged, ulcerating cavities. Irritated syphilitic ulcers of the side of the tongue are confounded with ulcers caused by carious teeth and with cancer; the first is distinguished by the rapidity of its healing when the cause is removed; the second by the wideness of the surrounding induration, and by the general enlargement of the sublingual lymphatic glands.

Mouth and Pharynx.—At the time of roseolous rash on the skin, an erythematous redness spreads over the fauces; lasting a few days, and never going beyond very superficial excoriation. Small, round, sharply-cut ulcers of a superficial kind, and erosions on the surface of raised papules and mucous patches are very seldom absent from the fauces and tonsils during the papular eruptions of the skin. They never sink deeply, or leave contracted scars. Deep ulcers

are the consequence of gummy nodules forming in the submucous tissue, which, reaching the surface, rapidly disintegrate to a greyish adherent slough, that gradually escapes and leaves a deep cavity with sharply-cut edges. This ulcer attacks the tonsil and soft palate most particularly. The ulceration, instead of destroying deeply, sometimes migrates over the surface of the palate and pharynx in the mucous membrane, which, before it ulcerates, becomes indurated widely. Usually the action is confined to the mucous and submucous tissue; at times it extends to the bones of the base of the skull and vertebræ, through which it may reach the brain and spinal cord, when it produces epilepsy or paralysis. Asthenic fever often accompanies this ulceration, the throat is dry, parched, and brown; any attempt at swallowing is most painful, and the voice is hoarse or nasal; cough and expectoration of viscid mucus increase the sufferings. When the disease is checked, the ulcers heal, and tough unyielding scars bind down the fauces, and greatly impede deglutition and speaking.

The Gullet.—The best known affection is stricture of the œsophagus, which now and then occurs among the later consequences of syphilis. It results from inflammation of the submucous tissue, accompanied by ulceration and contracting cicatrisation.

The Stomach and Intestines.—Nothing at all satisfactory is at present known of the syphilitic affections of these organs.

A Stricture of the Rectum occurs in women, by some attributed to syphilis, but probably not dependent on that disease; and more likely a local affection excited by continuous irritation. The anus is beset with suppurating patches; the rectum is narrowed at one or two inches within the sphincter, and above that is enlarged; the submucous tissue is thickened, the surface is red, and eroded, while at

the stricture itself, it is often ulcerated deeply, causing much pain to the patient at defecation. The disease has a slow course, and though curable for a time, always recurs if treatment is interrupted. The symptoms are mainly difficult and painful defecation, discharge of pus and blood from the bowel, and the anatomical characters just described. The treatment consists of rest and tonics, local astringent injections, and dilatation by bougies with occasional small incisions.

Of the Spleen little is known. Amyloid degeneration of the malpighian bodies and blood-vessels, hypertrophy of the fibrous stroma, and much less frequently, gummy nodules are the changes most generally recognised to be due to syphilis.

The *Thyroid* and *Pituitary* bodies are not yet observed to be subject to syphilitic changes. In the *Pancreas* gummy nodules and induration are reported to have been observed.

The *Liver* is very commonly diseased both in adults and children. Two changes are *peri-* and *interstitial hepatitis*, the inflammation of the external capsule causes thickening and adhesion of the peritoneum, and interstitial hepatitis increases the fibrous stroma along particular branches of the portal vein. The new tissue shrinks and causes the liver to become uneven and contracted wherever this process is set up. The nutrition of the liver being thus interfered with, it becomes atrophied at these parts. A third change is the production of gummy tumours along the course of the new fibrous bands. These are greyish yellow, opaque, rounded masses; sometimes almost diffuent, sometimes of cheese-like hardness, cohering sufficiently to be extracted "en masse" from a capsule of vascular cellular tissue. Under the microscope these masses are seen to consist of cells degenerating and mixed with the granular and fatty molecules, and held together by a few fibres.

Cirrhosis of the liver is the most common form; the gummy

nodules are often absent. The cirrhosis of syphilis is characterised by the great degree to which the contraction is carried, so that the parts affected are deeply seamed, while much of the organ is often unaffected. In other kinds of cirrhosis the contraction is not so extreme, but general throughout, and the adhesions of the surface are generally wanting.

The Gummy Nodules are distinguished from tubercles by their size, by their location along the streaks of fibrous tissue, and by the absence of miliary translucent tubercles around them. In cancer, the liver is enlarged and the cancerous masses have no obvious connection with the fibrous bands.

Amyloid Degeneration is one of the most frequent changes in syphilitic livers, but it is identical with that occurring through the influence of other diatheses. The parts of a liver so affected, for amyloid degeneration is seldom present throughout, are smooth, pale and semi-translucent, the translucent part turning brown with iodine.

Acute Yellow Atrophy is, though very rarely, seen in persons advanced in syphilis; when arising from this cause, it has no characters peculiar to syphilis.

The symptoms of hepatic disease attract little attention during life; pain is usually absent; now and then, when the contraction of the liver is advanced, alteration in form and size are perceptible. Ascites, epistaxis, and hemorrhoidal flux are also consequences of the cirrhosis. The disease has usually a fatal end, but probably may be cured if discovered before it is far advanced.

SYPHILIS.

CHAPTER VI.

THE AIR PASSAGES.

The Nose: Catarrh, Ulcers, Periostitis and Necrosis—Larynx: Catarrh, Papules; Induration of Submucous Tissue, Ulceration and Necrosis of the Cartilages, Contraction, Tubercles—Trachea: Ulcers and Cicatrices—Lungs: Interstitial Inflammation, Gummy Deposits; Syphilitic phthisis; S. bronchitis—Summary.

The Nose.—The lining membrane of the nose is sometimes, like that of the fauces, acutely inflamed (catarrhal inflammation), while the roseolous eruption of the skin is present. The membrane is red, dry, and itching; and troublesome sneezing is often excited. In a few days this condition subsides entirely with a copious secretion of mucus. The affections of the nose which occur during the papular eruptions are much more common than the preceding. At which time, the hair follicles inside the nostrils form pustules or ulcers, on which the pus and mucus dry into very irritating scabs, that bleed when rubbed off. Fissures open around the margins of the nostrils now and then, and mucous patches form on the *alæ nasi*. These sores and fissures are exceedingly painful and obstinate, and, if neglected, excite inflammation of the periosteum or perichondrium of the septum narium, which runs on sometimes to limited necrosis of the bone and cartilage.

Necrosis of the delicate bones of the nose is more frequent at a later period of the disease, when five or six years have

elapsed since contagion. The mucous membrane and periosteum thicken by gummy cellular formations, ulcerate slowly, and expose the bone or cartilage at two or three places, which necrose, and come away piecemeal, causing a peculiarly foul smell and purulent discharge,—

Syphilitic Ozæna, which continues so long as the ulceration of the periosteum and mucous membrane goes on. While it is in progress the voice becomes thick and nasal, and the patient is much plagued by the foul odour he bears about with him. If the disease is not checked in time, the whole of the bones of the nose are destroyed and removed, the bridge and soft parts sink in till a hollow replaces the natural prominence of the part. The periostitis and osteitis extend along the vomer downwards to the mouth, and upwards through the spongy bones to the base of the skull, to the suture in the hard palate, and to the ethmoid bones. In time, the nose, mouth, and pharynx become one cavity, lined, when cicatrization is reached, by a greyish tough membrane, the thin secretion of which readily dries into painful crusts. By this destruction, the sense of smell is lost, and to a great extent that of taste also. In these patients the yellowish pallor of the complexion is well marked, which, with some history of previous syphilis, is often the sole evidence of the origin of the disease. Now and then a patch of serpiginous ulcers may co-exist on the skin.

Necrosis and caries of the nasal bones occur both in acquired and in inherited syphilis. When a consequence of the latter infection, it is occasionally seen in infants, but is more common in later childhood, at the time when the eyes and teeth are attacked.

The Larynx, like the pharynx, is attacked by the erythematous or early form of syphilis, as well as by later or tertiary lesions. The later have long been known; the early forms, on the contrary, have been suspected, but

only accurately observed since the introduction of the laryngoscope.

Early Forms.—According to Gerhardt and Roth,¹ they are commonly met with at the time of the papular eruptions of the skin, and are usually, though not always, associated with similar affections of the fauces and tonsils. They may be divided into two varieties—*simple catarrh*, with superficial ulceration, or now and then superficial œdema, and *flat papules*, that in rare instances become prominent tubercles.

Simple Catarrh.—This, according to Virchow² and others, the most usual early affection of the larynx, was met with by Roth only twice in eleven cases of laryngeal affection in patients with papular eruption. It consists of general rosy reddening of the mucous membrane, extending over the interior of the larynx. The congestion is generally confined to a part only of the surface, while the rest retains its ordinary aspect. Superficial erosions, or small ulcers, of the mucous membrane are very frequent accompaniments of this inflammatory catarrh. They are scattered over the surface of the epiglottis and neighbouring parts, particularly on the fold between the epiglottis and the tongue. Partial œdema, or swelling of the mucous membrane lining the larynx and false vocal cords sometimes accompanies this catarrh, but is not severe enough to cause dyspnœa. The symptoms of this affection are hoarseness, sense of dryness, and now and then a little pain in the throat. When left to itself, the catarrh subsides in a few weeks, and the larynx recovers its usual state; unless a relapse happen, then the catarrh becomes very slow and obstinate.

¹ Virchow's Archiv., Bd. xxi., S. 10, 1861. Siedel, also, in the Jenaer Zeitschrift für Medizin, S. 489, describes a papule of the trachea seen by the laryngoscope opposite the fourth ring in a man having mucous papules of the fauces, anus, and foreskin, and general rupial eruption. Quoted in Virchow and Hirsch's Jahresb., p. 497. 1866.

² Ueber der Natur der Constitutionellen Syphilis, 1859.

Flat Papules were present in nine of the cases collected by Gerhardt. They appear as reddish circumscribed elevations on the mucous membrane of the false vocal cords, or of the arytaenoid cartilages (Türk¹), and are usually confined to the upper part of the larynx. They do not suppurate or secrete any discharge, and seldom attain a great size. After a few weeks, even if no treatment is pursued, they dwindle and turn white, leaving their traces for some time. The symptoms of these papules are confined to hoarseness, in extreme cases to complete aphonia, sometimes sudden in appearance, absence of pain, cough, and expectoration. When the papules subside, the symptoms depart, and the voice is restored.

The Later Affections of the Larynx.—A chief one of these is slow thickening of the submucous tissue, which becomes hard, pale, and uneven at points. The induration does not extend over the whole larynx at first, but begins in patches, and spreads irregularly over the surface. Slight accidental irritation kindles ulceration in these indurated parts, which extends slowly from place to place, destroying the mucous membrane and penetrating the submucous tissue, forming deep ulcers, irregular in outline, and covered with a viscid secretion.² The mucous membrane around these ulcers is red and slightly swollen. When these ulcers heal, they leave tough contracting scars, that, if much loss of substance has taken place, cause great distortion of the larynx. In a case of Türk's, where the arytaenoid cartilages were also much destroyed, the vocal cords were drawn together, till but a round hole remained of the rima glottidis. Generally,

¹ Article on the Larynx, in Zeissl's *Constitut. Syphilis*, p. 223.

² For instances, see Pleischl and Klob, *Weiner Med. Wochenschrift*, 1860, Nos. 8, 9, 10; and Wilks, *Path. Trans.*, vol. ix. pp. 52, 272; Van Buren, *New York Medical Times*, No. 2, 1860; Liston, *Path. Trans.*, vol. i. p. 47, &c.

but according to Virchow¹ not always, these ulcers sink deeply, and cause perichondritis, whereby the subjacent cartilage necroses, and remains bare at the bottom of the ulcer; further extension of the ulceration loosens these necrosed parts, which, when detached, are replaced by hard fibrous cicatrices. Rühle² describes, as an exceptional occurrence in this cicatrising stage, the formation of cauliflower growths, which cover the whole entrance to the larynx.

Seat.—By far most frequently these ulcers spread over the posterior surface of the epiglottis, which they even perforate or totally destroy.³ From the epiglottis, the ulceration spreads to the aryteno-epiglottidean folds, or to the arytenoid cartilages; the latter are frequently also the seat of independent ulceration, by which they and the cartilages of Santorini are sometimes wholly destroyed. The scars of the ulcers extend frequently into the trachea, or upwards to the root of the tongue and the pharynx joining those parts. The true vocal cords, according to Türck, are occasionally beset with ulcers, independent of any extension from above. When the disease is of long standing, the lymphatic cervical glands often enlarge indolently.

Besides chronic induration of the mucous membrane, terminating in ulceration and necrosis of the cartilage, another change occurs, namely, *the formation of nodules or tubercles* in the submucous layer, which Virchow says consists of simple mucous tissue (*schleimgewebe*). They form projections in different parts of the larynx, springing commonly, according to Türck, from the front of the hinder wall of the larynx; they terminate by ulceration, or by conversion, into dense fibroid nodules, which are permanent. How far

¹ Krankhafte Geschwülste, Bd. ii., S. 413.

² Rühle: Kehlkopf-Krankheiten, S. 273. Berlin, 1861.

³ Lancereaux, p. 410.

these nodules are dependent on syphilitic action is still in doubt. Wilks¹ describes them as a consequence of syphilis, Türck finds them to be very rare.

Symptoms.—The voice is husky; there is often pain in the larynx as well. When ulceration is advanced, there is tenderness on pressing the thyroid cartilage, or on swallowing. Besides difficulty of breathing, a little cough troubles the patient; it is usually dry, but sometimes there is frequent hawking of viscid bloody mucus.

The Course of this affection is always very slow. Disease of the larynx is generally contemporaneous with syphilitic disease elsewhere, such as ulceration of the pharynx, periosteal nodes, and general anæmia. This variety of chronic laryngitis is frequently the cause of œdema of the glottis, which often comes on rapidly in a few hours, and requires laryngotomy to prevent asphyxia. Sestier² collected 157 cases of chronic laryngitis, in which œdema glottidis occurred fourteen times through syphilitic inflammation.

Frequency of the Disease.—Rühle³ says that in 100 post mortems of syphilitic persons in Prague, the larynx was diseased in fifteen. Altenhofer⁴ noticed, however, only twenty-five cases of laryngeal disease among 1200 syphilitic patients. It is asserted that the male is more often attacked than the female sex. This, Rühle says is untrue, while Gerhardt and Roth,⁵ from the number of *women* among their patients, suppose the contrary to be the case.

The *Diagnosis* depends upon the presence of syphilitic disease elsewhere, on the absence of tubercular disease, and

¹ Pathological Anatomy, p. 205.

² Sestier, quoted by Lancereaux, p. 407.

³ Rühle, loc. cit., p. 275.

⁴ Rühle quotes Altenhofer in the Russische Sammlung für Naturwissenschaft und Heilkunde, Iter Bd. Ites heft.

⁵ Virchow's Archiv, Bd. 21.

on the history of the case. Syphilitic ulceration spread downwards from the epiglottis and the epiglottidean fold towards the interior of the larynx, instead of commencing there and extending upwards, which is a distinguishing character of tubercular ulceration.

In the *Trachea* and *Bronchi*, Virchow¹ and Wilks,² with others, have described affections similar to those of the larynx, namely, stricture and ulcers of the interior. To the former, Virchow attributes some of the lobular pneumonia so often met with in syphilitic persons. Stricture of the bronchi is rare; but Verneuil³ performed tracheotomy on a young man 25 years old, who died twenty-four hours after the operation, in whom the left bronchus was closely contracted by a scar reaching along its interior, from the trachea to the first division. The other parts of the bronchi were not examined, but the history of syphilis was good. The chronic affection of the bronchi is called—

Syphilitic Bronchitis, and is characterised by ulcers scattered along the tubes, which cause contractions and scars, and if they penetrate deeply, necrosis and calcification of the cartilaginous rings. The ulcers have been found to reach even into the smallest bronchi. Lancereaux quotes a case (p. 41) of a young man suffering under general syphilis, who had chronic bronchitis for a year before his death. In his lungs there was found post mortem a series of ulcers, extending from a little below the bifurcation of the bronchi to the smallest ramifications, where the ulcers became continuous with each other. There were no tubercles in the lungs though the bronchi were charged with pus; the trachea was unaffected, but small ulcers were scattered over the mucous membrane of the larynx.

¹ Ueber die Natur der constitutionellen Syphilis. 1859.

² Path. Anat., p. 205 : see also Zeissl, loc. cit., S. 230.

³ Union Médicale, p. 462. 1866.

The course of this bronchitis is slow, and attracts at first little attention; there is troublesome cough, with expectoration of muco-pus, occasionally streaked with blood; tickling sensation referred to the sternum, now and then painful attacks of dyspnœa take place; emaciation, general debility, exhaustion, and death, should the disease be untreated, are the termination.

Asthma is attributed to syphilis, when spasm is excited by the irritation of an ulcer or inflammation of the lining membrane of the larynx. Dyspnœa is caused by the œdema now and then accompanying the laryngitis. Stricture from contraction of ulcers in the trachea occasionally produces violent dyspnœa, and even death. Zambaco quotes a case of Moissenet, reported to Soc. Méd. des Hôpitaux for 1858, where death was so produced. Piorry, in a monograph on the subject, and Virchow in his Constitutional Syphilis, also relate cases of this ulceration being attended by attacks of dyspnœa.

The Lungs (Syphilitic Phthisis).—The same changes are described to take place in the lung that attack the other viscera, namely, interstitial fibrous inflammation, and gummy nodular deposits. These changes are at present imperfectly understood. Instances of gummy nodules have been recorded by many observers, among which those of Virchow, Pleischl and Klob, and Wilks¹ may be cited. Lancereaux,² who has collected ten cases of nodules in the lung, finds that they have no predilection for any part of the organ. These deposits, sometimes single, more often multiple, occur as roundish, grey, or yellowish white masses, of a size between a pea or a small walnut. Their consistence is firm, slightly yielding, with cheesy degeneration in their midst. The parts of the lung around them are hard,

¹ Path. Trans., vol. ix. p. 55.

² Lancereaux, p. 403.

elastic, impermeable to air, and therefore not crepitant. Fibrous adhesions of the pleura and lung to the diaphragm or the ribs, are very frequent accompaniments of these hard masses in adults, and fibrous adhesions with gummy masses in their midst have been met with. Von Bärensprung, quoting Depaul, Lebert, and others for instances of the gummy softening of the lung, record four cases of their own where the lungs were the subject of the solid changes and formations. Virchow says that the children whose lungs contain nodules have been prematurely born. There is a great uncertainty about the specific nature of these affections of the lung. Virchow is unable to trace anything in the structure in which they differ from solid deposits of lobar pneumonia, met with in non-syphilitic persons. He lays great stress on the absence of an origin of these masses from cellular tissue, and their evident connection, in some cases with the bronchial tubes. He nevertheless is inclined to believe that syphilis was the originator of the changes in the lung, though they do not display any special characteristics peculiar to that disease.² Beer³ also describes two instances of parts of the lung in syphilitic persons being pervaded with tough fibrous induration. These parts were connected with tough pleuritic adhesions of the surface of the lung to the chest wall, but he acknowledges there was nothing very characteristic of syphilis in them. Wagner⁴ relates several cases of interstitial induration occurring in new-born children.

Dr. Herman Weber, in the *Path. Trans.*, 1866, p. 1, describes a case where the disease in the lungs, the liver, the membranes of the brain, and periosteum of the sternum were attributed to syphilis. The lungs were firmer and heavier than natural. Section showed the

¹ Die Hereditäre Syphilis, 1864. ² Krankhafte Geschwülste, Bd. 2, S.

³ Eingeweide Syphilis, S. 149. Tübingen, 1867.

⁴ Archiv der Heilkunde, 1863.

to be studded everywhere with pale yellow masses of semi-coagulated lymph, squeezed out of the lymphatics. The lymphatic ducts were much distended with a creamy fluid. There was also increase of the connective tissue between the lobules and round the small bronchial tubes and lymphatics. The bronchial glands were much enlarged, and filled with fatty fluid. The liver was of average size and weight, but studded on the surface and through its interior with roundish masses, deep red in the centre, yellowish and fading into liver tissue at the circumference. They were of about the same consistence as the liver itself. By the microscope they were shown to be recently-formed connective tissue. This specimen was supposed by Dr. Weber to furnish an example of the early stage of syphilis, preliminary to cirrhosis and gummy formation.

The *Symptoms* are mainly those of phthisis, and closely resemble those of tubercular phthisis, by the wasting, frequent cough, expectoration, sometimes even copious sweating and fever that the chronic lobular pneumonia and bronchitis with softening of the deposits produce. The physical signs are negative; harsh breathing, and moist rhonchi, with cavernous respiration, when the nodules soften into irregular cavities, with absence of dulness at the apices, constitute the signs of this disease in the lung.

The *Diagnosis* of the syphilitic source of the disease mainly depends in such cases on the previous history of the patient, and the presence of syphilis in other parts of the body. The benefit this form of disease in the lungs derives from specific treatment is an extremely valuable aid in distinguishing these cases from ordinary phthisis.

SUMMARY.

The Nose.—Catarrhal inflammation of the lining membrane is frequent during the early eruption of the skin.

The symptoms are redness, dryness, and itching, followed by copious secretion of mucus. *Follicular ulcers* inside, and *fissures* around the nostrils, occur with the papular eruptions. Periostitis and necrosis of the delicate bones of the nose is a very common late sequela of the disease. This continued ulceration produces a putrifying foetid discharge, *ozæna*, that is very obstinate. The nose, mouth, and pharynx, by extension of this periostitis and necrosis, become a common cavity, in which the senses of taste and smell are greatly lost. This sequela of syphilis is met with in adults and in children suffering from inherited syphilis, at 8 or 9 years of age.

The Larynx suffers by early *erythematous* and late *ulcerative* varieties of disease, contemporaneously with other parts of the body. The early forms are *simple catarrh* and *flat papules*, the former being often accompanied by partial œdema of the larynx; the late forms are slow *thickening of the submucous tissue*, spreading irregularly; ulceration of this œdematous tissue, and healing of the ulcers into tough contracted scars. Again, perichondritis and necrosis of the laryngeal cartilages are often set up by this ulceration, producing deformity and loss of the voice, while the contracting scars obstruct the larynx, and cause death by asphyxia. Lastly nodules form in the submucous tissue that projects into the interior of the larynx; these are very rare, and not wholly dependent on syphilis. They may ulcerate or remain in an indolent condition.

The Trachea is similarly affected by papules, contracting ulcers, and necrosis of the rings. In the *bronchi*, chronic *bronchitis*, causing numerous ulcers, is attributed to syphilis when occurring in syphilitic persons, without other obvious cause.

The Lungs are attacked by changes identical with those of other viscera. *Interstitial Fibrous Inflammation* and

Gummy Nodules are best ascertained to belong to syphilis. The latter are generally multiple roundish grey masses, between a pea and a small walnut in size. The lung around these masses is hard and impermeable for a short distance. The interstitial inflammation has been imperfectly studied. It probably arises by increase of the cellular tissue along some of the bronchi and blood vessels, causing cords and induration of a small circumscribed space in the lung. They have been seen most unmistakably in infants, but also in adults. When the disease makes active progress, it causes what has been called *syphilitic phthisis*, and is marked by loss of flesh and strength, sweating, cough, pallor, occasional attacks of pleurisy, harsh breathing, and moist rhonchi, but dulness at the apices is wanting; these symptoms are usually rapidly relieved by iodide of potassium.

SYPHILIS.

CHAPTER VII.

BONES, MUSCLES, TENDONS, JOINTS, HEART, AND GREAT BLOOD VESSELS.

Syphilitic affections of the Bones and Periosteum.—In the early period of syphilis, rheumatic pains, often of a very severe kind (*Dolores osteocopi*), are referred to the bones.

The Symptoms of these consist in violent aching, intermittent pain, sometimes attacking the patient only at night more often by day also, but worse at night. The nocturnal exacerbation is attributed by some to the warmth of the bed increasing the circulation of the blood through the capillaries of the surface; others assign some peculiar meteorological influence of the daily cycle as the cause. Patients whose occupation compels them to work at night and sleep by day, commonly, though this rule has exceptions, have the time of severity altered from night to day, the pain being most intense by day, but subsiding when night approaches. Pressure, instead of aggravating these pains, often relieves them momentarily.

These painful points are scattered over the superficial bones. Those most often attacked are the forehead, sternum, clavicle, ulna, and tibia, pretty much those selected for the growth of nodes at a later epoch of the disease. Besides the bones, the shoulders, elbows, and nape of the neck are attacked, sometimes simultaneously, sometimes successively. The pains are readily controlled by proper treat-

ment; if untreated, their course is very uncertain. When they manifest themselves at the outset of the disease, they usually cease when the cutaneous eruption is fairly out. Commonly, there is no swelling or heat at the painful places, but when the pains are very severe, nodes now and then form at this early period. Bassereau¹ mentions a young man, who three months after infection had a vesicular syphilide widely spread over the body, accompanied by agonising pain at the left parietal eminence, where presently a round slightly fluctuating tumour formed, that subsided after fourteen days mercurial treatment, though nocturnal pain appeared elsewhere, notably in the knee. Similar cases are mentioned² by others. The following is a good instance of the kind: among my out-patients of October, 1864, J. K., 22, house-painter, presented himself with the indurated scar of a sloughing chancre, that had healed before hardening, and had been treated at another hospital. When applying to me, he had papular, scaly, and pustular eruption, enlarged glands of the neck, a painful circumscribed oval swelling on the shaft of the left ulna, pain and tenderness, without swelling, at one point of the forehead, beside severe headache, and flying rheumatic pain elsewhere. All the symptoms were rapidly alleviated by mercury, and completely disappeared with the continued use of that medicine. From then till the Autumn of 1865, he was free from symptoms; in the Spring and Winter of 1866, and June, 1867, he had relapses of his periosteal pains. In other respects he has had fair health since his first attack.—In this case, the node formed on the ulna, probably within three months after infection.

Most persons suffer pains of this kind to some extent during

¹ Affections de la Peau symptomatiques de la Syphilis, p. 395. 1852.

² Lancereaux, p. 182. 1866.

the outbreak of the early eruptions; but seldom of so severe a kind as in the case just related. They are in some way related to the affections of the bones which take place in the later stages of syphilis, that fortunately are much less general in occurrence. This early pain is distinguished from the pain accompanying the later affections, by its unsettled character in the bone; the pain is fixed at the seat of the mischief, and increases with the spread of the enlargement.

Late affections of the bones are rarely met with before the stages of syphilitic eruption are past, and two or more years have elapsed since infection. In exceptionally rapid progress of the disease, the bones may be attacked much earlier, but in such cases, the course is in other respects also more severe and rapid; commonly a pustular eruption is present, and many tissues are attacked simultaneously with the bones and periosteum.

Course and Symptoms.—These swellings are best perceived on the sub-cutaneous parts of the bones. They are observed most frequently on the shin, the collar-bone, the frontal and other bones of the skull, the ulna, and the ribs. In the skull, the node forms sometimes between the endocranium and the bone, where, making a projection beneath the dura mater, it compresses the brain, and causes convulsions or paralysis. Pain is usually the first symptom, and may continue some weeks before any swelling at the painful part shows morbid action is going on. This pain is aching, acute, often throbbing, sometimes even agonising. Like the early rheumatic pain, it is generally increased at night. On the other hand, unlike that, it is accompanied by tenderness of very marked kind at the seat of pain. Besides pain from the local action, severe pain is sometimes the consequence of an enlargement of the bone pressing on a nerve trunk; the superior maxillary nerve is thus some-

times compressed by a node in the infraorbital canal, and paralysis of the muscles of the face occasionally results from disease of the petrous part of the temporal bone compressing the facial nerve.

There are two processes which, acting in various ways, produce the changes met with in the bone, or between it and the periosteum; the first is *slow inflammation*, the second, a special development of *gummy outgrowth*. The inflammatory process is often at work without the other, but gummy growths always, by their presence, call the first into action in the neighbouring parts. The effects of these processes are—*Nodes* of the surface, *caries* and *necrosis* of the substance, both processes of an inflammatory kind; and *gummy outgrowths*, the specific formation of syphilis.

Nodes (tophi, syphilitic periostitis).—A small area of the periosteum, in its vascular layer next the bone, becomes red and congested; the contiguous vessels of the bone itself are also engorged, and contribute their share to the change about to take place. Presently, the membrane at this inflamed area is thickened, and lifted from the bone by serum and a new formation of cellular tissue similar to the simple tissue of granulations. Swelling results, often fluctuating and extremely tender when handled. In a short time the swelling becomes firmer and larger, forming a protuberance generally oval in shape, and varying in size from a bean to a portion of a small orange. The margins of the swelling are lost in the surrounding tissue. In a short time the congestion may altogether subside, and the fluid disappear. Usually, however, the bone beneath these swellings is thickened during the chronic congestion of its tissue, by the layer of ill-organised cellular granulation tissue on the surface becoming a plate of rough, hard, ivory-like bone (syphilitic exostosis), which can often be scaled off from the original bone on which it has grown. During this,

the ordinary process, acute inflammation now and then sets in, the skin grows red and hot, and the pain much increased. The swelling then changes to an abscess, that, when opened, leaves a very obstinate and irritable ulcer, and necrosis of the exposed bone. Periostitis is often set going beneath chronic syphilitic ulcers of the skin, if they happen to spread over a subcutaneous bone, when the bone gets thickened by a permanent layer of dense rough bone.

The *specific gummy periostitis* is often associated with the preceding local inflammations. The anatomical changes are then somewhat different, and the course a slower one. In this form the newly-created tissue varies from the consistency of liquid glue to that of cheese, and is composed of a mesh-work of fibres, the spaces of which are filled with cells undergoing fatty degeneration, and serous fluid. This new tissue degenerates in three ways: it shrinks into fatty opaque masses after the fluid part is absorbed; it liquifies almost wholly into puriform fluid, accompanied by suppuration and abscess, as before described; lastly, it is slowly re-absorbed while its place is taken by more active cellular tissue, that ossifies into bone. Thus the presence of gummy formation along with the periosteal or osteal inflammation, does not materially interfere with the result. It is a tissue destined to destruction, and its presence excites changes of a more active kind, which furnish the prominent symptoms of the affection. Violent inflammatory action is not, however, always the consequence of gummy periostitis. It often begins first; and these gummy nodules, or collections, form in the midst of the ordinary irritative inflammation.

Caries and Necrosis.—Changes of structure within the bone, as on the surface, always begin in the vascular tissue in the medullary lining, the Haversian spaces, canals, and cancelli. This action may produce limited necrosis of bone, through its nutrition being destroyed by ulceration.

the superjacent soft parts. The commonest examples of this are the thin bones of the hard palate, of the nasal passages, and the thyroid cartilage in laryngeal disease. More rarely, thin layers of the tibia or frontal bone are the parts so destroyed. Another form of bone disease is the so-called *dry caries*. This consists of a peculiar wasting of the bone. No fluid forms between the periosteum and bone; the latter separates from the periosteum by absorption, forming a pit or depression, which can be felt through the skin. This form occurs chiefly on the frontal and parietal bones.¹

In the bones of the head² the process often begins at isolated spots on both surfaces of the bone, proceeding most rapidly and extensively at the external surface. Action commences by the processes of cellular tissue which pass into the medullary canals from the pericranium or endocranium increasing in size, while bone tissue is cleared away before them. Presently a shallow, funnel-shaped pit is formed on the surface of the bone, filled with a tissue consisting more of cells than fibres. Besides this pit, the canals radiating from the starting-point are opened up in a similar manner; those lying on the surface are converted into tortuous grooves. A bone so altered, presents, when macerated, the worm-eaten appearance of the skulls preserved in the museums. This is not the only change. While this excavation and tunnelling is going on, a change of opposite character is developed in the osseous tissue of the neighbourhood: that is condensed, the cavities are filled with calcareous matter, and the thickness of the bone increases by rapid development of smooth, hard bone on its surface. By this means an irregular wall, or elevation, of bone is formed around the excavation, of sufficient height, in some cases, to

¹ H. Lee, Path. Trans., vol. x. p. 8; Wilks, ditto, vol. xii. p. 216.

² Virchow: Ueber der constitutionellen Syphilis. 1859.

be readily felt through the scalp. The tunnelling and the condensation round the tunnelling are not confined to the superficial parts, but spread through the whole thickness of the bone, obliterating the distinction between table and diploe. Gummy nodules often occupy some of the holes excavated by the dry caries, out of which they may project above the surface, and form even large masses. When this is the case, their coverings slowly ulcerate, allow the gummy matter to escape, and leave rugged cavities, in which parts of the bone that have undergone condensation remain firmly adherent to the skull, without possessing sufficient vitality to form new bone for closing the cavity. In this way necrosed patches remain open for many years. Sometimes, however, the dry caries does not begin until the gummy deposits are undergoing disintegration and re-absorption. The termination of these affections is usually long deferred if left to nature; but unless far advanced, they rapidly respond to treatment. Necrosis and ulceration are not the inevitable accompaniments of these slow changes in the bone. Periostitis may thicken the bone for a considerable distance of its length or breadth, and render it even double its natural thickness,¹ or form prominent tumours, which may encompass the bone. In a young woman, suffering from long-standing syphilis, the frontal bone expanded in its mass several inches across, by gummy formation in the diploe. It was checked and diminished from time to time, but never entirely removed; eventually it caused the patient's death.²

The foregoing shows that the affections of the bone in syphilis seldom produce softening and suppuration, and that the action is almost wholly confined to producing fibrous tissue.

¹ Virchow : *Krankhafte Geschwülste*, Bd. 2, S. 405.

² Boys de Loury : *Gaz. Hébdomadaire*, p. 632. 1860.

and new irregular bone; suppurative inflammation is excited only when some of the old or new bone dies, and irritates the living tissue like a foreign body.

Diagnosis.—The structural changes of the bones in syphilis are usually easily distinguished from those produced by other causes. They attack the superficial bones, the shaft and denser parts, rather than the articular ends or cancellous parts. They are very slow in progress, accompanied by much pain, and last a very long time. They are common in middle life, when scrofulous affections are rare. Their processes of ulceration and induration distinguish them from malignant disease or general softening (osteo-malacia).

Inflammation of the Articular End of the Bones.—Richet attributes to syphilis the sharp, violent pain and swelling that was soon followed by effusion into the joint, which he noted to take place twice in the lower end of the femur, and once in the upper end, of patients suffering at the time with long existing syphilis. Lancereaux relates a case where symptoms of this kind attacked the right elbow-joint. Rest and iodide of potash given freely soon quelled the inflammation and removed the effusion.

The Joints are very rarely attacked by syphilis. From the rarity of the affection little is known about them. Richet¹ and Follin² describe two lesions of the joints. The first consists of gummy deposit in the fibrous capsule, but outside the synovial membrane. This change produces congestion of the synovial membrane, and effusion of serosity into the interior of the joint. According to Coulson,³ creeping tertiary ulcers have penetrated the synovial

¹ Richet : Mémoires de l'Académie de Médecine, xvii. 1853.

² Follin, loc. cit., p. 714.

³ Coulson : Lancet, vol. i. 1858.

membrane. This affection has been observed hitherto only the knee, during the later stages of the disease. Lancereaux relates at great length the post-mortem of a woman, both whose joints were affected with firm yellowish infiltration the capsule. The patient had also deep creeping ulcers the skin, ulceration and stricture of the trachea and bronch advanced contractions and nodular formations of the liver and enlargement of the spleen. Lancereaux also relates another case of effusion into the knee in a patient, who suffering from syphilis, which recovered perfectly by persistently employing antisyphilitic measures.

The Symptoms are the effusion of fluid into the knee-joint the small amount of pain, and that chiefly felt at night, the small tendency to form adhesions or ankylosis, and the slow course, for the fluid is sometimes reabsorbed and effused again two or three times during the progress of the disease. If the joint is handled, the fibroid thickening of the capsule can be felt, and its irregularity is very unlike any strumous affection. Lastly, in those cases where this disease has hitherto been observed, other evident syphilitic affections were well marked.

Obstinate inflammation of the synovial lining of the large joints is not infrequent in syphilitic persons, but except that iodide of potass and mercury are potent remedies in relieving them, these affections are not peculiar to syphilis.

The Muscles and Tendons.—Two forms of syphilitic disease take place in muscles as in other organs:² the gummy or nodular, and the interstitial diffused forms.

The gummy form is met with as oval tumours, usually adhering closely to the muscular fibres. In a case³ of M

¹ Lancereaux, loc. cit., p. 246.

² Virchow's Krankhafte Geschwülste, Bd. II. S. 437.

³ Pathological Transactions, vol. xi., p. 246.

Sydney Jones's, they even enveloped the muscular fibres in their mass. These formations have been found in most of the muscles of the body.¹ Bouisson² has seen them in the sterno-mastoid, vastus externus, and the laryngeal muscles. The muscles of the upper extremity are more often attacked than any others. They accommodate themselves to some extent to the contour of the muscle, and form very frequently in or near its attachment to the bones, from which, indeed, they sometimes originate. Their size varies from that of a pea to that of a pigeon's egg. They are very rarely single, but are scattered in numbers through a single muscle, or one group of muscles, and they are never observed without syphilitic disease in other tissues also; for instance, in the bones, dura mater, or viscera. On section, they are seen to be clearly circumscribed, greyish, red, yellowish-white, or dense white in colour; usually firm, sometimes gelatinous, homogeneous or fibrillated, at other times with yellow, cheesy masses scattered through their substance.³ Their histological structure consists in masses of round, nucleated granulation cells, springing from the cellular tissue between the fasciculi. These cells rapidly degenerate into a structureless mass of granules and fatty molecules held together by a stroma of fibres, which separates them very imperfectly from the proper muscular tissue.

The Symptoms are not very distinct. Pain is not always present, but when so, it is usually increased at night, or by contracting the muscle. The tumours sometimes can be felt, being fixed, according to Nelaton,⁴ if the muscle is

¹ Dr. Murchison found a gummy tumour in the diaphragm, with numerous syphilitic growths in the viscera. Path. Trans., vol. xiii. p. 250.

² Gazette Médicale, pp. 543, 563. 1846.

³ Wagner: Archiv der Heilkunde, Bd. vii., S. 525.

⁴ Nelaton: Gazette des Hôpitaux. 1861.

contracted, and moveable when it is relaxed. If left themselves, they grow slowly larger, but if treated, commonly disappear in a short time.

Interstitial Inflammation of the Muscles.—In this form the muscular fibres become welded together by adventitious cellular tissue, and the muscle grows permanently contracted and atrophied. This change takes place especially at the attachments, and in the parts near the tendons and fasciae. These muscular nodules are sometimes situated close under the skin, and may then cause obstinate ulcers on the surface which extend into the tissue beneath, and draw together the affected muscle. Zeissl¹ relates a case where the knee was flexed to a right angle by a retracted biceps. After the failure of other treatment, a cure was obtained by the use of mercury and iodide of potash for several months.

The tendons, though very rarely attacked, are affected similarly to the muscles, the tendo Achillis and the long tendons of the flexors of the fingers being most frequently the seat of the gummy tumours. Bouisson² saw a nodule in each tendo Achillis close to the heel in a syphilitic patient which disappeared under the application of mercury locally and iodide of potash internally.

The heart, being a muscular organ, is affected like the other muscles. The gummy nodules have been found in the substance of the auricles, ventricles, and the papillary muscles. Lancereaux³ gives a drawing of a heart with these nodules embedded in the substance of the ventricle and in a papillary muscle, where it is surrounded by interstitial induration. This interstitial induration is sometimes the only change in the tissue. Wagner⁴ describes the heart of a still-born syphilitic child, where the substance was

¹ Constitutionelle Syphilis, S. 276.

² Loc. cit.

³ Lancereaux, loc. cit., p. 388.

⁴ Archiv der Heilkunde, Bd. vii. S. 525.

thickened, greyish white, and hard, and Virchow recites others. According to this author, too, the gummy nodules sometimes open into the cavity of the heart, and cause cardiac aneurism; even death by sudden syncope. Wilks¹ also describes a tumour in the septum ventriculorum that, however, was the only nodule of the kind in the body. All these instances are included by Lancereaux, who adds two cases to the number published by others.

Vessels.—Obstruction of the internal carotid artery has been observed in several instances as a consequence of disease of the dura mater at the base of the skull. Virchow, Wilks, and Lancereaux, all mention cases of this kind, where cerebral disease and softening were so originated. Wagner quotes a case of O. Weber's, published in the "Verhandlungen der Niederrheinische Medicinische Gesellschaft," 1863, p. 171, where a nodule was found in the substance of the right pulmonary artery in a woman whose liver, bones, and other organs were syphilitic. This nodule, by its bulk, caused diminution of the calibre of the vessel. Wilks has also met with hard, round grains projecting on the surface of the larger blood-vessels, which he attributes to syphilis. This includes nearly all that is known respecting the alterations of the blood vessels occasioned by syphilis.

SUMMARY.

The bones and periosteum are attacked by syphilis before and during the epoch of eruptions, and at a time when eruptions have commonly subsided.

The early form consists chiefly of aching pains in the bones, worse at night than by day, and changing from place to place. The bones attacked are, the os frontis, sternum, clavicles, ulna, and tibia. The pain usually subsides when

¹ Guy's Hospital Reports. 1863.

the eruption is fairly out. The painful places are not tender or swollen, unless the progress of the disease is unusually rapid, and a true node appears while the pain is present.

Late affections.—These are met with on the superficial bones, and their existence is revealed by fixed pain, great tenderness, and soft, fluctuating, colourless swelling over the painful part. The osseous enlargements sometimes compress the trunks of nerves, and cause violent pain and paralysis of the parts supplied by the nerve. The bone is altered by slow *inflammation* and *special gummy formation*. These produce *nodes* of the surface, *caries* and *necrosis* of the substance, and *gummy outgrowths* in the midst of the preceding nodes. A small area of the periosteum next to the bone is reddened and congested, the effusion of fluid raises it above the surface of the bone (the fluctuating tumour is presently fibrous tissue and rough bone convert the fluid into a solid permanent tumour, that is called a syphilitic exostosis.

In *gummy periostitis* the course is slower and different. A meshwork of fibres filled with cells degenerates into fat globules and serous fluid; this either shrinks into opaque masses, or alters into puriform matter and forms abscess, and is replaced by a more active tissue that develops into bone.

Caries and Necrosis.—The hard tissue of the bone is worn away or absorbed along the canals and spaces to make way for an increase of the medullary tissue, which it then withers, and leaves the bone a porous honeycomb. *Necrosis* is produced in the thin bones, where the inflammation and degeneration of the vascular periostitis cut off their nutrition; the thin bones of the nose and hard palate are most frequent examples. The bone around these parts is attacked by simple death and by absorption, is irritated in chronic inflammation, and often becomes hard, dense, and

thick. It rises sometimes to a ridge about the carious parts. Again, the dead bone, acting like a foreign body, sometimes excites the neighbouring living bone to ulceration and suppuration.

The diagnosis of syphilitic disease in the bones depends on the severe pain, the slow action, the history of previous syphilis, the age of the patient, the dense parts and not the cancellous or articular parts of the bones being attacked.

The Joints.—In the late stage of the disease gummy deposits around the joint outside the synovial membrane, and acute inflammation of the articular end of the bones have been noticed a few times.

Muscles and tendons have two forms of disease, the gummy nodules and interstitial diffused inflammation. The gummy form occurs as greyish or yellowish-white distinct nodules among the fibres of the muscles, usually near the attachment to the bones. The muscles of the upper extremity are most often attacked. There is usually pain, and sometimes the nodules can be felt in the muscle.

In the *interstitial* inflammation the fibres are welded together by fibrous tissue; the muscle is contracted and atrophied. This change is accompanied by much aching wearing pain, increased by movement.

The *tendons* are attacked by gummy tumours like the muscles; hitherto, they have been observed only in the tendo Achillis.

The *heart* has been found attacked by both forms of disease; the gummy nodules seated in the papillary muscles between the ventricles, where they may soften, and, by breaking into the interior of the heart, cause a cardiac aneurism.

Vessels.—Not much is known respecting the change the disease produces on the vessels. The internal carotid has been obstructed by growths extending from the dura mater, and nodules have been found in one or two other arteries.

SYPHILIS.



CHAPTER VIII.

THE BRAIN, NERVES, AND ORGANS OF SPECIAL SENSE.

Different Modes of affecting the Brain and Nerves : Disease in the Skull or Membranes, in the Brain itself—Symptoms : Disorders attending early outbreak of the Eruption ; those in late Affections, General Wasting, Palsy, Dementia, Hemiplegia, Epilepsy, Chorea—The Cord, Paraplegia, Paralysis sine Materia—Single Nerves—Cranial Nerves—Special senses, Smell, Hearing, Sight, Taste.

The Syphilitic Diseases of the Nervous System of late have received unusual attention from many observers. The authors to be consulted with most advantage on this question are, Gros et Lancereaux,¹ Lagneau fils,² Ricord,³ Ludwig Meyer,⁴ Virchow,⁵ Wagner,⁶ Yvaren,⁷ Zambaco,⁸ Zeissl,⁹ and many others who have written ably on this subject.

Much confusion has arisen from not distinguishing between nervous disorders, arising from ordinary causes in

¹ *Maladies Nerveuses Syphilitiques*, Paris, 1860 ; and Lancereaux, *Traité de la Syphilis*, Paris, 1866.

² *Maladies Syphilitiques du Système Nerveux*. Paris, 1860.

³ *Clinique Iconographique*.

⁴ *Constitutionelle Syphilis des Gehirns*, *Algemeine Zeitschrift für Psychiatrie*, Bd. xviii., S. 287.

⁵ *Krankhafte Geschwülste*, Band ii. Berlin, 1864—1865.

⁶ *Archiv für Heilkunde*, Band iv. 1863.

⁷ *Metamorphoses de la Syphilis*. Paris, 1859.

⁸ *Des Affections Nerveuses Syphilitiques*. Paris, 1861.

⁹ *Constitutionelle Syphilis*. Erlangen, 1864.

syphilitic persons, and those produced by the action of the poison itself. Syphilis may impede or destroy the function of a nerve in three ways,—the first two of which are well recognised, the last is ill explained. They are—1st, the nerve-tissue is unaltered, but is pressed upon by growths of neighbouring parts; 2nd, the nerve-tissue is itself the seat of disease; 3rd, a syphilitic patient may suffer from a nervous disorder, of which no traces remain in the nerves post-mortem, but evidence of syphilitic disease is found in other tissues. In such cases the nervous symptoms are, doubtless, sometimes not attributable to syphilis; but it is not requisite, in all cases, for syphilis to produce appreciable change in the structure of the brain or nerves when influencing their functions. Zambaco relates many cases where the disturbance is very likely to have been of this kind. Hildenbrand¹ thinks them due often to the chlorotic condition of the blood in syphilis. Virchow, when referring to them, observes, that as we do not know how far morbid processes in the brain may be arrested and cured, it would be rash to infer when nothing is found that nothing has ever gone wrong in the structure of the nerves or brain, during life.

The nervous affections which are consequent on disease of the *meninges*, are far more common than those excited by morbid changes in the brain or nerves alone; perhaps the most frequent condition is for both meninges and nervous centres to be implicated in the disease. Sometimes the nervous derangement depends mainly on disease of the bones of the skull, from which new growths or tumours press down the brain. Before this arrives, the bone grows worm-eaten and thinned into shallow hollows; gummy

¹ Thèses de Strasbourg: De la Syphilis dans ses Rapports avec l'Aliénation mentale, 1859. Quoted by Zambaco, loc. cit.

masses occupy the diploe, and the bone is considerably thickened in the manner described in Chapter VII.

Within the skull the *dura mater* is generally attacked on both surfaces, but most extensively on the outer or where a thick patch forms, between which and the bone thin fluid or loose tissue collects. The membrane, thick and rough, sends small vascular granulations into the bone; these become fibrous, degenerate, and calcify. This circumscribed inflammation of the *dura mater* may attain some extent without producing any particular symptoms of its presence, until it presses on the brain, or some of the nerves at their exit from the skull.

The inner surface¹ of the *dura mater* undergoes similar alteration to that affecting the outer surface, but usually to a less extent. Strong fibrous adhesions connect it with the *pia mater* and the brain beneath.

The *gummy exudations* which accompany the close adhesions of the *dura mater* to the skull, are the most effective in exciting nervous derangement. The size of these nodules varies from that of a pea up to a segment of a small orange. Their *seat* is usually over the convexity of the brain, or at the anterior part of the base of the skull, the sella turcica or anterior fossa and petrous part of the temporal bone; but they have been found in every part of the *dura mater*.

The histological structure of these growths is precisely that of the masses found in the liver or other organs when attacked by syphilis. The soft jelly- or cheese-like bodies growing among the indurations of the meninges, or pressing down the brain, consist of nuclei, cells, fibres, oil globules, fluid, and granules, filling the interstices of a very loose cellular tissue. The membrane around the growths

¹ Pathological Transactions, vol. xiii. Dr. Dickinson's case.

thickened by new fibres of cellular tissue, that is soft and vascular if the morbid action is recent, but when old, the cells are replaced by fibres, fatty globules, and calcareous matter, and the vessels have almost wholly disappeared. Wagner found a tumour of this kind, supposed to be syphilitic, which occupied the falx cerebri for $3\frac{1}{2}$ inches backwards by 1 to 2 inches downwards.

The *pia mater* soon becomes thickened by extension of the inflammation, and so closely adherent to these masses, that it is often impossible to determine whether the pia or dura mater was the original seat of the growth. Meyer describes, as peculiar to syphilitic persons, adhesions over the whole surface of the pia and dura mater, together with thickening and contraction of their substance. With these there are also condensation of the brain, flattening of the convolutions, and increase of the cellular parenchyma (cirrhosis). The symptoms of this disease very closely resemble those of general paralytic dementia. It must be remarked that Meyer's inference in attributing this morbid condition of the brain and membranes exclusively to syphilis is not quite established, though there is no doubt that many cases of this kind are of syphilitic origin. Be this as it may, the ordinary changes of the *pia mater* and *arachnoid* consist of indurations, and of the occasional formation of small nodules on their surface. Wagner says the pia mater is never the only seat of syphilitic disease; possibly, therefore, it is only affected by extension from the brain or dura mater.

Various consequences result to the *brain and nerves* from the mechanical pressure of these tumours and contractions of the meninges; the most common is *softening* of the part of the brain immediately pressed upon. Extensive softening may take place through arrest to the brain's nutrition from the carotid being obliterated by one of these tumours as it passes the sella turcica. Virchow recites observations of

the carotid, the middle cerebral, and the basilar arteries being so compressed. Instead of the arteries, the various cranial nerves may be beset at their exit from the skull by growths in the meninges or bone, and their function is thereby impeded or suspended.

The diagnosis of the syphilitic nature of the inflammation of the meninges depends on the peculiar yellow semi-fluid contents of the growths, the circumscribed limitation of the thickening, and the adhesions between contiguous structures. Usually other organs of the body, especially the liver and the bones, are similarly diseased. Syphilitic meningitis, if we except that form of Meyer's, is distinguished from simple meningitis by not being general over the whole surface of the meninges, and from tubercular meningitis by the absence of copious granulations at the base of the brain, and along the course of the vessels; and there is no tubercle in other organs, such as the lungs, or peritonæum.

The brain undergoes changes similar to those just described in the meninges. They may commence in the brain, but much more commonly extend thither from the membranes. The induration and contraction of the cellular tissue of the brain is less characteristic of syphilis than the gummy nodules which are generally formed. Chronic thickening of the pia mater accompanies the induration of the brain, and the two correspond to the peri- and interstitial inflammation of the liver.

The *interstitial induration* of the brain may be either widely spread or confined to few of the convolutions, or to one of the deeper parts. It is usually well marked along the course of the blood vessels; it surrounds the gummy tumour when that is present. The convolutions so affected are flat and shrunken; the substance of the brain is seen on section to be whitish or greenish yellow, and devoid of red puncta. Convolutions near the indurated ones, from their nutrition being impeded by the shrinking of blood

vessels, are softened round the hard parts. When the induration is extensive, the brain is often as tough as if it had been steeped in spirit. Though gummy tumours usually accompany the induration, Lancereaux and Meyer relate cases with clear histories of former syphilis and co-existing syphilitic disease of other viscera at the time of their brain disease, in which gummy nodules were not found. Meyer observed in the brain of a patient whose symptoms had commenced with loss of memory, on which defective articulation and general palsy followed, that the white part was hardened throughout the brain, and the peripheral grey matter was softened or even diffuent. *Gummy tumours* are formed from the interstitial cellular tissue of the brain's substance. They are met with in any part of the brain, but most commonly in the vascular situations, for example, in the optic thalamus, corpus striatum, and pons, or in the cranial nerves, especially in the third and fourth. In shape, they often conform to the part of the brain in which they are situated, preserving when originating in a convolution, the contour of that part. This peculiarity is a great distinction between them and tubercles of the brain. For this reason, too, they are but ill-defined from the surrounding cerebral substance, nevertheless they can be readily enucleated, and when removed, they show nodules or outgrowths from their surface of similar structure to the earlier parts of the tumour. When cut through, the section is yellow, or a greyish yellow, and translucent. The consistence varies from that of cheese to that of thick liquid glue. Here and there hard opaque masses or specks show where degeneration has already made progress. The peripheral parts, as well as the central part of these tumours, are the seat of these opaque specks; nor is the consistence of the tumour softer in the older than in the more recent parts. Central softening,

so common in tubercle of the brain, Virchow says never takes place in these growths. The brain substance round about the tumour is grey, often softer than natural, but not always so; it may be hard and dense from interstitial inflammation. These masses vary from the size of a pea or less, to that of a small egg; they are usually single but as many as ten are recorded to have existed in the same hemisphere. Wagner describes the course of the vessels through the brain to be beset sometimes with numerous small tolerably firm tumours lying in the thickened sheath but the gummy tumours are not specially connected with the blood vessels, though these permeate them at times, even very closely. Under the microscope, the structure of the nodules is seen to be precisely similar to the growths in the meninges. Here and there, near their circumference remnants of a nerve fibre sometimes remain undestroyed.

The distinction of syphilitic morbid affections from those occurring in the brain in other ways is commonly made with certainty, but sometimes it can only be very imperfectly drawn. Chronic syphilitic induration of the brain and its investments is histologically very similar to that produced by other causes, while the gummy tumours of the brain resemble to some degree tumours of totally distinct origin, and often the chief reliance in distinguishing gummy tumours and tubercle in the brain, is the presence of syphilitic or tubercular disease in other organs. But they differ thus also; the shape of the gummy tumour is irregular and replaces to a great extent that part of the brain in which it grows, hence its form depends greatly on its situation. The tubercular tumour is more or less globular, and no process runs from it along the nerve fibres of the ganglion or convolution in which it is placed. The structure of the gummy mass is essentially that of cellular tissue; the framework of the mass is firm, and does not soften in the middle; opaque

cheese-like specks are scattered here and there among the remaining translucent substance of the growth, but not more at the centre than elsewhere. Tubercle invariably degenerates early, the greater part of its bulk becomes cheesy, and the centre is frequently softened. Very soft fibro-cellular tumours are now and then extremely similar to gummy tumours, but the absence of syphilitic disease in the skull and dura mater, and the history of the case, render distinction easy.

Symptoms.—Disturbances of the functions of the brain and nerves often accompany the early or exanthematous stages of syphilis.¹ Those affecting the intellect consist chiefly of unusual melancholy, sullenness, or restlessness of temper, even delirium occasionally attends the frequent febrile reaction which on rare occasions accompanies the early eruption of the skin. The bodily ailments of this stage are dull pain in the limbs, loss of appetite, nausea, temporary paralysis of a single nerve, notably of the motor oculi, and others less important. To take the following instances: a man, aged twenty, soon after the outbreak of a papular eruption, was suddenly attacked by paraplegia. The sphincters were relaxed, and much pain was felt in the lower part of the back. In a few weeks, while he took iodide of mercury, the symptoms left the patient.² In another case, the patient was seized with paralysis of the right portio dura; this also was removed by six weeks of mercurial treatment.³ Again, a patient was inoculated in June or July; on October 8th an eruption appeared on the body, on the 19th of October hemiplegia came on, which lasted till the 16th of November, by which time the patient was under the influence of mercury.³ The sudden onset of the

¹ Follin, Zambaco, Zeissl, loc. cit.

² Zeissl, loc. cit., p. 299, quoting Knorre, Deutsche Klinik, No. 7, 1849.

³ Bulletin de Thérapeutique, p. 267. 1866.

palsy distinguishes these affections from the paralysis accompanying the late sequelæ, which are also preceded by other symptoms of nervous disorder. What structural changes excite the temporary disturbances of the nervous system are unknown. Zeissl supposes there is inflammation of the envelopes of the brain or nerves, possibly resembling the punctiform syphilitic iritis that occurs about the same period of the disease, where morbid changes can be observed to arise and subside rapidly without necessarily causing permanent injury to the seat of the inflammation.

The symptoms of the later forms depend much upon the nature of the injury to the brain or nerve. If the pressure of a cerebral tumour produces compression of the brain, the symptoms are mainly convulsions, delirium, and other manifestations of irritation. When the brain's tissue is injured by inflammation, gradual paralysis and loss of intellectual power are the leading symptoms; hence these cases may be conveniently arranged in three groups. First, those where a small area of the brain's surface or spinal cord is affected; second, those where a considerable extent of the surface of the brain, or a whole texture of a nerve, is diseased; third, those where the alteration of structure is situated chiefly in the interior of the brain; fourth and lastly, cases where a single organ or limb, or set of nerves, are attacked. This division is of practical advantage in studying these affections, but syphilitic disease of the brain often calls for many varieties of symptoms as the malady advances as successive portions of the brain are attacked. Cases are met with where the disease is confined to a small area involving thickening of the dura and pia mater over one or two convolutions. This causes congestion and induration of the convolutions, then softening of the brain tissue immediately surrounding them. The most prominent symptoms are continued headache referred to one spot, and sudden

paralysis of one nerve or one side of the body. After this sudden onset, the paralysis becomes general, gradually, but not always continuously, for the severity of the palsy often declines for awhile until further progress of the disease brings aggravation of the symptoms either in the same nerves or elsewhere, this state denotes much of the brain to be implicated. The intellect rarely suffers until this is the case, except that occasionally acute delirium or dulness of perception accompany the attacks of headache and local paralysis.

Imbecility.—In the second group of symptoms, where the disease extends over much of the periphery, clouding of the intellect by gradual complete imbecility is most common. A large number of faculties are impaired—the memory, the senses of taste, sight, hearing, and the control of the muscles, all suffer. This is called *general wasting paralysis*. Post mortem there are commonly found gummy tumours of the meninges, atrophy and softening of the grey substance over a considerable part of the brain's surface. Westphal relates the following case.¹ A man having had syphilis was for some time subject to fits, to persistent headache, and other symptoms. After suffering thus for some time, his memory grew weak; his utterance became hesitating, for want of the right word to express his meaning; his gait tottering, and he lost control of the sphincters. This case terminated in utter imbecility and death. Post mortem the skull was thickened internally by exostoses; the dura mater was beset with nodules growing from it into the Sylvian fissure. The pons varolii was softened and congested, and the right second, and third nerves were infiltrated with gummy nodules.² The following is also a very clear instance.³ A man, æt. 55, previously under Ricord's care for constitu-

¹ Zeitschrift für Psychatrie, Bd. 20, S. 481. ² Zambaco, loc. cit. ³ Idem.

tional syphilis, after a fatiguing journey in September, 1844, was seized with cerebral excitement; this was soon followed by general paralysis. The muscles of the face were relaxed, utterance was inarticulate, and deglutition difficult; saliva dribbled from the mouth; the lower limbs tottered, and the upper ones shook. By bleeding and purging his condition was much improved, though his utterance still remained slow and drawling. In February, 1846, he had a second attack, with full pulse, coma, and stertor. By mercurial inunctions and iodide of potash he was sufficiently restored to be able to follow his occupation of a painter for some months. In 1847 he was again seized with paralysis, diarrhœa, and exhaustion. This time specifics were not borne, and he died. Post mortem there were found, thickening of the pia mater and arachnoid, general softening of the grey substance, and calcification of the anterior two thirds of the falx cerebri; but careful examination discovered no further lesion of the brain.

Muscular Rigidity is said to be produced in rare cases by gummy tumours in the brain. Lancereaux quotes a curious but not very satisfactory instance of this kind, where a gummy tumour was believed to exist. A man suffering from syphilitic eruption, &c., was seized with giddiness and intense headache. Soon afterwards hemiplegia of the left arm came on, and an irresistible inclination to deviate to the left in walking. About the same time his memory failed, and his speech grew hesitating. Iodide of potash and mercury removed all the man's symptoms in a short time, and being apparently in good health, he left the hospital, and was seen no more.

When the *tumour is in the substance of the brain*, and not on its surface, the headache is constant, but varies in intensity; shortly after the headache becomes settled, giddiness or confusion of the memory, and loss of ideas, and

added; next to these come drowsiness, that passes now and then into coma. Convulsions, and maniacal excitement, which often accompany these symptoms, denote peripheral disease of the brain, in addition to the internal tumour. (See S. epilepsy and S. chorea, page 178.) *Hemiplegia* is generally well marked when the tumour is at the base of the brain; it often comes on suddenly, but is sometimes preceded by the severe headache and other symptoms just narrated. The following interesting example is taken from Lancereaux. A woman, 31 years old, having had syphilis ten years before, and having suffered for two years from headache, giddiness, and dim sight, was seized with left hemiplegia, and a tubercular eruption spread over her face and neck. Under the influence of iodide of potash and mercury the eruption departed, and the paralysis improved for a time, but in a few months she died. Post mortem, the interior of the brain was found to be studded with small yellow nodules, easily isolated from the brain tissue, and many of them undergoing fatty degeneration. Faurés, in a paper read before the Medical Society of Toulouse, quoted by Zambaco, narrates three cases of syphilitic disease in which hemiplegia was a prominent symptom, and where a gummy tumour of the brain was discovered by the post mortem examination. The next case is from Zambaco. The patient, a café waiter, suffered constant pain in the right side of the head, progressive loss of motor power of the left side, and syphilitic eruption of the skin. When iodide of potassium had removed the pain and eruptions, he took strychnia to remove the palsy. After fifteen days' improvement, he accidentally took three-quarters of a grain of strychnia at one dose, and died. The post mortem showed a large amount of softening in the right middle lobe of the brain, and a yellowish nucleus, the size of a pea, in the corpus striatum. Nothing else of any moment in

the brain or spinal cord was detected. This nucleus was probably the remainder of a gummy tumour, of which the pressure had caused the pain, softening, and palsy. Zabaco enumerates nine more cases of a similar kind. His twenty-eighth case is probably an instance of recovery after much cerebral disease. A man had, in 1843, general syphilis; in 1847 he had nodes. Mercury was taken in both periods with benefit. In 1851 he felt pains about the body, most intensely in the right leg; after a while the pains disappeared, leaving muscular weakness and stiffness in the limb, and loss of tone in the bladder. General tonic treatment was of no service; on the contrary, the feebleness of the right leg extended in some degree to the arm and side. In 1852 the patient passed under Ricord's care, who gave him mercury endermically, and iodide of potass internally. After five weeks' treatment, great improvement ensued; nevertheless, he suffered relapses of his paralysis for four years more, complete recovery being ultimately obtained by large doses of iodide of potass. Twelve days after his discharge, the patient again returned to Ricord, with strabismus of the left eye, diplopia, and mental confusion. Iodide of potass removed these disorders in one month, whereon the patient omitted his medicine for a few days. His recovery was then interrupted by hemiplegia of the left side, and quiet continuous delirium. Specific treatment for three months again removed all symptoms of the disease. Sometime afterwards the patient died of cholera. At the post mortem no disease of the brain or its membranes was to be found.

Syphilitic Epilepsy.—The most common conditions seen post-mortem¹ in patients who have suffered from epileptic form convulsions are nodules in the bone and dura mater.

¹ Murchison: 2 cases, Pathological Transactions, vol. xiii. p. 250, et seq.

or tumours compressing the convexity of the cerebrum; much less frequently the tumours press into the base of the brain.

The convulsions resemble those of ordinary epilepsy; but in syphilis, when the fits are violent, several succeed each other almost continuously, and then cease during some weeks; in addition, the syphilitic patient more often suffers from severe fixed headache in the interval between the attacks than he who has the true epileptic disease. This was the case in a patient under my care, who suffered in November, 1866, and April, 1867, from three series of fits before he died. In the second series he was six days in a succession of attacks of convulsions, separated from each other by an hour or two of relaxation, but of continuous unconsciousness; the irritant in this case being disease at the base of the brain.

The part convulsed is often very limited; for instance, to the group of muscles supplied by a particular nerve, but probably only a small part of the brain is irritated in these cases. Zambaco¹ notes instances of one limb, or only some of the muscles of a limb, being rigidly contracted during the progress of an eruption, or late in the course of syphilis, when the time for eruptions is almost past. The contractions were sometimes accompanied by violent pain, in others there was none.

In consequence of its origin, syphilitic epilepsy is rare before middle life. Gros and Lancereaux collected 13 cases, in 10 of which the disease appeared about the 30th year, and Lancereaux quotes Jaksch's² 43 cases—31 of which were between 30 and 40; 11 between 40 and 50; and only one was of the age of 20. In five cases of my

¹ Cases 49 and 50, loc. cit.

² Jaksch: *Präger Med. Wochenschrift*, 1864; Lancereaux, p. 450.

own the ages vary between 39 and 47. When epilepsy caused by syphilis it has rapid progress, and is complicated with other nervous disorders—amaurosis, or ptosis, loss of memory, of speech, and even, as related by Zambaco, in one case with maniacal delirium that ended in complete dementia. Some of the foregoing symptoms are present in every case.

The diagnosis of syphilitic convulsions from ordinary epilepsy is generally easy by attention to the following:—The patient is of middle age, there is history of previous syphilis, syphilitic affections are present elsewhere, and there has been no epilepsy in youth. More important symptoms are the sudden access and close succession of the fits. These distinctions mark the origin of the disease. The readiness with which the fits yield to specific treatment but return if medicine is omitted, also markedly separate these convulsions from common epilepsy.

Syphilitic Chorea.—Of this extremely rare affection Zambaco relates two cases, in which choræic movements of considerable severity took place during the general eruption on the skin. Their severity continued several months unabated until mercurials and iodide of potash were given, which treatment caused one to subside in three weeks, the other in even less time.

Syphilitic affections of the spinal cord and its membranes are very rare or little known; but, apparently, these structures are affected in precisely the same manner as the brain and its envelopes. According to Lancereaux,¹ the gummatous nodules have been most often found on the visceral surface of the dura mater, with interstitial inflammation and gummatous formation extending into the substance of the cord. Warner² relates a case where a nodule, lying in the upper part

¹ Lancereaux, loc. cit., p. 487.

² Archiv der Heilkunde, Bd. iv. 185

of the spinal cord, resembled a large one found in the cerebellum of the same patient, who had had syphilis during life, and for about twelve months before his death symptoms of tumour in the brain. Dr. Wilks¹ mentions a case of the cord being compressed by an outgrowth of the membranes investing it. In Zambaco's thirty-fourth case, the patient, who had contracted syphilis four years before, had almost complete paraplegia, violent sciatica of the left thigh, and tertiary ulcers on various parts of the body. Post mortem, a gummy mass was found around the lower dorsal and lumbar part of the cord. Beneath the muscles of the left thigh there was a similar tumour, the size of a nut, pressing on the sciatic nerve.

Paraplegia is the most common *symptom* of the disease in the cord. It is slow in development, and also never appears until several years have elapsed after contagion. In these cases the eruptions on the skin have been obstinate and repeated, and in other respects syphilis has run a severe course. The loss of muscular power in the lower extremities sometimes exists without other symptoms, but very frequently there is severe pain in the spine, increasing at night, and girdling pains in the loins. Loss or dulness of sensibility in the paralysed part is another common sign. The course of the affection is slow, and though it may be checked by treatment for a time, it is seldom cured.

Paralysis sine Materia.—Now and then cases occur of paralysis in persons who are suffering from syphilis in other parts of the body, or whose strength has been exhausted by repeated attacks in various organs, but in whom, after death, no lesion of the spinal cord can be found to account for the disease which destroyed life. There is no doubt, nevertheless, that syphilis has been concerned in producing the

¹ Guy's Hospital Reports. 1863.

affection ending in death. Zambaco relates, among others two cases where paraplegia came on gradually in persons who had long suffered, and were then suffering, with syphilitic disease in other parts (sarcocele, and ulcers of the skin). The loss of control of the lower extremities and of the sphincters ultimately became complete and continued till the death of the patients. Post mortem, the most careful examination could not detect any disease in the spinal cord or its membranes. In a third case, the paralysis began with loss of power of one side, in a patient who had long suffered from syphilis, but who had no other syphilitic affection in actual progress at the time of his death. In attributing these to syphilis, it is reasonable to allow to that disease what is possessed by other agencies, namely, the power of destroying the functions of the spinal cord without leaving traces of its action that our present knowledge of disease can detect.

Loss of sensation without loss of motility is rare, still there are a few cases on record. Follin cites one, described by Petrequin, where necrosis of the frontal bone was accompanied by insensibility in the lower extremities and loss of taste. Zambaco narrates two cases. In one, the man had suffered from syphilis for nine years, when general pains in the limbs came on; these were dissipated for a time by iodide of potassium. Presently they returned again, but subsided into insensibility of the whole surface of the body except the head. When this insensibility had lasted some time paraplegia followed. At first large doses of iodide of potassium relieved his symptoms, and he discontinued the iodide. A relapse ensued, and further treatment restored the motor power and the sensory power sufficiently for the patient to distinguish heat and cold; but sensation was never completely restored, and the "muscular sense" only to a certain extent.

Syphilitic Affections of the Trunks of the Nerves.—Palsy of a temporary kind attacks individual trunks in rare instances during the stage of eruptions; but this variety of palsy is far more frequently a consequence of interstitial neuritis, or the pressure of nodules in the adjacent parts on the nerve. The oculo-motor, optic and trigeminal nerves have been found compressed and disorganised by gummy tumours situate in the dura mater, the bone, and the nerve's own tissue.

In one case of Zambaco's, a tumour pressing on the ulnar nerve caused palsy of the muscles of the inside of the forearm. In another, pressure on the brachial plexus produced paralysis of the right arm. In two more there was long and obstinate retraction of certain muscles. In one, the little and ring fingers were retracted, and the sensibility of that part was lost. In the other case the flexors of the toes and extensors of the foot of the left leg grew rigid; in this patient constipation and palsy of the bladder were also present. In all these cases iodide of potassium sooner or later dispelled the symptoms, and restored the use of the limb.

In a case of paraplegia already narrated (p. 181), an obstinate sciatica was found post mortem to have been caused by a tumour pressing on the great sciatic nerve.

Vidal de Cassis, Lancereaux, and others, report cases where a local paralysis, with wasting of a particular group of muscles, were accompanied or succeeded by a syphilitic eruption, and which readily departed when specific remedies were employed.

The Olfactory Nerve.—The smell is lost when disease of the anterior part of the base of the skull and of the dura mater extends to the olfactory bulbs, invading the brain. The sense of smell is more frequently obliterated by another cause, necrosis of the thin plates of bone on which the fibrils of the olfactory nerve are displayed, when gummy

periostitis has cleared away the spongy bones of the nasal cavity. The taste also is sometimes destroyed in these cases. When the brain is attacked, amaurosis, and oculo-motor palsy often coexist with the disease of the olfactory bulbs.

Affections of the optic nerve.—*Amaurosis*, sometimes depending on disease of the second nerve, is much more often the result of disease in the eye itself. The nerve may be injured in three ways—first, pressure of a cerebral tumour at the base of the brain; second, disease of the optic nerve before it enters the eye; third, pressure of a gummy swelling within the orbit. When the interior of the eye is examined with the ophthalmoscope, certain changes are found to have taken place in the papilla. Galezowski¹ has observed that when the amaurosis is due to disease of the nerve behind the eye, the papilla is strongly injected, but that it remains unaffected, when the inflammation of the choroid and retina causes the amaurosis. Von Graefe describes the papilla to be usually atrophied if the nerve be injured before it reach the eye; this apparent contradiction is explained by Zambaco's experience. In some of his cases the atrophied condition of the papilla was well marked; in others it was injected, and a pinkish or whitish halo appeared round it, while the retina itself was but little changed; thus, probably, both congestion and atrophy are present in different stages of the disease. Galezowski finds also that when the injury to the nerve is external to the eye, both organs are affected.

The symptoms of amaurosis are generally developed slowly; misty vision is always an early sign, and increases as the structure is further affected; iridescent corpuscles, bright lines, and thick spots are also constant symptoms.

¹ Gazette des Hôpitaux, No. 106. 1866.

When the disease is advanced the pupils are fixed and insensible. The disease of the eye is also commonly attended by syphilitic disease elsewhere. Amaurosis is seldom a symptom of early syphilis. It has been noticed within six months, but the ordinary time for its appearance is between two and six years after contagion, when repeated relapses of syphilis in other ways have taken place.

Paralysis of the Third Nerve.—This the most frequent of all syphilitic palsies may appear suddenly during the exanthematous stage of syphilis, or gradually after several years have elapsed, as a tertiary sequela. When of sudden advent, it usually disappears of itself in a short time, while the rash is at its height. The anatomical condition which produces it at such a time is unknown. The most common cause of the later form is pressure of a gummy tumour near the sella turcica.¹ Ptosis is always the most obvious symptom of this palsy, and sometimes the only sign of the tumour's presence: divergent strabismus and dilatation of the pupils diminish the accommodation power of the eye, and cause diplopia and weak sight for distant objects. Sometimes, but very rarely, in the early transitory variety both nerves are attacked. Again, when the paralysis is due to the pressure of gummy tumours, the iris is often inactive, from amaurotic want of sensitiveness in the retina.

Paralysis of the Fourth Nerve, unlike that of the third, is seldom observed. Von Graefe,² in his article on syphilitic diseases of the eye, has published an example; the symptoms are double vision with one image below the other.

Disease of the Fifth Nerve is nearly always manifested by hyperæsthesia; the pain is often violent, and may be very so, but is occasionally, though rarely, confined to a sensation

¹ Follin, loc. cit., p. 720. See also Zambaco and Lagneau's Researches.

² Archiv für Ophthalmologie, Bd. i., 2tes. heft. SS. 313—318.

of pricking and tickling in the skin of the face. Absence of pain and loss of sensation through disease of the trigeminal nerve has been observed. The alteration of sense may extend all over the face; sometimes it only affects one branch of the nerve. Humming noises in the ear have also been remarked to accompany the paroxysms of pain; the muscles supplied by the smaller part of the fifth nerve occasionally twitch, sufficiently during the attack of pain even to make the lower jaw chatter against the upper one. The pain is readily controlled by specific remedies, thus differing much from ordinary tic douloureux.

Zambaco records the case of a man, who, having had syphilitic disease on various occasions, was seized, in 1851, with neuralgic pain about the orbit and upper jaw; to relieve it, his teeth were drawn, but without effect upon his pain. Presently, humming in the ear and disturbed vision were added to his tic. But all his sufferings were much relieved by iodide of potash. The pain returned again, and soon changed into loss of sensibility in the seat of the previous pain. Hemiplegia of the opposite side of the body followed these symptoms, but the ultimate result of this case is not mentioned.

Palsy of the Sixth Nerve, or abducens oculi, is a rare affection, too. Follin¹ says it is usually preceded by sharp pain in the temporal, supra-orbital, and frontal regions of the same side. This palsy, like that of the third nerve, is rarely double. The symptoms are converging strabismus and want of adjusting power of the eye; so that double vision is perceived when an object is attentively gazed at.

Paralysis of the Portio Mollis of the Seventh Nerve.—Transitory and partial deafness occur now and then at the time of febrile reaction, before the appearance of a rash

¹ Loc. cit., p. 720.

upon the skin. But deafness in syphilis almost always occurs at a late stage of the disease, often from caries in the bones of the ear. Messrs. Hutchinson and H. Jackson¹ have collected some statistics respecting the occurrence of deafness in syphilitic persons. According to these researches deafness in some cases results from disease of the cranial bones extending to the internal and middle ear. In these, Mr. Hutchinson found that otorrhœa was an almost invariable symptom. Deafness may accompany the palsy and irritation of other cranial nerves which is excited by extensive disease of the petrous part of the temporal bone and of the sphenoid, implicating the base of the brain and the parts round the seventh nerve. Deafness may also be a consequence of coryza or ulcerations of the pharynx, extending to the Eustachian tubes.

Palsy of the Facial Nerve of the Seventh Pair takes place alone or along with palsy of other nerves, and is caused in most instances by the pressure of tumours or disease of the petrous part of the temporal bone.

Sudden temporary paralysis of the facial has been noted in extremely rare cases during the early or exanthematous stage of syphilis. It is supposed to depend on irritation of the periphery of the nerve preceding or during an eruption on the face. Follin² relates a case where the right facial nerve was paralysed for a time; it was accompanied by iritis of the same side. Yvaren³ also describes a case in which the paralysis was quickly subdued by specific treatment. In cases of early paralysis pain is commonly absent; more often sensation is diminished. Nevertheless, in Yvaren's case, violent pain accompanied the motor paralysis, and in one of Zambaco's, the pain and the loss of motion

¹ Med. Times and Gazette, Nov. 23, 1861.

² Pathologie Externe, tome i. p. 719.

³ Métamorphoses de la Syphilis.

disappeared together, when a syphilide appeared on the cheek. Zambaco quotes a case of Potain's where palsy was attributed to an enlarged lymphatic gland. If the paralysis of the seventh depends on intracranial disease, Duchenne supposes that the muscles will retain their excitability and electricity, but lose such irritability if the paralysis depends on disease along the course of the nerve after it has left the brain.

Sense of Taste.—Zambaco relates cases where the sense of taste was lost in persons whose tongue was enlarged by syphilitic tumour; as the mass grew less, the taste was restored. The taste is also destroyed where the patient has lost the soft and hard palates by ulceration, when the faculty of taste is generally removed with that of smell; still permanent complete loss of taste is exceedingly rare.

THE EYE AND ITS APPENDAGES.

The eye may be *displaced* forwards by a periosteal tumour in the orbit, or its motion and function may be impeded by *paralysis* or disease of the nerves, as described in the chapter on nervous affections, page 184. *Lachrymation* sometimes accompanies iritis, but is of little importance. It has been already related that the eyelid is now and then the point of introduction of the disease. In such cases the indurated surface often covers a considerable extent; it is also the seat of papular eruptions, gummy tumours, and creeping lupus ulcers, with their shining white scars, like other parts of the face. If the papule is situated along the margin of the eyelid it develops into a mucous tubercle; the lashes implicated in the tubercle sometimes fall, but new ones replace them when the affection subsides. The conjunctiva around the papule often grows dull red, and swollen, while large vessels cover its surface. A little lachrymation is usually the o

inconvenience attending this conjunctivitis. *Ptosis* is often present with the motor palsy of the eye. *Catarrhal ophthalmia* is not uncommon in young children, but it has no characters distinguishing it from catarrhal ophthalmia from other causes. Fall of the lashes and *tinea tarsi* also occur now and then in the course of syphilitic eruptions of the skin.

Of the *cornea*, the most important affection is interstitial keratitis, or syphilitic corneitis. This affection of the cornea occurs in children most commonly when from ten to fifteen years of age: it is nearly always, if not, as Mr. Hutchinson¹ thinks, always, a sequela of inherited syphilis. When the disease is commencing, opaque spots form in the cornea, dotted throughout its substance, except near the borders. The spots gradually coalesce, and produce an opacity that is general, but denser at some points than at others. When the affection is very severe, vascular loops sometimes form round the opacities in the cornea; if they are placed near the surface the vessels can be seen to be continuous with those in the sclerotic conjunctiva.² On rare occasions, lymph is exuded on the posterior surface of the cornea, and may completely hide the iris, without, however, implicating that membrane.

The symptoms observed by the patient are chiefly dimness of vision, a feeling of distension in the eye-ball, and intolerance of light. Iritis is sometimes set up by extension of the inflammation from the cornea. Both eyes are usually affected; generally one a few weeks after the other, not simultaneously. Should the patient have passed through his second dentition, the upper incisor teeth will be notched. There may be scars of old ulcerations about the mouth,

¹ Ophthalmic Hospital Reports, vols. i. and ii. pp. 196 and 521.

² Wharton Jones: Ophthalmic Medicine and Surgery. 1866.

an earthy complexion, and other affections first pointed out by Mr. Hutchinson to be of syphilitic origin. Corneitis is in the majority of cases, terminated by resolution; now and then, partial opacity is permanently left in the cornea.

Iritis.—In adults, iritis has two forms—an early one coming on during the course of the papular and scaly eruptions; and a later one, with the tertiary sequelæ of syphilis. This iritis is said to be most frequent in persons of feeble constitution. Its occurrence cannot be traced to any local irritation, and it may even appear while the system is under the influence of mercury. Syphilis, according to Von Graefe,¹ is the cause of 60 per cent. of iritis from all causes. Arlt² met with it 26 times in 162 cases, Hasner 34 times in 81 cases.

The symptoms of this affection are almost identical with those of non-syphilitic iritis. In the *exanthematous*, or *early* variety, the progress is rapid, exciting constitutional disturbance, sometimes only in a very slight degree, sometimes to a large amount. Pain is felt radiating along the brow, and around the orbit, worse at night, and generally accompanied by intolerance of light, especially of candle-light. Misty vision, from obscurity of the anterior chamber and deposit of specks on the posterior layer of the cornea is a common symptom.

Anatomical Characters.—Injection of the ciliary vessels alters the hue of the whole of the iris, and renders it dull. Blue and grey eyes assume a greenish tint; the pupil is contracted, irregular, and less sensitive than in health; the iris shrinks back against the lens, and the anterior chamber is increased in size; the sclerotic around the iris is marked by a pinkish zone of congestion. These changes in the iris often extend to the lens, sclerotic, choroid, and other internal structures.

¹ Deutsche Klinik, S. 208. 1858.

² Zeissl, loc. cit., S. 294.

of the eye, when the symptoms become mingled with others dependent on those lesions. Most commonly one eye only is attacked at first, but relapses are very frequent, and then usually both eyes are affected.

The most frequent ending of iritis is resolution, even when left entirely to itself; but adhesion of the iris to the lens, or even complete closure of the pupil, sometimes remains permanently, or the lens may be irremediably injured in its refractive power, and the cornea obscured by opacities.

In the late, or gummy form of Iritis, nodules or masses are produced in the substance of the iris, of similar structure to those in the liver, and elsewhere, as was shown by the microscopical examination of one that completely filled the pupil, which, as it did not subside under the influence of mercurial and other plans of treatment, was excised by Alfred Graefe.¹ The course of gummy iritis is insidious; the pain, usually very little, is confined to distress at night, and under a strong light the sight becomes dim, objects being shrouded in a fog; the iris soon swells at one or two points, where nodules of a yellowish tint form, the size of a pin's head, or less; but they enlarge, until they even occupy the whole anterior chamber. These nodules last a long time, but are ultimately absorbed, or in very rare instances, they liquify into pus. They may be repeated through an indefinite period, the old ones disappearing as fresh ones form in another part of the iris. Under such circumstances, adhesions of the iris to the lens or cornea frequently take place. The nodules sometimes become vascular, and the vessels may be visible on their surface. Choroiditis and retinitis often co-exist with this, as with the early form of iritis. The limited extent to which the iris is

¹ Archiv für Ophthalmologie, Bd. viii., 1ster Theil, S. 288.

attacked at one time is peculiar to this form of iritis; gummous nodules develop at one or two points, which are rarely accompanied by general parenchymatous inflammation, but usually followed by atrophic change in the part affected.

Iritis in Infants.—Mr. Hutchinson¹ has described a form of iritis which attacks infants with inherited syphilis, where the symptoms differ from iritis in adults in the following respects: One or both eyes are affected indifferently, but the cornea and sclerotic generally escape; the course and symptoms are insidious, and the disease is easily overlooked though readily detected, when searched for, by the copious effusion of lymph it affords. Except in these characteristics the disease is the same in infants as in adults. It is accompanied by other forms of syphilis, is not more severe or extensive in feeble than in robust patients, and it is readily controlled by mercury. Mr. Hutchinson found the commonest age in 21 cases to be five months.

Mr. Hutchinson has also met with several forms of iritis in children and young adults, affected with inherited syphilis; the corroboration of their syphilitic origin consisted mainly in the syphilitic aspect and the notched teeth of the patients.

Choroiditis and Retinitis.—These affections, like the early iritis, may appear, but less frequently than that affection, along with the early cutaneous eruptions. They are sometimes, though seldom, unaccompanied by iritis. In choroiditis there is slight pain in the eye-ball, becoming sometimes intense, and likened to a fulness or bursting sensation. Misty vision, increasing, not unfrequently, even to total blindness, is a principal symptom. When the retina is also implicated, iridescent corpuscles, bright lines, flashing light, grey spots, are complained of, and, according

¹ Med. Times and Gazette, July 14, 1860; Ophthalmic Hospital Reports, vol. i. pp. 191, 226.

Galezowsky,¹ a peculiar inability to appreciate compound colours—green appearing yellow, &c. The accession of amaurosis is rapid in direct proportion as the retina is implicated, inflammation of this membrane being the most common cause of syphilitic amaurosis. When vision is totally lost, the pupils are fixed and insensible. When the eye is examined by the ophthalmoscope, the posterior part of the choroid, according to von Graefe,² is found dotted with white, opaque spots, or brownish areolæ. The vessels of the choroid, at first congested, are seen to be shrunken in the later stages, and the vitreous humour is turbid with grey floating flakes.³ When the retina is involved, it is marked by distinct venous hyperæmia; it is also less translucent than natural, and presents a bluish reflection. With the magnified direct image it is seen to be striated in appearance. Instead of many spots, a solitary patch of effusion is placed at the entry of the optic nerve, extending to the macula lutea: this patch is really on the choroid, but it penetrates sometimes to the surface of the retina. Amaurosis from retinitis is the form most easily dissipated by specific remedies. If the patch has long been formed, though treatment be applied, it cannot be wholly removed, and the sight is never completely restored.

The *Diagnosis* of the syphilitic affections in the eye is formed mainly from the presence of syphilitic affections in other parts of the body, and from the history of the case. The affections of the eye are most usually, but not always, accompanied by some eruption on the skin. It is common for several parts of the eye to be invaded simul-

¹ Gazette des Hôpitaux, No. 106, 1866.

² Deutsche Klinik, S. 208. 1858.

³ Hutchinson: Med. Times and Gazette, Sept. and Oct. 1861, and Brit. Med. Journ., Feb. 24, 1866. Bader: Ophthalmic Hospital Reports, vol. i. p. 245.

taneously, so that more than one of the tunics is the seat of structural changes almost peculiar to syphilis, such as interstitial corneitis, choroiditis disseminata, and nodular iritis.

The *prognosis* in most syphilitic diseases of the eye is favourable, if treatment be applied early, before fibrous adhesions have had time to form; but unfavourable when the disease is of long standing, and in such cases, the sight is seldom perfectly restored.

SUMMARY.

Nervous affections are excited by disease of the meninges, and of the brain or nerves themselves; the former more frequently disturbs the function of the nerves. Chronic interstitial condensation of the bone, the dura and pia mater, and brain is one form of these structural changes; the other, peculiar to syphilis, is development of gummy nodules in the midst of the indurations. The first causes, in the bone, exostoses and ivory-like thickening; in the meninges, tough adhesions; and in the brain, increased consistence of the parts where interstitial inflammation is going on, and softening of neighbouring parts, through the defective nutrition, which comes of the impeded flow of blood in the shrunken vessels. The gummy nodules are found on the convexity and at the base of the brain, where they spring from the meninges, or in the more vascular parts of the interior, when they originate in the brain itself. Their histological structure is similar to that of gummy growth elsewhere. The diagnosis of these tumours depends more on the presence of syphilis in other parts than on well-marked peculiarities of their own; still, they are often very different in appearance from tubercle, or from fibrocellular tumour of the brain.

The symptoms of disease in the brain depend greatly on the locality of the lesion. If on the surface of the brain, convulsions, delirium, and dulness of the intellect are usual. General wasting paralysis is caused when the surface of the brain is greatly diseased by slow induration and adhesion of the pia and dura mater. Muscular rigidity has been noticed in the progress of a syphilitic tumour outside the brain. When the growth is at the base, hemiplegia is a prominent symptom. If the gummy mass grow inside the brain, constant headache, giddiness, and confusion come first; coma and convulsions follow later in the progress of the disease.

Of syphilitic disease of the *spinal cord* little is known. *Paraplegia*, slow in development, and, to a great extent, controllable by iodide of potash and mercury, is the leading symptom. Paralysis is sometimes well marked during life in patients suffering from syphilis, but in whom, after death, no structural alteration in the brain or spinal cord is to be found. Local palsies are met with in syphilis; they are generally consequent on disease confined to the nerves attacked. The ulnar and the sciatic nerves among the great nerves of the trunk, and all the cranial nerves are oftenest thus affected.

Of the morbid lesions of the organs of special sense little is known except of those attacking *the eye*. Papular and other eruptions often affect the lids, and mucous patches form on the conjunctiva. In children, after the second dentition, the *cornea* is the seat of interstitial keratitis, which usually subsides under treatment without permanent injury. Iritis is common within the first six months after infection during the papular eruption, and is very apt to relapse many times during the progress of the disease elsewhere. When occurring in the later periods, it is often combined with disease in the choroid and retina.

The distinguishing characters of the early iritis are, a red zone in the sclerotic round the iris, dulness of the inflamed iris, sluggishness or irregularity of the margin of the pupil when the iris contracts or expands. In the late iritis, the nodules of lymph are plainly seen at one or two points on the surface. Both varieties if untreated often cause synechia or other injury to the eye. The early one may subside without leaving permanent injury behind. Iritis is also very common in infants who inherit syphilis. Choroiditis and retinitis frequently cause amaurosis ; irregular patches of an inflammatory kind form on the retina or on the choroid beneath it, and these, if they are neglected, cause permanently defective vision, but if treated in an early stage are generally capable of complete cure.

SYPHILIS.

CHAPTER IX.

GENITO-URINARY ORGANS.

Urinary Organs: Urethra—Bladder—Kidneys, Partial Cirrhosis, Nodules, and Amyloid Degenerations—Male Genitals: Corpora Cavernosa—Epididymis—Cord—Prostate—Testis, General Interstitial Inflammation, Nodules, Wasting, Symptoms—Female Genitals: Vagina, Ulcerated Gummy Deposits—Nymphæ—Uterus, Placenta—Fallopian Tubes—Ovary—Breasts—Summary.

THE URINARY ORGANS.

The *Urethra* is the site of chancre and erosions near its orifice, beyond this the mucous membrane is rarely attacked. Virchow¹ relates an instance of ulceration of the membranous and prostatic part of the urethra, extending into the bladder, which he attributed to syphilis.

Nothing is known of the way in which syphilis affects the bladder, ureters, or pelves of the kidneys.

The *Kidneys* in syphilitic persons are frequently attacked in the same manner as the liver, by slow interstitial nephritis, and by gummy formations. The first form is set up commonly in one or two, sometimes in several, points at once. The stroma of the kidney thickens, contracts to some extent, and passes to fatty degeneration at these condensed areas. The glandular structure also suffers by compression, from thickening and contraction (cirrhosis) of the

¹ Würtzburger Verhandlungen, iii. S. 366.

interstitial tissue; the cells of the tubules waste, the Malpighian bodies shrink, and their envelopes thicken. This process of cirrhosis is usually confined to a few points, and only by exception pervades the kidney generally. Interstitial inflammation is much more common than the gummy deposits, of which Virchow and Beer have described some examples.¹ A syphilitic kidney has the surface unevenly marked by deep seams. The capsule is tough, adherent to the diseased parts, and leaves the surface rough when torn off. Section shows the cortical substance connected with one or more pyramids to be diminished, harder, and lighter in colour than elsewhere. If a gummy nodule is connected with this cirrhosis, a circumscribed, soft yellowish patch is found. White seams or lines often pass across the kidney from the pyramid to the surface, with which the gummy nodule may be connected or surrounded.

The cirrhosis of syphilis, by thus only partly implicating the kidney, is usually distinguished from that produced by other causes, which besets the whole gland rather than any part of it.

During life, albumen and casts are often present in the urine, as in other forms of slow nephritis.

Amyloid degeneration sometimes attacks the kidneys of syphilitic patients, but in what manner syphilis effects this change is uncertain. Wilks² is unable to point out a direct connection between them as cause and effect. Lancereaux³ did not find any amyloid degeneration in twenty post mortems of visceral syphilis; the changes he did note were, in four, interstitial nephritis; in one, gummy tumours. In many of the cases, no alteration of the kidney

¹ *Eingeweide Syphilis* von Arnold Beer, SS. 33, 63, 93, 132. Tübingen, 1867.

² *Guy's Hospital Reports*. 1863.

³ *Loc. cit.*, p. 291.

was observed. Virchow¹ believes that amyloid degeneration is brought on by the cachexia of syphilis. Klob² found this change present where the lesions characteristic of syphilis were well marked. This form of degeneration is in no way different from amyloid disease set up by other causes. When set in operation, the degeneration first attacks the smaller arteries and coverings of the Malpighian tufts; the latter become large, white and opaque, and easy to distinguish from the surrounding cortical substance. The capsules are rendered still more evident if solution of iodine be poured over the kidney, when they assume a hue much browner than the other parts. The arteries are first attacked; but in time the amyloid disease extends to the capillaries, and even, according to Beer,³ to the stroma of the kidney itself.

THE GENERATIVE ORGANS.

The external genitals in both sexes are naturally the most frequent seat of early ulcers, chancres, &c. They may also be attacked by the later gummy formations.

In the *corpus cavernosum penis* gummy nodules sometimes form, though it is an extremely rare affection and of slow development. It begins as a small lump in one of the corpora cavernosa, being situated nearly always, according to Zeissl, in the posterior third. It is painless, and causes no inconvenience while the penis is flaccid. During erection, a peculiar kind of chordee is produced, the affected corpus is not injected, or only partly injected with blood, and the penis curves over towards the groin on the injured side. Should the nodule be situate on the upper surface rather than to one side, the penis is turned backwards to the

¹ Virchow: Krankhafte Geschwülste, Bd. ii. S. 471.

² Pleischl und Klob: Wiener Med. Wochenschrift, S. 113. 1860.

³ Loc. cit.

belly, so much so in some cases, according to Ricord, as to resemble a ring, and render intercourse impossible. These nodules have not been observed in the corpus spongiosum, which, on the contrary, in gonorrhœa, is the part most frequently attacked by acute inflammation of its spongy substance and chordee. The course of these exudations is very slow, they may disappear spontaneously or remain indefinitely until removed by treatment.

The *Vasa deferentia*, *Vesiculæ Seminales* and *Prostate* are so rarely attacked, that instances of syphilitic affections in these organs are almost unknown. Lancereaux¹ refers to a case of gummy swelling of the cord recorded by Verneuil, in a patient where a similar growth was found in the wall of the right auricle, whence Verneuil concluded the tumour of the cord had a syphilitic origin.

The Epididymis.—It was believed until recently that syphilis only reached the epididymis when the testis was far advanced in disease; but there is probability that the epididymis is also occasionally affected while the testis remains untouched. M. Deon² has described an indolent disorder of the epididymis which chiefly affects the globus major, causing slow enlargement of that body, and thickening of the remaining part of the epididymis. This enlargement occasions very little pain, does not extend to the testis, and subsides after a duration of a few weeks. It is most frequent during the earlier stages of syphilis, within the first six weeks after infection, and commonly attacks both organs. Mr. Curling,³ who corroborates the observation of Hamilton, that the epididymis enlarges in tuberculous persons infected by syphilis, remarks it to be surprising that so many as sixteen cases of this rare affection should have fallen to the

¹ Loc. cit., p. 279.

² Archives Générales de Médecine, Nov. et Dec., 1863.

³ Diseases of the Testis, 3rd edit., 1866, p. 300.

lot of one observer alone in less than a year. The following case, recently under my care at University College Hospital, was possibly similar to M. Deon's. A man, ætat. 22, applied for relief for a swelled testicle, which was also a little painful. The right epididymis was enlarged, chiefly at the upper part; the testis itself was not altered, and the whole organ had very little tenderness. The patient had noticed this engorgement of the epididymis about one week, and there had been no discharge from the urethra. I found on examination an indurated chancre under the foreskin, enlarged glands in the groin, and a roseolar rash over the whole body, including even the face and extremities. The patient was directed to wear a suspensory, and take mercury to make the gums sore. The enlargement of the epididymis almost completely subsided in ten days, but no discharge from the urethra then showed itself. The patient pursued his occupation of porter the whole time that the epididymitis was present, and it is certainly possible the inflammation owed its origin to a strain.

The Testis.—The affections of this organ known by the names of *Syphilitic sarcocoele*, *S. orchitis*, *S. albuginitis*, are nearly always late products of syphilis; they are commonly delayed till two or three years after infection before they make their appearance, and they are often much later still. They may begin much earlier than this time; it sometimes happens that other affections belonging to the late stages of syphilis appear rapidly one after the other in a short time after contagion; in such cases the testis may be attacked like the other organs. Zeissl has never seen them before ten months after infection. Bumstead and Ricord say they have seen the testis diseased as early as the fourth or fifth month. One case has come under my notice where the testis enlarged at the end of the sixth month, but the alteration in this instance resembled

subacute orchitis more than the peculiar enlargement syphilitic sarcocele. This patient had also nodes and rupi eruption at the time the testis enlarged. All the symptoms were rapidly relieved by the iodides of mercury and potas. At the time of the outbreak in the testis, symptoms of syphilitic character are generally present in other parts of the body, such as periosteal affections, hepatic disease, pustular eruptions, tubercles, and ulcers of the skin and mucous membranes. On the other hand, the poison, after several years of apparently complete freedom from its influence will show its returning activity sometimes in the testis alone. Sarcocele is a rare complication of syphilis compared with other affections. Less than one per cent. of those treated by Zeissl for constitutional syphilis in the Vienna Hospital were so afflicted.

Early writers on syphilis appear to have been indistinctly aware of the occurrence of syphilitic disease in the testis, but Sir Astley Cooper was the first in this country to give in his lectures on diseases of the testis, a clear description of the nature and course of this malady.

Causes.—Zeissl and others believe that the testis is never attacked by inherited syphilis, but that the disease has been acquired in all cases. Ricord certainly suggests that some of the affections of the testicle occurring at puberty may be ascribed to inherited syphilitis. This is extremely doubtful; at any rate, the testis is not attacked in infancy. Probably the immediate cause of the morbid action in most instances is a blow or slight injury of some kind, or excessive sexual indulgence. The presence of cancerous or tubercular disease in the organ has been suggested by Zeissl, as also an exciting cause in syphilitic persons. Gonorrhœa and Epididymitis have apparently no influence in rousing the development of sarcocele of this kind.

Course and Symptoms.—The enlargement of the testis

usually makes considerable progress before it attracts attention, but when by chance the disease is detected early, the testicle has still its natural size and consistency, or it may be somewhat firmer than the unaffected organ. The scrotum, cord and epididymis are perfectly natural. If the surface of the testis is carefully examined, it will be found to be slightly uneven, or even nodulated, and less compressible at one or two points than elsewhere. This change is owing to the induration of isolated parts in the substance of the testis. These masses increase in size and number; when far advanced, they often coalesce. Sometimes the development proceeds so rapidly, that in the course of a few weeks the testicle may gain twice its previous size. The nodular form of the organ is lost by this general enlargement. The surface of the testis is then smooth, and encroaches on, and in very advanced cases almost entirely conceals the epididymis, otherwise that body can be felt behind the testis in an unaltered condition. The testicle itself assumes the shape of a large pear, the base of which is downward, and the apex continuous with the cord, the reverse of the pear shape in hydrocele. Pain is generally altogether absent until the testicle has acquired sufficient weight to excite aching along the cord and the loins. Sir Astley Cooper states that rheumatic pain increased by night, now and then attracts the patient's attention to his testis. The peculiar sensation caused by compressing the healthy organ is in the syphilitic testis usually much diminished, and only in the earliest stages of the affection greater than in health. The enlarged organ also feels less elastic, or firmer than the healthy one. By the time the testis has gained some enlargement, a small quantity of thin clear fluid often collects in the serous sac, probably from the congestion of the vessels during the progress of the inflammatory changes in the tunica albuginea. This fluid

is usually of small amount, and of no moment. The size increases slowly, and, according to Ricord, never exceeds twice that of the healthy testis. When the disease has existed some time in one testicle, the other often enlarges in a similar manner. The virile power of the patient is in double orchitis very greatly lessened, or even wholly destroyed, and the sexual appetite lost for the time that this condition continues. Zeissl has observed, as a great rarity, the testes to enlarge simultaneously. I also have notes of a case where the disease in the left preceded the right by a very few weeks, and both increased in size at the same time. The scrotum remains unaltered, unless much hydrocele collect, when the skin gets smooth and shining. This immunity of the scrotum and cord distinguishes the syphilitic disease from other affections of the testes. Exceptions to this are excessively rare; but Rollet,¹ De Meric,² and Curling,³ relate, and Bumstead⁴ quotes others who have recorded, cases where the deposit of syphilitic matter in the body of the testicle is accompanied by circumscribed inflammation of the scrotum, abscess, and fungous granulations of the opening left by the abscess. Probably in these cases some local irritation determined the occurrence of the abscess.

Termination.—The enlargement of the organ in course of time subsides without treatment to disperse it, but it obstinately returns again and again at intervals of a few months unless suitable treatment be employed. Sir A. Cooper and Curling⁵ relate instances of the enlargement returning many times in obstinate cases. The testis sometimes shrivels to a fibroid mass very much smaller than

¹ Annuaire de la Syphilis.

² Lancet, May, 1859.

³ Diseases of Testis, 3rd edit., p. 305.

⁴ Bumstead's Venereal Diseases.

⁵ Loc. cit., p. 301.

the original organ. Dr. Wilks¹ has recorded such cases. Among my out-patients there is a man who contracted syphilis in the Crimea, and was for nine years suffering from various late sequelæ, ulcers of the skin and of the fauces, and nodes. His testes enlarged, one after the other, seven years ago. Now they are both much shrunken, the right is no bigger than a filbert, the left is about half its original size. This patient has no sexual desire, and never attempts intercourse.

Pathological Structure.—Two distinct kinds of change take place.² First, inflammation of the fibrous structures; second, production of so-called gummy swellings. The first commences by congestion and thickening of the tunica albuginea at a few limited points on the serous surface, from these spring adhesions of the surfaces, and effusion of fluid into the serous cavity. This inflammatory action passes inwards into the mass of the testis, so that the fine threads and laminæ of cellular membrane between the tubules, which are naturally very vascular, are converted into a soft cellular tissue crowded with nuclei. This new tissue contracts and indurates, whereupon the tubes alter, their walls thicken, lose their epithelial secreting lining, and shrink into an almost homogeneous mass. These changes, slow in taking place, are usually at first, and for some time, confined to one or two isolated lobules, and they do not generally affect the rete testis, or vasa efferentia. As the morbid action rarely affects more than a few of the lobules at first, and the disease is commonly arrested before the secreting structure of the tubules is destroyed, the gland recovers its normal condition to a great extent. The inflammatory induration, if long-continued in the tunica albuginea, renders it thick and gristly, and the free surfaces of the serous coat become adherent.

¹ Wilks: Path. Trans., vol. x. p. 210, and vol. xii. p. 216.

² Virchow: Ueber der Natur der Syphilitische Affectionen. 1859.

Second—*Gummy Swellings*—This formation does not necessarily always arrive in syphilitic disease of the testicles; on the contrary, it is a less frequent form of the affection than the inflammatory one. It commences by the development of a hard nodule, where the tunica albuginea, or one of the lobules of the testis, have been previously indurated in the manner already described. The gummy masses have not the small miliary transparent masses that develop around real tubercle; on the contrary, the former, when recently produced, are surrounded by a vascular areola that becomes, when the masses have existed some time, a tough capsule. These areolæ consist of an irregular network of cellular tissue, enclosing a centre of dense fibrous tissue, in which cells are packed that have undergone fatty degeneration, and resemble those seen in the atheroma of arteries.¹ The gummy masses are not unlike tubercular nodules in the testis, but they are distinguished, as before said, by the absence of the miliary grey tubercles, that can be often found round real tubercle, and by the fibrous or vascular capsule of the gummy growth. The interstitial and gummy inflammation may be simultaneously produced in the testicle, and correspond in all points with the syphilitic affections of the liver.

Diagnosis of Syphilitic Testis.—When the case is seen at the beginning, the testis is uneven on the surface from the growth of nodules; but this irregularity quickly disappears in the general enlargement, and thenceforth the organ is smooth and regular in shape. Pain is absent, and the sensibility of the gland is diminished. The cord and epididymis remain unattacked, in very advanced cases the latter does occasionally get thickened and involved with the disease; but usually it is only more or less concealed by the enlarged

¹ A case of Canton's, Path. Trans., vol. xii. p. 163, and Wilks', Guy's Hospital Reports, 1863.

testis. In most cases of syphilitic testis other symptoms of syphilis are still present; if not, there is the history of past eruptions of the skin, sore throat, or lasting pain in the bones, symptoms sufficiently deciding the origin of the disease.

In cases where the nodular condition is still retained, it may be confounded with tubercular or cancerous disease, or simple orchitis; but they have these distinctions. Tubercular disease commonly begins in the epididymis; in syphilis that part remains almost always free from morbid change. As the tubercular disease progresses, the nodules and irregular projections adhere to the scrotum and form abscess. The syphilitic testicle, if somewhat irregular at first, soon becomes smooth, forms no connection with the scrotum, and hardly ever softens to abscess. Pain, though absent in the early stages of tubercle, is an accompaniment of its softening and suppuration. The pain in syphilis is always slight, being caused by the weight of the organ dragging the cord. It is felt less in the testicle, than in the groin and back. In tubercular testis the lymphatic glands of the groin enlarge when the scrotum is implicated, and the seminal vesicles, if examined per anum, are often found affected with similar disease. These changes do not take place in the syphilitic testis. Lastly, tubercular disease occurs more often in youths than adults, but syphilitic disease is rare before 25 to 30 years.

Malignant disease of the testis is in its early progress more easily confounded with syphilitic testis. At first the testicle, and not the epididymis, is attacked; the surface is uneven, and pain may be absent; but as the disease advances the distinction grows clear, the projections of cancer rapidly enlarge, and the testis usually remains uneven, studded with masses firmer than the rest of the organ. The outgrowths in due time adhere to the scrotum, which reddens, ulcerates,

and a fungous protruding surface develops. The pain in cancer, long before this stage, often becomes very great indeed, stabbing and shooting in character. Cancer never remains stationary; the epididymis and cord, eventually attacked by the disease, become enlarged and uneven; and when the scrotum is much involved, the inguinal lymphatic glands are affected also. All these changes are wanting in the syphilitic testis, which increases slowly and regularly, overlapping the epididymis and rendering it indistinct; but the cord is never reached, and the scrotum is left in its ordinary condition.

Cancer very rarely attacks both testes. Syphilis usually attacks both, one after the other; this is of little importance, as when both testes are attacked, there is usually other evidence which at once decides the nature of the malady.

Cancer is common at a much younger age than syphilis; though seen at all ages, it selects children and growing lads for its victims, in whom syphilis of the testis is almost unknown.

Besides cancer and tubercle, there are some other affections of the testis which may be confounded with syphilis. Cystic enlargements of the testis of various kinds are distinguished by fluctuation, or by being connected more with the epididymis and cord than with the testis. Again, simple chronic inflammation of the testicles—not the severe acute inflammation—in the opinion of some surgeons, is met with without any complication of tubercle or syphilis, while others again, insist that tubercular disease can be traced in all such cases if syphilis be not present. While this point is still open, the necessity for distinction of simple chronic orchitis from syphilitic testicle is fortunately not urgent, because in such cases, where it cannot be attributed to tubercle, the treatment is very similar to that appropriate for syphilis.

Acute orchitis, epididymitis, hydrocele, and hematocele, are too readily distinguished to make any particular description of their differences needful.

Prognosis.—This is usually favourable, though relapses in this, as in other syphilitic affections, are to be expected, a fair recovery is obtained, because the course of the disease being slow, the patient applies for relief before morbid changes in the gland have become irremediable. Zeissl and others are of opinion that the semen secreted by testicles, which have apparently recovered from syphilis, often possesses no fertilising power.

FEMALE GENITALS.

The *vagina* and the *nymphæ* are sometimes the seat of gummy nodules, besides ordinary venereal ulcers. In this situation they often break down and ulcerate, and the irregular surface they produce is often mistaken for a chancre, but from which it is readily distinguished by its ragged cavity, and by its appearing long after the patient has had numerous other syphilitic affections.

The Uterus.—The syphilitic affections of the uterus are still imperfectly understood. The uterus is occasionally the point where syphilis is introduced, but this accident is extremely rare, probably because the uterus is less likely than the more external generative organs to suffer a breach in its surface, through which the poison may enter. The vaginal part, or the os uteri, have been found marked by indolent foul ulcers, with much thickening of the cervix around the sore, which in every respect resembles indurated sores in other situations. During the progress of syphilitic eruptions on the surface of the body, certain affections are very commonly present in the uterus, of which some are indistinguishable from similar affections in women who have had inflammation of the uterus, and excoriation of the os,

without being infected with syphilis. The neck of the uterus is frequently much thickened and elongated. Mr. Langston Parker has found that the posterior part is most affected by this induration. When this is the case, the os and cervix almost invariably secrete a glairy discharge, while around the os and within its lips excoriations or ulcers are exceedingly common. But these conditions are also common in prostitutes, and, under certain circumstances, in young married women who have had no syphilis. They will be more particularly described in the venereal non-syphilitic disease of the uterus. The cervical portion is liable to eruptions similar to those on the throat, and analogous to those on the skin during the exanthematous period of syphilis. Patches of erythema spread irregularly over the cervix, marked here and there with excoriations, a condition identical with what takes place in the fauces at the same period. This eruption I remarked in two women who had desquamating papules of the skin, and in one of them the throat was similarly attacked. Congestion of the cervix accompanied the eruption, and a catarrhal discharge came from the interior of the uterus. These eruptive affections are far less frequent than the congestive induration and discharge from the os tincæ. All the disorders are very indolent, and unless submitted to treatment they last for many years, during which time they furnish in syphilitic women a secretion that very frequently contains the virus in a communicable form.

Gummata and general induration with contraction of the cervix are sometimes found in women who have long standing syphilis, and will disappear when subjected to appropriate treatment. The symptoms usually complained of are pains in the loins, irritation at the cervix, constant whitish discharge, and other symptoms depending on the permanent congestion of the organ.

It is still undecided how far the induration and excoriations, so frequently present in syphilitic women, are purely of syphilitic origin, or whether they are not chiefly the consequences of vaginitis, metritis, and the over-excitement of excessive intercourse. In order to ascertain the influence of syphilis on the uterus, Mackenzie¹ collected 80 cases of disease of the uterus in venereal patients at the Lock Hospital, in which he found the following symptoms had existed. Pain was present in 36 cases of married and unmarried women. Irregular menstruation existed in 70; in many of the cases this was probably dependent on abrasion or congestion of the cervix. Leucorrhœa was present in 49. Pregnancy took place after infection in 16 of the women, and 22 children were born, of whom only seven lived. In 48 the mucous membrane of the vaginal portion was abraded, in 32 it was only preternaturally red. The cervix was in a few cases thickened and indurated, but as these women had borne children, it is possible this alteration was more connected with parturition than with syphilis.

The *placenta* is frequently diseased in pregnant syphilitic women.² One condition Virchow calls, without attributing its origin exclusively to syphilis, *endometritis placentaris*. In these cases the placenta is well developed, but on the maternal side is beset with hard nodules sunk in the placental processes. The nodules are composed of a whitish capsule, and soft, reddish, or yellowish contents of dense cellular tissue, studded here and there with collections of undeveloped cells already passing into fatty degeneration. The processes of the chorion are apparently not altered in structure, though closely surrounded by these masses. In

¹ A Pathological Inquiry into the Effects of Syphilis on the Uterine Organs. 1854.

² Virchow : krankhafte Geschwülste, Bd. 2, S. 481 ; Wilks, Guy's Hospit Reports, 1863.

one case the placenta was thickened, and had on its free surface polyp-like projections, which were composed of vascular mucous tissue. Such a morbid condition of the placenta is probably a frequent cause of death to the foetus by cutting off its nutrition. This imperfect account of the morbid lesions of syphilis in the uterus includes nearly all that has yet been noted respecting that organ.

Fallopian tubes.—Bouchard and Lepine¹ have recorded an instance of disease in these organs that probably had a syphilitic origin. A woman, in whom the usual symptoms of syphilis were not known to have occurred during life, died of paralysis and coma. At the post-mortem a gummy nodule, the size of a pea, was found on the dura mater opposite the left parietal bone; beneath this the surface of the brain was of a pulpy consistence. The liver was much contracted, adhesions binding it to the diaphragm, and gummy nodules lying in its hinder part. Of the Fallopian tubes one was impermeable, as thick as the finger; in the other three soft, reddish masses, the size of a hazel nut, laid imbedded. On section these were dotted with numerous greyish granules like grains of sand. The microscope showed the masses to consist of dense cellular tissue with nucleated cells.

Syphilis of the breast and ovary.—Extremely little is known of syphilis in these organs; the ancients attribute certain forms of cancer to syphilis, but there is no foundation for this supposition. Follin² met with a case where gummy tumours formed in the breast, which readily disappeared under the influence of iodide of potash, but he had no opportunity of verifying his diagnosis by anatomic examination. Yvaren³ mentions a case where an enlarge-

¹ Gazette Médicale de Paris, No. 41, 1866; Virchow u. Hirsch's Jahrbuch, 11ter Bd. S. 496, 1866.

² Pathologie Externe, t. i. p. 707.

³ Yvaren: Métamorphoses, p. 43.

ment, mistaken for cancer, in the breast of a syphilitic man, was dissipated by specific treatment. Lancereaux¹ has figured an ovary in which a soft, dry, yellow mass was found, taken from a patient who died from syphilis. This author believes also that, beside the gummy tumour, the ovary undergoes interstitial inflammation, similar to that affecting the testis.

SUMMARY.

In the urinary organs, the syphilitic affections of the *urethra* are limited almost wholly to ulcerations at the point of contagion. It is unknown if syphilis attacks the *bladder* and *ureters*. The *kidneys* suffer very similarly to the liver, the changes being chiefly cirrhosis of the interstitial cellular tissue of parts, or of the whole of the kidney, gummy formation and amyloid degeneration of the blood-vessels. The first change renders the kidney tough, seamed, puckered on the surface, and pale; section shows the cortex to be lessened, and the Malpighian tufts very small. This change, usually confined to only a part of the kidney, is sometimes general. Gummy nodules form along the seams of fibrous tissue, produced by the first affection, in round, defined, yellow masses. Amyloid degeneration, perhaps the most frequent change met with in syphilitic kidney, renders the organ smooth, large, not shrunken; on section the face is pale, and the Malpighian tufts are large and distinct.

Of the *male genitals* the corpus cavernosum penis is occasionally the seat of a gummy nodule. This causes no inconvenience, except that erection is painful and crooked. The epididymis, during the earlier stages of the disease, is temporarily enlarged in rare cases, and both organs are usually attacked. How the vasa deferentia, vesiculæ

¹ Lancereaux, loc. cit., pl. 1, fig. 6, and p. 281.

seminales and prostate are affected by syphilis, we have no accurate knowledge.

The *testis* is variously affected, but is seldom attacked till two or three years after infection, and often at a much later period. It is generally accompanied by rupial eruption on the skin, by nodes and other signs of syphilis. The testis is at first slightly uneven, but rapidly enlarges and grows smooth, less elastic, and less sensitive than in the natural state. The epididymis remains unaltered until lost in the encroaching testis. Pain is generally altogether absent, or is confined to aching in the loins. One testis being enlarged, the other follows the same course; then the testis slowly dwindles, and even sometimes degenerates into a small fibrous mass, destitute of glandular structure. The scrotum usually remains healthy and non-adherent; occasionally adhesive inflammation takes place on some part of the testis, on which softening, abscess, and a fungous protrusion from the cavity follow. Two pathological changes take place—inflammation of the fibrous structures, and gummy swellings. In the first, congestion and thickening of the tunica albuginea begins at one or two points, and passes inwards along the lobules to the corpus Highmorianum. This new tissue contracts and indurates; in doing this, it more or less destroys the secreting structure of the testis at these parts. The gummy swellings are formed in this contracted tissue in roundish, yellow masses, surrounded by a greyish vascular capsule. They vary in size from a pin's point to a bean, in consistence from hard cheese to glue, in colour from bright yellow to reddish grey. They consist of fibrous tissue imperfectly developed, and more or less degenerated. They are less often seen than the interstitial induration of the fibrous stroma of the testicle. The testicle usually recovers from this affection, if the morbid action is arrested at an early stage, but relapses are frequent. The

diagnosis depends on the freedom of the cord, epididymis and scrotum from disease, the smooth surface, the absence of pain and diminished sensibility, the presence of syphilitic disease elsewhere, and the history of former syphilis.

Of the Female Genitals, the vagina and nymphæ are, but very rarely, the seat of gummy nodules; if these ulcerate through the surface, large ragged ulcers result, which suppurate freely. In the uterus, eczematous eruptions of the vaginal portion of a purely syphilitic nature are common, besides these leucorrhœa, abrasions and thickening of the cervical portion are common in syphilitic women, but probably due to causes independent of syphilis. The placenta in pregnant syphilitic women is frequently thickened and beset on the maternal side with hard nodules, composed of a whitish capsule, and a soft red or yellowish-red content. The life of the fœtus is often destroyed by the disease in the placenta obstructing its nutrition. The Fallopian tubes generally escape the influence of syphilis, but gummy nodules have been observed in them. In the ovary and breast also on rare occasions gummy masses are found.

SYPHILIS.



CHAPTER X.

INFANTILE SYPHILIS.

Early Inherited Form : Outline—Time of Outbreak—Duration—Varieties of the Eruptions—Affections of the Viscera—Prognosis, Mortality, Inference from the Condition of the Parents; from that of the Child—*Late Inherited Form* : Stunted Growth—Confusion with Struma—Eyes—Teeth—Ulcers—Necrosis of the Nasal Bones.

SYPHILIS in young children may be either acquired or inherited. Its descent by inheritance was long declared impossible, for it was contended that syphilis in young children was merely a congeries of eruptions of a non-specific kind, attacking children born of unhealthy parents, and thus inheriting a feeble constitution. The reality of the transmission of syphilis from mother to child is now established beyond dispute; but diversity of opinion still exists respecting the mode in which the disease passes from the father to his offspring. The reader is referred for the discussion of this question to the Chapter on Contagion.

Inherited syphilis has a course and symptoms in many respects similar to those of the acquired disease, but yet not the same, and it consequently needs a separate description. The symptoms consist in cutaneous eruptions, superficial ulcerations of the mucous membranes, and other affections which, should the child survive the exhaustion attending the disease, subside after continuing a few months. At this stage the disorder usually terminates, but not always;

for in later childhood, or adolescence, sequelæ often appear of a kind that resemble the tertiary sequelæ of acquired syphilis. They are chiefly affections of the skin, bones, teeth, and eyes. Whether the late forms are always preceded by syphilitic disease in infancy, or whether they may constitute the first sign of the disease in the individual, is yet unknown. Probably, the early series of symptoms always precede the later sequelæ. Inherited syphilis has thus two periods, an early and a late one, for description.

The syphilitic condition of the mother, or disease of her uterus, frequently causes abortion, or premature birth of the fœtus. This is sometimes expelled in a decomposed state, or marked with bullæ of pemphigus; but it is often quite free from obvious marks of disease. If the child be born at the completion of gestation, and do not at once display the disease which lurks in its system, it remains, to all appearance, well for the first few weeks, and is often plump and well nourished during that time. This healthy aspect is, in most cases, soon lost; though some children, who are but slightly affected, retain a flourishing appearance throughout their disease. The child snuffles as with a cold, is fretful and wasting; by the end of three or four weeks he has generally, but not always, lost the robust condition he possessed at birth. The child soon gets to look like a little old man; his skin is wrinkled and loose, of a muddy or bistre hue, from a dirty, yellowish tinge pervading it. This colour is best marked on the forehead, chin, and other prominent parts. The skin, though loose, breaks around the mouth, eyes, and nose into chaps, that bleed easily; the cuticle peels from the fingers, hands, and feet, on which coppery patches can generally be found; the hair of the scalp, eyebrows, and lashes drop, and the nails are small and ill-developed. The child's cry is especially worthy of mark: it is hoarse, peculiar, and snuffling, from the nostrils

being stuffed with thick, yellow mucus. The inside of the mouth and palate is beset with white patches and sore. Around the anus there are also bright coppery-red patches. In the course of a few weeks the wasting becomes extreme, the child is seized with vomiting and diarrhoea, bronchitis and pneumonia, or some other visceral disorder, by which his remaining strength is exhausted, and he dies. If the disease be left untreated, this termination is the ordinary one for syphilitic infants, especially among the ill-fed children of the poor; but death is not invariable. Children with good nutrition, in whom the disease has been slow to develop, often recover in a short time, and either suffer no further from its influence, or become in later childhood again its prey. The plugging of the nares hinders the child's sucking, by obliging him to keep his mouth open to breathe; thus the nasal catarrh seriously interferes with his chance of recovery.

After death no particular morbid change is commonly found. In a certain proportion of the patients the various changes that characterise syphilis are developed in the viscera. These lesions are most frequent in the liver, which is often large, hard, and smooth, from albumenoid infiltration of its substance. The lungs, the thymus body, and spleen are also occasionally the seat of these morbid processes. After this outline of syphilis in children, which often forms nearly all the symptoms developed in the course of the disease, a more detailed description may be furnished.

The time for the *early form* of inherited syphilis to appear in the child depends much on the condition of the mother. Women, affected about the time of conception, rarely complete their gestation; others, who have been infected for some years, may go the full term, and the children, if born alive, do not usually show their disease until between two

and six weeks old. Diday¹ has collected 158 cases of syphilis in infants: 131 of these showed symptoms before the end of the second month; in 86, symptoms appeared before the thirtieth day. Several sickened earlier than this, and were covered with eruption a fortnight or three weeks after birth. In only twelve cases was the period of delay carried beyond three months. Roger² has added to the 158 cases of Diday, 14 of his own, 28 of De Mèric's,³ and 49 of Mayr of Vienna, making altogether 249 cases, in seven-eighths of which the disease appeared before the end of the third month. In half, the symptoms appeared in the first four weeks after birth. This tolerably equal length of the interval in the great majority of cases, renders it extremely probable that in all the cases where this interval was greatly exceeded, the infection was acquired accidentally after birth, instead of being inherited before it.

When the disease is set in action, it passes through a sequence of symptoms in many respects similar to the acquired form, excepting, of course, the changes of the point of contagion, which are not manifested in inherited syphilis.

The *duration* of the early form of the disease is very uncertain. Dr. Arthur Farre⁴ reckons it at about two months in children who recover under treatment, but its course in many cases is much more protracted. In seven cases of which I have notes, the children were five months, six months, two months (2), one month, and three weeks (2), before they recovered their health or sank under the disease.

The earliest sign that attracts the mother's attention to

¹ Infantile Syphilis, translated for the Sydenham Society, p. 109.

² L'Union Médicale, Jan., 1865, and Lancereaux, loc. cit., p. 538.

³ Lettsomian Lectures. 1858.

⁴ Evidence before the Venereal Committee, 1865.

the condition of the child, is usually the eruptions on the skin. They may be arranged as follows,

Maculæ, or *roseola*, forming in roundish spots, the size of a threepenny or sixpenny piece, scattered over the buttocks, the thighs, and up the body to the neck and arms. Rosy at first, they very soon turn coppery-brown, and are very distinct from the white, shining aspect of the skin itself. They are one of the earliest signs of the disease, and the rash which is generally found if the child is born marked with an eruption, or if he shows it a few days after birth. Bassereau mentions an instance of its appearance three days after birth and being followed the next day by snuffles. The spots are not left the sole symptoms long in any case. Mucous patches in the mouth, and excoriations of the nostrils, very soon follow. The latter are, according to Zeissl,² never absent if the macular eruption is present.

Papules are sometimes present at birth, but not often; they are small, about the size of a pea or bean, at first bright red, then coppery in colour, as the cuticle scales from them. They are most commonly met with in groups on the buttocks, appearing among the roseola which preceded them. Hereabouts they often develope into mucous patches; now and then they form all over the body, and are common on the palms and soles, especially on the heel. They differ very little in structure from the papular eruptions of acquired syphilis. Friedlinger, Mayr, and Zeissl³ say that the production of a papular eruption has direct ratio to the nutrition of the child. If he is ill nourished, the papular rash rarely appears.

Mucous patches are invariably present in inherited syphilis and often very numerous. They appear a few days after the disease begins actively, and are repeated from time to time.

¹ Loc. cit. p 541.

² Loc. cit., p. 321.

³ Monograph on Congenital Syphilis. Vienna, 1858.

until the poison becomes inoperative. They are met with round the anus, perinæum, and, if the child is a girl, at the vulva, at the corners of the mouth, in the nostrils, and often in the groins and axillæ. On the skin they form flat pinkish spots, slightly raised, and moistened with thin fluid. If the skin touches a neighbouring part, they are usually repeated on the corresponding part, and spread into large sores. If left alone, they assume, after the first week or ten days, a coppery hue, and last several weeks before they subside. Around the lips they break into chinks and cracks, that radiate from the mouth. About the anus they often make an irregular circular elevation, more or less cut up by fissures reaching into the gut.

On the Mucous Membrane.—The patches are white, round, and slightly elevated, often ulcerated, and usually surrounded by a bright red areola of erythematous congestion. They are very constant symptoms, especially on the soft palate and tonsils; also, but less often they develop at the angles of the mouth, inside the cheeks, and in the pharynx. From the difficulty in examining the throats of infants, their absence must never be presumed because they cannot be at once detected, for they are the most common of all the signs of congenital syphilis.

Ecthymatous Pustules are common in very feeble children. Sometimes the disease begins with them, sometimes they come shortly before death. They have no distinctive character, and are never the sole or predominant sign. The matter they contain dries in a few days into a thick crust, under which sometimes the skin ulcerates into sharply-cut sores, with plentiful discharge. More often, however, the pustules shrink and heal up without causing much irritation.

Pemphigus in syphilis is almost entirely confined to children, in whom, however, it is not universally considered to be an eruption symptomatic of syphilis, for it

appears only in such as suffer severely; hence, some physicians esteem it a sign of exhaustion rather than an actual phenomenon of the disease itself, but most observers look upon it as a truly syphilitic eruption. This question was warmly discussed in 1851, in the French Academy of Medicine, when the advocates on neither side vanquished their opponents; but the discussion directed to this point has brought to light new observations, which satisfactorily show that pemphigus is an undoubted symptom of syphilis. With this object, Trousseau has related that six children in one family were born dead of syphilitic parents, each being marked with pemphigus.¹ In pemphigus the skin is beset with dark red patches, elevated sometimes into papules; the cuticle over them is raised into transparent blebs between a pea and a thrush's egg in size. The fluid in them turns yellow, and the vesicles often merge into each other. In a few days they burst; their contents, mixed with blood, dry to greenish and yellow scabs, under which the patch ulcerates. Around the bullæ the skin is also red and swollen, sometimes lighter, sometimes purpler than the patches themselves. Fresh crops of bullæ rise around the old ones, and continue the eruption. The eruption is always well marked on the palms and soles, and spreads up the legs and thighs, and in very bad cases, even all over the body. The patients who have this form of eruption die usually in a few weeks, from diarrhœa, bronchitis, or other intercurrent disease. Instances of the eruption subsiding are recorded; but all the patients, almost without exception, died subsequently of exhaustion. Galligo² records a solitary case of pemphigus recovering through mercury.

The distinction of syphilitic from ordinary pemphigus

¹ *L'Union Médicale*, p. 196. 1857.

² *Bulletin de la Société Anatomique*, p. 372. 1851.

marked by the former always attacking the palms and soles, by its rarely covering the trunk of the body, and by the presence of other symptoms of syphilis. In ordinary pemphigus the eruption is indiscriminately scattered over the body, the hands and feet escape, and there are, of course, no mucous patches in the mouth or round the anus.

Tubercles.—Authors describe subcutaneous nodules as forming in very weakly children. They lie beneath the skin, soften, and ulcerate to the surface, making ragged, spreading sores, liable to be mistaken for chancres. It is a very rare eruption.

The Nails may split and fall, and the nail matrix suppurate. They are replaced by new ones, which, so long as the disease in the matrix continues, are also broken and shed from time to time. The nails are but rarely affected in inherited syphilis; few observers have remarked it. Lancereaux¹ has collected the observations of Bertin, Doublet, and one or two more, who have mentioned falling of the nail. Hutchinson² has described this affection minutely, and gives an excellent drawing of it in his paper on diseases of the nails in syphilis. He found that the various layers of the nail split and grow jagged, from being badly developed in the matrix. Several nails, some on each hand, are always attacked, and the malformation is very obstinate and long continued.

Coryza.—The lining membrane of the nose in nearly all cases very soon becomes swollen, and secretes a discharge that at first is thin, then gets yellow, and so thick that it blocks up the nasal passages, and compels the child to breathe through his mouth. To this inflammatory action mucous tubercles around the nostrils are added; these chap,

¹ Loc. cit., p. 547.

² Pathological Transactions, vol. xii. p. 259.

and sometimes ulcerate deeply. In very feeble children this chronic inflammation of the mucous membrane often extends to the perichondrium and periosteum, and destroys the cartilages and bones of the nose; the bridge flattens, the discharge becomes foetid, and bits of bone now and then break away from the vomer and spongy bones. The impediments of the passage of the air through the nose produces the snuffling which is so characteristic of the disease, while the necessity to open the mouth to breathe, seriously interferes with the child's sucking, and thus becomes a most unfortunate complication.

Laryngitis.—The catarrh of the nose spreads often to the larynx, and the thickening and chronic inflammation of the mucous membrane produce the hoarse cry peculiar to syphilitic infants. In one or two instances the larynx has been found after death to be swollen and congested, but not ulcerated.

The Bones are very rarely affected in children, except as just mentioned, in the nose, where the changes they undergo are similar to those developed in acquired syphilis. Lancereaux¹ has collected about half-a-dozen unsatisfactory and incomplete observations of disease in the nasal and cranial bones. Bouchut² attributes a syphilitic origin to a peculiar induration of the shafts of the long bones, and also to a softening process in the epiphysial cartilages, terminating in suppuration under the periosteum, that are met with now and then in syphilitic children. It is not at all clear to what extent these affections of the bones are due to syphilis, or whether they are not rather consequent on imperfect nutrition, which may arise from other causes than syphilis.

Testes.—Syphilis attacks the testicle with extreme rarity

¹ Loc. cit., p. 550.

² *Maladies des Enfants Nouveau-nés*, p. 863. 1861.

in children; when it does so, the testicles enlarge and gummy nodules form on them as in the adult organ.

Peritonæum.—Sir James Simpson¹ has published two observations of peritonitis occurring in children born of syphilitic mothers, which he thinks were possibly due to that disease. Bärensprung² describes the peritonæum to be thickened and fastened by adhesions to the viscera in patients whose liver is also attacked by the disease.

The Liver.—The affections of the liver, when the disease is inherited, are very similar to those determined by acquired syphilis. Most frequently the liver of children who die from syphilis undergoes no appreciable change; in a small number of cases, however, alterations in the structure of the liver, of two kinds, are observed. The first, and much more frequent, affection consists in enlargement of the liver with lardaceous or waxy infiltration of the parenchyma. The liver is pale yellowish in colour, smooth, and firm, not yielding under pressure until it breaks beneath the finger. Section shows that the alteration extends sometimes only to a part, at others, through the whole of the organ. The brownish, somewhat translucent hue is also more distinct here than on the surface, according to Gubler,³ who has given a most complete description of the syphilitic liver in young children. The yellow infiltration is arranged in streaks and whitish masses along the the course of the portal veins. Under the microscope this invading substance is seen to consist of nucleated cells, and of amorphous matter, in which the true liver cells are immersed. Trousseau attributes to the compression exerted by this exudation on the portal vessels much of the mortality of inherited syphilis. In the second affection of the liver, which is far rarer than the preceding,

¹ Obstetrical Works, vol. ii. pp. 157, 162.

² Die Hereditäre Syphilis, proposition 2. 1864.

³ Gazette Médicale de Paris, p. 262. 1852.

distinct hard yellow nodules or roundish masses form. The organ is also enlarged and indurated by general lardaceous degeneration. Lancereaux¹ relates one observation; Zeissl and Wedl³ also mention instances of gummy masses in children. Zeissl found the masses included in cicatricial seams of a liver, which in every other respect resembled one of an adult when attacked by gummy disease.

The *Symptoms* of disease in the liver, should the child survive its birth, are restlessness, irregularity of the bowels, diarrhoea, gaseous distension of the belly, earthy hue of the skin, and rapid emaciation; jaundice is recorded as occasionally present. The large and smooth liver can generally be felt on the surface of the body.

The *Spleen* is not unfrequently enlarged by albumenoid infiltration; but it has already been described on page 130.

The state of the *Thymus* attracted the attention of Dubois in 1851. He observed in syphilitic children a condition of the thymus that has since been described by Depaul⁴ and Wedl,⁵ though it is not yet clear how far syphilis is concerned in its production. Collections of diffuent matter which may be as fluid as pus, or semi-solid, are scattered through the interior of the organ. Hence, probably a process of a gummy kind produces these dense opaque yellow collections. The true nature of the affection is still uncertain. Commonly no alteration of any kind is found in the thymus.

The *Lungs* are attacked in various ways; the most common is bronchitis, with plugging and consolidation of the finer tubes and air-cells. Other changes, more identified with syphilis, are sometimes met with, but generally in children who were either born dead, or who died shortly

¹ Loc. cit., p. 553.

² Constitut. Syphilis, S. 333.

³ Path. Histologie, S. 519.

⁴ Mémoires de l'Académie de Médecine, t. xvii. p. 563. 1853.

⁵ Path. Histologie.

after birth. One of these is the *gummy nodule*. Virchow,¹ Lebert,² and others have described them, and they resemble the gummy nodules in the adult in all respects. Depaul³ gives the cases of two children with pemphigus, who had very soft puriform nodules or collections scattered through the lungs. *Interstitial inflammation* along the course of the bronchial tubes and beneath the pleura is found very much more frequently in children than in adults. It renders a lung, or part of it, firm, pale, rosy pink, homogeneous, non-crepitant, sinking at once in water, and the firm parts cannot be artificially inflated with air. The firmness of the indurated tissue, the absence of any softening, and the white colour of it, distinguish this affection from ordinary pneumonic consolidation.

The *Brain and Nerves* in young children are seldom attacked by syphilis. Isolated cases of disease in the brain and spinal cord have been recorded by Virchow which may have been connected with syphilis. He also quotes an observation of Schott,⁴ an assistant of Rokitansky; in a child born prematurely with pemphigus on the soles and palms, there was found a gummy nodule in the liver, and what he supposed to be another on the inferior surface of both anterior lobes of the brain. Mr. de Méric is disposed to attribute to syphilis the power of causing hydrocephalus from having found the head much enlarged in syphilitic children. Other observers corroborate him in this remark.

Insomnia is related by several authors as being very obstinate in some children; but there is little definitely known of the symptoms of syphilitic affections of the brain in children.

¹ Krankhafte Geschwülste, Bd. 2.

² Anatomie Pathol. Planche, clii.

³ Mémoires de l'Académie de Médecine, t. xvii. p. 135. 1853.

⁴ Mayr's Zeitschrift für Kinder Heilkunde, Bd. iv.

Otorrhœa is not unfrequent, and is very apt to cause permanent deafness. In a hundred cases of congenital syphilis in older children, Hutchinson¹ found that ten were deaf, and in nine of them a discharge from the ear had preceded their deafness.

Prognosis.—Syphilis is a most frequent cause of death of the foetus before gestation is finished. Of those born at full term, a large number die, though not the majority of those attacked by the disease. Gerhardt² found in the *Poliklinik*, or dispensary practice of Würzburg, of 250 children dying in one year, 44 were syphilitic, and that syphilis ranked fourth as the cause of death in children. The mortality of the offspring of syphilitic women has been noted by Pick³ in 106 cases: 17 of the children were born prematurely, 44 after full gestation; 11 of the 17 and 3 of the 44 were born dead. Of 47 living children only 4 lived more than three months; the average duration of 41 others was 26 days. The mortality of children born of syphilitic fathers, but whose mothers do not also participate in the disease, has not been estimated, the instances being rare where the mother remains unaffected by her husband.

Indications derived from observation of the parents.—The probable result of inheriting syphilis is greatly influenced by the state of the child's parents. The following conditions render recovery extremely precarious. Should both parents be syphilitic, the child almost always dies. If the disease has been recently acquired by the father, and is in active progress at the time of fecundation, the child is extremely likely to inherit. If the mother be infected about the time of conception, so that the early eruption

¹ Med. Times and Gazette, Nov. 23, 1861.

² Deutsche Klinik, S. 85. 1858.

³ Schmidt's Jahresbericht, Bd. cxx. S. 194, quoted also by Lancereaux, loc. cit., p. 603.

develope during her pregnancy, the child is rarely carried to the full time, but is born dead at the seventh month. When the disease of the parents has reached a late stage, the result cannot be foretold with any accuracy, though the mortality still remains very great. The more the poison loses its activity in the parents, the greater is the probability of the children being born at full time, and of their surviving or escaping the disease. When syphilis shows no activity in the parents, the child often escapes altogether; so, also, when the parent is suffering from the sequelæ, or so called tertiary consequences of syphilis, the offspring is often quite healthy, as in the following cases:—

A. F. E., 33, infected 12 years. During the last 4 years has had lupoid ulceration of the skin of the neck creeping upwards towards the face and scalp, and downwards to the breast. This affection has been gradually controlled by iodide of potash, and is now nearly well. While suffering from syphilis she married, and has had three children. The first, five years old, had inherited syphilis during infancy; the second, two years old, is healthy, and has never been subject to eruptions; the third, eight months old, is a fairly robust child; hitherto, he has not shown any signs of syphilis. This person has been my patient continually for three years and a half, and has brought her children to me from time to time that I might note their condition.

The gradual cessation of the activity of the virus is generally shown in such a manner as the following. The first pregnancy is often cut short by early death of the foetus; the second pregnancy and several others may terminate in the same way; the next child is commonly born alive at the full term, but displays symptoms of the disease at or shortly after birth, and dies in a few months. Should further pregnancies take place, the disease may not manifest itself in the next child until three or four weeks after its birth, and may

then run so mild a course that the child overgets his attack. There is so much uncertainty in the time necessary for the poison to become permanently inert in any individual that no positive limit should be fixed. A man may pass several (seven) years in good health, and be apparently quite well of his malady until his vigour is lowered by some accidental illness, and a relapse of syphilitic nature occurs. At such a time he often infects his offspring. The contagious power of the virus sometimes revives also, when treatment is too hastily abandoned, for women who bear syphilitic children before their treatment is begun, and after it has been laid aside, will sometimes bring forth healthy children if mercury is administered during pregnancy.

Indications for prognosis gained from the condition of the child.—The longer the interval between birth and the appearance of the symptoms, the more probable does recovery become. Two conditions of the child itself mainly influence the gravity of the prognosis. First the degree of general cachexia or general infeeblement of the child's power of development. A puny wizened child, which is quickly covered by eruptions, will almost surely die. The appearance of ecthymatous pustules are also bad for the prognosis. The second condition which influences the prognosis is the degree to which local affections hinder nutrition. Thus hepatic disease causes vomiting, diarrhoea, and otherwise prevents digestion. The nasal catarrh, again, blocks up the nose, so that the child cannot breathe through his nose while he sucks, and is put in danger of starvation. Nasal catarrh, besides, often ends in lobular pneumonia, with hepatisation of distinct lobules of the lung. The irritation of the skin attending superficial ulcers, or ecthymatous pustules, is frequently the cause of the exhaustion which brings on death. The prognosis is less grave if the disease is late in showing itself, and is even favourable if the

rash is confined to one or two places on the body, or one or two mucous patches round the anus. A good result may be expected, if the child's nutrition proceeds favourably, if his skin remains fresh coloured and well supported by subcutaneous fat; if the nasal catarrh is too slight to impede the power of sucking, if the digestion is good, and the bowels regular. Under these circumstances, the child requires little more than careful watching to ensure his recovery.

The late forms of inherited syphilis have been but recently recognised, and our knowledge respecting them is still very imperfect. Mr. Hutchinson has shown that certain diseases of the cornea¹ and other parts of the eye (already described in Chapter IX.) in growing persons arise from inherited syphilis; and moreover, that they are accompanied by several phenomena of arrested or imperfect nutrition in other organs which produce a series of symptoms sufficiently characteristic to distinguish the late sequelæ of inherited syphilis from scrofula, with which malady, nevertheless, these varieties of syphilis have been confounded. It is doubtful whether these tardy or tertiary sequelæ are ever developed during infancy; more probably they are always delayed until five or six years are passed over. The influence of the poison then shows itself in defective or even arrested development of certain organs. Patients so afflicted are stunted and weakly. The complexion is pale and earthy, the skin rough and thick, marked here and there with scars, or indolent ulcers, resembling the ulcers caused by the destruction of gummy nodules in the subcutaneous cellular tissue. The forehead is often prominent, the bridge of the nose sunken, while chronic periostitis and necrosis of the nasal spongy bones produce

¹ See the description of Diseases of the Eye, p. 189.

a foetid discharge from the nares. The eyes are attacked by interstitial plastic deposit in the cornea, and less often in the iris also; for a description of which the reader is referred to the chapter on Diseases of the Eye. The lips are frequently marked with chaps and seams of old ulcers. Inside the mouth, the palate is sometimes ulcerated by extension of the disease from the bones of the nose. The teeth are very irregular; sometimes converging, sometimes diverging to or from each other. The central permanent incisors are small, and project beyond the gums less than healthy teeth. Their cutting edge is thin, and quickly breaks away in the centre, leaving the tooth notched along the lower border. The neck of the tooth is narrowed, hence the pegged appearance which has obtained for them the name of "Pegged Teeth." The hair is scanty and brittle. Chronic inflammation attacks the membranes covering the brain. Lancereaux¹ records two cases of idiocy accompanying the symptoms of inherited syphilis just enumerated, and I may add an instance observed by myself. A girl of 17, very backward and stunted in her growth, of earthy complexion, irregular and imperfectly developed teeth, was all her life very dull at learning, being hardly able to read. Her mother had suffered from relapses of syphilis for nineteen years, though otherwise in fair health. A younger sister had good intellectual power, but the hue of her complexion, the scars round the mouth, the caries of the nasal bones, and the pegged upper incisors were very distinctly syphilitic. A single case is of little value but it corroborates those observers who attribute to inherited syphilis the power of arresting the development of the intellect.

¹ Lancereaux, loc. cit., p. 578.

SYPHILIS.

CHAPTER XI.

DISEASES CONFOUNDED WITH SYPHILIS.

Tubercle—Scrofula—Mercuric Poisoning—Syphilisation : Inoculation of—
a. Matter of Suppurating Sores ; b. Hard Sores or Syphilitic Ulcers ;
c. Pus free from Venereal Taint—Summary.

Tubercle.—The exact amount of influence syphilis exerts in producing tubercle has still to be ascertained. This much is certainly known : a large proportion of the men invalided for tubercular disease in the army and navy have also suffered from syphilis. It is justifiable to assume, that the constitutional debility caused by syphilis is extremely favourable for tubercular disease to begin in persons who have no hereditary predisposition or constitutional taint of tubercle : thus syphilis becomes a predisposing cause of tubercle. Again, the production of tubercle in persons already predisposed to its formation is greatly favoured by the debility and bad nutrition syphilis induces ; thus syphilis becomes also an exciting cause of tubercle. Syphilitic disease of the lungs causes a phthisis that in its general course is not unlike tubercular phthisis ; but this affection is totally distinct from tubercle. There is no satisfactory ground for supposing syphilis and tubercle are connected together, still less for supposing tubercle is in any way a form of syphilis.

The connection between syphilis and scrofula is at present but imperfectly understood. As the knowledge of syphilis

extends, numerous affections previously assigned to scrofula are ascertained to be wholly syphilitic, such as the affections of the skin, eyes, and bones, developing in late childhood, where syphilis has been inherited; so, also many of the creeping ulcers of the skin, late sequelæ of acquired syphilis, are often difficult to distinguish from similar scrofulous affections. Further, it is extremely probable that syphilis may be an excitant of scrofulous disease where there is predisposition to those affections, in the same way that it favours the progress of tuberculous disease, but there is no evidence that all scrofulous disorders are commuted forms of syphilis. The following characters show how far the two diseases resemble and yet vary from each other. Scrofula attacks the skin, lymphatic glands, and bones, the parts most frequently affected by syphilis; but scrofula is most frequent in childhood and adolescence, the ages most free from syphilis. Scrofula always tends to slow suppuration and abscess, syphilis has no special tendency to suppuration, the matter of tertiary ulcers results mainly from degeneration of solid deposits rather than from inflammatory congestion. Scrofula selects the ends of the bones especially the growing epiphyses, syphilis, on the other hand attacks the bones usually in the shaft, beneath the periosteum. In the viscera, scrofula produces mainly amyloid degeneration, syphilis, though a cause of amyloid disease also, produces circumscribed induration and contraction of the fibrous network of other organs, as the liver and lungs.

Leprosy.—The distinctions between syphilis and this disease are well defined: perhaps the greatest are the non-contagious character of leprosy, its incurability by mercury and the different nature of the pathological changes produced by it. The tubercles of leprosy resemble the tubercula syphilide very slightly, being often colourless, scattered mainly over the extremities, soft, not hard, nor of copper

tint. The desquamation and ulceration of leprosy are far more severe than those occurring in syphilis. The slow continuous course of leprosy, the absence of relapses, and the little influence treatment exerts over it are also useful distinctions. The report of the Royal College of Physicians on leprosy, in 1866, and the report of Messrs. Danielssen and Boeck¹ to the Swedish government on the same subject, furnish us with ample evidence that syphilis and leprosy have nothing in common.

Mercurial Poisoning and Syphilis.—Mercury cannot excite any affection that syphilis evokes. This fact has been during the present century, and is still strenuously denied. Nay, some go the length of denying the existence of constitutional syphilis at all. They assert that all syphilitic affections beyond local ulcers, &c., are consequences of the mercury given to prevent their development. Opinions of this kind have obtained importance sufficient to induce observers to investigate their correctness very closely, and no one has done so with more success than Kussmaul,² professor of medicine at Erlangen, where, and in the neighbouring town of Fürth, the manufacture of mirrors is largely carried on. Hence a copious supply of sufferers from mercuric poison is afforded him for observation. Kussmaul compares with much minuteness the symptoms of mercurial poisoning with those of syphilis. He gives observations of the latter disease occurring in persons who had taken no mercury for its cure; also, other cases of persons suffering from mercury and syphilis simultaneously; and lastly, observations of mercurial poisoning where syphilis was absent. His examination shows clearly that mercurial poison produces no single affection or symptom that is

¹ *Traité de la Spedalsked ou Eléphantiasis des Grecs.* Paris, 1848.

² *Untersuchungen über den constitutionellen Mercurialismus und ihr Verhältniss zur constitutionellen Syphilis.* Würtzburg, 1861.

identical with or not easily distinguished from those belonging to syphilis. Again, syphilis in persons exposed to mercury by the practice of their trade is not altered in its aspect; consequently, we cannot speak of the combined effects of mercury and syphilis. Mercury has but one influence over syphilis, to control many of its symptoms; it can in no way unite with the virus to produce effects compounded of the two poisons. In some respects it even seems to shield the individual from the contagion of syphilis, as Kussmaul could not find an instance of a worker in mercury *contracting* syphilis while affected by the drug. Those who did suffer from syphilis had contracted it either before they were mercurialised, or after they had recovered from the mercurial tremor and salivation.

Inoculation of Pus—"Syphilisation."—In reviewing what is known respecting the inoculation of discharges from venereal sores, it will be expedient first to enumerate the different methods of experiment adopted:

1. Matter of suppurating venereal sores inoculated; *a.* on persons suffering with syphilis; *b.* on persons who have never had syphilis.

2. Matter or secretions of indurated ulcers, or of syphilitic eruptions inoculated; *a.* on persons suffering from syphilis; *b.* on persons not suffering from syphilis, (1.) who have either already undergone it, or, (2.) who never have had it.

3. Matter from sources free from venereal taint inoculated; *a.* on persons already syphilitic; *b.* on persons never having had that disease.

No. 1, *a.* *Matter of suppurating sores inoculated on persons suffering with general syphilis.* This process, made familiar by the experiments of Auzias Turenne, Boeck, Sperino, and others on the Continent, and by Heron Watson in this country, and now known under the name of *Syphilisation*, has for its main features, immediate irritation at the

place where the matter is inserted, the production of a pustular ulcer on the third day after insertion, and the discharge of these ulcers being inoculable for a considerable space of time, though the ulcers thus successively produced gradually become smaller and smaller, until the skin becomes insusceptible of further irritation by this means. The consequences of this procedure are confined to occasional phagedena of the ulcers themselves, and tenderness with enlargement of, now and then even suppuration of, the nearest lymphatic glands. Individuals are said to differ in susceptibility, some are with great difficulty, others only when in strong health, brought into a state proper for the success of these inoculations. The most complete accounts of the inoculation of venereal pus in syphilitic persons are those of Boeck¹ and Bidentkap,² from which the following description of Syphilisation has been drawn.

Syphilisation, or the cure of syphilis by exhausting the influence of the virus through repeated insertion of the syphilitic poison. It was long ago suggested that in lapse of time the human race may become insusceptible to the syphilitic virus, for, as that poison attacks each individual but once, at some future period the disease, having infected every one by acquirement or by inheritance, will die out for want of material. This natural result, M. Auzias Turenne, in 1850, conceived might be accomplished by art in a comparatively short time. He observed that the pus of suppurating venereal ulcers could, with perseverance, be successfully inoculated for a time on certain of the lower animals, but that, after a while, this susceptibility was exhausted; that is, they

¹ Recherches sur la Syphilis publiés aux frais du Gouvernement, Christiania, 1862.

² Aperçu des différentes Méthodes de Traitement employées à l'Hôpital de l'Université de Christiania contre la Syphilis constitutionnelle, par J. L. Bidentkap. Christiania, H. J. Bensen, 1863.

were, according to his views, syphilised, or, in other words, that their tissues could no longer be excited or influenced by the syphilitic virus. He erred, however, in supposing that he communicated syphilis to these animals when he inserted contagious venereal pus in them. The only result of his experiments on lower animals has been to generate the suppurating sore, without producing upon the animals the general eruptions of the skin and mucous membranes which are characteristic of syphilis. Notwithstanding the uncertainty hanging over the question, the theory promulgated by Auzias Turenne was taken up by converts to his views, and experimented upon in different parts of Europe, especially by Sperino in Turin, and Boeck in Christiania. Boeck has employed it as the sole means of treatment since 1854. The matter for artificial inoculation may be taken from hard or soft chancre indifferently; those using it only require that the ulcer be in a state of progress, and suppurating freely. If a chancre has ceased to suppurate, the application of an irritant suffices, in reviving its spreading suppurating character, to restore the inoculable quality to its secretion.

The principle on which Boeck bases his treatment is this, he assumes that the poison, when once admitted into a person's body, continues its effects so long as any food remains to supply its ravages; and that repeated attacks of the virus on the tissues of the body in time exhaust the available store, each return being accompanied by a corresponding consumption of material. Hence Boeck endeavours to promote consumption of the material as quickly and harmlessly as possible. This he maintains is done by keeping up a continual repetition of small ulcers on the skin, using for this purpose the pus of venereal contagious ulcers, where he avers the syphilitic virus is most active and rapid in development. His reasons for holding

this opinion are—first, his inability to distinguish the venereal ulcers which are not from those which are accompanied by general syphilis; consequently to his mind, all contagious venereal ulcers are part and parcel of syphilis; secondly, continued propagation of them on a person's body affords that person immunity for at least a considerable time from the effects of contagion with chancreous pus; thirdly, that while this condition is being reached, the eruptions and affections of the general disease gradually and slowly vanish, never, in the great majority of cases, to re-appear a second time; that is to say, the patient is well of his malady; fourthly, that this extinction of the disease is attained by his process more surely and speedily than by any other treatment. The following examination into the mode of proceeding, and results obtained by this method of treatment, syphilisation, will show the reader how little confidence can be placed in this theory.

Boeck's plan of proceeding is simple enough, and there are few indications against the employment of inoculation. It is useful at all ages, and in every stage of the disease, being the more efficacious the earlier it is employed, though to avoid erroneous diagnosis, it is advisable to wait until the constitutional disease is clearly manifested before subjecting patients to inoculation. It has been successfully used on patients suffering with acute fevers, and on lying-in women, but its application is usually suspended during the progress of acute disease. On the other hand, it is of less service in cases of long standing, for they are more liable to relapse. In tertiary affections again, though syphilisation is beneficial, it is better to employ iodide of potass in addition. Boeck attributes the small number of patients returning to him with tertiary syphilis to the good effects of syphilisation. On the other hand, he finds that if mercury has been previously ad-

ministered to the patient, it becomes a great hindrance to the success of the inoculations; hence syphilisation has latterly been abandoned for patients who have taken mercury. Feebleness of constitution is also disadvantageous; the exhausted condition following typhoid fever is very unfavourable, the inoculations in such persons often do not take until the patient's strength is restored. Sloughing of the artificial ulcers, at first an occasional accompaniment of syphilisation, has for the last three or four years been prevented by the adoption of the precaution of beginning on the flanks, where the skin is less irritable than on the limbs, and to keep the inoculations widely apart lest they run together and form a large sore. Matter is produced in about three days at the points of inoculation; thus a fresh generation is ready for insertion every third day. The inoculability of the matter is exhausted usually after fifteen or twenty repetitions, and will no longer take; then pus is brought from a fresh chancre on another person, and the inoculation of this is continued until the skin of the flank loses its irritability, and another kind of pus fails to produce fresh pustules. The scene of action is then changed to the arm, and the same process pursued, till ulceration flags there too, when it is carried to the thigh. When these three regions are exhausted, it is found that the body generally is no longer susceptible, and the treatment is complete. The ulcers do not cause much discomfort during their progress; still, when healed, they leave very evident scars. If syphilitic eruptions are still left after the attainment of immunity to inoculation, they are generally mucous tubercles, &c., and commonly readily subside with local treatment. Sluggishness in the formation of pustules can be much quickened by good diet, quinine, iron, and fresh air. Characteristic induration of these ulcers is never met with, though sometimes they

is some thickening around their base, which may last some time. The irritation of the neighbouring lymphatic glands has in rare instances produced abscess amongst them, and commonly the glands enlarge slightly where the parts near them have been some time the seat of inoculations. Local treatment is also applied to indolent ulcers, &c., during the course of inoculation; these are treated on general principles to hasten their healing. When inoculation is slow to take in exhausted children, it is well to inoculate daily with fresh matter till pustules are obtained. In such cases a curious result is said to take place sometimes. When at length a successful inoculation is made, and a pustule forms, the previous abortive inoculations will develop rapidly, and reach their height as soon as the later ones which began first. In some individuals immunity is quickly reached, but in these the treatment appears as efficacious as in those who are slow in gaining this condition. The patient is well fed and housed throughout, and able to be out of bed all day during the course. Should the matter be diluted with water, it loses its virulence, and if diluted in the proportion of 1 to 10, no longer excites pustules.

The period that elapses before immunity is reached is usually at least three months, often six months, sometimes even much longer. During this period the macular and papular eruptions of the skin and mucous membranes have run their course and disappeared; and the patients, or a majority of them, are exempt for a time, many probably altogether, from further inroad of the disease.

Boeck concludes in the first place that the virus of suppurating sores is equally syphilitic with that of indurated sores. Of late years he has preferred to use the pus of indurated to that of non-indurated chancres for his treatment, as he finds no difficulty in obtaining matter from this source,

which is readily inoculable. This discovery of his is borne out by the experience of surgeons in other countries which shows that, though the matter of an indurated ulcer is inoculable in rare instances, it nearly always has this quality. Again, doubtless, though our knowledge of the natural history of syphilis is still very imperfect it may be safely asserted, that after a duration of certain length the disease terminates of itself; but this is no warrant for assuming that the continued repetition of small pustules on different parts of the body, as long as they can be excited on the skin, is an artificial means for exhausting the activity of the poison more quickly than nature would obtain it. Boeck assumes this to be the fact, from comparison of 318 cases¹ of "syphilisation" with 154 cases of "derivation," treated almost simultaneously, and under similar circumstances, to his own, Professor Hjort.

In syphilisation, an average of 134 days is required before immunity against inoculation is attained; during this time symptoms of the disease subside, and the number of relapses afterwards is only about 10 per cent. In treatment by derivation, *i. e.*, keeping up a patch of pustular eruption on the skin by the application of tartar emetic ointment as often as may be requisite, the average duration of the syphilis eruptions is 156 days, and the per-centage of relapses is 25. Boeck finds that his patients, as a rule, gain in health and strength while syphilisation is going on, and tertiary affections are much less frequent than was formerly the case; wherefore he concludes that syphilisation is the most reliable plan of treatment that has yet been discovered, and superior to Hjort's. It must not be forgotten that Boeck's plan has these two great advantages over Hjort's. Syphilisation

¹ Bidentkap's Aperçu.

requires the patient to remain in hospital, and ensures him good diet, quinine, and other tonics. Hjort, on the other hand, often coupled with the tartar emetic inunction, low diet, sweating, frequent purging, and other courses calculated to lower the bodily health of his patients, avoiding only the administration of mercury. In syphilisation, therefore, the patient's bodily health is strengthened by good hygiene, and in derivation it is weakened by insufficient diet and other depressing agents. Hjort's plan of treatment would clearly tend to retard the progress of the disease, and also to promote the development of the severer forms, and the frequency of relapses.

The period of eruption under Boeck's treatment is not shorter than that the disease frequently requires when left to itself; for Heron Watson¹ found that in some cases where nothing was done, the eruptions subsided in about four months, a period pretty much that of Boeck's inoculation. The greater per-centage of relapses in derivation may be due to another important difference in their treatment; by the dates of discharge of Hjort's patients, they must have been sent out as soon as they were clear of eruption; whence many of the patients discharged after a short stay, were soon re-admitted with fresh symptoms; these are entered as *relapses*. In the tables of syphilisation, these fresh symptoms would not have counted as relapses, because they would have shown themselves before the attainment of immunity to inoculation, and during the patient's stay in hospital. Then again, how far does this incapacity to continue the production of pustules correspond with the arrest of the disease? According to the syphilisation theory, when pustules cease to form, they do so because nothing more remains to maintain the syphilitic poison in activity;

¹ Evidence before the Committee on Contagious Diseases, 1865. Q. 4671.

but several exceptions to this law are recorded of patients that were discharged cured, returning again with relapses of the so-called tertiary forms of disease. In the relapse *Bidenkap*¹ expressly states that, as a rule, it is impossible to produce ulcers by inoculation; insertions of matter in these persons nearly always abort. Furthermore, if sufficient time elapse after inoculation is abandoned, the immunity ceases; and probably all persons, certainly many, become again susceptible to it. In this respect, the contagious ulcer differs from the syphilitic poison; the latter virus passes through the system, loses its activity, and protects the patient *from further inoculation* of the same disease.

The following statistics of the results of treatment in the Christiania Hospital² are noteworthy; of 3,560 patients treated for constitutional disease by mercury, 1,734 had relapses, 1,118 a first time, 344 a second time, 148 a third time, and 121 more than three times. 143 of the 3,560 died of non-syphilitic affections while under treatment. It is not clear how long observation of many of the rest of the patients was continued after they left the hospital, though generally it was much more perfect than is usual with hospital patients. By selecting for comparison with them only cases where three years had elapsed between the last record and the publication of *Bidenkap's* work, we find that of 140 cases of those abstracted from *Boeck's* tables of syphilisation by *Bidenkap*, there were 40 in which the disease lasted over six months; in 24 of them the duration was less than twelve months; in 11, between one and three years; and in 5 between three and five years. Yet, in many of these cases "syphilisation" was attained long previously. 140 cases of "derivation" (tartar emetic inunction) similarly selected

¹ *Bidenkap*, loc. cit., p. xi.

² *Boeck's Recherches*, p. 475.

contained 59 cases where the disease lasted over six months ; 31 of these being under twelve months' duration, 20 between one and three years, and 8 between three and five years. This proportion gives a certain, but not very great difference in favour of treatment by syphilisation, rather than by derivation. In estimating the value of these methods over mercurial treatment, the adjuvants of each method must not be lost sight of ; for to them, probably, the whole difference is due, as the patients under mercurial treatment were less favourably situated in their hygienic condition, than the syphilised and derivative patients.

Both Boeck and Hjort suppose that mercury, when administered to syphilitic persons, either previously or simultaneously with their methods, renders the patients more liable to relapses, and that it also greatly interferes with their progress towards cure.

No. 1, *b*. All the previous experiments were made on persons already the subjects of general syphilis, therefore they are useless for settling whether the pus of soft venereal ulcers ever can, *per se*, convey the general disease, while it is notorious that at most it very seldom does so. There are few experiments of inoculating pus of *soft* venereal sores on persons *free from syphilis* ; but they exist in sufficient number to be very important in deciding the question. Bidentkap¹ reports two instances of this kind. A girl was admitted into the hospital of Christiania in 1862, for a vaginal blenorrhagia, but free from syphilis, as will be seen from the sequence. She was placed in a ward where syphilisation was being performed on other patients. On Nov. 28, she inoculated herself for fun with a pin dipped in chancreous pus taken from an artificial ulcer on one of the patients that had been

¹ See Auspitz, quoting from "Om det Syphilitiske Virus," Christiania, 1863, in his *Lehren vom S. Contagium*, p. 236. Vienna, 1866.

carried through many generations from what was reported to have been originally an infecting chancre. The girl concealed what she had done for a week, till the inoculation succeeded, and produced a round ulcer as large as a pea with sharp borders, and surrounded with red swelling; the ulcer suppurated freely, but did not indurate. During the next three weeks it enlarged, otherwise it remained the same; some of the glands of the axilla also enlarged for a short time. After this the ulcer slowly healed. On the 5th March, three and a half months after the inoculation, the patient was discharged with a bluish, slightly elevated scar, but there was no induration, and no enlargement of the glands, or other trace of syphilis. The patient was examined by Bidentkap regularly once a week, till in the summer of 1864 she contracted an ulcer of the genitals, which was followed two months later by roseola, and other constitutional affections. Another girl, about the same time, played the same trick upon herself, and in three or four days pustules formed at the sites of inoculation. She had in the meanwhile produced 18 ulcers before she announced what she had done, and Bidentkap continued the series through 12 more inoculations with the pus of the artificial ulcers. The ulcers in the second patient had a very similar course of four months' length, but were more irritable, and became somewhat thickened. Five months after her inoculation she was discharged with no new symptom, and quite well. She remained under observation several months longer, always sound and well.

Daniellsen,¹ Boeck's colleague at Christiania, tried syphilisation as a cure for leprosy; he inoculated 27 cases, using in every experiment, except one, the matter of sores suppurating chancres. The inoculations ran through the

¹ Deutsche Klinik, S. 322. 1858.

same course in his patients as in the syphilitic ones of Boeck: irritation was immediate; ulcers formed in three days; and the pus was re-inoculated until the patients ceased, after the usual period of three or four months, to be susceptible to the irritation of chancreous pus, but without, unfortunately, any benefit to their leprosy. His exceptional case was "syphilised" like the rest, with soft chancreous pus, from 25th April to the 17th October, 1857. By this time the patient had undergone 393 inoculations, of which 287 had succeeded. In the middle of September he appeared to be reaching insusceptibility, but his leprosy was unaltered. On the 28th September matter from a *hard* suppurating ulcer was taken. This brought a pustule in the usual time; the matter from this was re-inoculated with successive generations of matter until the 17th October, when it lost its efficacy, and from this time till the 13th November all attempts at inoculation with matter from any source were fruitless. On that day, the scar of the inoculation of the 28th September, the one inoculated from a hard suppurating sore, broke out again. In a week it had reached a length of three-quarters of an inch, and the inguinal glands were enlarged. In January, 1858, he had a herpetic eruption of the scrotum; in February, ulcers of the fauces, and other signs of syphilis. What is also interesting, "syphilisation" was tried again, and went on successfully, as if the patient had not been subjected to it through many previous months.

Diday,¹ never having had syphilis, inoculated himself on the penis with matter taken from an ulcer he had produced by inoculating chancreous pus on the head of a cat. Irritation followed immediately, and an ulcer formed in a few days, which spread rapidly, and produced a troublesome bubo,

¹ Gazette Médicale de Paris. Dec. 27, 1851.

that did not heal for months. The pus of the bubo was successfully inoculated on a rabbit. No constitutional syphilis followed these inoculations, and Diday assures us he has not been affected with constitutional syphilis previously. This then is an excellent example of the possibility of inoculating venereal pus without producing syphilis. Robert de Wetz¹ took matter from a chancre that he had produced in the same way on a monkey's ear, and inoculated into his own arm. This experiment succeeded well, that he had a most troublesome ulcer, abscess, and enlarged glands; he too had no general syphilis.

These examples show that the discharge of suppurating venereal ulcers is often destitute of the syphilitic poison. The instance of Danielssen is particularly strong, because the discharge of the local contagious sore had been repeatedly tried on a patient perfectly susceptible to syphilis when exposed to its contagion. In Bidentkap's case the patients were also quite able to take syphilis had the poison been applied to them—one indeed shortly afterwards did contract syphilis. In the cases of Diday and de Wetz the irritant discharge had no doubt been increased in virulence by being transplanted into the bodies of the calf and monkey, hence the severity of the sores and bubo that followed.

No. 2. *Inoculation of the matter, or secretions of indurated ulcers, or of syphilitic eruptions.*

a. *On Persons suffering with General Syphilis.*—Inoculation of the secretion of indurated non-suppurating sores, or of syphilitic secretions on persons suffering with syphilis so invariably fail, that such chancres and eruptions are almost always non-inoculable; the exceptions being the few cases in which pus of a suppurating syphilitic ulcer,

¹ Ricord: *Lettres sur la Syphilis*, No. 15.

in Danielssen's case, has produced an ulcer. Henry Lee¹ records experiments he made at the Lock Hospital, in inoculating on syphilitic persons the secretions of suppurating ulcers, which he considered the points where syphilis had entered their constitutions. The inoculations were successful when the ulcers were irritated and secreting pus; unsuccessful when the sore was no longer irritated. Boeck finds, too, that if the matter from indurated sores is temporarily not inoculable, he irritates their surface with some mechanical irritant, such as lint, until they suppurate freely, when he finds no difficulty in inoculating their discharge. Clerc² recites some cases, one being his own, the rest quotations, of successful inoculations of the discharge of suppurating ulcers on persons suffering from general syphilis. A man in Ricord's wards, at the Midi Hospital, in 1855, had infecting chancre, iritis, and papular eruptions. Matter taken from the chancre succeeded in producing a sore on his arm which had the appearance of a simple contagious ulcer. A few similar cases are scattered through other works, which prove the occasionally irritating quality of the pus from indurated ulcers. It is remarkable that what is found so rarely attainable in London and Paris should be so feasible in Christiania.

At present we cannot say what were the conditions of the sores indurated with syphilis which rendered them inoculable on their bearers, still it is probable that this condition is due to a temporary state of the discharge, and not to any inherent virus of syphilis.

b. *Matter from indurated ulcers inoculated on persons having no general disease.*—First, on those who have undergone syphilis. It is well established, that when the patient

¹ Henry Lee on Syphilis, pp. 222—224. 1863.

² Clerc, *Maladies Vénériennes*, p. 284. Paris, 1866.

has had the general disease, he is only liable to local affections, such as excoriations or suppurating ulcers, and as has just been said, an irritated hard chancre will sometimes excite ulcers, the pus from which is re-inoculable.

(2.) *Inoculations on persons who have never had the disease*—In these experiments the effect is two-fold; one depending on the locally irritating quality of the discharge which was inoculated; the other, being the commencement of the general disease. The first excites immediate irritation, this may culminate in a pustule with a red areola, that possibly is succeeded by an ulcer, which remains a short time, and subsides before the syphilitic papule or induration forms and ulcerates.

The following example is from Wallace:¹ A healthy man ætat. 35, was inoculated 19th August, 1835, by a piece of lint saturated with matter from a pustular ulcer on the forehead of another man being laid against a purposely excoriated surface on the left thigh. On August 21st, the abraded surface was roundish, and showed granular whitish spots. On the 24th of August the round surface was surrounded by a red border, and raised, but it had healed over by August 28th. Three weeks later this surface broke out again; it then swelled, pimples formed over it, and began to discharge. On October 18th it was as large as a copper penny, and its base was very tumid. This ulceration continued until the 22nd of November, when it is recorded to have quite healed. Here we have general syphilis preceded by well-marked irritation, that healed before induration was developed, like some of those instances recited in the chapter on Incubation. In many cases no immediate irritation, or next to none, takes place at the point of inoculation; this has generally been in the inoculations practised by way of experiment.

¹ Lancet, vol. ii. p. 536. 1837.

Inoculations of the secretions of Syphilitic Eruptions, not chancres; a. pustular, b. serous.—The ordinary result of inoculating the purulent discharge of general eruptions on syphilitic persons is abortive. On non-syphilitic persons there is no immediate irritation, but after the ordinary incubation period of the disease, syphilis declares itself. This abortive effect is not invariable. John Hunter¹ inoculated a patient in St. George's Hospital on the 18th of September, 1782, with the matter from secondary ulcers; at the same moment she was inoculated with some matter from the bubo of another person. On September 20th, both punctures had the appearance of a small-pox pustule; they spread considerably, and were attended with much inflammation. The ulcer produced by her own matter healed with common poultices, &c., but the other, although treated in a similar way, continued in an ulcerated state for some time. The effect of the inoculation in this patient with her own matter, resembled that commonly following the insertion of matter from indurated sores. The inoculation from the bubo of another person was similar to that of Diday, who took soft chancreous matter from a cat. Boudeville's² case illustrates the double effect; he was inoculated with the matter from a pustule of a late eruption, irritation and pustule formation immediately succeeded which lasted fifteen days before subsiding, and thirty-five days after his inoculation syphilitic induration commenced in the scab. Matter from the same pustule was inoculated on the patient who furnished it, and excited similar immediate irritation in him; but as he had syphilis already, without producing further effects. Suppurating sores which originate in general eruptions, may even secrete an inoculable discharge, as

¹ John Hunter's Works, Palmer's edition, vol. ii. p. 386.

² Vidal: *Maladies Vénériennes*, p. 358. 1853.

the following cases show. Bidenkap¹ experimented on a man, ætat. 23, suffering from moist papules closely set on the penis, scrotum, inner side of the thigh and elsewhere. On February 2nd, some of the pus from the papule on the scrotum was inoculated on his right arm. After this inoculation pustules formed, one of which developed into an ulcer, whence a series of sixteen inoculations was repeated.

But the following instances, coming next in order to the one just related, help to explain why the inoculable quality of the matter from this mucous tubercle excited a contagious ulcer in the patient secreting it. A man, ætat. 27, was admitted 10th May, 1862, with moist papules at the under part of the penis and scrotum, and on the buttock. In addition, there was general papular eruption and ulcer of the fauces. The secretions of the wet papules of the buttock were inoculated on the patient himself, but without effect. Insertions of the matter taken from artificial suppurating ulcers on other individuals were all abortive, though repeated during a month. At the end of this time the secretion of the papule of the buttock with which the first experiment had been made, was again inserted, the time it produced a series of thirteen pustular ulcers before it became inert. Again, Andreas A., ætat. 36, was admitted January 5th, 1863, with a sore at the corona glandis, secreting a thin fluid; the surface had a cartilaginous hardness, and the glands in the groin were enlarged. On January 9th, the secretion of this sore was inoculated on the thorax, and after that, every second day up till the 25th January, but without ever exciting pustules. The sore on the penis was then irritated with savin powder; two days later, the thick pus thus procured was inoculated.

¹ Boeck's *Recherches*, p. 68^d; and Auspitz, *loc. cit.* p. 319, quoting from the *Wiener Med. Wochenschr.*, Nos. 31, 34.

lated on the patient's arm; two days after this attempt, characteristic pustules formed. The matter of the artificial pustules was also inserted in the thorax, and there produced pustules in ten successive transplantations of matter. While these pustules were forming, a little irritation showed itself at the sites of the abortive insertions, which hitherto had remained quiescent; they became somewhat raised, surrounded with a red areola, and covered with scales. After preserving this condition for a month, without suppurating, they slowly disappeared. After this, the patient continued some time longer under observation without any change taking place in these inoculations. These instances show that its condition, and not any particular virus contained in it, renders a discharge capable or incapable of producing ulcers when inoculated, for pus from various sources, and from the same source, possesses this peculiar power only when generated on an irritated surface.

In inoculating the blood or serous secretions on healthy persons, the immediate effect is *nil*, all change at the point of inoculation is delayed until the incubation is completed, then a papule forms, at first dry and scaly, afterwards ulcerated; this character is not constant, and if accidental irritation be avoided, often absent.

(3.) *Inoculations from Sources free from Venereal Taint.*—John Hunter¹ made parallel experiments with non-venereal pus, and with pus of sores on the legs of a syphilitic patient; a child two years old, covered with blotches and ulcers. On September 22, 1782, Hunter inserted into the child some of the pus from her own ulcers, and also some common (non-venereal) pus. The punctures both inflamed to a small degree, but neither of them suppurated. Auspitz² relates some experiments that he and Pick made

¹ Palmer's edition, vol. ii. p. 387.

² Auspitz, loc. cit., p. 335.

with pus of pemphigus, acne, scabies, and lupus. These gentlemen found they could excite no pustules on the bearers of these discharges, or on other non-syphilitic persons, but that on syphilitic persons, the matter of these pustules could be inserted again and again for several generations. Bidentkap,¹ when in Vienna, was also able to excite a series of pustules with matter originally taken from non-venereal pustules, such as acne sebacea, scabies, and pemphigus, so long, he said, as their inoculations were practised on persons suffering with constitutional syphilis but all attempts to propagate a series of pustules on non-syphilitic persons were failures. In endeavouring to elucidate this point, I may be permitted to narrate some experiments made by myself. I was anxious to ascertain what difference existed in this character of inoculability of venereal pus and non-venereal pus. The first patient experimented on was a young man with an ulcer of the leg that had inflamed and sloughed after great fatigue and hardship. I inoculated this matter several times into the thigh of the patient, without in any case causing more than one pustule; generally a little redness and itching was the sole result. I tried successively pus from a sloughing compound fracture, pus of empyema, and pus from a granulating stump after amputation. The result in all trials did not enable me to procure a series of more than two pustules. While making my experiments, a syphilitic papular eruption appeared, with other unmistakeable signs of syphilis over the man's body. But this syphilitic condition did not favour the development of my inoculations, as Bidentkap stated to be the case when he employed non-venereal pus. There being, when the rash appeared, no longer risk

¹ Zeissl, Schmidt's Jahresbericht, 1866, and a letter to the author, March 18, 1866; Zeissl, in Virchow and Hirsch's Jahresbericht, 2ter Band, 2te Abtheilung, S. 490.

through an erroneous diagnosis, of communicating syphilis by my experiments, I inoculated the pus of a soft freely suppurating chancre from a man who for three months afterwards had no sign of constitutional disease. I inserted also pus from a man with an indurated chancre, made to suppurate freely by dressing it with savin ointment, and lastly, matter from mucous tubercles around the anus of a syphilitic woman. I had somewhat better success with these venereal secretions. With the pus of the two chancres, I produced from one, a series of four successive pustules, and from the other, three pustules; one pustule only followed insertion of the discharge of the mucous tubercles, and repetition of this new matter did not produce a second pustule. I continued inoculating with pus of soft chancres, but without producing so good results even as with the inoculation of the first chancrous pus. I concluded, therefore, that this patient, whose bodily vigour was restored by his stay in hospital, was very insusceptible to the irritation of pus in any shape. I believed this the more readily as I had no difficulty in inoculating the same chancrous pus on the bearers of the sores, and produced a series of seven and six inoculations. The series was continued till the matter had lost its inoculability by repetition, but only often enough to satisfy me that the cause of failure in this particular patient was not want of skill on my part, but that he was insusceptible. The result in this experiment being neither in favour of the special contagious quality of venereal pus nor against it, another patient, quite free from syphilis, was inoculated with the pus of a suppurating surface caused by a blister. This produced a pustule, of which the discharge excited a second pustule, but the series could not be continued further. As this man was free from syphilis, no venereal pus was inoculated in him, but pus from other sources was tried with various success; sometimes a given inocula-

tion produced a well formed pustule, the pus of which excited a fresh pustule once, sometimes twice, but a longer series could never be produced. So far as they go, these inoculations (they were practised on nine individuals), show, first, that in certain individuals it is difficult to excite pustule formation with any kind of matter; this conclusion corroborated by Boeck's experience: he finds patients whom, even by long perseverance, he cannot produce pustule; others again, who are insusceptible while in a sick condition, withered syphilitic children, for example, become susceptible when they have gained stronger health.¹ Secondly, the inoculation of non-venereal pus, as well as of venereal pus, when the ulcers producing them are sufficiently irritable, will excite a pustule of which the discharge can be reinserted with success, but it is only the pus of non-infecting venereal ulcers which can be readily, and as a rule, propagated several times. Thirdly, it is doubtful if the presence of active syphilis in a man's body renders it more easy to excite pustulation by inoculating pus in the skin, than it is when he is free from syphilis. In confirmation of this, Hübner² was unable to produce any action with the pus of mucous tubercles on syphilitic persons, but when he operated on persons virgin of syphilis, it produced, not suppurating chancres, but after the incubation was over, hardened papules and general syphilis.

SUMMARY.

In reviewing the various conditions under which inoculations have been made, we find that wherever irritation has been immediate, accompanied by the production of

¹ Bidschlag: *Aperçu*, p. iv.

² Hübner: *Die Beobachtung und das Experiment in der Syphilis*, S. 185.

pustule and suppurating ulcer, the matter employed has been always taken from a suppurating surface, and that the soft chancre is the most unfailing, though not the sole producer of inoculable matter. The results of inoculating irritating secretions is pretty much the same, whether the patient is suffering from syphilis, has got over it, or has never had it. If the source of the pus be situated on a syphilitic person, the unsyphilitic patients experimented upon are, in addition to their immediate irritation, the victims of an attack of syphilis, the phenomena of which do not, during the first few weeks at least, in any way disturb the changes excited by the local irritation.

The foregoing paragraphs have enabled the reader to estimate, with some probability of arriving at a just conclusion, the real value of syphilisation as a method of curing syphilis. We find that the repetition of ulcers can be carried on in persons free from syphilis, with the similar result of temporary exhaustion of their susceptibility to local irritation, as that obtained by Boeck in his syphilitic patients, and considered by him to be a proof that the activity of the syphilitic virus is extinguished when immunity to local irritation is reached. Further, that this inoculation is no protective against syphilis, is shown in Danielssen's case. Again, the duration of syphilitic eruptions in the patients subjected to this pretended mode of hastening the extinction of the virus is much the same (three or four months), as when the patients are placed in other conditions which are not supposed to interfere with the course of the disease in any way. For these reasons we cannot suppose that "syphilisation" is anything more than local irritation.

Another question is yet to be decided, namely, what confers the pre-eminently irritable character on the discharge of the chancre; it is decidedly greater than, though differing only in

degree from, the irritable quality of pus from other source whether of syphilitic or non-syphilitic origin.

From the foregoing it will be inferred that suppurating venereal sores may, like gonorrhœa, originate from the insertion under the cuticle of discharges of any irritating kind and so far probably are those surgeons correct, who assert that dirt and promiscuous intercourse will engender syphilis. Those conditions will engender suppurating contagious ulcers, but will no more engender the general eruptive disease syphilis, than they will engender the small-pox. Suppurating sores so originated or communicated may be mixed with the syphilitic poison and produce both results that is, a suppurating contagious ulcer and constitutional disease; so far is Rollet's term, mixed chancre, applicable to such sores. But, besides these ulcers, which are purely the consequences of local irritation, there is one, *the chancre*, which probably is propagated by a contagious pus *sui generis*, and quite distinct from the syphilitic virus according to the majority of modern syphilographers. At present its exact properties are not completely made out.

SYPHILIS.

CHAPTER XII.

PROGNOSIS.

Syphilis ends spontaneously—Exceptions—Circumstances influencing the Course—Symptoms foretelling a Light or a Heavy Course of the Disease—Disease less severe now than formerly.

THE opinion is still generally entertained that syphilis never subsides without treatment. John Hunter is no doubt greatly responsible for this belief, for he supposed that the longer syphilis is left untreated the more virulent it becomes. But this view of his has long been shown to be erroneous. Even Peyrilhe, a contemporary of Hunter, was aware that the poison gets weaker in the infected person, until in time it ceases to be communicable to others. Syphilis is nevertheless so persistent in a small number of persons, that it becomes practically incurable; the utmost that medicine does for such persons is to allay their sufferings and control their symptoms. Mr. Langston Parker¹ thinks that persons infected after forty years of age rarely, if ever, get over the disease. But the incurable cases are few; in the great majority of patients the disease subsides completely at the end of the second year. It is also usual when the disease obstinately recurs, for its ravages to become limited to one or two localities from

¹ On Syphilitic Diseases, p. 195. 1860.

which it is exceedingly slow to withdraw, though it commonly does so in lapse of years. The symptoms where the disease lasts a long time, are not exclusively the so-called tertiary forms, but are often repetitions of the eruptions on the skin, of which lepra is the most frequent variety. Two patients under my care at the Lock Hospital have been suffering with scaling papules on the face and neck almost continuously for thirteen and seventeen years respectively. It must not be supposed that treatment is of little avail to shorten the duration of syphilis before it subsides. On the contrary, suitable medical treatment not only alleviates, but also shortens the course of the disease, and there can be no doubt it very greatly diminishes the liability to relapses. The prognosis to be derived from any particular pathological condition of the disease is related in the description of each symptom; here only the general indications are mentioned. To form an idea of the probable result of any case of syphilis from its general course, Diday¹ treated eighteen cases without mercury; the disease in these cases did not extend beyond the rashes on the skin and mucous membranes, but expended itself with these phenomena, and left the patients in the enjoyment of sound health for periods varying between three and a half and sixteen years, while they remained under Diday's observation. Seventeen other cases treated at first without mercury, took a severe course, various organs of the body were threatened with impairment, and the outbreaks of the eruption were severe and repeated; in these mercury was found necessary to control the disease.

From these cases, Diday concludes that the course of syphilis is likely to be light, if the incubation after contagion is long, if the early rash is roseolar and not papular,

¹ *Nouvelles Doctrines sur la Syphilis*, pp. 402 et seq.

and if the returns of the eruption are separated by long intervals. On the other hand, a long and severe course is foreboded if the incubation is short, if the induration at the point of contagion is extensive, and if the eruption becomes pustular, or of an ulcerating character, or if there be considerable ulceration of the tongue and relapses of the eruptions following closely on each other. These conclusions merit attention, but they cannot be regarded as invariably true. A severe and long course of the later symptoms of the disease is not infrequent in persons when the early symptoms have been so slight as to be overlooked, and the history of the malady in these persons begins with the appearance of lupoid ulcers of the skin, periostitis and necrosis of the nasal bones and other late sequelæ of syphilis. There is another opinion which has much probability, namely, that when syphilis is continued by repetitions of papular eruptions, the viscera and bones usually escape, as if the poison expends itself upon the surface of the body, and lets the deeper structures go free.

Thus, it may be concluded, that—1. In the majority of cases the influence of the poison subsides, and the patient is restored to health, even if treatment is wholly withheld, but that appropriate treatment shortens the duration, and diminishes the severity of the symptoms. 2. In a small minority of those attacked by syphilis, the disease does not subside if left uncontrolled; further, among a very few, the disease is life-long, though the suffering of the patient may be greatly checked by medical art.

It is much to be regretted that we have no sign which enables it to be said the disease is at an end. A long period of freedom from symptoms is the only one on which reliance can be placed, but even this is not absolutely trustworthy, for syphilis occasionally relapses after years of quiescence. For this reason no fixed period can be assigned

as the limit of syphilis. The gravity of the prognosis is enhanced by the possibility of transmitting the disease to the offspring. Nor may we omit to reckon the numerous instances where syphilis sets tubercular disease in action. More serious still is the prospect of the viscera becoming the seat of morbid changes that end in death. If the heart, the air passages, the liver, or the kidneys are affected, the result is often a speedy, sometimes a sudden death. If the disease is active in the brain, the patient may lose his intellect, and more or less complete paralysis attacks the body. The surface of the body becomes disfigured or crippled by the deep scars of previous ulcers caused by long standing disease on the skin. There is great destruction of infant life by syphilis. Many syphilitic women do not lose their fecundity, and child after child is prematurely destroyed before the virulence of the poison is diminished. Even of the children born at full term, many die during the course of the disease, and if they survive, they may in later childhood suffer from the quasi-strumous sequelæ of syphilis proper to that period.

Beside the foregoing influences, climate, age, the condition of the body, and habits of the patient determine the severity of the disease to a considerable extent. If syphilis is contracted by a growing lad, especially one predisposed to organic disease of the lungs, or of other viscera, the course of the disease is often most severe, and leaves the patient feeble for life. It is often supposed that syphilis is gradually lessening its virulence, and that it now is far less grave than it was in the 16th century. This is probably true, not from any change having taken place in the poison itself, but because the sufferers of the present day are better fed and housed, and live in better hygienic condition than their ancestors did when syphilis was so severe.

SYPHILIS.

CHAPTER XIII.

TREATMENT.

PREVENTIVE TREATMENT : Utility of preventive measures—Those applicable to prostitutes—Those applicable to men—Precautions to protect individuals. THERAPEUTIC TREATMENT—*Historical sketch* : The early use of mercury—Its abandonment—Introduction of guaiacum, sarsaparilla, opium, nitric acid—Simple treatment, Errors of hasty deductions—Iodide of potash. *General Management* : To maintain bodily vigour, to control the poison, to dissipate the affections of the disease—Period preceding eruption—The initial sore. Period of general eruptions—*Mercury* : Suitable cases—Length of time to continue it—The effects of mercury, therapeutic, poisonous—Methods of introduction : Internal : pills, spray, vapour, suppositories. External : vapour-bath, inunction, subcutaneous injection. *Iodine* : its influence, iodides of potassium, sodium, ammonium, iron. *Bromides*—*Iron*—*Cod-liver oil*—*Vegetable decoctions*—*Opium*. Treatment of special affections. *Inherited syphilis* : To prevent its descent—Treatment of the child after birth.

Social Sanitary Regulations.—Continence is the only perfect safeguard against venereal contagion. Education, by training men and youths to restrain their passions, will one day, it is to be hoped, remove the demand for prostitution, and thereby reduce the spread of syphilis to a minimum. But the time is, unhappily, still remote when this vice, which has existed from time immemorial in all civilised communities, may be expected to cease. For this reason it is the more imperative to check the progress of those contagious diseases which, though spread by promiscuous intercourse, are not a necessary accompaniment of prostitution. They

injure not only those indulging in vice, but also numbers of innocent persons and society at large to an enormous extent. There is fear in the minds of many persons lest it be an unwarrantable interference with the liberty of the subject to require those affected with contagious disorders to undergo seclusion while they are liable to communicate their malady to others. This objection has already been overcome in the case of small-pox, and there is no reason why contagious venereal diseases should not bring upon their sufferers the same disability as does that disease. Such penalties in the interests of society have been for centuries enforced with more or less stringency in various countries, nor were they in the middle ages altogether unknown in England and Scotland; in the former country the Contagious Diseases Act of 1866 has re-introduced them into certain garrison towns with such success that venereal disease has been already reduced in those places to one-third its previous amount. The propriety of seclusion of the infected has been also recognised by Parliament in the Act passed in 1867 to amend the authority of the Poor Law Board. This Act empowers Boards of Guardians to detain the inmates of workhouses, if suffering with contagious disease, so long as their malady is communicable to others.

The utility of sanitary restrictions has been demonstrated in almost every place where they have been instituted. In some few places, indeed, where preventive measures have not diminished the disease, they have either extended over too small an area, or have been enforced against too small a number of the persons who foster and spread the disease. If protection is applied only to limited districts, the immigration of the infected constantly introduces fresh sources of disease from the unprotected places.

The results of persevering and well-devised attempts to

check contagion are well shown by the health of the troops in those countries where they are in force, though the want of concert among nations renders the efforts of those who do attempt repression productive of less fruit than they merit. In the Belgian army the proportion of admissions into hospital for venereal disease in 1858 was 98 per 1000, in 1860 72 per 1000. In the French army the proportion is about 71 per 1000, but it varies in different towns according to the stringency and care with which preventive measures are enforced, for in Paris the admissions into the military hospital for venereal disease were in 1860 only 33 per 1000 of the garrison. But perhaps the most convincing results of prevention were shown in the Ionian Islands and Malta, where Sir Henry Storks, Lord High Commissioner of the Ionian Islands, instituted measures at Corfu, Zante, and Cephalonia to check the venereal disease, which was causing much mischief among the troops at that time. The regulations were established with "such happy results, that the disease almost entirely disappeared from these islands."

In Malta the same gentleman was also Governor. On the 12th of April, 1865, the garrison numbered 6,192 men, out of whom only five men were sick with venereal disease. A regiment, arriving from Dublin that day, brought nineteen cases of venereal disease into hospital; this number was within a week after its arrival increased to thirty-eight, by the addition of cases undetected during the voyage. On the 1st of July of the same year another regiment came in, also from Dublin, bringing sixteen cases, which in the course of a week was increased to twenty-three from this regiment alone. Notwithstanding this addition of contagious disease, the speedy separation of the infected prevented the disease from spreading, so that on the 21st of October in the same year the whole garrison afforded but eight cases of venereal

disorder.¹ These statistics furnish a striking contrast to the condition of the English army on home service. In the year 1862 the entries into hospital for venereal disease were 291 per 1000, or more than four times as much as in the Belgian and French armies. Indeed, the admissions for venereal disease constituted 29 per cent. of all the admissions in that year. In the British navy the average admissions were also very large—125 per 1000 of strength.²

Now, notwithstanding the imperfect and limited action of the regulations, the proportion of men disabled by venereal disease among the troops in the protected districts has sunk to 20, and even in some places 8 per 1000 of the mean strength³ of the garrison and crews of the ships.

Though in justice all persons, male and female, who suffer from contagious disease should be secluded as dangerous members of society, it is not practicable to apply restrictions to men and women generally; it is nevertheless possible to do so to certain classes, namely, soldiers, sailors, and other large bodies of men under similar conditions of discipline. Among women, prostitutes are also the only persons who can be made amenable to sanitary regulations; and wherever preventive measures have been applied to prostitutes with care and assiduity, venereal disease among all classes has sunk to a comparatively unimportant amount. The chastity of women in all classes above prostitutes is sufficient to prevent any great amount of disease being spread by the incontinence of individuals; and if prostitutes are restrained from communicating the disease, the spread of syphilis becomes as rare as is that of small-pox in those countries where vaccination is universally applied. Preventive measures may be so

¹ Appendix to the Report of the Committee on Venereal Disease in the Army and Navy, 1865.

² Ibid.

³ Report of Select Committee of House of Lords on Contagious Diseases Act, 1866, p. 144.

framed as to be cheerfully accepted by the women themselves. In the towns of England where they are enforced, and also in some of the large towns of France, the women submit voluntarily to the regulations necessary for their health.

Measures applicable to Women.—The essential conditions of all regulations are regular and complete inspection by a surgeon, at short intervals, and detention of the infected women in hospital until they are free from communicable disease. The women who have been sent once to hospital with general syphilis should be very minutely examined for a long time afterwards, in order to detect every relapse of the constitutional disease as soon as it appears. In all the regulations the greatest care must be taken to enlist the co-operation of the women themselves, for there is great difficulty in detecting disease if it is to the interest of the prostitute to conceal it. The provisions that produce most success, are—1st. To afford to all prostitutes gratuitous hospital treatment. For this reason it is expedient that the cost of the hospital and examination be not defrayed by a compulsory tax on the women. Though, as is the case at Bordeaux, a considerable part of the necessary funds may be contributed by them voluntarily. In that city the women are examined once a week. Those who come on Tuesday and Wednesday are examined gratuitously. Those who delay till Thursday or Friday, are fined 75 centimes. Those who delay beyond this can still be examined on Saturday morning by paying two francs, but any defaulters are arrested on Saturday afternoon. There are 523 registered prostitutes in Bordeaux, of whom the majority prefer to pay the fines. Their contributions amount to 714*l.* per annum, which more than defrays the cost of the Dispensaire de Salubrité. 2. The hospital accommodation should be ample, and there should be no difficulty in gaining admission

at any time. The personal application of a diseased person should suffice for his or her admission. 3. The examination of the women should not be too frequent. If it is insisted on too often, the patients shirk it, and the surgeons grow careless in performing their duty. In those garrison towns of France where examination is made twice weekly, the soldiers are not more free from disease than in others where the examination is made only once a week or once a fortnight. It will be always possible for some disease to escape notice, and experience shows that the nearest practicable approach to complete prevention is reached when the women themselves assist the authorities. But, in order to compel the few whose waywardness renders them refractory, the police should be authorised to enforce submission to inspection. 4. Another essential provision is that the stay of the patients in hospital while diseased be compulsory. This is the only way to insure their cure. It was found easy enough under the permissive Act of 1864 to get the women into hospital, but impossible to keep them there; the arrival of a friend in the town, or a mere desire for change, sufficed to take them from the hospitals even when severely diseased.

Measures for checking Venereal Disease among Men.—It is impossible, and it would be mischievous, to attempt general personal examination, but less sweeping measures could be employed with much benefit. There should be easy access in all towns for advice and treatment of these affections, free of cost to the applicants. Again, it should be made a punishable offence to communicate venereal disease by sexual intercourse. The occasions would probably be rare where the offence could be proved, but it could be done sometimes, and the knowledge of this fact would have a salutary influence. Many classes of the men who spread much disease could be examined from time to time. Soldiers when changing quarters, or when going or returning from

detached duty or furlough, should be examined. Again, all prisoners before getting their discharge from custody should be examined, and if affected with any contagious disorder detained until cured. Seamen both of the Royal Navy and Mercantile Marine should be examined before leave ashore is granted, lest, as often happens, they spread contagion amongst a community that has, by the careful enforcement of sanitary measures, become tolerably free from disease. These regulations would entail no positive hardship on the sick, while they would preserve many thousands in health who are now rendered miserable, and burdens upon society, for a longer or shorter period.

The Prevention of Contagion to Individuals.—Fortunately for England the tone of morals in this country is such that it would be an offence to insert in these pages a description of the precautions which certain Continental surgeons recommend for adoption before the risk of contagion is incurred. They are at the best but untrustworthy protectors, and far inferior even in this respect to the scrupulous observance of cleanliness which should be daily practised by all persons of both sexes. This is the best means for preserving the delicate skin and mucous membrane of the genital organs from abrasions, and, so to speak, of keeping the door shut against contagion. Soap and water after sexual intercourse is as effective as any other lotion in removing irritable secretions before absorption has taken place. In the chapter on Contagion it was shown that the application of caustic to abraded surfaces after exposure to contagion is quite useless to prevent infection. On the other hand, special precautions afford a false and mischievous security by removing the dread of contagion from those yielding to their passions, at a time when considerations of a restraining character are especially necessary.

HISTORICAL SKETCH OF THERAPEUTIC TREATMENT.

At the end of the fifteenth century, when syphilis was first recognised as a distinct disease, it was treated mainly by blood-letting, starving, purging, and sweating in hot chambers, to which a host of nostrums, often of a most disgusting kind, were added. Mercurial ointment, which had been used to remove eruptions from the skin, was employed even in the fifteenth century to cure syphilis. But it was given with so little discrimination, and caused such violent salivation, that it soon fell into disfavour. Some physicians continued to use it nevertheless, and endeavoured to regulate the effect of the inunction. Of these one was Gaspar Torella, physician to Pope Alexander VI. in 1498, who directed the ointment to be greatly reduced below its customary strength. A few years later, John of Vigo, a Genoese, obtained great success by using red precipitate in ointment and plaisters; nevertheless, dread of the evil effects of mercury gradually caused the use of all forms of the drug to be laid aside, except by the quacks, who have owed their success throughout to an unsparing use of mercury.

An instance of the horror our forefathers entertained of mercury, to the great advantage of the empirics who employed it, is related by Bartholomew Maggius in 1559, describing the case of a certain Count Mirandola, who after suffering nine years from syphilis, in which time he wasted to a skeleton, and, moreover, infected his young and beautiful consort with his malady, called Maggius into consultation, who advised his patient to continue the guaiacum, notwithstanding he had already essayed it four times in vain, for, says Maggius, on so exalted a personage, the use of mercury was out of the question.

In 1508 guaiacum was brought from America into Spain,

and soon became renowned by the cures attributed to its virtues. Ten or twelve years later its reputation spread from Spain into Italy and Germany. At first it bid fair to replace all other remedies, and grew to such favour that a special treatise was written on its use by Nicholas Poll in 1536. Anthony Gallus, Jasper Torella, and others continued through the sixteenth century to recommend guaiacum, coupled with low diet, rest, and sweating, as a safe and sure remedy for the cure of syphilis. Still many physicians directed mercury to be used after guaiacum had been tried and failed to cure.

Other drugs of home and foreign growth were soon added to guaiacum, especially China root, a variety of smilax, and afterwards sarsaparilla, which ultimately almost superseded guaiacum as a specific. These woods were used as a decoction, called the "Decoction of the Woods," of which the patient drank some pints in the twenty-four hours. He was confined to bed while undergoing this cure, and kept to most scanty diet during the six weeks that the cure lasted.

Guaiacum, with other drugs, continued on the Continent to be the general means for treating this disease throughout the seventeenth, and even into the eighteenth centuries. At this time Morgagni, in his 58th Epistle, relates how, when he was a student, mercury was never employed at Bologna, though, in his old age, the drug had again come into favour. In England mercury was never completely laid aside; indeed, so steadfast was the faith in mercury held by English physicians, that Sydenham, in 1680, freely confesses he knows of no cure for the disease, unless by mercurial salivation; he also directs the practice of purging, bleeding, and sweating, preliminary to taking mercury, should be omitted, to avoid diminishing the patient's bodily strength unnecessarily. Abercromby, more advanced than Sydenham, though writing about the same time,

describes the mode of curing the disease by mercury, without reaching salivation. Thenceforward, in England, mercury became almost universally employed for venereal affection so that in Hunter and Abernethy's time it was supposed syphilis could not be cured without mercury. While treatment by sweating and purging with low diet and vegetable drinks was steadily retiring before the use of mercury in most parts of Europe, in Egypt and northern Africa, according to Leo Africanus in 1632, and Clot Be in 1839, it has still continued the ordinary mode of treating the disease. In Algeria, indeed, the Arabs are now learning from the French the methods of treatment by mercury.

Towards the close of the eighteenth century Dr. Michaelis, a Hessian, and Dr. Grant, an Englishman, both surgeons in the British Army during the American war, imagined they achieved wonders by treating syphilis with opium. Their communications attracted the attention of a certain number of English, German, and Swedish doctors who prescribed it in doses beginning at 5 grains per diem gradually increasing to 50 grains in the 24 hours.

The results of the experiments with opium in Christianity are given by Boeck¹ in his elaborate tables; 31 cases were treated with an average duration of their treatment of 81 days. Opium, however, had but a short-lived popularity as a specific, and is now laid aside for that purpose.

At the close of the eighteenth century Dr. Beddoes, of Clifton, published a series of cases where nitric acid was used to cure syphilis. His experiments were repeated by three or four others, without, however, procuring for this medicine any enduring renown. At the present day its use is confined to cases of long-standing disease of the liver where, in the opinion of Dr. Budd, it is beneficial.

¹ Boeck's *Récherches*, p. 468.

Many drugs have gained favour for their supposed power in curing syphilis, which they enjoyed through the mistaken belief that syphilis cannot subside spontaneously. Until the beginning of the present century, it does not seem to have ever occurred to any proposer of a new system of treatment that, perchance, nature could overcome the disease by her unaided efforts. We now know she often does. In 1813 Fergusson¹ published some observations he made while serving with the British Army in Portugal, on the extreme lightness of the disease among the Portuguese troops, which he considered to some extent due to partial exhaustion of the disease among that people. Moreover, he remarked that mercury, then supposed by English surgeons to be indispensable for the cure of syphilis, was seldom, if ever, employed by the Portuguese or German doctors. This suggested to Rose, surgeon in the Coldstream Guards, the importance of allowing the venereal disease to run its course unchecked by medicine, which he accordingly did. It must not be forgotten that in his day the plurality of venereal diseases was not recognised, but it was thought that any venereal sore might communicate the general constitutional disease. During one and three-quarter years immediately preceding the publication of his paper in 1817,² Rose treated 120 cases of venereal ulcer by simple means, consisting of confinement to the house, moderate diet, and cleanliness, with an occasional aperient if required. In one third of his experimental cases eruptions on the skin followed the venereal ulcer, but they disappeared completely after a few weeks or months of their own accord, and as the patients were soldiers of his regiment, he had them continuously under his observation, so

¹ *Medico-Chirurg. Trans.*, vol. iv., p. 1.

² *Medico-Chirurg. Trans.*, vol. viii., p. 349.

any return of the disease was readily detected. All the patients had recovered their health and strength at the time of the report, which was dated several months after their infection. The only symptom any of them suffered that denoted disease of the bones was rheumatic pain about the joints, which was observed in one or two of the cases; hence, Rose concluded that the affections of the bones, appearing in persons treated for syphilis with mercury, were the consequence of syphilis and mercury combined. In all this Rose, and those who conducted experiments similar to his, made the grand mistake of not waiting until the time had arrived when osseous affections commonly make their appearance, or of extending their observation to a sufficiently large number of cases. The same error was committed by Thomson and Hennen in Edinburgh, by Fricke in Hamburg, by Desruelles and others in France, who caught up the "simple treatment," as it was called, with enthusiasm.

In consequence of the discovery that syphilis in many cases will cure itself if left alone, it was presumed that it would do so always. Mercury was not only again cast aside, but all the evils previously attributed to syphilis were one by one laid to its door, and great prejudice arose against employing the drug. Rose himself quickly saw the error he made, for we learn from Sir B. Brodie¹ and M. Cutler,² that Rose, having satisfied his mind that venereal ulcers would heal without mercury, still habitually employed it in the treatment of syphilitic sores. He found that by giving mercury during the healing of the ulcers the proportion of general eruptions was diminished, and the course of the disease materially shortened. This convi

¹ Surgical Works, vol. ii.

² Evidence before the Committee on Venereal Diseases in the Army and Navy. Question 4105.

tion was forced on the minds of many others, who tried "simple treatment" of venereal ulcers. John Thomson, of Edinburgh,¹ who wrote in 1818 a description of his non-mercurial treatment of the disease, returned to the use of mercury when time had enabled him to extend his observations,² for he found that abstention from mercury did not render relapses less frequent or less severe. The good success of Rose's experiments induced many to repeat them. In 1819 the Army Medical Board³ published a circular, setting forth the results of 1940 cases of primary venereal ulcer treated without mercury, of which 96, or 5 per cent. had secondary disease. Of the 96, it was afterwards found advisable to give mercury in moderate quantity to 12. These cases of "simple treatment" are compared in the circular with 2827 cases of primary venereal ulcer, for which mercury was used; of these 51, or 2 per cent. had secondary symptoms. The average duration of treatment was about five days shorter when mercury was withheld than when employed. In none of the first series was the health permanently injured; of the latter two men were discharged unfit for service.

Fricke's experiments⁴ are often quoted as examples of the readiness with which mercury may be dispensed with; but if examined with our present knowledge of venereal disease, they will at once be seen to be valueless. In Fricke's practice all venereal diseases—balanitis, gonorrhœa, excoriations, and chancre, as well as syphilis, were submitted to the non-mercurial treatment, and they are of no weight against

¹ Edinburgh Medical and Surgical Journal, January, 1818.

² Simon: die Behandlung der Syphilis ohne Mercur. Hamburg, 1860, S. 159, note. Boenek states that when visiting Edinburgh in March, 1827, Thomson expressed his opinion to Boenek as given in the text.

³ Printed in Hennen's Military Surgery, p. 551. London, 1829.

⁴ Annalen der chirurgischen Abtheilung des allgemeinen Krankenhauses in Hamburg. Bd. I. S. 106. Hamburg, 1828.

the use of mercury in syphilis. Again, Fricke's experiments were made in 1824-5-6-7, and published in 1828, too soon to justify him in concluding, as he did, that tertiary effects would not follow the general eruptions which had disappeared under simple treatment. Though Fricke continued to practise non-mercurial treatment for several years longer, he has not published any account of the health enjoyed during some years after the subsidence of the early forms of the disease, by the patients he treated experimentally, a necessary step before maintaining the ulterior forms of syphilis to be the consequences of mercurial treatment.

Hennen recorded his experience of non-mercurial treatment in his work on Military Surgery.¹ The results he obtained were similar to those of Rose and Thomson, and he became sparing in his use of mercury. Many more surgeons in this and other countries between the years 1820 and 1840 published their experience of non-mercurial treatment, with more or less faith in their results.²

The absurdity of attributing the consequences of syphilis, one after the other, to the mercury employed for the cure of the disease, was carried to its extreme by Jourdan, who, in 1816, denied that syphilis existed as a distinct enthetic disease. He explained its effects to be the results of sympathy between the wounded sexual organs and other organs of the body injured or excited by the treatment employed for the cure of this, as he maintained, imaginary disease. Broussais also adopted and supported this view for some time. As the employment of mercury in venereal affections had never become so universal on the Continent as in this

¹ Article Syphilis, in Hennen's Military Surgery. London, 1829.

² Oppenheim : Behandlung der Lustseuche ohne Mercur. Hamburg, 1827. Desruelles' Mémoire sur les résultats comparatifs du traitement de la Syphilis, avec mercure et sans mercure. Paris, 1828. Green, Graves' Clinical Medicine, p. 318. 1843. Colles, Practical Observations on the Venereal Disease and the use of Mercury. Egan, Syphilitic Diseases, p. 328. 1853.

country, so the return to its use has not been so rapid. Nevertheless, the tide turned there when Ricord published his letters on syphilis and his notes to the translation of Hunter. Before this time, however, most English surgeons had abandoned simple treatment for more expeditious means of curing the disease. Some prejudice against the proper employment of mercury is yet to be reasoned away; though it is to be hoped that the last remnants of what was once a righteous opposition to the fearful abuse of mercury will ere long die out.

The benefit obtained from the researches in the first quarter of this century is threefold: first, they show that all venereal ulcers can be healed without mercury, and that this drug is not the cause of the relapses so frequent in this disease; lastly, that very much less mercury is required to control syphilis than had been previously supposed necessary.

A very important addition to the *materia medica* was made when iodide of potass was first employed in England for curing syphilis in 1831 by Dr. Robert Williams. Wallace,¹ of Dublin, very soon tried the new drug extensively, and the results of his experiments with it, published in his lectures on venereal diseases, soon drew general attention to it in this country; while Ricord's repetition of the same experiments firmly established the reputation of iodide of potass on the Continent.

During the last eighteen years several methods of eliminating the poison by counter-irritation on the surface of the body have been tried: blistering, inunction of tartar emetic ointment, vaccination and inoculation of chancreous pus, or syphilisation, to which a further effect than mere irritation of the surface is attributed by those who countenance it.

¹ *Lancet* vol. i. 1836.

The three first methods were for a short time in repute on the Continent, but had only a temporary notoriety. Extensive trials of tartar-emetic inunction were made by Hjort of Christiania, published in Bidenkap's "Aperçu," already alluded to in the chapter on Syphilisation. Syphilisation itself is rapidly dropping into oblivion, after having rendered valuable service to science by allowing the disease to run its course uncontrolled or impeded by medical treatment. Thus it has furnished a large number of observations of the natural progress of syphilis.

THERAPEUTIC TREATMENT.

General Management.—In treating syphilis, several points must be borne in mind. First, the natural tendency this disease has to subside, and to disappear ultimately altogether, independent of the influence of treatment. Women frequently afford instances of this kind, in whom syphilis often occasions so little inconvenience that they remain unconscious of the nature of their malady, and seek no specific treatment throughout their disease. In certain barbarous countries syphilis also seldom receives special treatment, but the disease does not appear on this account to attain a greater general severity than it bears in regions where efforts are made to check or alleviate its consequences by treatment. Mr. Painter,¹ in an account of a winter spent in Algeria, states that the Arabs there seldom resort to medicine for relief, but, nevertheless, they generally recover their health after a longer or shorter interval. So, also, Dr. Kirk, the South African traveller, informs me that syphilis is particularly mild among the tribes of South-Eastern Africa, with whom the later sequelæ are extremely rare; while, on the other hand, the Portuguese of the coast suffer as severely as

¹ Army Medical Reports for 1865, p. 437.

they would in Europe from the various forms of syphilis. The second consideration is the great obstinacy and often incurable character of syphilis in certain persons, who most commonly have reached middle age before they are infected. In such persons the disease often continues active for eight or ten years, or, by relapses, with short intervals of health, for a much longer period. The third consideration is the aptness of the disease to cause debility by checking nutrition, a consequence which is particularly frequent in children and young growing persons. The two last considerations are sufficient to render treatment strongly necessary in all cases, because we have no means of knowing, at the outset, whether any given case will have a light or severe course, a short or a long one, whereas we know that the severe cases can be shortened and greatly alleviated, that is, in one sense of the word *cured* by medical treatment. Thus, the indications to be followed in treatment are—1st. To insure the highest possible condition of bodily vigour. 2. To control the influence of the poison. 3. To dissipate and heal, on ordinary surgical principles, the local affections of the disease.

The bodily vigour must be maintained by attention to all the functions. The patient must be particularly cleanly, for while the eruptions are on the skin much benefit is gained by stimulating the circulation through it, and by clearing the surface of cuticle débris and dirt. The patient should wash the surface of the body every day, and twice weekly take a warm bath with soap. The Turkish bath suits many persons, but in some it produces a debility which soon becomes disagreeable. The clothing should be always warm; flannel worn next the skin in cold weather and in winter, and as a precaution against sudden chill a great coat should be worn when in the open air. Pustules and ulcers of the skin, which are usually present in persons who are much debilitated, commonly heal readily, as the vital powers are

restored by iodide of potass, iron, cod-liver oil, and good diet. The teeth must be frequently and carefully cleaned of tartar, for these precautions have great influence in preventing inflammation of the gums while mercury is being taken. The gums, especially in uneducated persons, are often inflamed and swollen from neglect of cleanliness; to remedy this they need washing with some astringent solutions and brushing with soft brushes. This will prevent their suffering still more from mercurial irritation. The diet should be light and sufficient; excess in wine strictly prohibited, lest the digestion be impaired and nutrition diminished. Meat and wine must be given in quantities necessary to preserve the patient's strength at its height. Smoking in moderation probably does no harm to those accustomed to it if the lips and throat are sound, but it is difficult to cure any sore in the mouth or fauces if the patient continues to smoke. Regular action of the bowels must be secured by medicine if necessary, a tumbler of bitter purging water of Frederikshalle, or Pullna, every morning on an empty stomach, or a scruple of sulphate of magnesia in an ounce of infusion of quassia or gentian, once or twice daily, will commonly effect this. Bodily exercise, if not carried to an extreme, is beneficial. Hunting, rowing, dancing, cricket, &c., if very moderately indulged in, are harmless, though an overstrain of the muscular power is highly injurious, by producing a debilitated condition in which the disease, especially if the patient is still young and growing, is very apt to become severe. Sexual intercourse must be abstained from for many reasons. This direction should never be omitted, for the patient is seldom aware that the disease is still communicable to others when the initial lesion has healed and subsided.

If the patient be not already robust he will profit by taking tonic in some shape, of which the following are useful

forms: a mixture of one or two grains of quinine and sulphate of iron, dissolved with four drops of dilute nitric acid in infusion of calumba or quassia, three times a day before meals; or fifteen drops of tincture of perchloride of iron, glycerine, and spirit of chloroform, dissolved in an ounce of water; or a pill containing a grain of quinine, one of sulphate of iron, two of dried carbonate of soda, and one of extract of rhubarb, two or three times daily. Cod-liver oil is often exceedingly beneficial, if the patient be thin or phthisical.

In laying down these rules of conduct regard must always be had to the patient's avocation, and he must not be restrained from, on the contrary should be urged to apply himself, regularly to business or to study, that his life may be the more free from excess, and his mind diverted from the slow progress his disease will make in spite of all that can be done by art to hasten it.

Period preceding general eruption on the skin.—During the stage occurring after communication of the disease and prior to its manifestation on the skin and mucous membrane, the patient very frequently does not apply for treatment, as the amount of inconvenience is often so inconsiderable that he is unaware of the nature of his complaint. In the chapters on Incubation and Contagion it has been shewn how useless all attempts to eradicate the disease are at this stage; hence little can be done beyond preserving the individual in as high a condition of bodily vigour as is practicable. Directions should be given for cleanliness, and using warm clothing in cold weather. The diet should be moderate, and bodily exercise must be taken, though riding, shooting, or rowing, should be avoided while the ulcers are unhealed, or the inguinal glands enlarged, lest acute inflammation be excited in those parts. As the patient usually applies to his doctor for some local affection besides his general constitutional

state, he must receive directions requisite for its cure.

Local Treatment.—The primary manifestation of syphilis, though naturally indolent and unirritating, sometimes through neglect of cleanliness and other causes, becomes a freely discharging sore, that causes much pain and inconvenience. The sore must be dressed with lint soaked in warm water, and renewed every three or four hours till the irritation is subdued by rest. Attention must be paid to the diet, and to the action of the bowels and kidneys, a few doses of a saline purge should be given, such as sulphate of magnesia in two or three drachm doses. If the tongue is large and furred, and the appetite failing, the patient will do better to take three or four grains of blue pill, with as much compound extract of colocynth at bedtime, and next morning a saline draught (ʒij of sulphate of magnesia, a Seidlitz powder, or half a pint of bitter purging water from Friederikshalle, or Pullna). If, as sometimes happens, the irritation of the sore excites sympathetic action in the neighbouring lymphatic glands, they should be fomented four or five times a day with flannels wrung out of boiling water and a poultice of linseed meal applied between the fomentations, the patient keeping as much as possible in the horizontal position. In this way the irritation and pain subside, the sore ceases to secrete much pus, and acquires its ordinary indolent condition, or begins to cicatrise. The glands also lose their tenderness, and, if matter have not formed, gradually regain their former condition of general painless enlargement. If abscess be already produced, it must be treated as an ordinary bubo (see the chapter on Chancre). When the irritation has subsided the patient may get up and take moderate exercise, though he should not dance or hunt till the sore is quite healed, lest the chafing and excitement these produce rekindle the inflammation that has been so recently sub-

duced; and of course sexual intercourse is out of the question for other reasons. The local application to the sore should be very slightly stimulating, frequent washing, and the application of cold water on a bit of lint are usually quite sufficient, or the patient may use a solution of sulphate of zinc of one or two grains to the ounce, coloured with tinct. lavend.; or the liq. plumbi subacet. dil. of the British Pharmacopœia; black or yellow wash are appropriate if the surface is indolent. The sores should always be covered by lint if they are likely to touch the skin, hence in balanitis it is essential to keep the glans separated from the foreskin by lint. Any strangulation or swelling of the prepuce, if not quickly relieved by rest and cool lotions, must be incised at the constricting points. The enlarged glands, when all irritation has subsided, may be compressed by a pad of lint and a spica bandage round the loins. The penis, if the chancre is large, should be supported and protected in a suspensory bandage.

The treatment of initial lesions in the *female genitals* is very similar to that already given for sores in men, but the conformation of the pudenda renders cleanliness far more difficult. The patient should be instructed to use the vaginal douche three or four times daily, and to dress all excoriated surfaces with rag dipped in lead lotion, and arrange the dressing so that it intervenes between all opposed surfaces; a dossil of cotton wool moistened with lead lotion and slipped within the vagina, is more readily retained there than lint, and keeps sores of the entry moist with the lotion. The patient should keep quiet, avoid dancing or standing, and lie down a great part of the time. If the nymphæ become œdematous and inflamed, and the glands tender in the groin, the parts should be fomented every three or four hours, and folds of old rag or muslin handkerchief laid between the labia

minora and majora, and poultices applied to the groins; while the patient keeps her bed and takes some saline febrifuge draught.

Spreading or suppurating ulcers should be cleaned, dried, and destroyed with nitric acid, and then carefully cleaned and dressed every six hours. There is little trouble with these local affections if they are cleaned with sufficient frequency. The condition of the uterus should be ascertained as soon as the sores of the entry of the vagina will permit the passage of a speculum, and the discharges or erosions treated as directed in the local treatment of the uterine venereal affections.

When the induration of the commencing manifestation at the point of contagion becomes evident, the question must be considered whether mercury should be given to procure its absorption. There is no doubt that mercury hastens the healing of the sore and the subsidence of the induration, also that it postpones, perhaps in rare cases even prevents, the appearance of general eruptions, and so checks further manifestations of the disease. Copious induration of the sore frequently portends a severe course of syphilis. The converse unfortunately is not true, for a very small amount of induration does not prognosticate a comparatively light course of the disease. Again, mercury should be given if the induration has lasted some time, and shews no signs of departure. In such cases, also, mercury will commonly be required to remove other evidence of the disease; for by this time the epoch of eruptions on the skin will have been reached. As a general rule, then, mercury should be given without waiting for the appearance of a rash on the skin, when the sore is plainly indurated, and the inguinal glands severally enlarged and not tender. The object being to shorten and alleviate the course of the disease, with the possibility of almost completely arresting it.

The Period of General Eruptions.—The short period of lassitude, inappetence, and headache that in many cases precedes the outbreak of a rash on the skin, is best treated by a saline purge to clear the bowels; after which a few small doses of mercury should be given by some of the methods described when treating of mercury. The discomfort subsides in a marvellous manner as the patient's system feels the influence of mercury. Women and young lads are more susceptible to the influence of this drug than full-grown men; hence a smaller dose suffices for such persons. In this stage the patient is liable to become weakly, wherefore his diet should be good, and bitter tonics should be given along with the mercury; three or six grains of quinine with as much sulphate of iron, or thirty to sixty drops of solution of perchloride of iron should be given in the course of the day. When this debility is removed, beside the specific treatment for the eradication of the malady, the management of the general health becomes of the greatest importance, and the directions already laid down must be complied with.

MERCURY.—In the historical sketch of the treatment of syphilis, it has been pointed out how every attempt to subvert the influence of mercury in treating syphilis has successively fallen to the ground; how, in the fifteenth and sixteenth centuries, the mischief that accrued from its unmeasured employment, brought mercury into disfavour; though it gradually recovered and maintained its position until the beginning of the nineteenth century, when the discovery that mercury is not essential for the cure of syphilis, led to its being again discountenanced by great numbers of surgeons. Yet it is now generally admitted that no other medicine exerts so much influence over the progress of syphilis, while we have satisfactory evidence, collected by Dr. Kussmaul, that mercury has no power to produce certain late affections

in syphilis as was at one time maintained. Of the large number of surgeons examined by the Committee on Venereal Disease in the Army and Navy, only four never used it; all the rest looked upon mercury as being almost always most effective in treating the disease. Mercury is injurious to syphilitic persons just and only as it is injurious to non-syphilitic persons, namely, by causing the undoubted effects of mercury upon the human system. These can be almost wholly avoided, while their useful influence over syphilis is secured, if the drug is administered with due precautions. The advantages, which are well ascertained to result from giving mercury in syphilis are these: if given early, it promotes the dispersion of the induration at the point of contagion and the enlargement of the glands; it delays and lessens the severity of the cutaneous eruptions, and of all the symptoms which accompany the early skin eruptions. In the later forms of syphilis, though not so generally applicable, it is often more serviceable than any other medicine. It cannot always be borne at these stages, and sometimes, but less often, it fails of effect; and more rarely still, it does positive harm. With all this it cannot be looked upon as a *preventive* of syphilis. It is true that in a few instances the disease is at once arrested where the patient is submitted to the influence of mercury, and all patients who can take mercury, have their disease more or less curtailed; in this sense syphilis is prevented, but only in this sense. Mercury is frequently injurious if given to persons very much broken down in health, or affected by renal disease; but even in these cases it is impossible to lay down any rule prohibitive of mercury, because it frequently happens in such debilitated persons, when syphilis is the cause of their debility, that mercury restores their strength more rapidly than any other medicine. It is also commonly stated that the vesicular and ulcerating syphilide

are not benefited by mercury; this is only generally true. Patients with pustular eruptions sometimes resist all plans of non-mercurial treatment, but recover rapidly when given mercury, if they receive it in very small doses.

Cases in which Mercury is Appropriate.—When the patient is in fair health, has a hard based, indolent ulcer, or excoriation, with enlarged inguinal glands, mercury should at once be administered. During the early eruptions, mercury is particularly useful whenever the eruption has a desquamating form. In obstinate relapses of the eruptions, when the affection is limited to a few tubercular or leprous patches, mercury is most beneficial in the form of vapour baths, either as general or local baths. In progressive ulceration of the skin, if iodide of potass, or sarsaparilla fail, mercury often arrests the disease at once. If a syphilitic woman become pregnant, it is highly important that she should take small quantities of mercury at frequent intervals during her pregnancy, that the child may be shielded from contagion if possible during gestation. Whenever the patient, in a long course of syphilis is enfeebled, and reaps little benefit from ordinary tonic and restorative treatment, he will often regain his power of digestion and bodily strength when he is brought under the influence of mercury. In such cases it is best to introduce the mercury in the mildest way possible, by inunction or by vapour baths rather than by the mouth. In young children mercury is almost always well borne, and is the most rapid restorative they can receive. In feeble children inunction is usually a better mode of introduction than by the mouth, as it is less likely to cause diarrhœa if given in that way. In short, whenever the disease makes no progress without mercury, however late the stage or whatever the form, mercury should be tried. The maxim, "iodide eases,

mercury cures," is rarely inapplicable in obstinate cases of syphilis. Simple light cases will so often cure themselves that the omission of specific treatment produces no evil consequences in them beyond some risk of relapses in after years of the disease in some of the internal organs.

The length of the time that mercury should be administered is very difficult to define. The surgeons, who were examined before the Committee on Venereal Disease in the Army and Navy, almost without exception recommended its use only so long as the symptoms remain, but that it should be laid aside when they depart, and again employed if they return. Several surgeons even stop using it long before the symptoms have departed, and content themselves with ordinary tonic treatment with iodide of potass. But probably bolder use of the drug is permissible and advantageous. Without over-estimating the value of mercury in checking syphilis, it may be confidently asserted that in numerous cases the disease has a very short course when the administration of mercury, has been commenced as soon as the indurated base of the ulcer and the early rashes show the presence of syphilis unmistakably, and if the influence of the drug is continued uninterruptedly for three months, even though no sign of the disease be present all that time. There is good foundation for the belief that steady continuous mercurial treatment, though not an infallible means, is the only trustworthy one for preventing a return of the disease from time to time through many years. In 25 cases where mercury had been employed to remove the symptoms of the disease as they appeared, I find that

4	were under	1 year's duration,
8	"	2 years' "
2	"	3 years' "

4 were under 4 years' duration.

4 „ 5 years' „

1 „ 8 years' „

But in many of the shorter periods the patients had only ceased to suffer a short time before, consequently it must not be inferred they were quite free of the malady. Perhaps the best results are obtained by administering the drug until all symptoms have subsided, and to continue to give small quantities of mercury for two or three weeks longer, after which time the influence of that already taken should be revived by iodide of potass. When the effect of the iodide begins to flag, some mercury may be given in the form of biniodide, by adding bichloride to the solution of iodide of potass. In this way four or five months ought to be consumed after the syphilitic rashes have been taken in hand. By this time, should no symptoms be present, medicine may be withheld altogether, while the patient is kept under observation to watch for any further outbreak of the disease. This is most apt to recur on the fauces or tongue, where the formation of an ulcer or fissure is the signal for treatment to be re-commenced by reverting to the iodide of potass in the first instance, and by adopting some form of mercurial, if the iodide of potass prove ineffectual. The patient must in all cases be prepared to expect occasional relapses for two years after he has contracted the disease. He should also be cautioned that relapses may, in rare cases, return after a much longer and indefinite interval, and that treatment of any kind can only aid nature in exhausting the activity of the poison.

The Administration of Mercury.—The influence of mercury on the system is substantially the same by whatever channel it is introduced. Locally it is irritant; by its general action it interferes with nutrition, lessens the number of blood corpuscles, lowers the quantity of albumen,

and is said to delay the coagulation of the blood. In whatever form mercury may be administered, it is probably according to Miahle, always converted into a soluble chloride or some compound in combination with albumen, before it enters the circulation. After absorption it is in part excreted in the urine, sweat, saliva, and intestinal mucus, but a portion remains deposited in an inert condition in various tissues of the body.

When taken to control syphilitic disease, the earliest effect is relief from the languor that often precedes the eruption. If a rash is present it grows pale, the spots sink down, and ulcerated surfaces begin to heal. Next to these changes come the characteristic effects of the drug on the system. The gums swell, grow tender and spongy, and the teeth ache and are snapped together. The swelling quickly extends along the gums till they project around, and partly conceal all the teeth. The whole mucous membrane of the mouth is affected; the tongue, furred on the surface, is indented at the sides where it presses against the teeth; the cheeks are marked in the same manner, and not unfrequently excoriated opposite the cusps of the teeth. This condition of the mouth is accompanied by fœtor of the breath, coppery taste in the mouth, and increase of the saliva. It is never necessary for therapeutic purposes to excite so much action as that described. In most persons all the useful effects of mercury are attained when the slightest possible sign of its influence is betrayed by the gums. But exceptions to this rule are met with. I have marked several instances where syphilitic symptoms were unaffected until the irritation of the gums had almost reached the condition just described. But further salivation is in all cases hurtful, not beneficial. On the contrary, subsidence of the eruption seems to prevail while the patient is depressed with severe mercurialisa-

Bumstead¹ states that patients are more easily salivated when first commencing to take mercury than on a repetition of mercurialisation. My observations do not confirm this. I have repeatedly found that a particular form or small excess in the quantity of mercury will excite stomatitis as readily in a person who has been taking mercury for some time as it did when he began his treatment.

Salivation.—If the irritation become violent, the gums ulcerate, suppuration extends to the lining membrane of the alveoli, and the teeth loosen; tenderness with swelling and throbbing of the salivary glands, and copious secretion of saliva accompany the other symptoms. These milder forms of mercurial poisoning are often set up by inadvertence. Further effects, namely, necrosis of the alveoli, fall of the teeth, abscess of the parotid, are extremely rare at the present day. The local effects are not unfrequently accompanied by symptoms of general disturbance, fever, headache, loss of appetite, griping, purging with bilious stools, &c. The earlier of these symptoms are best relieved by discontinuing the mercury, and giving a smart purge of colocynth and sulphate of magnesia, then chlorate of potass in fifteen grain doses, with nitric acid and bark four or five times daily. If deglutition be painful, the food must be liquid; strong soups thickened with arrowroot are most readily swallowed. The mouth should be frequently washed, and cleaned several times daily with a soft brush, especially after eating. Exposure to damp and cold is not unfrequently the exciting cause of an attack of stomatitis in persons taking mercury; hence, all such persons must be cautioned against this danger. Though the violence of the inflammation is checked by treatment, the affection subsides of itself in about eight or ten days, if mercury is withheld. In

¹ Venereal Diseases, p. 486.

these attacks the saliva has now and then been found to contain mercury as an ammonio-sulphuret, but usually the secretion is quite free from it. Salivation is not the constant sign of injurious action, for this may show itself as depression, sweating, loss of appetite, and purging. In those who sweat freely, mercury excites eczema of the tender skin about the flexures of joints, groins, front of the elbows, and other parts. Nervous irritability, anæmia, &c., are in others the prominent symptoms.

Some persons appear insensible to the action of the drug; they neither get sore mouths, nor depression, nor purging, and their syphilitic symptoms acknowledge, to a very slight extent, the influence of mercury. One instance of this resisting power that occurred to myself may be related. A young gentleman, 19 years old, of excellent health and strength, had a very large indurated ulcer beneath the prepuce, and enlarged glands of the groin. In consequence of which, attempts were continued during four months in vain to make his gums sore by frequent doses of blue pill, iodide of mercury, and calomel; by mercurial fumigation, and by subcutaneous injection. After this the gums were slightly swollen for a few days. During the treatment the induration subsided, but constant, almost daily search discovered no eruption whatever on the skin and only slight ulceration of the tonsils, with erythema of the fauces. This gentleman has since then been occasionally seen by me for two years, in which he has shown no sign of syphilis, and has enjoyed excellent health. This case may be taken, perhaps, as a proof of the power of mercury has over the syphilitic poison, did we not also occasionally see almost as mild a course of the disease in persons not submitted to any particular treatment.

Mercury can be introduced in various ways, both through the mucous membranes and on the surface of the body.

When given *internally*, in the vast majority of cases the most convenient form is pills, but other modes have advantages in certain cases. Mercurial vapour is inhaled with excellent effect in ulcers of the throat and larynx, or the solution of the perchloride may be thrown in the form of spray over dry ulcerated surfaces within the mouth. This not only checks the progress of the ulceration, but effectually soothes the irritation of the parched surfaces. When it was supposed that the syphilitic poison was eliminated by the sputa, the mercurial ointment was rubbed by some surgeons into the gums to excite salivation by direct application, as it was believed. Mercury is also occasionally introduced into the vagina, or rectum, in pessaries and suppositories, where it acts by absorption on the constitution, and topically as a stimulant. For this purpose about ten grains of mercurial ointment are melted with a drachm of cocoa butter in a Minié bullet-mould ready for introduction. Mercury is applied to *the surface* of the body by mercurial vapour baths, inunction, subcutaneous injection, and by bathing in a solution of the perchloride.

Before administering mercury by the *internal method* to a person that has not previously taken it, a few precautions should be adopted. Whatever form of the drug be selected, the dose should be small and in a form least likely to excite irritation of the bowels. Mercury with chalk and blue pill are the least irritating, but less speedy in action than the green iodide or calomel. The blue pill is somewhat uncertain, but less apt than the green iodide to set up purging and griping. At the outset I employ grey powder or blue pill in such forms as the following; two grains of grey powder, with two grains of compound ipecacuanha powder, twice daily, or two or three grains of blue pill with a quarter of a grain of powdered opium every night at bed-time. Such doses are usually sufficient to produce the necessary effects in women

and lads. In men, three grains of blue pill or grey powder twice or thrice daily, or one grain of calomel every night and morning, with one third of a grain of opium are suitable doses. If blue pill is employed to produce the effect of mercury rapidly, it is best to begin with five grains and half a grain of opium every night and morning, or three times a day. Under all circumstances it is desirable to see the patient again on the fourth or fifth day, that the effect of the mercurial may be observed, and, where large and frequent doses are being taken, of course, much oftener. If the gums are not beginning to swell, the dose may be made more frequent, or increased, or the form be changed to the iodide replacing some less active preparation. When the mercury begins to be felt the patient should omit his dose for a day, then continue with about two-thirds of the quantity at first employed per diem; this will keep up the requisite influence, and avoid any injurious effect.

The *perchloride* is used very much on the Continent in the early forms of the disease; in this country it is generally reserved for relapses that do not readily yield to iodide of potass. The usual form is the liquor hydrargyri perchloridi, the substitute for Van Swieten's liquor. Van Swieten himself directed the solution to be made with one part of perchloride of mercury dissolved in about 600 of corn-brandy. Some French surgeons replace the corn brandy with rum, but the large amount of alcohol in these solutions is objectionable. One or two tea-spoonsful of the liquor may be taken, diluted with some emulsion. The perchloride is ill-adapted for producing the requisite effect of mercury quickly, for if taken in sufficiently large doses to produce tenderness of the gums, it is apt to irritate the bowels. Hence it is better suited to the later forms of the disease where the action of mercury is required only to a very slight degree. A very useful mode of giving the

perchloride in such cases is to mix it with iodide of potass; a freshly formed biniodide of mercury is kept suspended in solution of iodide of potass. For this the following formula is suitable:—

R	Perchloride of mercury	grs. 3
	Iodide of potass	grs. 96
	Compound tincture of bark, to	℥ 4
	Sesquicarbonate of ammonia	grs. 60
	Water, to	℥ 8

Two tea-spoonsful half an hour before meals three times a day.

The perchloride can be borne a long time in small doses, not exceeding two-thirds of a grain per diem, and a less amount is often sufficient. In such quantity it rarely excites irritation of the gums or of the bowels. It is apt to undergo decomposition, and should always be combined with ammonia or iodide of potass in solution. In the form of pill it is extremely uncertain, and very liable to become inert by decomposition. Bumstead¹ recommends a solution of perchloride of mercury in cod liver oil; two grains of perchloride are dissolved in one drachm of ether, and the solution shaken up in six ounces of cod liver oil. One drachm of oil contains one twenty-fourth part of a grain of perchloride. If the bottle be kept tightly corked, to prevent the ether evaporating, the perchloride remains in solution. The perchloride may be very usefully given with the liquor cinchonæ, a drachm of the liquor hyd. perchlorid. with a drachm of the former in water, or of the compound tincture of bark may replace the liquor.

Bicyanide of Mercury.—This form is stated by those who employ it to be free from the irritating qualities of the iodide and chloride, and thus is useful in the rare cases where the patient is obliged to discontinue the use of mer-

¹ Bumstead's Venereal Diseases, p. 481.

cury from its purging and griping effect, before the good influence of the drug has been continued a sufficient space of time.

The Biniodide of Mercury is a more stable compound than the protiodide in small doses: it is very useful in relapses of the scaly eruptions on the skin, in such a formula as the following:

R	Biniodide of Mercury	gr. $\frac{1}{3}$ — $\frac{1}{2}$
	Iodide of Potass	grs. 3—5
	Tincture of Cardomum	℥ 20
	Water	$\overline{3}$ 1

To be taken twice or thrice daily.

The Iodide of Mercury has become a favourite with French surgeons on account of its great activity; it is stated by some that it loses its curative property if combined with opium. This has not been so in my experience, though from the readiness with which it decomposes, it often fails to produce any effect at all, while, on the other hand, it is far more apt than the blue pill, calomel, or bichloride to cause griping and purging; hence it is objectionable from the uncertainty of its action. It may be used to replace the other forms of mercury, and it should be given in doses from one-third to one grain two or three times a day, combined with two grains of extract of lettuce, or of henbane, or one-fourth of a grain of powdered opium.

Many other compounds of mercury have been in fashion from time to time, such as Hahnmann's soluble mercury (an ammonio-sulphate), but are now generally superseded by more definite salts of mercury.

In Germany a preparation of mercury with sarsaparilla and aromatics, called *Zittmann's Decoction*, is much used. It is generally combined with limited diet and sweating and is employed when the disease is inveterate and the

patient is in debilitated health. Zeissl gives it in conjunction with mercurial inunction. It is made as follows:—

R	Sarsaparilla	℥ 12
	Water	3 gallons.

Macerate twenty-four hours and put in a linen bag ;

White sugar	3 6
Alum	3 6
Calomel	3 4
Prepared Cinnabar	3 1

Hang the linen bag in the liquor and boil down, while adding four gallons more water, till the liquor is evaporated to two gallons ; remove the bag, and add to the decoction,

Anise seeds	3 4
Fennel seeds	3 4
Senna leaves	℥ 1 ½
Liquorice root	℥ 1 ¼

Press and strain.

About half a pint or a pint is the quantity of this mixture generally taken per diem. The amount of mercury contained is rarely enough to produce disagreeable consequences, and yet sufficient to control the disease. A weaker decoction of the woods which is free from mercury, but has very little value beyond a diet drink, is also employed by German surgeons.

The External Administration of Mercury.—The skin readily absorbs mercury when it is rubbed in in the form of ointment, or deposited as a thin coating of condensed mercurial vapour over the surface of the body. Both plans have been extensively employed. Their main advantages are two. In the first place, when mercury is introduced through the skin, it is less apt to interrupt the digestion than when applied directly to the alimentary canal for absorption. Secondly, for success in both these plans, the patient should follow a regimen which of itself greatly advances his cure. His habits must be regulated to some

extent, he must be at home at certain times for his vapour bath, or his inunction. He must keep his skin acting freely and he passes more time resting in bed than he is disposed to allow when he can avoid it. Both methods have the disadvantage of more or less interfering with the patient's ordinary avocations, and in the case of the vapour bath a special apparatus is required.

In the *mercurial vapour bath* an atmosphere of steam and mercuric vapour is produced, which deposits on the skin a thin coating of mercury while it is violently perspiring. The patient, undressed, is placed in a wooden-seated chair and covered with an oil cloth or blanket, supported by a hoop round the shoulders, the head is generally left out and the covering tied closely round the neck. The apparatus consists of a lantern supporting a shallow saucer in the centre, surrounded by a deeper one; the first receives the calomel, the second is filled with water. Beneath them is a spirit lamp, which is lighted and the lantern is then put under the chair. In a few minutes the water boils and the mercury volatilises in vapour. The hot air and steam of the bath usually induce copious perspiration in ten minutes. In twenty minutes the whole of the mercury is volatilised and the spirit in the lamp being exhausted, the heat ceases. The patient may then loosen his cloak a little to cool down before putting on his night dress, for he should at once go to bed and remain between the blankets for an hour or two before dressing. For this reason the most convenient time for the bath is at bedtime. In giving this bath some precautions are necessary. The depression is sufficient to cause some persons to faint, hence an attendant should always remain in the room while the patient is in the bath. If perspiration is delayed, it may be quickened by sponging the body with tepid water before the bath is taken, or the sitting may be prolonged to half an hour; but beyond the

it is useless to continue the attempt to cause sweating. The debility and headache felt by some patients the day after the bath may be avoided by lessening the quantity of steam, and by shortening the stay in the bath.

The dose and form of the drug vary with circumstances. When the disease is making rapid progress large doses of mercury should be used, that the system may be quickly influenced. Thus Mr. L. Parker, who has largely employed this remedy, uses the bisulphuret in one or two drachm doses for eruptions on the skin. For the mucous membrane of the throat and tongue he prefers the iodide or calomel, as their vapour, being less irritating, can be inhaled readily. Mercury with chalk, the red oxide, the grey oxide, and the iodide are also employed for this purpose. Mr. Henry Lee¹ prefers calomel to any other form, because its definite constitution allows the amount of vapour to be estimated. For this reason calomel is extremely useful, and when used in one or two drachm doses it is not less active than the other forms in bringing the patient under the influence of mercury.

If the patient is vigorous and his eruptions widely spread, it is better to use large doses of calomel and a copious supply of steam. On the other hand, if he is feeble, his disease of long standing, affecting the throat, bones, and testes, rather than the skin, the stay in the bath should be short, and the amount of steam and mercurial vapour moderate. The frequency of the bath also depends on the patient's strength; if he is vigorous, and the disease in its early general eruptive stage, he may take it every night until the gums swell—after this twice or thrice weekly is usually often enough; but, on the contrary, if the patient be weak, or his disease of a late form, two or three times weekly are as much as he can

¹ Lectures on Syphilis, p. 325. 1863.

bear. While taking the baths the patient is best at home in a warm room, adopting a mild unstimulating diet, taking simple drinks freely, such as barley water, linseed tea, decoction of sarsaparilla, &c. Sometimes the action of the bath is aided by a small dose of mercury in a pill, or by rubbing in ten grains of the ointment into some part of the body every night. Though advisable, it is not indispensable that the patient relinquish his ordinary employment while taking the bath; if not convenient he can pursue his business in the day and use the bath at night before going to bed, but he must clothe warmly when he goes out. Abstinence from business is preferable, as it ensures the free action of the skin, which is a great advantage in all plans of treating syphilis. The effect of the bath is not usually shewn until three or four have been taken, yet it is a most rapid mode of bringing the disease under the influence of mercury. Mr. Parker has not unfrequently found that one bath has checked the progress of the disorder. Salivation is less often induced by this than by any other mode of introducing mercury. It is, of all modes of giving mercury, the least disturbing to the patient's general health. Stomatitis is exceedingly rare, slight diarrhoea a not unfrequent consequence of these baths, but it is easily checked by simple means.

Mercury has been *injected* beneath the skin with satisfactory results. Hebra, in 1860, and Scarenzio, of Milan in 1864, tried this means of introducing mercury into the system; they used the perchloride dissolved in water. Hebra injected about one-fortieth of a grain at a time. The patient is very rapidly brought under the influence of the drug by much less mercury than is used in any other way. The amount also can be exactly measured. In 1864 I used this plan on eleven patients to test its effect. This trial shewed that the perchloride in aqueous solution, introduced

duced in divided doses of about one-fifth of a grain, produced mercurialisation when about one grain had been injected. Their condition was kept to the requisite intensity by the daily injection of one-fourth of a grain. This method has the disadvantage of requiring the attendance of the surgeon, and is disliked for the pain the prick causes; hence it is only to be recommended where circumstances render it doubtful whether the mercury be taken by the patient, or where, as in severe iritis, it is necessary to put the patient under the influence of mercury as quickly as possible.

Inunction is most beneficially employed when the patient can pass much of his time in-doors and in bed, and clothe warmly. A scruple or half a drachm of mercurial ointment, diluted with an equal weight of lard, should be rubbed every night into some part of the body. The parts adapted for rubbing are the axillæ, the sides of the arms, the thighs, and the flanks. Lest local irritation arise, the patient should be cautioned not to rub in at the same place two consecutive times, but pass in rotation from one to another. Ricord has found in patients, whose skin does not absorb mercury when simply rubbed in, that the application of *emplastrum vigo* will quickly produce absorption. Before commencing the inunction, the skin should be well cleared by one or two warm baths and soap, that it may easily absorb the mercury. The rubbing-in should be done before a fire, and if the patient is too weak to do it himself he may be rubbed by an attendant whose hands are protected by a soft leathern glove, well soaked with clean fat to prevent its absorbing the mercurial ointment. The friction should be gentle, and continued for ten or twenty minutes until the ointment is worked into the cuticle. The patient should then go to bed, sleep in a flannel night-dress, and be well covered with bed-clothes to promote sweating. If he is restless or wakeful, he should take a draught of tincture of opium, with *sal volatile*

or some other sedative. In the morning a warm bath of soap and water should be used before dressing. In this manner the mercury is quickly absorbed, and the skin saved from irritation or soreness. The patient must frequently wash his mouth with warm dilute solution of alum or other astringent. If the teeth are encrusted or decayed they should be scaled, stopped, or removed before the mercurial course is begun, and the gums put into a healthy condition by frequent washing with warm lotions; ulcerated surfaces must be touched with tincture of myrrh, bark, &c. The diet should be light and nutritious, with wine and beer if the patient is feeble; if vigorous, a scanty diet is generally most advantageous. The bowels must be regularly evacuated by a saline purge from time to time if necessary. When the air is dry and warm the patient may take one or two hours exercise out of doors; when cold or wet he should remain within the house.

The period necessary for inunction is usually about six or seven weeks, by which time forty to fifty applications have been made, and the syphilitic eruption or symptoms are fast disappearing. It is best after this to discontinue the inunction for a time to allow the patient exercise and relaxation, while he keeps up the action of the mercury with small doses of iodide of potass, or recruits his health in the various modes directed in the paragraphs on general hygiene.

From the trouble necessary for its performance, inunction is generally reserved for obstinate relapses of the cutaneous eruptions, such as psoriasis palmaris, lepra, &c. Hairiness of the skin is a great objection to inunction, as the hair follicles are apt to suppurate and painful pustules appear. Very fair complexioned persons also have generally very tender skins, which readily get irritated and inflamed. Mercurial friction, even when very moderately employed,

excites in some persons a general erythematous eruption, which causes great annoyance, and is apt to spread over the whole of the surface to which the ointment has been applied.

Mercury can be applied to the skin in a way that is very often employed for children, by smearing a drachm of mercurial ointment on a strip of flannel, which is worn as a belt round the waist or as a wrapper round the thigh. The ointment should be renewed daily, and the skin washed from time to time lest it become sore.

Blistered surfaces can be dressed with mercurial ointment, as in iritis, when blisters have been put upon the temples; or syphilitic ulcerated patches are greatly benefited by dressing them with ointment of red oxide of mercury, or calomel. The direct application of mercury to the diseased surfaces is peculiarly serviceable in obstinate patches of long standing.

Iodine and its compounds.—There is much dispute concerning the influence of iodine in syphilis; some persons hold it to be as much a specific for the later affections as mercury is for the early ones. This is erroneous; iodine often fails to cure *per se*, but in conjunction with mercury or other medicines its effect is so distinct, that it is the most valuable remedy we have for the late sequelæ of syphilis, though it too frequently fails to do more than palliate them to allow of its being looked upon as a certain remedy. Those are in error also who suppose it acts only by rousing up the influence of mercury. Iodine is equally effective in persons who have not taken mercury if they are suffering from affections for which it is appropriate. Iodine alone does not assist the healing of the initial manifestation, nor in dispersing the early skin eruptions, nor in curing the relapses of lepra and other scaling eruptions on the skin. It is proved, nevertheless, to have value in the

early stages, through its property of dissolving mercury that has been absorbed into the tissues and become inactive. Melsens has shown that after mercury has ceased to be excreted it reappears in the urine and other secretions. Iodide of potass be given to the patient. So also mercurial salivation has been known to occur in persons taking iodide of potass after a mercurial course.

Therapeutic effect.—Iodine is chiefly beneficial at the later stages of the disease. It is appropriate in deep tubercles or gummy swellings, of the cellular tissue, in rupia, in the affections of the bones, of the muscles, lungs, liver, brain, of the eye and the testis. In elderly persons, and those in whom the cachexia is strongly marked, or in the pseudo-scrofulous affections of later childhood in inherited syphilis, iodide of potass is almost always of great service. The affections it will often greatly relieve in so short a time that the rapidity seems almost magical with which it heals the painful ulcers of the skin, of the throat, and other parts, allays the nervous irritation that want of sleep or loss of appetite produce. Even when it is highly beneficial, a complete cure by iodine without relapse is not always achieved, though this is in a certain proportion of cases the result of its use, but most commonly the disease is simply controlled by the iodides, and breaks out again in a few weeks, if they are discontinued.

In whatever form iodine is administered, it is quickly absorbed into the blood, whence it is excreted almost completely into the urine. A very small quantity is secreted with the saliva, and in the milk of lactating women. The sweat and fæces are almost, if not wholly free from iodine. Buchanan¹ failed to find iodine in either of these excreta even when he gave half-ounce doses of iodide of starch,

¹ London Medical Gazette, vol. xviii. p. 517.

persons whose urine was loaded with iodine. In four or five days the iodine is wholly discharged from the system, unless "iodism" be present, when traces of iodine can be detected for weeks in the urine. Iodide of potass is absorbed without decomposition; nearly the whole of a given quantity of this form of iodine has been recovered from the urine of the person to whom it was administered.

The general action of iodine is to stimulate the kidneys, the skin, and mucous membranes, and the absorbent systems. It has been stated, though, as Mr. Langston Parker has shown, without any foundation for the statement, that the prolonged use of iodide of potass will cause wasting of healthy glands, such as the breast and testis. In its ordinary action it is tonic, and increases the appetite. In syphilitic persons, according to Grassi, it restores the number of red corpuscles in the blood, but large doses, if prolonged, produce a peculiar depression and languor.

The deleterious effects of iodine are shown at first on the mucous membrane, beginning with coryza, with pain in the frontal sinuses, congestion of the conjunctivæ and swelling of the eyelids, irritation of the fauces, and bronchitis. Irritation of the alimentary canal is sometimes the chief symptom. The tongue gets dry, red at the tip and edges, and now and then tuberculated and fissured on the surface. Mr. L. Parker says this condition resembles syphilitic disease of the tongue, from which, however, it may be distinguished by its readiness to subside if the iodine is omitted. Swelling of the tongue, stiffness of the jaws, and inflammation of the salivary glands, causing salivation, sometimes show themselves even when no mercury has been previously taken. There is also irritation of the stomach, loss of appetite, dryness of the throat, and burning pain at the pit of the stomach, while pain in the bowels and purging of watery stools are not unfrequent. The skin is the seat

of eruptions of various kinds. The face, neck, and upper limbs are most frequently attacked, but the chest and abdomen are also sometimes marked by it. The eruption appears now and then as bright red patches on the arms, which, if the iodide is continued, assume a papular form, otherwise soon subside; they occasion a good deal of itching and smarting of the skin while they last. The papular form consists of bright red elevated patches, like urticaria; their redness disappears on pressure, sometimes extends around the larger patches as a red halo. The papules soon disappear without desquamation if the iodine is discontinued. Tubercular pustules of the face, rarer than the papules, are generally met with across the bridge of nose and around the eyes. They are dull red patches, in which a flat, umbilicated vesicle forms; this dries to a scale which falls off and leaves the tubercle behind. The tubercles themselves are slow to subside, and sometimes leave blue stains that last a long time. They resemble the stains of small-pox, except there is less pitting of the skin after an iodic pustule. The nervous system is occasionally affected; its disturbance is shown by sensation of fulness in the head, ringing in the ears, giddiness, spasmodic action of the muscles, and impairment of their control, frequent waking, sleeplessness, and rapid wasting of the body.

The form of iodine almost exclusively used is the iodide of potassium; free iodine, and the iodides of sodium, ammonium, and iron are only employed to a very limited extent. The great solubility of iodide of potassium renders it most conveniently given in solutions. It is usually best to give it when the stomach is empty, before breakfast and between meals. The amount to be given varies very much; when administered in the early stages of syphilis, in conjunction with mercury, or shortly after that drug has been discontinued, to increase or resuscitate the effect of the latter.

may be given in doses of five to eight grains in half a pint of water once a day before breakfast, or by combining two or three grains with each dose of mercury dissolved in a bitter infusion. When given to produce its own effect, it is best to give it in frequent doses three or four times daily in a large bulk of liquid. The quantity to be given depends on several circumstances; many persons can bear only a very small amount without experiencing the evil effects of iodine; others, again, are insensible to small doses, and must take a large quantity before any effect is produced. In most, if not all persons, the influence soon diminishes, and the same amount of action on the syphilitic affection can be secured only by frequently increasing the dose, or by discontinuing the use of the iodide for a short time. In this way, in persons unaccustomed to it, two or three grains of iodide of potass are as effective as twenty or thirty in a patient who has long taken it. I have found it best to begin with two grains dissolved in one and a half or two ounces of liquid three or four times daily, and to increase the dose by a grain or two every three days. This plan, where the iodide has not been given before, is usually the best. If the patient finds no benefit from a moderate amount, as is often the case, when the disease is of very long standing, larger doses of eight, ten, and twenty grains should be tried, or even much larger doses. Forty grains three times a day will sometimes quell an obstinate syphilide which has resisted smaller quantities. Still larger quantities than these have been given without ill effect. Usually, however, the risk of iodism may be avoided by combining ammonia or bromide of potassium with the iodide. The aromatic spirit or the sesquicarbonate of ammonia are excellent adjuvants; they not only serve to render the iodide of potass more active in persons growing accustomed to the drug, but they also increase the stimulant effect of the medicine to weakly

persons. Small doses of bromide of potassium in conjunction with the iodide, also increase the energy of the latter very materially; its special effects will be described further on. The iodide may be dissolved in various vehicles; plain water is often the best; in some cases it disorders the bowels, and causes purging; this may be avoided by adding some syrup of orange peel, compound tincture of bark, and a bitter infusion. The infusion of quassia is very commonly used to dissolve it in. If the patient be much enfeebled or debilitated, tartarated iron may be combined with the iodide. Large doses of iodide of potass can often be borne if dissolved in the compound decoction of sarsaparilla. When given in this way the irritation of the stomach is often avoided, and the good effect of the iodide obtained; the sarsaparilla should not be given in less doses than two or three ounces at a time, and as often as three times a day.

The *iodides of sodium and ammonium* have been tried as substitutes for iodide of potass, but they have never come into general use, as their taste is even more nauseous than that of iodide of potass. Mr. Langston Parker says he has used the iodide of sodium largely. He finds its effects in syphilis similar to that of iodide of potass, but that it can be given where the latter excites discharge from the nose and eyes, or swelling of the tongue, as it does not produce these effects; hence it is a resource valuable in the cases. He gives it in doses of fifteen grains three times a day. Gamberini of Florence, when at Bologna, experimented largely with it, and recommends it in preference to iodide of potass. Iodide of ammonium has also been much employed by the same surgeon, who gives it in half drachm doses three or four times daily. He claims for it equal efficacy in curing syphilitic affections, and states it rarely produces iodism.

The iodide of iron is useful in debilitated patients, acting as a tonic, though very slightly in the peculiar manner of the other iodides. It is very effective in persons who have rupia, or ulcers of the skin, and well marked poverty of blood. In children it is also exceedingly useful, if given while they are taking mercury, or if they remain feeble after the symptoms are dispersed. Large doses of iodide of iron in rare instances produce the pustular eruptions that follow the use of other preparations of iodine. The syrup and the pills of iodide of iron are the forms in which it is administered.

The *bromides of potassium and ammonium* are used either in conjunction with iodide of potassium or alone. They are particularly serviceable where the system has become insensible to iodine, or in syphilitic epilepsy and other varieties of nervous excitement. They are usually given in doses between three and fifteen grains, in two ounces of fluid three or four times a day.

Iron is much used in syphilitic persons to restore the blood from its anæmic condition. The tartarated iron can be given along with iodide of potash, or as steel wine. When taken by itself it often changes the aspect of spreading sores in debilitated persons with marvellous rapidity. Other forms of iron are used alone, or can be conjoined with the mineral acids, the nitric or sulphuric acids, if general tonics of a non-specific character are desired. It is rare for iron not to be required at some time during the progress of a case of syphilis.

Cod-Liver Oil is often necessary for restoring debility. In cases where neither mercury nor iodide of potass can be borne, the patient will often regain his strength and ability to take more specific medicine, after taking cod-liver oil a few weeks. I have found oleine succeed in certain cases where the repugnance to the oil itself is unconquerable. When it is desirable to give mercury with the oil, the

two can be mixed, for the oil will dissolve an ethereal solution of perchloride of mercury, as already described in page 295. It will also dissolve sufficient iodide of potass for the effect of each to be obtained. For instance, two scruples of iodide may be dissolved in eight ounces of cod-liver oil, and a tablespoonful of the oil be taken three times daily.

Sarsaparilla is held in esteem by few at the present day though at one time it was the staple remedy in syphilis. Its value has been extolled and depreciated by so many, and the most contradictory statements made of its efficacy, that I prefer to confine myself to mentioning what I have myself observed in using it. It is now almost always given in combination with other vegetable extracts. I have found the compound extract of sarsaparilla to be decidedly beneficial in enabling the patient to bear larger doses of iodide of potass than those he could take when dissolved in other menstrua. I have also found patients to improve rapidly when sarsaparilla has been given while they were taking or had recently taken prolonged courses of mercury. Sarsaparilla is still largely used on the Continent in the form of decoctions, which, being drunk in large quantities, cause the patient to sweat freely, and there can be no doubt in this way a benefit results from its administration, though any other sudorific would be equally useful. It forms the main constituent of Zittmann's decoction, of which the stronger form has already been mentioned among the mercurial preparations. The weaker decoction contains no mercury and less sarsaparilla. If sarsaparilla be given at all, it must be given in large doses. Half an ounce to an ounce of the liquid extract per diem is better than a pint of the compound decoction, because in persons with feeble digestion the large bulk of liquid in the latter is apt to cause catarrh of the stomach. Sarsaparilla is only clearly useful when an adjuvant to me

cury or iodide of potass, or as a stomachic to restore the bodily health of the patient, and enable him to take medicines that are more potent to subdue his disease. Thus the value of sarsaparilla in syphilis may be summed up by saying it is not competent to cure, but it tends to promote the healthy action of the functions, and enables mercury and iodide of potass to produce their characteristic results.

Besides sarsaparilla, the decoctions of guaiacum, mezereon, saponaria, lobelia, and many other vegetables of a diuretic or diaphoretic quality, have been recommended in the treatment of syphilis, but they have either fallen into disuse or are of doubtful value. They are employed by many surgeons with the object of promoting perspiration while the patient is taking a course of mercurial vapour baths. There can be no doubt that free transpiration through the skin should always be encouraged in treating syphilis; but it is very questionable whether, by irritating and wearying the stomach with these large quantities of fluid, the patient does not suffer more harm than he derives benefit from their sudorific action. Sufficient perspiration can be excited by the vapour bath and the wrapping in blankets for several hours, that should follow the bath in all cases.

Opium.—It has already been narrated how opium was at one time extolled as a specific in the treatment of syphilis, for which purpose it was administered in very large doses, sometimes even as much as 20 grains in the course of the day. But this employment of opium was soon laid aside, and now it is given in syphilis as in other diseases to allay the irritation that accompanies great exhaustion. It is of great value in persons whose strength is worn out by protracted disease, by severe courses of mercury, or by debauchery, starvation, and drunkenness. In such persons, by taking two or three grains of opium twice or thrice a day, sleep is obtained, the appetite returns, and obstinate

ulcers heal up. Opium is also necessary to allay the pain of periostitis and other local affections, though in these cases its influence is usually more decided if it is given in conjunction with iodide of potass and mercury. Mr. L. Parke relates an instance of a girl with an obstinate spreading ulcer of the perinæum, being treated by opium, gradually carried to the amount of 8 grains per diem. The patient was constipated, and took as little food as possible, yet the ulcer was soundly healed in three weeks.¹ The forms most adapted for these cases are the powder, the tincture, and the compound ipecacuanha powder, as they induce perspiration and check irritation of the bowels when that is present.

SPECIAL TREATMENT OF THE AFFECTIONS OF SYPHILIS.—Many consequences of syphilis require special applications both to relieve the pain and check the mischief that results from the morbid action on the part affected. Most of the affections of the surface of the body can usually be healed by local applications alone, though if treated solely in this manner there is much probability of their return, or of some other syphilitic affection succeeding them, if the activity of the virus is not overcome by simultaneous specific treatment. The surgeons who object to mercury in syphilis confine their attention to general tonic treatment, and to enforcing cleanliness and dressing any ulcers that may form. This method produces very good results in those mild cases of syphilis that are so common among women, where the course of the disease is limited to mucous patches of the vulva and throat, with, perhaps, a few papules around the neck. But this method is not to be recommended, if we consider how frequently in persons who suffer with necrosis of the bones, and other late sequelæ of syphilis, the early progress of the disease excited so little disturbance, that the

¹ On Syphilitic Diseases, p. 339. 1860.

patient omitted to obtain any specific treatment for it. This consideration assists the conclusion that early and continuous treatment of the malady has much influence in preventing the sequelæ of syphilis.

The Syphilides, or affections of the Skin.—Very little is necessary for the early forms of eruption, which commonly cause no discomfort. Sometimes, if the rash spreads rapidly, it itches a little. Soap and water allays this very well, but the patient may apply a little cold cream with hydrocyanic acid, while the irritation lasts. Patients are often anxious to hide conspicuous spots on the face and neck,—for this they may use a little rice starch or other simple cosmetic. In the later eruptions, when the papules crack, ulcerate, or suppurate, they cause much pain and annoyance. The red oxide of mercury ointment of the Pharmacopœia, the pitch ointment, or zinc ointment, or one of hydrocyanic acid, generally allay the inconvenience. Another useful preparation is a scruple of oil of cade and five drops of oil of bergamot in two ounces of lard; at the same time the parts must be carefully cleaned twice or thrice daily. A very serviceable ointment for the obstinate chinks round the mouth is a scruple of calomel rubbed up with an ounce of lard. The spreading ulcers of the skin are usually benefited by caustic applications. Nitrate of silver (3 ij dissolved, with the aid of a little nitric acid, in an ounce of water) may be applied, and the surface afterwards dressed with cold water dressing. Ten grains of nitrate of silver to the ounce of lime water, or the acid nitrate of mercury, can be used for this purpose.

Local fumigation by mercurial vapour is very effectual in healing ulcers of the skin, or in procuring the subsidence of obstinate leprous or tuberculous patches of eruption. It is essential that the diseased surface be fairly exposed to the fumes, so that it is well covered by a film of deposited mer-

cury. The ordinary bath recommended by Mr. Lee is very sufficient means for giving the vapour. A spirit lamp heats a curved earthenware tube closed at the bottom, but open at the top. A lamp placed outside the bottom volatilises the calomel or cinnabar dropped within, and the fumes escape at the open end, to which the diseased part is applied.

Strong solutions of sulphate of copper or of tannin are excellent if the sore is œdematous and languid, rather than spreading. In very exhausted persons, the sores may be dressed with a solution of twenty grains to the ounce of tartarated iron, while their nervous irritation is allayed with good food, opium, and rest in bed. For such ulcers Ricord uses weak tincture of iodine, or solid iodine may be sprinkled over them, and afterwards dry lint laid over to protect the surfaces. The itching or smarting of the palms in psoriasis palmaris is relieved by equal parts of glycerine and oil of cade used as a lotion, and gloves worn at night. When the hair falls, it is well to give some preparation to satisfy the patient that all is being done to restore the hair, which in course usually returns readily if constitutional treatment is carried on. A lotion of glycerine, oil of rosemary, and tincture of cantharides in rosewater; or a pomade of lard and glycerine, with a small quantity of red oxide of mercury and oil of almonds, may be applied every night with good effect. Cracks and ulcers about the nails are relieved by binding them with strips of mercurial plaster, or with strips of lint on which red oxide of mercury ointment is spread. The patches and ulcers between the toes are easily cured by frequent washing, drying, and wrapping round each toe a strip of lint spread with mercurial or other ointment, and soaked in black-wash.

Mucous patches should always be washed two or three times daily, well dried, and covered with lint or rag. The

may be dusted with a powder of equal parts of calomel and starch, or dressed with an ointment of calomel; if ulcerating freely, dried sulphate of zinc dusted over them and covering them with dry lint will often check their progress at once.

The alimentary canal.—*In the mouth*, the ulcers should be touched every other day with nitrate of silver, and the mouth washed with a solution of alum frequently, especially after eating, to clear away fragments of food. The obstinate ulcers of the fauces are quickly relieved by gargles of perchloride of mercury, about 1—2 grains of perchloride to the ounce of rose-water, with the addition of a small quantity of honey. The liquor potassæ permanganatis when diluted, is also excellent as a wash for the mouth. When the gums are spongy, they must be cleaned regularly with a very soft brush or sponge, using a solution of five grains of tannin to the ounce of water. The ulcers at the side of the tongue are often kept up by being chafed against ragged teeth,—these must be filed or removed. The pain of sinuous fissures of the surface is much relieved by dropping into them with a fine brush, solution of nitrate of silver strong enough to destroy their surface and cause a small eschar. The acute inflammation of the fauces that sometimes accompanies the ulcers is relieved by inhalation of steam from a jug of hot water, into which a few drops of creasote or tincture of iodine have been thrown. Lumps of ice in the mouth ease the dryness and pain of this, as of other inflammations. Pulverized fluids of various kinds may be inhaled with great benefit when the ulcerative action has spread over a considerable extent of the fauces and pharynx. I have used 1 grain of sulphate of zinc to the ounce three times a day, and a similar solution of perchloride of mercury, with great relief to the patient's suffering. Careful mopping of the surface of spreading ulcers with a caustic solution of

chloride of zinc destroys the surface and very greatly lessens the pain of swallowing and speaking. For spreading ulcers of the fauces, the inhalation of mercurial vapour from the ordinary moist vapour bath is very effectual in checking the progress of the ulcers. When necrosis of the bones of the palate has occurred, and the fragments are loose, they must be removed with forceps, and the mouth frequently rinsed with permanganate of potash, or solution of chlorinated soda. After all the dead bone has been removed, and the parts firmly cicatrised, an artificial palate is a very great comfort to the patient.

In the *gullet*, the ulcers and stricture that follow, require the food to be bland and nourishing, and if the stricture is narrow, the occasional passage of a bougie will relieve the patient's sufferings.

The general treatment of the affections of the alimentary canal depends mainly on the condition of the patient, and on the length of time that has elapsed since infection. If he is in good health, and in a comparatively early period of the disease, mercury should be administered at once, and continued until all symptoms are removed. The vigour of the patient must be restored, and his general health maintained according to the suggestions already put forward. Many of the late affections of the throat and the affections of the liver and spleen appear in persons who are extremely anæmic, for which iodide of potash in gradually increasing doses, ammonia, iron, or cod-liver oil are requisite. Careful attention must be paid to the diet that it be stimulating and nutritious, and the patient should be sent to a mild winter climate, such as Bournemouth or Torquay. When the health is recruited by these means, small quantities of mercury may be joined with the iodide, either as perchloride, 1-10th of a grain three times a day, or by means of the vapour bath and inunction. Either of these external modes

is generally better borne than the internal use of mercury, but in all relapses of syphilis a permanent or long-continued subsidence of the disease is best insured if mercury be employed at some time or other in the course of treatment. In all cases where the affection does not yield speedily to iodide of potass, it is advisable to try the effect of mercury in whatever condition the patient may be, though in extremely feeble persons the experiment must be made by inunction in the most cautious manner. The rapidity with which most visceral affections yield to iodide of potass and mercury is a very distinct character of syphilis. Whichever method of treatment is found to succeed, it should be continued some months, and in the case of visceral disease until the patient is in firm bodily health. The best result often requires an occasional resort to iodide of potass to check a tendency of the original disease to return. Nitric acid, according to Dr. Budd, when given in small doses (4—10 drops of the diluted acid) for a length of time, aids the absorption of enlargement in the liver and other organs. It may be given alternately with iodide of potass, or conjointly with iron, but it must be continued for several months, as its action is very slow.

The air passages.—The foetid discharges of the nose require frequent syringing with dilute solutions of chlorinated soda: tincture of iodine much diluted with water also checks the foetidity and amount of the discharge very greatly. If any of the bones of the nose have necrosed, the discharge will continue till they are loosened and come away; but syringing four or five times a day with warm water, with the addition of some disinfectant, will prevent any foetor. The syringe for this purpose should have a long nozzle, that the current may be easily directed to the affected part. Mr. Christopher Heath uses an india-rubber tube about four feet long, with a nozzle and stop-cock at one end and a

weight at the other; the weighted end is plunged in a vessel of water placed above the patient, and forms a reverse syphon douche, which quickly clears away the discharge from the nostrils.

A very frequent trouble is follicular ulcerations of the nostrils just within the alæ nasi. They are much relieved by keeping them constantly soft with red oxide of mercury ointment applied with a camel-hair pencil to the inside of the nostril. All the affections of the nose and air passages are very much increased by exposure to cold winds, hence a respirator worn while a north-east wind is blowing will greatly relieve the patient's suffering.

In the larynx, the spasmodic irritation caused by the ulcers in chronic inflammation are relieved by iodine or creosote inhalations, and if their situation can be described with the laryngoscope, by brushing them over with a strong solution of nitrate of silver. Dyspnoea and chronic irritation are often relieved by a small blister on the throat, and dressed with diluted mercurial ointment. When dyspnoea from contraction of the vocal cords is urgent, laryngotomy gives great relief, and sometimes becomes indispensable to prevent suffocation. If the larynx is opened before the ulcers are healed over, the rima glottidis may close completely in which case the artificial opening must be perpetual. When the trachea and not the larynx is contracted, there is little to be done. Large doses of iodide of potass and careful regulation of the diet and habits of the patient will preserve him from spasmodic attacks.

Syphilitic disease of the lungs requires the same treatment as other kinds of phthisis, with the important addition of iodide of potass in large doses, which seldom fails to check the progress of the disease in a short space of time.

The affections of the bones.—The pains in early nodes are benefited by spirit lotion, solution of iodine (1 of iodine

6 of spirit), and ordinary blisters. When suppuration takes place, and is betrayed by the skin becoming red and hot, and the pain throbbing and constant, the node may be opened and poulticed. But except under such circumstances as these, puncturing the node is always to be avoided, as the fluid is generally easily absorbed when specific treatment is employed. When the bone is necrosed and laid bare, the part must be frequently washed with solution of permanganate of potass, and when the bone is loose, it should be removed with forceps. The chronic induration that accompanies the syphilitic caries is often so exceedingly slow, that years elapse before the dead parts are separated from the living bone. They may be materially hastened by gouging and trephining the bone so as to remove the diseased parts, and excite a more rapid action in the surrounding living tissue.

The diseases of the bones, muscles, and joints are most readily controlled by iodide of potass, given in slowly increasing doses, and continued for a considerable time, to which small quantities of mercury should be added from time to time as the patient's strength will permit. It is very rare for some way of giving mercury not to be practicable,—either the vapour bath, the inunction, or by mixing small doses of perchloride in the patient's daily draughts of iodide of potass.

In affections *of the brain and nerves*, iodide of potash and tonics, with residence in mild southern climates, and an occasional stay at the sea side, should be employed from time to time. Bromide of potassium is especially useful when the syphilitic disease of the brain causes epilepsy, by allaying the irritation, and also rendering the influence of the iodide more energetic. It should be given two or three times a day in 5-grain doses, with iodide of potass and carbonate of ammonia.

In the affections of the eyes the sores and mucous patch on the *eyelids* must be washed and anointed from time to time with the red oxide of mercury ointment, while loose lashes should be removed from time to time.

Corneitis is generally arrested by mercury, 2—3 grains grey powder with as much Dover's powder twice daily is the form most readily borne by the patient. If the child is an infant and very feeble, the mercury may be introduced through the skin by constantly wearing a flannel band round the belly, which is renewed every night with ten grains of blue ointment. Iron, cod-liver oil, quinine, and a diet of which milk and cream form a large part, are best suited to feeble children. The eyes should be shaded and bathed twice daily with a lotion of belladonna, to which, if there is conjunctivitis, a little sulphate of zinc is added ($\frac{1}{2}$ grain to the ounce). But the general specific and tonic treatment is of far more importance than any local applications.

Syphilitic iritis.—The treatment of the early form of iritis where the tissue is inflamed almost throughout, becomes of great importance from the pain of the affection and the rapidity with which irremediable mischief is caused. Adhesion of the iris to the lens (*synechia*), or distortion and closure of the pupil may speedily supervene. The treatment of iritis in syphilis has the same general indications as any other form. A few directions applicable to this special variety may be given. This form of iritis can be controlled in many cases without mercury; indeed, it naturally subsides in the course of two or three weeks, even when left entirely to itself, but of course, with a great risk of permanent injury to the eye; on the other hand the sufferings of the patient are also much diminished if suitable treatment is afforded him. Solution of atropine, two grains to the ounce of distilled water, with one of diluted sulphuric acid, should be dropped by means of a drop-bottle or camel-hair brush

the inner canthus of the eye every morning until the pupil is fairly dilated and the congestion of the iris subsides. Besides this the eye should be bathed with a lotion of 3 ss. extract of belladonna to 3 viij. of water, and used warm two or three times a day. The eyes should be protected from the light by keeping the patient in a darkened room, or at least covering the eyes with a shade or veil: poultices, wrappings, and dressings of all kinds do harm rather than good. The diet should be moderate and stimulants avoided. The pain with iritis usually requires opiates, either 10 grains of Dover's powder every night at bed-time, or rubbing equal parts of mercurial and opium ointment twice a day into the temples and brow. If the pain remains violent in spite of the belladonna and other means, 6 to 10 leeches to the temple, with warm fomentations of belladonna to the eye itself, and a fifth of a grain of morphia injected under the skin of the arm, will quickly relieve the pain.

If the iris refuse to dilate under the influence of atropine alone, it shows that the congestion and exudation in the iris is too great to allow the radiating fibres to contract, and no time should be lost in getting the patient under the influence of mercury. Four or five grains of blue pill with $\frac{1}{3}$ of a grain of opium must be given every six hours till the gums begin to swell—which they will do in 24 to 36 hours—when it should be reduced to a pill night and morning, or only every night. The congestion and resistance to the dilating power of the atropine quickly yield to mercury, unless the disease be very far advanced and the adhesions tough. In such cases, operation for artificial pupil may subsequently become necessary. When the iris has yielded to the mercury and other remedies, they may be laid aside for a time, while the belladonna is continued often enough to retain the pupil in its dilated condition. Occasionally the constitutional febrile disturbance is great, for which it

may be necessary to have recourse to free purgation, low diet, and confinement to bed.

In the nodular or chronic form of iritis, which occurs at a late period, and in the affections of the choroid and retina, iodide of potash alone or with mercurial inunction or mercurial vapour baths are the most effectual medicines. Very marked benefit also sometimes follows several small blisters on the temples dressed with mercurial ointment. At these times the patient's strength must be kept up with good diet, fresh air, iron, quinine, and cod-liver oil. In infantile iritis, mercurial treatment speedily procures absorption of the effused lymph, if it has been recently effused, and, in curing the disease, little other treatment is necessary.

Among the affections of the *generative organs* the treatment of *syphilitic testis* is the same as that for other late forms of constitutional syphilis. When the testis is enlarged by gummy inflammation after long infection, the patient is frequently extremely debilitated and emaciated. In these persons iodide of iron, cod-liver oil, and other remedies for invigorating the system, must be administered, and in the mean time the patient must take some special anti-syphilitic remedy,—iodide of potassium is most common and efficacious, if given in gradually increasing doses three or four times daily. This generally suffices to remove the enlargement in the course of eight or ten weeks. Some cases are very little improved by iodide of potassium alone. In them a small quantity of mercury, one grain of calomel or a quarter of a grain of bichloride daily, in divided doses accompanying the iodide of potash, is nearly always successful in restoring the testis to its natural appearance. In the mean time the patient must not neglect to improve his general health by good diet and other means. Syphilitic sarcocoe returns or attacks the second testis so constantly wh

iodide of potash is alone given, that it is desirable always to combine mercurial treatment with the iodide and tonic medicines which are given for this affection. It is best borne in solution, one-twelfth of a grain of perchloride with four or five grains of iodide of potash in infusion of quassia or some other menstruum. Inunction of ten grains of blue ointment into the skin every night is also a very good mode for introducing mercury in these cases, or the mercury may be applied to the scrotum itself. With regard to local treatment; the testes should be well supported by a bandage, but other applications are seldom required. Some surgeons use stimulating applications to the scrotum, such as iodine, and other ointments, in the belief that the absorption of the morbid deposit is thereby promoted. They tend to occupy the patient's attention, and are harmless, though they have little value compared with continuous internal treatment by iodide of potash and small doses of mercury.

For the affections of *the uterus* the local treatment is of extreme importance; it is chiefly that beneficial to the non-syphilitic venereal affections of the uterus, in which chapter they are enumerated. But constitutional treatment with iodide of potash and mercury is indispensable when the patient is the subject of syphilis. Mercury can be taken by the mouth in the ordinary way, or by introducing it through the vagina. Ten grains of mercurial ointment and ʒj of cocoa butter melted together and cast in the form of a Minié bullet may be passed every three days into the vagina against the os tinæ; or a pencil-shaped bougie of the same material may be introduced into the cervix. When the uterus is enlarged and indurated, this method is very useful, combined with iodide of potash taken by the stomach. But habits of scrupulous cleanliness and frequent injections are especially necessary in all affections of the uterus. The syphilitic eruptions of the uterus should

have an alum or borax injection twice daily, while constitutional treatment is pursued also.

TREATMENT OF INHERITED SYPHILIS.

To prevent the descent of syphilis from parent to child.
It is an obvious duty to prevent the procreation of children who may inherit the disease from their parents, wherefore the risk of this danger must always be carefully pointed out to persons liable to incur it. It is extremely difficult to lay down rules on this matter, or to tell patients what they most desire to know, namely, when they may marry in safety. In expressing an opinion on this question, the surgeon should be guided by the following considerations.

The activity of syphilis usually continues for two years before the poison subsides into quiescence. But the disease also frequently regains its activity much later than this; hence after the last symptoms have disappeared, a period of observation must pass away, and there should be an interval of at least twelve months before marriage takes place. Under these circumstances, the shortest period between infection and marriage ought to be three years. While watching for fresh symptoms it is a good plan to try the effect on the skin of bathing in warm sulphur springs; not infrequently, if the poison retain any activity, it shows itself under this stimulus by an eruption of some kind. If any symptoms be discovered, they should at once be attacked by mercurial treatment.

When marriage has already taken place, and the husband suffers a relapse before the wife is pregnant, he must at once desist from sexual intercourse, or even close embraces and kissing, and submit to renewed treatment of his disease. In the mean time his wife must be watched till treatment may be applied as early as possible if events should render it to be necessary. If the wife becomes pregnant when

husband has a relapse, both parents should be submitted to such treatment as their condition permits, but mercury should always be employed when it can be used with safety. Pregnant women are generally most safely mercurialised by inunction, practised with the precautions mentioned in the chapter on inunction, though the skin need not be stimulated to perspire in these cases. By these precautions the child may sometimes be shielded from syphilis during its maturation in the womb, and the mother also cured of her disease.

Treatment of the Child.—After birth there are two indications to be fulfilled, first, to sustain the child's power of nutrition while under the influence of the malady, second, to stifle the poison by specific remedies. To carry out the latter indication is oftentimes the surest way of promoting nutrition, for in proportion as the virus loses ascendancy the child regains his health and strength. Mercury should always be given. It can be given in two ways, either indirectly through the mother, or directly to the child itself. This latter plan is so preferable, that it must always be adopted, if the child's strength will permit, and it very rarely cannot be adopted. For indirect administration the mother or wet-nurse must be mercurialised for several months while suckling the child. Part of the mercury, dissolved in the milk, enters the child's system in quantity occasionally sufficient to check his disease and save his life. But there is much uncertainty in this mode; the mercury is often not secreted with the milk. Cullerier and others have found it altogether absent on several occasions when testing the milk of mercurialised women. When human milk has not been obtainable, goats and asses have been mercurialised in order to store their milk with mercury for the child fed upon it. Péligot also failed to detect any mercury in the milk of the animals so treated. These

uncertainties render indirect treatment objectionable, and the mother is given mercury at all, it should be solely her own benefit. This method is defective in another way: the milk of syphilitic women is very deficient in the constituents of healthy human milk, and contains little nutriment for the child; hence, if the mother is suckling, the secretion of her breast must necessarily be only a part of the food supplied to the child, who requires cow's or ass's milk in addition.

The direct application of mercury to the child is commonly obtained by giving him mercury with chalk. Twice daily he should take a grain of grey powder with a q. s. of sugar; while doing this, the effect upon the bowels must be carefully watched, and the dose diminished or combined with a grain of compound ipecacuan powder, if any diarrhoea or colic begin. As soon as the symptoms are evidently improving, the dose may be diminished, and half a grain taken night and morning. If the symptoms are not affected by this small quantity of grey powder, the dose may be cautiously increased to two grains; but this amount is very likely to produce purging, and is not often necessary, every requisite effect is generally secured by the small dose. Solution of corrosive sublimate in doses of one-twentieth to one-eighth of a grain given with a little syrup or new milk three times daily is used on the Continent. Calomel in doses of one-sixth to one-half of a grain is also employed; but the extreme irritability of the bowels of children renders neither of these forms of mercury so good as grey powder, and they are little employed in this country. Mercury applied *externally* to children is less likely to cause diarrhoea than when given internally. It may be done by spreading fifteen to thirty grains of mercurial ointment diluted with its weight of lard on a piece of flannel which the child wears constantly round his waist. T

ointment should be renewed on the flannel every night, and the child's skin may be carefully washed with soap and water every third or fourth night before the flannel is replaced. Rubbing the ointment into the skin is also practised, and mercury is very safely introduced by this means. Mercury may also be introduced by bathing the child twice daily in a solution of perchloride of mercury of about one-sixth of a grain to the ounce of water. This is more uncertain than inunction, and, according to Diday, sometimes produces a sudden and violent erythema of the surface of the body.

Besides mercury, other medicines may be usefully employed. The syrup of the iodide of iron often stimulates nutrition in feeble children without having any direct influence over syphilis. Cod-liver oil may be given with good effect; ten or twenty drops to a teaspoonful twice or thrice daily, midway between meals. The solution of perchloride of mercury in cod-liver oil¹ is a very useful formula for infants. Iodide of potash is also beneficial, especially after mercury. It may be given to the mother, as it constantly appears in the milk of persons taking it. It can also be given to the child dissolved in syrup of orange peel or milk.

Hygiene and local Management.—Catarrh of the air passages and bronchitis are the most frequent sources of death in syphilitic children. Hence it is of extreme importance that the child should be carefully guarded against cold, live in airy, well-warmed rooms, and be taken into the open air only when the weather is dry and sunny. The child must be kept perfectly clean, the napkins replaced by clean ones as often as they are soiled, and the parts sedulously washed and dried. Mucous patches should be dried and touched

¹ See p. 295.

with nitrate of silver or sulphate of copper every day, and their surfaces covered with dry linen rag, if they are liable to touch the skin of adjacent parts. Crusts of pustules should be well smeared with lard, and then poulticed with bread and water. The crusts thus softened can be gently removed, and the skin, if ulcerated, touched with nitrate of silver, and kept moist with ointment of red oxide of mercury. The larger bullæ of pemphigus may be washed with solution of perchloride of mercury, 4 or 5 grains to the ounce, and wrapped in soft lint. Chinks between the fingers and around the nails should be protected by covering them with strips of rag smeared with dilute mercurial ointment.

One of the greatest difficulties with syphilitic children is the nasal catarrh, which hinders sucking, and is so constant a symptom. The nasal catarrh must be managed by beginning mercurial treatment as early as possible, to check the inflammation of the mucous membrane. The nostrils must be cleared regularly of inspissated mucus with a camel-hair pencil dipped in water, and excoriations touched with the ointment of red oxide of mercury of the Pharmacopœia. The fauces should be examined, and ulcers in that situation touched with solid nitrate of silver. The mouth must be carefully cleaned after each meal with warm water and a small piece of sponge on the end of a stick; excoriated surfaces and aphthous patches being touched with solution of borax or sulphite of soda.

Management of the Diet.—Whenever the mother can suckle her child she should always do so, as the proportion of suckling infants who recover is very much larger than those who are fed by hand. The risk of communicating syphilis will, however, render it impossible to employ a wet nurse to suckle the child, and the resources of hand-feeding must be trusted to entirely when the mother has no milk. The meals must be given at stated intervals, every two

three, or four hours, according to the age. The child must not be allowed to overcharge his stomach, which, if feverish, his thirst will induce him to do. The quality of the food fit for the child varies very much with his condition, and thus requires much careful management. As weak or exhausted children frequently die more of inanition than of the effects of the disease itself, and the milk of syphilitic women is often very poor or scanty, the child's food should be supplemented with two meals of cow's milk, or still better, ass's milk, to which a third or fourth part of veal or chicken broth is added, with a little sugar. If the cow's milk be very rich, plain water may be used occasionally instead of the broth. It is important that the same cow should always furnish the milk, and that she is fed on hay or grass, not on turnips, grains, &c. The milk should not be boiled, but warmed by mixing it with hot broth or water, or by plunging the bottle in hot water before it is given to the child. When the child is fed on milk chiefly, a small quantity at a time must be given, and one part of lime water instead of plain water, mixed with three parts of milk; farinaceous food must be allowed very sparingly, one meal a-day if the child is past the first three or four months. Emaciated children will sometimes bear a few teaspoonsful of cream with sugar and limewater, when milk is rejected or keeps up diarrhœa. A few teaspoonsful of moderately strong beef-tea, with pounded biscuit, are also useful once a-day. Older children require more solid food, and in addition to the milk, they will take small meals of sop of biscuit flour, the yolk of an egg lightly boiled, or beaten up in a little veal broth or beef-tea.

Brandy may be given in very small quantities, fifteen or twenty drops in water, three or four times a-day. The brandy should be mixed with sufficient water to prevent it from burning the mouth, when kept there a minute before

swallowing it. Children who have nearly completed the first year can often take raw meat, and after the first few times will often do so with avidity. A piece of rump-steak carefully cleared of fat, should be scraped into shreds with a knife, or pounded in a mortar. The meat should be fresh prepared every time it is given, which may be done four times in the twenty-four hours, giving about two teaspoonful at each meal. If the child refuses the meat, he may be induced to swallow it by rolling it into pellets and putting them in his mouth, or mixing it in his milk or beef-tea. Older children will often eat it, if spread between two thin pieces of bread and butter. But the child soon gets to relish the meat better than any other food, and this diet generally checks diarrhoea very efficiently when that is present. If the milk is thrown up, or the abdomen is distended with flatulence soon after suckling, wrapping the belly in a hot napkin while the child sucks, and keeping a roll of flannel on continuously, will often check the vomiting, and enable the stomach to digest the milk.

DIVISION III.

CHANCER.

CHAPTER I.

NAMES :—Modes of contagion—Frequency among venereal sores—Course—Varieties—Seat—Complications, Inflammation, Sloughing, Serpiginous ulceration—Diagnosis : Syphilis, Herpes, Gonorrhœa, Fissures, Mucous patches—Prognosis—Bubo : Sympathetic, Virulent—Summary.

Chancre: soft, simple, non-infecting, chancroid sore.—The contagious venereal ulcer which is not followed by constitutional syphilis has received these various names. It is produced by inoculating the discharge of a similar sore, either on] the same or on another individual, in consequence of a contagious principle in the discharge reproducing this local lesion wherever it is inserted. The excitant cause of the local sore often produces its distinctive effects, while the virus of syphilis is also developing its characteristic changes, but though contained in the same secretion the two contagious principles are independent of each other. It is still unknown what renders the pus of these ulcers contagious, whether it is due to a peculiar principle or whether to a peculiarly irritating condition of the discharge of ulcerating surfaces.

Mode of Communication.—It is highly improbable that contagion ever takes place through an unbroken surface, for

though it is conceivable that the discharge may be absorbed if allowed to remain long in contact with an unbroken mucous surface, there is no proof that absorption ever does take place by this means. On the contrary, two facts plainly show that a breach of surface is usual, namely, the favourite seats of chancre being just those localities where abrasion is most frequent, and, on the other hand, that contagion fails where there is no breach of surface. This has been shown by an experiment Cullerier made to prove the possibility of "*mediate contagion*," that is, contagion from a first person to a third by their both coming into intimate contact with a second who himself escapes contagion. Cullerier,¹ having selected a woman in whom the vagina was free from excoriation, passed into it some chancrous pus which he left there thirty-five minutes. He then took some of the pus out of the vagina again and inoculated it on the patient's thigh; afterwards carefully washed the vagina with alum water; the inoculation of the thigh succeeded, but the vagina completely escaped all contagion. This experiment was repeated successfully on another woman in whom the pus was left undisturbed for nearly an hour. Cullerier's object was to show that a woman, if she has intercourse with two men, of whom the first is syphilitic, may be the means of transmitting the disease to the second without contracting herself; this method he called "*mediate contagion*."

Individuals vary in susceptibility; this depends to some extent on the conformation of the sexual organs, and on the degree of tenderness and delicacy of the epithelium covering them; possibly also somewhat on idiosyncrasy or the susceptibility to irritation which varies in individuals. For this reason, observers who have experimented with repeated inoculations find some persons much more apt to receive

¹ Fournier : Ricord, *Leçons sur le Chancre*, p. 369.

the contagion than others. Bidenkap¹ describes this susceptibility to vary much at different times in the same person. Dr. Lindmann² states he has successfully inoculated himself more than two thousand times with the pus of soft chancres, without exhausting his capability of exciting a pustular ulcer. According to Boeck of Christiania, in most persons the skin loses its susceptibility to ulcerate after inoculation has been continued three or four months, but regains the susceptibility again in course of time. On the other hand, Hübbenet³ of Kiew, in Russia, met with two individuals in whom inoculation always aborted and he never once succeeded in producing a chancre on them. The susceptibility varies also in different parts of the body; the thighs are more irritable than the trunk, the genitals probably most so of all. Again, the irritant quality of the secretion depends greatly on the period of the sore's existence; where that is late the inoculation often fails, though the activity can generally be restored by irritating the sore again into suppuration. It is also asserted that the pus from a virulent bubo is more contagious than pus from the chancre whence the bubo originated. Experimenters in inoculation say that persons who have undergone mercurial treatment are difficult subjects for the production of chancre, while in those who have taken much iodide of potass the contrary condition is observed, and explanation for this peculiarity is sought in the belief that while the former drug produces great depression and anæmia of the tissues, the latter is a powerful stimulant, especially to the skin. At present this explanation must be accepted with much re-

¹ *Aperçu des différentes méthodes de traitement employées à l'hôpital de l'Université de Christiania contre la syphilis constitutionnelle.* Christiania, 1863.

² Fournier: *Leçons*, p. 335.

³ Hübbenet: *die Beobachtung und das Experiment in der Syphilis*, S. 11. Leipzig, 1858.

serve. Again, probably during the excitement of sexual intercourse, a foul secretion may often irritate a breach of surface sufficiently to produce an ulcer which it is difficult to distinguish from a venereal sore produced by a specific poison. But it may be concluded that the course and duration of a chancre are in great measure dependent on the situation of the sore, on the idiosyncrasy and bodily vigour of the patient, and on the condition of the ulcer which furnishes the contagion.

Relative frequency of the Simple Sores.—This variety of venereal ulcer forms, according to Ricord, about 63 per cent of the total number of sores, and his estimate does not much vary from that of other observers. At the Plymouth Naval Hospital,¹ in the years 1861, 2, 3, and 4, there were 2,500 cases of venereal disease; of these 1,634 were cases of ulcer; and 1,140 were independent of constitutional syphilis. Only 494 were succeeded by constitutional disease, or nearly 70 per cent. were non-infecting chancres. This proportion, allowing a little variation for different districts, may be taken to represent the average proportion of non-infecting sores among venereal ulcers.

Course of Chancre.—There is no period of incubation in a simple chancre, the effects of the inoculation begin to show themselves without delay, and pass immediately through the phases of development which are most typically evolved when the inoculation has been artificially practised. The same absence of delay is noted, whether the matter of the chancre be inoculated on the skin of the patient who bears the sore (auto-inoculation), or whether the discharge be brought from another person (hetero-inoculation), or whether it be brought from one of the lower animals on whom the chancre has been artificially produced by previous inoculation.

¹ Evidence of the late Dr. Beith, before the Committee on Venereal Disease in the Army and Navy, February 28, 1865.

tion. The effect of an inoculation can always be ascertained in twenty-four hours after the matter is introduced.

When made for experiment the following effects are observed: in the first twenty-four hours the prick, marked usually by a minute scab, reddens, and a small areola is formed; on the second day the red spot swells, and the areola enlarges; on the third day the swelling is surmounted by a vesicle, the contents of the vesicle, at first clear, become opaque, and the pustule is complete. This pustule is usually flattened on the summit, even sometimes slightly depressed, or umbilicated, in the centre; the ordinary appearance in small-pox pustules. The fluid increases till the pustule bursts about the fifth day, then the discharge dries, forms a crust or scab of a brownish colour, which may extend as the sore grows. If this be removed, the ulcer seen underneath is the chancre, and has the following appearances: its depth varies a little, but rarely extends below the thickness of the skin, or mucous membrane, on which it is situated. Its circumference is circular, the margins are sharply cut as if by a punch, generally somewhat undermined, and, by means of a lens, slight notching of the border can be seen, due to an unequal progress of the destructive action outwards. The floor is uneven, spongy, hence called wormeaten, and is covered with greyish green tenacious matter, which is afterwards washed away by a plentiful secretion of pus. The base of the sore is a little thickened by congestion, and the whole is surrounded by a narrow areola. The pustule is usually ripe in five or six days after inoculation, but it is sometimes delayed a day or two longer. Boeck finds that the chancre usually secretes inoculable pus by the third day, though at this time the pustular stage is only just reached.

This description of a simple chancre when artificially produced is, in accidental venereal contagion, frequently de-

parted from to some extent; and thus varieties of the local sore are met with in practice, which will be presently described. Moreover, when the matter is carried into the skin on the point of a lancet, the effect is evident in a few hours in consequence of the greater irritation so produced. But when merely applied to an abraded surface in cases of accidental contagion, there is often seeming delay in the appearance of the sore after inoculation, because the amount of irritation is too small to attract attention; wherefore the patient will be very confident there has been nothing to be seen for some days after infection, and there is often for four or five days no excoriation or vesicle, simply a little redness sufficient to show irritation is awakened. Clerc¹ cites a case where he remarked this preliminary reddening on the prepuce two days before the ulcer appeared. When the ulcerating action has commenced the sore reaches its full development in a few days, and while in this stage the aspect or variety of the sore is determined. In practice, as just mentioned, the accidental venereal sore varies from the description of the ulcer produced by artificial inoculation but the most characteristic sore closely approaches the artificial typical one. It commonly reaches through the whole thickness of the skin or mucous membrane; its form is sometimes circular, but often irregular, and its extent varies between the size of a pin's head and that of a large bean. The borders of the sore are sharply cut or eaten away and undermined. The floor is not hardened nor covered with the diphtheritic exudation so common on the syphilitic sore but is concealed by a viscid pus or débris of ulcerating tissue; when this is wiped off, the surface is pitted and spongy. Another form, more frequently met with, is very superficial, for the deeper parts of the skin are not impl

¹ *Maladies Vénériennes*, p. 173.

cated, the edges are not so sharply cut nor undermined, the floor is shallow and often prominent with spongy granulations, the discharge is adherent and not so abundant as in the punched out ulcer. A third variety is produced when the sore is inflamed, the tissues are rapidly destroyed, and a large amount of substance is lost; this is the sloughing chancre, which will be described at greater length.

The three varieties of local venereal sore, though differing from each other within certain limits, have many characters in common which are peculiar to them, and may be recapitulated as follows:—

1. The base of this ulcer when quite free from congestion, which is often the case, is as supple as the neighbouring tissue, but if action be going on rapidly, the base may be swollen and hard. This state much resembles the induration of the syphilitic initial sore, but even then sufficient differences distinguish the two sores. The swollen base of an inflamed local ulcer is hard, inelastic, like the base of a boil, which, in fact, owes its thickening to a similar cause. The base of a syphilitic sore has a peculiar elasticity, which is most readily detected when there is no inflammatory action going on. Syphilitic induration may be closely simulated, if the inflammatory action of the simple ulcer has been kept up by repeated cauterisation; in such cases it is now and then impossible to distinguish whether the thickening be syphilitic or artificial, until time has been allowed for observation.

2. The form of the ulcer is sharply cut, the edges are frequently undermined, and the floor is spongy as if worm-eaten.

3. The discharge is exceedingly irritating and abundant, whence it inoculates the parts around the sore, and thus evinces its next distinguishing peculiarity, namely—

4. Its faculty of multiplication: in 254 cases of simple

chancre,¹ 81 per cent. had more than one ulcer at the same time, and 46 per cent. more than two ulcers. The repetition of the local sore is exceedingly common in women where the matter drains from the vagina to the nymphs and inoculates abrasions on each side in a most symmetrical manner, so that six, eight or ten chancres at one time are not unusual. The contagious quality and abundance of the discharge furnish another distinction to the local sore, namely, the frequency with which it is inoculated in accidental breaches of surface on parts of the body distant from the genital organs. The fingers, thighs, and buttocks of careless persons are often inoculated in this manner, from their own chancres, an occurrence that of course is never produced by the syphilitic discharge.

5. All varieties of the local sore have great tendency to spread, to inflame and slough, or to excite inflammation of the absorbents connected with them, causing *bubo*. At the same time the simple chancre often runs through its course without affecting the lymphatic glands in the least; and when this extension does occur it is often simply a result of the local irritation affecting a gland, causing swelling, heat, and pain of the parts around, and even abscess. This condition is termed the *sympathetic* bubo. Abscess in the lymphatic glands is sometimes caused by the contagious matter from the sore finding its way along the lymphatic vessels to the glands. In this case suppuration is inevitable, and the cavity of the abscess being inoculated by the contagious matter within the gland, is converted into a chancre, which differs from the parent chancre only in size and extent. Thus the *virulent* bubo is produced.

The *duration* of the period of activity of simple sore varies very much when not influenced by appropriate treat-

¹ Fournier : Leçons sur le Chancre, p. 34.

ment. In the ordinary sore, which does not spread rapidly, nor attain a size beyond that of a sixpence, the duration is usually about a month or six weeks. The creeping or phagedenic chancre has a very indefinite duration; always over several weeks, it usually lasts some months, and sometimes it continues for several years. The situation of a sore has much influence over its duration; sores at the entry of the vagina, among the folds of the mucous membrane, or on the fourchette, heal more slowly than when on the labia. Those of the penis, if covered by the foreskin, or on the frenum, are very difficult to heal. Then also great care and cleanliness very much shorten the period of existence in a sore. Of thirteen cases of simple chancre in my notes, where the patients remained under observation after their sores were healed some time, the average duration was four weeks, the longest seven weeks, and the shortest six days. When the chancre loses its specific characters, the surface granulates, the discharge grows more purulent, and a blue line of cicatrisation replaces the sharply-defined border of the sore. The superficial variety of sore leaves no scar; but the deeper one, which penetrates through the true skin, leaves a permanent cicatrix, while the sloughing sore often causes much deformity from the extent of its destructive action.

Seat of Chancre.—Of simple sores 99 per cent. are situated on the genitals; but they have been observed on every part of the body, and experiment shows that this ulcer can readily be produced on any point of the surface.¹ On the male genital organs, the great majority of local sores are found in the furrow behind the glans, and beside the frenum. After these situations, but much less commonly,

¹ Clerc: *Maladies Vén.*, p. 204. Rollet: *Mal. Vén.* 1860. Nadaud des Islets: *De l'inoculation du Chancre mou à la région cephalique.* Thèses de Paris, 1858.

the meatus urinarius and surface of the glans are selected. The chancre of the meatus is found in persons who have short tight frenum, and who have the glans habitually covered by the foreskin. Chancres on the frenum usually perforate the skin, and often penetrate to the urethra, which is very thin at that point. Chancres are described to exist within the urethra, and doubtless they are occasionally produced as far within as the fossa navicularis, though venereal ulcers in this situation are nearly always consequences of syphilitic infection. When suspected to be within the meatus, the ulcerated surface can be detected by opening the lips of the passage; this done, it is easily seen. If situated further down the urethra at the fossa navicularis, the sore may be mistaken for gonorrhœa; but the fixed pain and tenderness at one place, the small quantity of discharge, and the want of general congestion of the urethra, are usually sufficient to distinguish this affection from gonorrhœa. Chancres on the inner aspect of the foreskin are less common, but from the abundance of lymphatics in that part, they are especially liable to cause abscess in the groove. They are particularly troublesome from the swelling and phimosis they occasion, and from spreading to the irritated glans beneath by consecutive inoculation. Soft sores are very rare on the skin of the penis or scrotum, and then they are usually produced by consecutive inoculation from other parts. Clerc says in two and a half years he had fifty-eight cases of syphilitic sore on the sheath of the penis, but only three of simple local ulcer during the same period in the same locality.

In women the entry to the vagina and the fourchette are by far most commonly the situation for the local ulcer. From these places they are constantly propagated to the nymphæ and to inflamed hair follicles on the labia majora where they produce small circular sharply-cut sores.

Occasionally, as in men, this sore is formed at the meatus urinarius. In the vagina, and on the vaginal portion of the uterus, they are comparatively rare. Clerc,¹ nevertheless, describes them as being tolerably frequent on the neck of the uterus. In making this statement he relies on the inoculability of the discharge of these ulcers to confirm his diagnosis of their being the local chancre. But in the chapter on Syphilisation, it has been shown that acrid matter of various kinds, and not only venereal pus, will produce a pustule if inserted into the skin. Between July, 1867, and July, 1868, I met with only two cases of ulcer of the uterus among the female out-patients of the Lock Hospital that were sharply cut and suppurating like the sore so constantly found at the fourchette; while all degrees of sores, from slight congestion and erosion to freely suppurating ulcers with granulating surfaces, are common in women of the prostitute class, but they cannot be called chancres, even if their discharge is now and then inoculable. Ulcerations within the neck of the uterus have been known to secrete a contagious pus. Clerc² quotes an instance of a prostitute who was apparently free from venereal disease; but, having infected several men, was subjected to a minute examination of the genitals: a drop of pus was squeezed from the mouth of the uterus, and it produced four well-marked ulcers when inoculated on the thigh.

At the anus chancres are sometimes met with either through communication *a preposterâ venere*, or by consecutive inoculation from sores on the genital organs. In women the proximity of these parts to the anus renders such an accident very easy. Clerc has observed this chancre inoculated on leech bites around the anus. The ulcers are generally placed just at the anus, and assume a

¹ Loc. cit., p. 197.

² Loc. cit., p. 198.

fissure-like form rather than a circular one. They are distinguished from the ordinary fissure of the anus by the greater surface and their thick pus, which is readily inoculable on the patient.

Chancre on the head.—The great rarity of simple contagious ulcers on the head, face, and lips, suggested the notion which was held very generally at one time, that the skin of this region had some power of resisting the virus. This was, however shown to be erroneous by the result of artificial inoculation of chancrous pus on the lip and face when ulcers were as easily produced on those parts as elsewhere. Hübbenet¹ inoculated some chancrous pus on the cheek of a soldier, which caused virulent bubo of the lymphatic gland in front of the anti-tragus. Clerc has collected several cases where chancres were inoculated by the patient scratching themselves with dirty fingers; one on the eyelid, one on the external auditory meatus, and one on the lips.

In addition to these situations, the thighs, feet, and especially the fingers, are now and then inoculated by contamination with chancrous pus from the genitals. In the groin chancres are readily inoculated, their proximity to the genital organs renders them very liable to be inoculated at breach of surface, besides through the conveyance of matter along the lymphatic vessels to the lymphatic glands.

There are three main *complications* of chancre—inflammation, rapid sloughing, and phagedena, or slow and continuous destruction of tissue. Inflammation of the chancre is the most common consequence of neglect of cleanliness especially if the patient have phimosis to prevent the removal of the discharge when the chancre is under the

¹ Hübbenet: Die Beobachtung und das Experiment in der Syphilis, S. 4. See Clerc, also, for the experimental inoculations of Puche, Bassereau, and others, pp. 203-4.

² Loc. cit., pp. 181-202.

foreskin. Violent exercise, debauchery of any kind, the chafing of the dress, application of caustics or irritating dressings will often set up inflammation in an otherwise indolent ulcer. When inflammation begins, the skin around grows hot, dull red, and swollen, the sore extends fast, and furnishes a plentiful discharge that is mixed with shreds. The base is hardened by congestion, and often raised above the surrounding skin. The pain accompanying the inflammation is often very sharp, of an aching or smarting kind. If the inflamed sore is underneath a tight foreskin, the penis swells rapidly, the sloughing attacks the foreskin also, and often perforates it in a few hours, exposing the sloughing glans beneath. When the sloughs escape through this opening, the inflammation commonly subsides, and the sore either regains its original contagious condition, or if the sloughing has destroyed the whole original chancre, it becomes an ordinary healing sore, of which the pus is no longer inoculable.

Inflammatory action alters the aspect of the chancre according to its intensity, and the varieties so produced have received different names. When the inflammation causes the surface to disintegrate rapidly, but not in a mass, the sore spreads quickly, with sharply-cut edges, red areola, copious yellow discharge, and much smarting pain. This form is common about the frenum preputii, which it quickly destroys. In the next variety the sore is covered by a tenacious white slough, about which the ulcer spreads with sharply cut irregular edges, and a thin sanious discharge oozes from beneath the slough. In a short time the early slough grows dry and dark coloured, while the more lately destroyed tissue is white. A still higher intensity in the necrosing action destroys a considerable mass of tissue at once, which turns black and shrivelled. The destruction of tissue continues around the

first slough, and the ulcer widens rapidly with a ragged red border, discharging much bloody serum. These three forms have received the names of the *inflamed* chancre, the chancre with *white slough*, and the chancre with *black slough*. The amount of constitutional disturbance which accompanies the inflammation varies very much. There is usually much prostration with fever, but at times the general health suffers to a very small extent.

When the inflammatory action is carried to an extreme, the *sloughing phagedena*, or sloughing chancre, is produced. This sore has so peculiar an aspect that at one time it was believed to be a separate venereal affection, but now it is generally acknowledged to be an accidental complication of the ordinary chancre. The course in gangrenous inflammation or sloughing phagedena is similar to, though more violent than in the inflamed chancre. The part swells, grows livid red for some distance round the ulcer, and the discharge is much lessened. The ulcer itself rapidly enlarges and dries. Its margins are then dark brown or black and shrunken. In 24 to 48 hours the layer that was first attacked separates, and the destruction continues widely and deeply. If the penis is attacked the whole thickness of the organ is not unfrequently destroyed and severe hemorrhage sometimes follows. In women, the sloughing may spread from the labia to the anus and clear away the perinæum to form a cloaca common to the vagina, bladder and rectum. While the sloughing goes on, the patient is in great suffering; the pain is usually very severe, the temperature of the body raised, the thirst is great, the tongue dry, brown, and cracked, the pulse very rapid and weak. Death often follows from exhaustion, diarrhœa and copious sweating, which the constitutional disturbance induces. When the sloughing is arrested, the pain and swelling diminish, suppuration begins at the surface nex

the slough, which is set free, and healing by granulation commences.

The termination of this affection depends on the patient's bodily strength; if it continues more than a few days he sinks exhausted by the irritation; should he recover, the lost tissue is never replaced, the sunken scars are permanent.

It is supposed that sloughing destroys any syphilitic contamination to which the patient may have been exposed. This is not so, constitutional syphilis succeeds phagedena in a certain number of cases. In the Royal Naval Hospital at Plymouth, 1861, 2, 3, and 4,¹ there were twenty-seven cases of phagedenic chancre; of these, constitutional syphilis occurred in seven.

To produce sloughing sores or rapid phagedena, the usual causes of debility must be pushed to extreme. Hence, in civil practice, it is seen most often in young half-starved prostitutes, in labourers who have undergone much fatigue and exposure, in persons of scrofulous constitutions, or in those exhausted by typhus or scarlet fever. In military or naval practice, phagedena occurs when the men are weakened by hard campaigning, or rendered unhealthy by overcrowding in hospitals or on board ship, and other causes of like kind. In 1859, when the French army was returning from the Italian campaign, sloughing attacked the venereal ulcers among the troops.² Mercury has been accused of producing sloughing action in chancres; if mercury be given in very large quantity, it is possible such a result might ensue, but phagedena occurs, in the vast majority of cases, where no mercury has been given. Sperino,³ in his experiments on syphilisation, did not find that the pus of sloughing

¹ Beith's evidence before the Committee on Venereal Disease in the Army and Navy, p. 152. 1865.

² Follin: *Pathologie Externe*, tom. 1.—Syphilis.

³ Sperino: *Della Sifilizzazione*.

ulcers produced phagedena in those who had taken mercury if they were inoculated.

Serpiginous ulceration is a very slow continuous form of destruction in which the sore spreads to only a shallow depth along the skin and subcutaneous cellular tissue, healing at one part while it extends in another. Sometimes, the whole thickness of the skin is not destroyed, but undermined. In this way the sore may run round the penis along the foreskin, may penetrate through the under part of the glans to the urethra, or burrow under the skin to the pubis. In this ulcer the discharge is thin and scanty; nevertheless it is often inoculable on the bearer, even when the chancre has lasted for years.¹ These ulcers are also very liable to relapse, and a cicatrised part ulcerates again rapidly; the scar, when the sore has healed, is white, firm, and adherent. There is generally little constitutional reaction in these serpiginous ulcers, but they are most often met with in debilitated strumous persons. In most instances they heal readily if the bodily health be restored to vigour.

Simple chancres are not infrequently much altered in their aspect before healing, by development of characters peculiar to syphilitic ulcers—by changes which are set on foot by the awakened activity of the syphilitic virus, after the completion of the incubation peculiar to that poison. These changes are described under the head of Primary Manifestation of Syphilis, and need only be alluded to here.

Diagnosis of Chancre.—It is usually easy to decide whether a sore on the genitals is derived from a local contagious ulcer if attention be paid to the distinctions that will be immediately enumerated. It is true, there is sometimes a difficulty in deciding that syphilis has not been imbibed at the same time as the local irritant. This dif-

¹ Fournier : Ricord's Leçons sur le Chancre, p. 396.

culty is impossible to solve in all cases if the source of the sore is uncertain, and if the period necessary for the incubation of syphilis has not elapsed when the examination is made. In practice, nevertheless, such instances are not common; in the great majority of venereal ulcers, a positive opinion can be given at once, and for the rest, a short period of observation suffices for deciding the question, by the speedy appearance of the changes peculiar to syphilis betraying the presence of that disease. The differences between the local chancre, and the primary manifestation of syphilis, are contrasted in the following parallel paragraphs. They are altered from those of one of Clerc's pupils,¹ M. Blacheyre.

DISTINCTIONS BETWEEN THE LOCAL ULCER AND THE PRIMARY MANIFESTATION OF SYPHILIS.

LOCAL ULCER.

1. *Incubation nil*; irritation is at once displayed by reddening and speedy ulceration of the point of contagion.

2. Ulceration frequently begins by a pustule. Ulceration is an essential condition, and is always very active during the first few weeks.

3. The virulent character of the ulceration, gives the sore its tendency to enlarge, and its long duration, extending in mild cases six weeks, in severe ones much longer.

SYPHILIS.

1. Incubation is always of some length: the average being twenty-four days.

2. The manifestation begins by a papule. Ulceration, if accidental irritation is absent, is never active. Superficial erosion is sometimes present as soon as induration begins, but even this is often delayed till the induration is far advanced, and may be altogether absent.

3. The indolent character of the ulceration, of which the duration is uncertain, and depends on the condition of the patient.

¹ Clerc: loc. cit., p. 231.

DISTINCTIONS BETWEEN THE LOCAL ULCER AND
PRIMARY MANIFESTATION OF SYPHILIS—*continued.*

LOCAL ULCER.

4. The *aspect of the ulcer is characteristic*; it is hollowed, the surface is spongy and undermined; the edges are sharply cut, and the discharge is opaque, yellow, and plentiful.

5. The base of the sore is supple, unless thickened by inflammatory congestion; but this pseudo-induration disappears when the inflammation is subdued.

6. Multiplicity of the sore is the rule. This results from the consecutive inoculations of the parts around with the discharge of the original sore.

7. The lymphatic glands remain either unaffected, or become acutely inflamed, and form abscess, or bubo.

8. The matter of these buboes is often inoculable on the bearer. If so, it is pathognomonic of chancre; it also converts the bubo into a chancre.

9. However long the chancre lasts, it remains a local disease.

SYPHILIS.

4. The *aspect of the papule is characteristic*; it is often not ulcerated but simply eroded, or desquamated. When the surface is ulcerated, it is smooth, and covered with adherent scanty secretion. The edges are undermined, but raised, sloping to rounded.

5. The base of the papule is indurated, with a gristly hardness, quite independent of inflammatory action; is peculiarly firm; of a peculiar character; very rarely absent in men, and generally present in women. It usually lasts several months before it disappears.

6. The papule is habitually solitary. When there are more than one, all the papules are all of one age.

7. The lymphatic glands are almost invariably affected by slow, irregular enlargement of the whole group, after a certain length of time after infection, but suppuration is infrequent, when present, is the consequence of ordinary irritation.

8. When abscess forms around enlarged lymphatic glands, it is inoculable on the bearer.

9. Between two and three months after contagion, erythematous eruptions appear on the face of the body.

DISTINCTIONS BETWEEN THE LOCAL ULCER AND THE
PRIMARY MANIFESTATION OF SYPHILIS—*continued*.

LOCAL ULCER.	SYPHILIS.
10. Phagedena and ulceration of inflammatory kind are frequent complications.	10. Any inflammation or extension by ulceration is rare.
11. Pain in the sore is usually sharp, often severe.	11. Absence of pain.
12. Seldom met with away from neighbourhood of the genital organs.	12. Tolerably frequently met with on parts away from the genitals.
13. The source a similar ulcer.	13. The source is most usually an ulcerating papule of a syphilitic eruption.
14. Antecedent to the disorder, the patient may or may not have had syphilis, and may have had similar ulcers several times before.	14. Antecedent to this, the patient has not had syphilis, or such a hard-based ulcer.
15. The secretion of the sore is inoculable on the bearer, until cicatrization is advanced.	15. The secretion is very rarely inoculable on its bearer, and so only when its surface is irritated into acute suppuration.
16. The discharge is also inoculable on animals.	16. The discharge is not inoculable on animals.
17. It may be many times repeated in each individual.	17. It is only once developed in each individual. Exceptions to this are too rare to invalidate the rule.

By comparing the sores with the source whence they have been obtained (*Confrontation des Malades*) Bassereau was

enabled to point out the distinction between the local contagious sore and the primary manifestation of syphilis. I found that in 73 cases of syphilis, where he was able to make this comparison, the source was without exception a person suffering with syphilis. This method of investigation was continued by Ricord, Fournier, and many others with complete success in showing that non-syphilitic persons cannot communicate the local ulcer, and syphilitic persons cannot communicate the general disease. Clerc and his pupils also traced the simple chancres to their sources, and have collected a long array of examples of the chancre spreading among individuals without any one of them having constitutional disease. The following case, recorded by M. Vivien, one of Clerc's assistants, is very characteristic.¹ In 1853, a law student entered a Maison de Santé, to be cured of seven or eight chancres on the glans penis, and of suppurating buboes. The mistress of this patient had also infected two medical students, of whom one had several soft chancres and a suppurating bubo; the other, a simple chancre only. The woman was herself admitted to L'Ourcine Hôpital, suffering with several simple sores and a bubo in each groin. All the members of this group of patients were afterwards watched carefully by Vivien, and none suffered from syphilis. In experiment these chancres have readily been inoculated on persons who were virgin of syphilis, without producing any constitutional disease, and instances of this kind are related in the chapter on Contagion.

Some *local affections* may be confounded with the contagious ulcer. *Herpes preputialis* may be distinguished from contagious chancres by its groups of vesicles or excoriations on a red areola; these excoriations are quite superficial, and cause much itching. Herpes again, is generally

¹ Clerc: loc. cit., p. 218.

frequent occurrence in those subject to it, and the patient can often speak of previous attacks. A simple lotion with cleanliness heals the herpes in one or two days, but a chancre is not cured in so short a time. *Fissures and excoriations* may want many of the characters of chancre, but if they do not heal quickly, they probably are chancres. With *phimosis*, it is sometimes difficult to say whether a discharge from beneath the glans be caused by balanitis, gonorrhœa, or chancre. If cleanliness do not quickly subdue the first, and there be no discharge from the urethra, a chancre is the cause of the discharge. To decide the point, the inoculability of the pus may be tested. Besides, in chancre, there is often much tenderness at one spot, the discharge is also less in quantity and sometimes bloody. When there is gonorrhœa and chancre together, the chancre is often overlooked till the gonorrhœa is reduced.

Ulcerated mucous patches on the female genitals sometimes resemble the simple chancre in form and aspect, but the presence of the concomitant signs of syphilitic disease elsewhere will commonly remove any hesitation about their origin.

Tertiary gummy deposits in the sheath of the penis sometimes ulcerate into cavities resembling chancres; but, the presence of syphilitic disease elsewhere, and the history of the case, render distinction easy. Clerc¹ relates a case of this kind which he mistook for a chancre until he found a gummy nodule, on the thigh, which the patient said resembled what the ulcer had been before it broke. Iodide of potash quickly caused both to disappear.

Epithelial or lupoid ulcers of the genitals, especially in females, are occasionally mistaken for chancres. Clerc mentions such cases; the following instance occurred to myself:

¹ Loc. cit., p. 235.

A woman, ætat. 33, admitted into University College Hospital in July, 1866, whose perinæum had been ruptured during childbirth, came under my care. I found a ragged, uneven ulcerating surface at the perinæum which reached to within half an inch of the anus, and spread upwards into the vagina, and along the right nymphæ. Its edges were irregular, sharply cut; its base was spongy, freely suppurating, and not thickened in any part. There was no history of syphilitic eruptions, but there had been an abscess in the right groin. I considered the ulcer to have been originally a ruptured perinæum which had been inoculated by a chancre in some way. As the ulcer had existed for three months and caused much pain, I destroyed its whole surface with nitric acid under chloroform. The pain was very much relieved by this treatment, and the ulcer when the eschar separated appeared inclined to heal. But after a few weeks the sore regained its former condition. After six weeks' further treatment the patient, unwilling to remain longer in hospital, was discharged. In the following December she returned among my out-patients, suffering very much from the ulcer of the perinæum, the surface of which was then very much changed. Numerous prominent fungating growths sprouted from the surface, and the ulceration had spread along the vagina, nearly as far as the uterus, besides destroying the right nymphæ and attacking the left. It had also extended into the rectum which was opened into the vagina. The patient shortly afterwards died of bronchitis and exhaustion, at her own house, but I was not permitted to make a post-mortem. This case was, I now think, probably an epithelial growth from the first, but its character and history led it to be mistaken for a chancre.

The *prognosis* of the local sore is good. Most chancres, if not irritated, heal naturally in six to eight weeks, and leave no further result than a scar. They do not affect

constitution at all. Their further consequences are buboes, rapid sloughing, or slow serpiginous ulceration. Under these circumstances they cause severe pain and constitutional disturbance to the patient, and may endanger life.

Bubo, or inflammation and abscess of the adjoining lymphatic glands. In 207 cases of simple sore collected by Ricord,¹ 65 had bubo. In Dr. Beith's table,² about half of the ulcers not connected with syphilis were complicated with bubo. This is probably an unusually large proportion, and it is more exact to expect one third of the patients with simple sores to have inflammation of the lymphatic glands.

The enlargement of the glands takes place in two ways. The first and commoner variety called *sympathetic* bubo, is simply inflammation of the lymphatic glands and their surrounding cellular tissue from the irritation of the chancre. This bubo differs in no respect from the inguinal abscess sometimes occurring in gonorrhœa, or from that following an irritating blister of the foot or other part of the lower limb, except slightly in position, because different glands are attacked.

The sympathetic bubo may occur at any time during the progress of a chancre, though most frequently in the first fortnight. The gland which first receives the lymphatics swells and grows very tender, rendering walking, and even standing, painful. In the early stage it can be distinctly felt under the skin, but soon it is masked by congestion and inflammation of the cellular tissue surrounding it, and thus forms an oval tumour lying over Poupart's ligament. The skin over the swelling assumes a dusky red tint, and grows soft and doughy to the touch. Pus forms in the congested

¹ Fournier: Ricord's *Leçons sur le Chancre*, p. 40.

² Evidence before the Committee on Venereal Disease in the Army and Navy, 1865, p. 152.

cellular tissue round the gland, and presently the abscess bursts through the skin, its contents escape, and the cavity heals by granulation in the ordinary way. The duration of the bubo in this case will be a month or six weeks, but it is often prolonged by the obstinate sinuses which are located under the skin. In one form, called the phlegmonous bubo, the enlargement is much slower; the whole group of glands are attacked, and produce a doughy, ill-defined, somewhat tender swelling, in which the separate glands cannot be distinguished from each other. The skin, after some weeks of chronic congestion, becomes dark reddish purple. In the course of time fluctuation can be detected at several points, from suppuration beginning at the same time in different parts of the cellular tissue. The pus thus formed makes its way to the surface, and tunnels several sinuses in a mass of inorganised cellular tissue, which last many months before they heal. This variety of bubo has been also called scrofulous bubo, from its occurring in scrofulous persons and from resembling other scrofulous lymphatic abscesses. Abscesses of this kind usually extend outwards towards the iliac spine, as well as towards the perinæum. The duration much depends on the patient's general health, and the kind of treatment pursued. When the bubo is healed, it leaves a small shrunken cicatrix, at first dark in colour, but subsequently turning white.

In the *virulent* bubo suppuration is excited in the gland itself by the contagious matter being conveyed direct from the chancre along the absorbents. The inflammatory action inside the gland quickly extends to the cellular tissue, forming an abscess round the gland, which is inoculated by the absorbed contagious matter that is set free when the gland breaks up or is punctured. The abscess thus itself becomes a chancre, and resembles the original sore in all its characters, though much exceeding

it in size. Ricord, in his "Letters on Syphilis," describes an experiment to prove that the matter of an abscess formed about a gland is not contagious until mixed with the pus from the interior of the gland. He opened a bubo, inoculated its pus without effect; he then punctured the gland lying at the bottom of the abscess, and let out a drop of pus; this was inoculated with success, and, moreover, the pus of the abscess itself became inoculable after mixture with that formed within the gland. Further corroboration of this transport of the contagious matter from the chancre along the lymphatics to the gland is gained by the fact that the original sore may heal completely before the bubo suppurates, and accidental inoculation from the surface of the sore becomes impossible. Yet, on the escape of the pus from the interior of the gland, the abscess becomes a huge chancre, and furnishes inoculable pus. It is still uncertain what determines this absorption of pus into the gland; it takes place in only a small proportion of the suppurating buboes, and there is no fixed period for its occurrence. Puche's case¹ shows that it may take place in chancres which have long existed. He remarked that a serpiginous chancre, which had existed more than four years, suddenly produced a bubo with inoculable pus.

In its course the virulent bubo is very similar to the sympathetic bubo. It is not so frequent as the former, and it is uncertain in the time of its appearance; its duration is commonly a few weeks, but it may last much longer. Usually one gland only is attacked, and that acutely. There is considerable pain in the part, and general disturbance. When the abscess is opened and inoculated with the matter within the gland, the surface becomes irregular and worm-eaten; the borders hardened, eroded, and often

¹ Fournier: Ricord's *Leçons sur le Chancre*, note viii.

much undermined; the undermined skin grows dull vi in colour, now and then an isolated bit sloughs off; discharge is puriform, plentiful, thinner than that of original abscess, but contagious and inoculable on patient himself. The abscess, thus converted into a large chancre, may become phagedenic or serpiginous, before it heals may spread over a wide surface, and cause considerable loss of tissue. The fascia is sometimes bare in the floor of the ulcer, and the other lymph glands lying on it are exposed. The veins around ulcerate and be troublesome, even dangerous hæmorrhage occurs, or a great part of the skin of the groin, thigh, abdomen, may be destroyed. The *duration* is ordinarily three to four months, but the chancre lasts until the power secreting contagious pus is exhausted, a result not reached sometimes for one or two years. Healing takes place slowly and leaves a wide hard cicatrix, at first tightly adhering to the fascia beneath, but gradually becoming free and white.

Bubo without chancre, or Bubon d'emblée. It has been supposed possible by some authors that venereal matter can enter a breach of surface and pass along the lymphatics to the glands without producing a sore at the point of contagion. There seems little doubt that this is a mistake. The records of cases of venereal bubo without chancre, though few and imperfect, show that they occur in young weakly persons, that they invariably cause a good deal of constitutional disturbance, and that they do not form until some time after the coitus supposed to have given them origin. Further, these abscesses do not secrete a contagious pus as they ought to do if they were occasioned by the transmission of virulent matter, that being the way in which virulent bubo is produced. Again, these abscesses never show the premonitory signs of general syphilitic eruption.

Thus, these buboes have but a single character to support the theory that the inflammation of the gland is excited by the conveyance of venereal matter from the surface of the body to their interior; namely, that they are a sequence of venery. But it is not difficult to find a more obvious explanation. Follin suggests they are caused, not by venereal contagion, but by the fatigue of violent intercourse, just as severe exercise in walking, or running, will produce an abscess of the lymphatics; an opinion which is probably correct. Diday,¹ also, though withholding a decided opinion, is doubtful if they are ever caused by direct absorption of matter into the gland, when no chancre is produced at the point of contagion. Recently I have had two cases among my hospital patients, young men, or rather growing lads, in whom acute abscess formed in the groins on each side in one, a week, in the other, ten days after sexual intercourse. These young men, during the three months that one of them, and the ten weeks that the other was under my observation, had no ulcer on any part of the territory whence the lymphatic glands of the groins receive their vessels. In the cases of this kind of bubo that I have seen, the patient has always been young and of unknit frame, one more likely than a full-grown vigorous man to be attacked by acute inflammation of the lymphatic glands after over-straining himself.

Beside the foregoing varieties of irritation and inflammation of the lymphatic glands, the *lymphatic vessels* leading to the glands are themselves sometimes inflamed, if the sore be placed on the prepuce or skin of the penis. The *symptoms* are a ridgy swelling, like a knotty string on the back of the penis, tender and often red; this lasts ten or fourteen days, and then subsides. Occasionally little

¹ Nouvelle Doctrine de la Syphilis.

abscesses form along the inflamed vessel, which become ulcers or chancres, which are tedious as they leave sinuses that fill and break alternately, with little tendency to heal left to themselves.

SUMMARY.

Chancre, or the simple contagious sore, is produced by inoculating its discharge on a breach of surface. Though it is often coexistent with syphilis, there is no connection between them, and it produces no constitutional disease. It probably always requires a breach of surface for its propagation; some persons are more easily affected than others from greater delicacy of their skin. This venereal sore is twice as frequent as the syphilitic ulcer. In its course it has no period of incubation; it begins to irritate immediately, but the activity of its progress varies very much in different persons. It always causes destruction of the tissue around the point of inoculation. There are three varieties. In one, the sore reaches through the whole thickness of the skin and mucous membrane, has an irregular form, and sharply cut edges; the floor is not hardened but spongy, and covered with thick pus. Another variety is very shallow, or prominent with spongy granulations over its surface. The third variety is produced by the changes of acute inflammation and rapid destruction of tissue. The leading characters of the local sore are, suppurativeness of the base, sharply defined area, irritating and abundant discharge, consecutive inoculation of this discharge, and the production of fresh sores; lastly, its activity and liability to spread.

The duration of simple sores is variable, but six weeks is a common time, though it may be prolonged to months or years.

The seat of this sore is nearly always on the genital

but they are met with or easily produced on any part of the surface of the body, even on the head and face, where it was at one time supposed the local sore could not be generated. In men the furrow behind the glans penis, in women the fourchette and entry to the vagina are the favourite localities. Ulcers about the neck of the uterus are seldom true chancres, though their secretion is at times contagious. The main complications of chancre are inflammation, rapid sloughing, and slow phagedena. The first is a consequence of irritation from violent exercise, debauchery, or other cause. The second is produced by the same irritation acting on a very feeble or exhausted condition of the body. The slow phagedena also generally occurs in debilitated persons, but its exciting cause is obscure.

The diagnosis of local simple sores from syphilitic ulcers depends mainly on the absence of incubation; the activity of the ulceration; the tendency to multiplication; the aspect of the ulcer; the absence of hardness in the base; the readiness with which it inflames and spreads; and the ease with which it is repeated on the same person time after time. Herpes preputialis, fissures and excoriations are all distinguished by their readiness to heal when kept clean. Mucous patches when ulcerated often closely resemble chancres, but the presence of syphilis elsewhere distinguishes them.

The prognosis is good, as this sore usually heals in six or eight weeks, if not sooner, and it has no power to implicate the constitution.

Bubo.—This most serious consequence of chancre has two varieties; one, simple lymphatic abscess from irritation, the other, abscess from absorption of matter from the sore and its transmission along the ducts to the lymphatic glands. This is the *virulent* bubo, it always suppurates, and the matter, when it escapes from the interior of the gland, communicates to the abscess the characters of the original sore.

Bubo without chancre has been supposed possible, but the cases considered to be of this kind are not satisfactory; they are probably always due, not to contagion, but to strain or irritation of a similar kind. The lymphatic *vessels*, as well as the lymphatic glands, sometimes inflame, or indurate, and small abscesses form along their course, which leave tedious sinuses.

CHANCER.

CHAPTER II.

TREATMENT.

General treatment of the early stages—Local treatment of the sore ; simple dressing, astringents—Caustics, suitable conditions for their use—Inflamed sores—Indolent sores—Sloughing sores—Other dressings—Bubo, preventive treatment — Suppurating bubo—Indolent bubo—Sinuses — Virulent bubo.

Treatment of Simple Chancres.—The first thing in treating venereal sores is to remove general causes of irritation, such as too stimulating diet, wine, and especially venery. All severe exercise must be relinquished ; in fact, confinement to the house for some days is often time gained by the progress the sore makes with rest. While the wound is healing, the patient should always avoid standing long at a time, to lessen the risk of bubo : the horizontal position, moreover, greatly promotes healing of the sore. If erections at night are troublesome, they may often be prevented by the patient's last meal being a light one, taken two or three hours before bedtime. For persons of ordinary health it is not necessary to do more than this ; but if patients are exhausted or in a debilitated condition, ordinary rules for improvement of the health are necessary, quiet, rest, with good diet, and stimulants must be freely given. The digestion may be invigorated by tonics, such as 10 or 15 drops of dilute nitric acid with 20 to 30 drops of liquor cinchonæ in water three times daily ; or the tincture of perchloride of iron with

spirit of chloroform and glycerine, 20 to 25 drops of each to the dose. Many other preparations, quinine and acid, ammonia and bark, may be used for the same purpose.

Local Treatment of the Sores.—Most sores need only cleanliness to allay irritation and induce them to granulate. The sore should be washed three or four times a day while the discharge is abundant, and covered with pieces of lint dipped in cold water, over which oil-silk should be wrapped if the sore is situated in an outward part, like the dorsum of the penis or groin. If the patient is a man he should be directed to support the penis in a suspensory bandage or handkerchief against the abdomen, never to let it hang down, and to be particular that the dress is loose enough not to chafe the parts in walking. If the sore is underneath the foreskin, the lint should be so interposed that the skin does not touch it both to prevent the sore being chafed and to avoid the formation of fresh ulcers. Care is particularly necessary in women, whose genital organs are difficult to dress. Strips of lint should be laid between the labia on each side and in the folds of mucous membrane round the vagina. A pledge of cotton wool dipped in some weak astringent (diacetate of lead, copper, alum, or borax) may be placed in the entry to the vagina. The œdema of the vulva, which is so common with chancres, is best managed by allaying the irritation with frequent washing and by lying down.

If the sore is indolent, and shows no tendency to heal, it should be dressed with some weak astringent solution, diacetate of lead, sulphate of zinc, or nitrate of silver, from 1 to 4 or 5 grains to the ounce of water; or a lotion of 5 or 10 grains of tannin to the ounce of water with a little red wine or black or yellow wash, are all useful in stimulating the sore to granulate if the first-mentioned applications do not answer. Solutions of a caustic strength should not be continually applied, as they only increase the irritation and spread of the

sore. When used at all they should be strong enough to produce an eschar at once. Creeping sluggish sores are often induced to granulate freely by dressing them with a lotion of 5 to 10 grains of tartarated iron to the ounce of water. This application is very effectual even in the most obstinate sores, causing them to granulate and cicatrise rapidly when many other remedies have failed. When the sore is very indolent, neither spreading nor healing, calomel or red precipitate may be dusted over the surface; or an ointment of half a grain of bisulphuret of mercury and two drachms of lard laid on for one or two hours. When the ointment is removed, a two grain solution of sulphate of zinc may be used to dress the sore. If means of this kind fail to excite cicatrisation, it is better to destroy the surface thoroughly with caustic to procure fresh granulations when the eschar separates.

Caustic should be used in the following cases:—It may be employed on the very first appearance of a sore, to shorten its duration, and to prevent the danger of inflammation, sloughing, multiplication by consecutive inoculation, or bubo. At this time the sore is also very small, and the pain accompanying its extirpation not very great. But when the patient has had the ulcer a week or ten days before he comes under treatment, the chancre has generally assumed the character it means to preserve; if it appears little prone to spread and inflame, it may be managed by astringent lotions without resorting to caustics. If the sore, on the other hand, be spreading, with sharply-cut edges, or if it has *lasted a long time*, and resists other treatment; or, again, if its presence prey upon the patient's spirits, cauterisation is the best remedy to prevent further mischief. In the *rapidly sloughing chancre* with inflammation, complete cauterisation with hot irons is the most effectual remedy, but it must be followed by soothing applications to allay the

pain and inflammation, when the sloughing surface is destroyed.

As chancres may excite bubo at any period of their existence, destruction of their surface with caustic may prevent this consequence whenever it is employed. Still the advantage is not sufficient in practice to require the variable use of caustics, as the chance of a particular chancre not being accompanied by bubo is two to one, even when left to run its course. Besides this, it is often exceedingly difficult to destroy several sores thoroughly by one application of caustic; hence the patient, after having undergone all the suffering and inconvenience of cauterisation, may be disappointed on finding, in a few days, the sore to assume its original character. In the section on Syphilis the propriety of using caustics to prevent general constitutional infection has already been discussed and shown to be valueless for that purpose. Thus caustics are useful to extirpate a chancre on its first appearance, to check it when spreading, and to arrest its progress when sloughing rapidly. In other conditions the use of caustic has disadvantages which outweigh the advantages.

Several preparations are used to destroy the ulcerated tissue. Whichever caustic is selected it should always be thoroughly applied, and it is better to cauterise a little more deeply than is absolutely necessary, that complete destruction of the sore may be ensured. Among the most effectual caustics is one Ricord prefers. He makes a paste of powdered charcoal and strong oil of vitriol, which he lays on and rubs into the chancre. In a few minutes the surface is destroyed, and forms an eschar or crust which falls off in a week, leaving the sore a simple granulated surface. It is a very effective remedy, being not liable to overflow the sides of the ulcer and attack the healthy skin as is the case with liquid caustics. But it is not always

hand, hence less convenient than another—the strongest nitric acid. The best way to use this is to dab it with a glass brush over the floor and edges of the ulcer, and allow it to soak well into the surface of the sore for a few minutes before the excess of acid is neutralised with a little carbonate of soda dissolved in water. The skin surrounding the ulcer should be protected by grease, but the edges may be left clear for the action of the caustic. The chloride of zinc and caustic potash are slower in action, and must be left longer in contact with the sore, or they will not penetrate deeply enough to destroy it altogether. The actual cautery by hot iron or galvanic wire are at times very useful when a large amount of tissue has to be destroyed, otherwise they are not preferable to chemical caustics, while they alarm the patient much more than the latter. When the caustic has done its work and the excess washed away with cold water, the sore should be wrapped in wet lint, and the pain, which often lasts several hours, can be assuaged by the constant application of ice-cold water. The eschar usually separates in four or five days, and leaves a clean granulating surface.

These applications are all very painful, and the fortitude of the patient seldom affords the surgeon full leisure for the complete destruction of the sore, and unless this is attained, the suffering will be in vain, whence it is best to render him insensible by chloroform or ether spray. The latter remedy is exceedingly painful if the part is at all inflamed; in such cases it is best to use chloroform, which has the additional advantage of rendering the patient unaware of what is going on around him and prevents the disagreeable consciousness of the nature of the operation.

Caustic must be withheld in *inflamed chancres*, except when the destruction of tissue is very rapid, and thick layers are necrosing one after another. If, however, the

chancre is simply inflamed, that is, painful, hot, secretions much pus, and the skin round the sore red and tense, but the ulcerating action does not threaten a great loss of tissue, it is better to allay the inflammation by rest, moderate diet, and cold lotions.

When the destruction of tissue is so rapid as to cause *sloughing phagedena*, the sloughing must be arrested by destroying the surface of the sore, beyond the limits of the morbid action which causes the mortification. The patient should be put under chloroform, and the surface of the sore cleared of the loose sloughs by snipping them away with scissors and wiping the surface dry. Then the red-hot iron should be passed evenly over the sore and along its edges till all the inflamed and ulcerating tissue is charred. This should be done deliberately and carefully, or the sloughing will begin again in a few hours. The pain of the cauterisation may be allayed by wrapping the part in rags dipped in ice-cold water for the first few hours after the operation. When the aching has subsided, a warm linseed poultice may be applied to hasten the separation of the eschar and cleaning of the surface.

The poultices and dressings should be mixed with weak solutions of chlorinated lime or soda, or of permanganate of potash, in the proportion of one to twenty of water when the discharge is offensive. Carbolic acid mixed with forty parts of water is also very effective, and the sores may be covered with lint soaked in the solution. The carbolic acid lotion is often used without poultices, and is very efficient in arresting the progress of inflamed or foul sores. The solution of carbolic acid in glycerine of the British Pharmacopœia diluted with six or eight times its bulk of water is a very useful lotion in such cases. When the inflammation is less intense, the poultices can often be advantageously replaced by warm

dressings. Warm lead lotion on strips of lint frequently changed, may be used instead of the disinfectants, when there is little disintegration and putrefaction going on. Now and then the tension of the skin around an inflamed chancre may require incisions. They should be carried through the skin at the borders of the sore until the parts are relaxed; there is often smart bleeding if the skin is much congested. This is beneficial if it does not continue too long, but the patient should not be suffered to lose much blood, and the bleeding must always be arrested before it goes too far.

Patients with sloughing phagedena are usually exhausted and in a depressed nervous irritable condition; they need rest in bed, quiet, and occasional sedatives, such as 10 to 20 drops of tincture of opium with 30 drops of aromatic spirit of ammonia and half an ounce of brandy every four hours, or a smaller dose in proportion with the patient's habits. The diet should be nourishing—strong beef-tea, eggs, soups, and when the tongue is clean, more substantial food. When the sloughing is produced by contagion in over-crowded wards, plenty of fresh air is absolutely necessary, and separation of the patients attacked with sloughing. Intercurrent complications, as diarrhoea, bronchitis, or pleurisy, must be treated in the ordinary manner, if they arise.

Chancre within the urethra requires salines, and copious diluent draughts, such as linseed tea, decoction of barley, &c., to render the urine less scalding. A solution of a half grain of sulphate of zinc to the ounce should be injected once or twice daily into the urethra, into which a shred of lint is also inserted till the chancre heals, and a catheter should be occasionally passed, lest a stricture develop from the cicatrix.

Chancres in the rectum or anus are very difficult to keep clean. The anus and rectum should be well washed with a

soft sponge and warm water several times daily if the discharge is abundant, and always after defæcation. When the parts are clean, half an ounce of lead lotion and glycerine in equal parts should be injected by a small india-rubber bottle, and the fissures filled with a weak red precipitate ointment. The bowels must be regulated and the fæces kept soft by laxatives, such as a small quantity of castor-oil, aloes, or confection of senna.

Chancre under the foreskin with phimosis, must be treated by syringing weak astringent lotions between the glans and the foreskin several times daily. If inflammation and sloughing appear, the red and swollen foreskin should be slit up, and turned back. The surface of the sore and of the incision may be well cleaned and then destroyed by nitric acid to prevent, if possible, the further extension of the ulceration along the incised surfaces. This done, the wound must be dressed with water dressing.

Chaps and fissures at the margin of the prepuce are best treated by turning back the foreskin and destroying the chaps with nitric acid; after this they usually heal quickly. Sometimes, when there is much persistent pain in the ulcer, ointments suit better than lotions, and a most useful ointment is a weak one of red precipitate, or zinc, frequently applied.

Treatment of Bubo.—In very early cases this may be preventive. On the first appearance of pains and swelling in the groin, the patient must desist from exercise, if he has not already done so, for the sake of his chancre. He should lie in bed as much as possible, and all irritating, stimulating treatment of the ulcer must be stopped. When the glands are swollen and painful, cold applications often aggravate rather than relieve the pain, and fomentations, which should be as hot as can be borne, and frequently renewed, must be employed. Not unfrequently these precautions suffice to allay the irritation when it is not due to absorption, but

easy an ending is not always enjoyed, and more energetic measures must be adopted.

Bleeding by leeches applied to the bubo itself is now and then required, when the pain is very violent and the local congestion high. The flow of blood should be continued by applying five or six leeches first, and replacing them as they fill, until the abstraction of blood has been kept up two or three hours, according to the strength of the patient. Leeches are worse than useless when suppuration has commenced, for they cannot prevent it, and if their bites are unhealed when the abscess breaks, each of the little wounds may be inoculated into a chancre. When the swelling has softened, and suppuration has set in, the passage of the pus to the surface should be hastened by poultices of linseed meal, applied between the fomentations. If cold has been previously used, the change to warmth must be gradually made, lest sloughing of the skin result from too hasty an elevation of temperature.

Pressure is of signal service to very slowly forming buboes, which are composed of enlarged glands and congested cellular tissue with little tendency to degenerate into matter. Steady compression will often disperse them without any suppuration. The pressure is procured by adjusting a thick pad of cotton wool or folded lint over the swelling, and confining it by a firm spica bandage or by strips of plaster carried round the body and thigh. The patient should avoid exercise during this treatment, or the compression will have little effect. In addition to simple pressure, plasters of iodine, of belladonna, or mercury spread on leather, may be applied to the swelling underneath the pad; or the swelling may be painted with solution of iodine dissolved in glycerine or in spirit, in the proportion of a scruple to the ounce. Pressure is employed sometimes with success at the earliest stage of the swelling. To obtain a

good effect, the patient should lie in bed, and wear the p four or five days if it lessens the pain, but if that increas the pressure is too late, and must be replaced by wa fomentations. Again, when buboes have been opened, a are non-virulent, the closure of the abscess is greatly hasten by applying pressure over the dressings, which of cou must be renewed as often as may be necessary to mainta cleanliness.

Vesicants are very serviceable at various stages of t bubo's progress, but most advantageous when the glan remain enlarged after the chancre is healed. A comm mode of applying counter irritation is to paint the part w a solution of $\frac{3}{4}$ j of iodine to the oz. of spirit, from which blister rises. The enlargement often disappears rapidly af a few repetitions of this blister. Potassa fusa, rubbed in half-a-dozen points, and left on 10 to 15 minutes, is also effectual irritant. If a piece of strapping punched w holes large enough to pass a pen, is laid over the swellin and the caustic applied to the skin through these holes, t extensive action on the skin will be prevented. In a quar of an hour the plaster and caustic may be removed, and t part washed with cold water. Potassa cum calce made in a paste with spirit of wine may be employed instead potassa fusa; it is as energetic but less painful than t latter.

Incisions may be used to relieve the tension of the swol glands before pus has actually formed, and should be ma as soon as the swelling softens, for the pus must come o and burrowing of matter under the skin is lessened by giv it free exit. It is in most cases best to make a small verti opening into each pointing part, that every focus of mat may be drained. A scrap of lint should be inserted in each incision to prevent the wound from closing before matter has drained away. After a few days, the contract

of the abscess may be hastened by injecting a 2 grain solution of sulphate of zinc or some other astringent into the sinuses morning and evening. When the abscess has already burrowed, several small openings should be made, and a few threads or a fine Chassaignac's drainage tube carried along the sinuses from one opening to the other to irritate the passages like a seton. The pus soon drains away through these channels, into which daily injection may be made, and the dressings covered by a compress; large buboes often shrink rapidly under this treatment. If the skin has already become purple and thin, it will be very likely to slough after the incisions; in which case, it is better to destroy the diseased skin by caustic. For this purpose, the perforated plaster and potassa fusa may be used, or the surface may be painted with a concentrated acid solution (3 ij to the ounce) of nitrate of silver. The crust, or eschar, may be punctured the next day, and the pus allowed to escape. The shrunken bubo may then be dressed with water dressing for the first few days, and afterwards by astringent lotions and pressure.

If the abscess has been converted into several fistulæ, passing in many directions through the cellular tissue, their cure is most difficult. The patient must be kept in bed, put under chloroform, and the fistulæ opened freely with a director and probe-pointed bistoury. Afterwards the channels must be filled with dry lint until suppuration begins, when the granulating surfaces must be dressed every day with strips of lint laid in the bottom of the wounds. The patient's usually debilitated state of health requires tonics and good diet, and a change to the sea-side often greatly expedites the cure. Sometimes a mass of enlarged glands which have no disposition to heal lies at the bottom of the wound; they should be destroyed by caustic, and the wound well poulticed, when granulations will speedily set in. Any

borders of skin which overhang the wound and are much undermined may be cut off with the scissors.

The constitutional treatment of indolent bubo depends entirely on the condition of the patient. No specific treatment is of any service, with the exception, if it be one, that now and then, a very obstinate ulcer will heal readily after being exposed a few times to the dry mercurial fumes. Mercury is also beneficial in these cases, if taken as an alterative to improve the digestion, for a short time. The patient should be particularly cautioned to avoid all but very moderate exercise until his bubo is dispersed or healed.

If the bubo be *virulent*, and after being opened is converted by the contagious virus into a chancre, the treatment must be similar to that of a chancre, and not that of an ordinary abscess. The great size of the new chancre and its rapid spread render the use of caustic to destroy it necessary. One application often fails to utterly destroy the sore, and the caustic may be repeated, with the hope of rendering the whole surface healthy. The open wound must then be treated according to its condition, by stimulating lotion or ointment, and pressure with a compress and bandage. But however treated, virulent buboes are usually extremely difficult to manage until they have passed through the usual period of a chancre's existence, six weeks or two months, after which they commonly heal without much trouble.

DIVISION IV.

GONORRHŒA.



CHAPTER I.

URETHRITIS IN MAN.

DEFINITION :—Urethritis : Causes, Seat, Extensions—Symptoms : Preliminary Stage, Acute Inflammation, Decline, Chronic discharge and Gleet—Varieties in the course of Gonorrhœa—Terminations—Diagnosis—Prognosis—Treatment of Urethritis : Abortive ; Systematic, to allay the Inflammation, to check the Chronic Discharge—Summary.

Gonorrhœa is contagious, purulent inflammation of mucous membranes. Its primary seat is, in man, the fore part of the urethra, in woman the fore part of the vagina. From these it may spread over the whole mucous membrane connected with its starting point. Further, if its discharge be applied to the mucous membranes of the eye and of the rectum, a similar inflammation is produced there. In its course gonorrhœa often leads to complications of two kinds, the first are extensions of the irritation to the parts around, such as inflammation of the glans penis, or of the prostate and neck of the bladder. In the second group the effect of the irritation is seen at a distance, and shows itself in rheumatoid inflammation of synovial and fibrous tissues ; for example, the capsule of the joints, or the capsule of the lens and iris in the eye. This second group, on account of the remoteness of the lesion from the primary seat of the

disorder, disposes many to attribute gonorrhœal urethritis to special virus. Others believe that there is no peculiar principle like that of syphilis, which is transmitted indefinitely between individuals, and produces a regular series of symptoms, but that the causes of gonorrhœa are constantly being originated afresh, and that its utmost consequences are purely the results of irritation in different constitutions.

Urethritis, whether it arise from contamination with secretions of a disordered vagina, or from the matter of gonorrhœal vaginitis, or from non-venereal causes, is very similar in its course and symptoms. Also, many of the consequences which follow urethritis set up by contagious discharges, may be observed in the course of non-venereal urethritis. For instance, the passage of a catheter or calculus may produce inflammation of the urethra, abscess, or prostatitis, even epididymitis and arthritis. These accidents are often preceded by a general disturbance of the system known as urethral fever. Thus, the line between gonorrhœal and non-gonorrhœal urethritis is not sufficiently distinct for them to be classed as two disorders; neither are the differences so unimportant as to allow all idea of the non-specific quality of the gonorrhœal urethritis to be rejected, though they characterise it but imperfectly.

The complications of the joints, testes, and other parts which are held to distinguish the gonorrhœal from all other forms of urethritis, are exceptional, and not regular sequences of gonorrhœa. According to Ricord, they only follow urethritis, never purulent inflammation of the vagina nor that of the conjunctiva and rectum, which are excited by the accidental introduction of gonorrhœal matter. Our knowledge is at present too imperfect to decide the question; there can be no doubt that urethritis in men is constantly being kindled by contamination with discharge

from the female genitals that have had no specific contagious origin.

The difference of seat of gonorrhœa in the two sexes renders a separate description more convenient, and male urethritis with its complications will be taken first, then vaginitis and its consequences in a separate chapter.

Urethritis has two main causes. First, *Contagion*. This is the most frequent cause of urethritis, and the sole exciting cause of gonorrhœa. Secondly, *Excessive irritation of the urethra*. This is produced by many causes, the most important of which are, excessive intercourse, prolonged sexual excitement, excess in alcoholic drinks, or the constitutional diatheses of gout and rheumatism. Local irritation of the genitals, such as the passage of instruments or calculi, the use of injections after coitus, or masturbation, may also cause inflammation of the urethra. But the main predisposing causes of venereal urethritis are habits of debauchery, drunkenness, and excessive sexual intercourse.

Persons of particular complexion or temperament, namely, the scrofulous and lymphatic temperaments, are more prone to catch and suffer more severely from gonorrhœa than others. Certain individuals, from no particular cause, never have intercourse without some discharge afterwards, others, on the contrary, however much they may expose themselves, never contract urethritis. Previous attacks also, much more than any other cause, render a person liable to fresh discharges after irritation. It is not yet certain whether a urethral discharge, excited without gonorrhœal contagion, can cause vaginitis in women; probably it not unfrequently does so, but this has yet to be proved. Be this as it may, *venereal urethritis*, the variety at present under consideration, may, under the conditions just enumerated, follow contamination with; 1st, acrid discharges secreted by women in various disordered conditions, not

the results of gonorrhœal contagion, such as uterine catarrh, menstrual flux, vulvitis, &c. 2ndly, with the discharge of vaginitis, set up by contagion with gonorrhœal matter. It is still strenuously denied by some surgeons, that a man can contract urethritis unless the woman giving it has also gonorrhœal vaginitis and urethritis herself. That is the gonorrhœal discharge, in their opinion, is the sole exciting cause of venereal urethritis. It is difficult to reconcile this theory with the fact that urethritis is many times the most common venereal disorder in men. Out of 118 patients at the Midi, 683 had urethritis,¹ and a similar proportion affects the patients at the London Lock Hospital. On the other hand, the number of prostitutes who have vaginitis and urethritis, is very much less than those who have purulent discharge from the uterus, which, indeed, is an almost universal condition among prostitutes in London. For this reason it is safer to agree with Ricord, that almost any disordered condition of the female genitals will, under favourable conditions, excite inflammation of the urethra in men. The importance of the condition of the individual plays in the production of urethritis explains the common observation, that a man will have urethritis after intercourse with a married woman whose husband is never attacked; also that a man may with impunity habitually have intercourse with a woman suffering with leucorrhœa, though he never and then has a smart attack of urethritis after coitus. On such occasions he has been more excited than usual, has been drinking hard, used an injection after intercourse, or has taken a hot bath on rising in the morning; in short, has stimulated the urethra into a condition when a very small irritation is enough to set up inflammation.

Seat.—Beginning at the first inch of the urethra, espe-

¹ Fournier : *Blennorrhagie*—Nouveau Dict. de Médecine et de Chirurgie Pratiques, p. 130. Baillière, Paris, 1866.

cially affecting the fossa navicularis, the inflammation spreads towards the bladder, but usually pauses at the bulbous part of the urethra. If this be taken as its ordinary extent, the following are the extraordinary extensions: the glans penis (balanitis), and the inner surface of the prepuce (balano-posthitis); the whole of the urethra; the neck of the bladder; the substance of the prostate; and the interior of the bladder. The ureters and pelves of the kidneys are stated to be sometimes attacked, the vasa deferentia, and Cowper's glands are undoubtedly so. Gonorrhœa may be still further extended by inoculating the discharge to the conjunctival membranes of the eye, the nostrils, and the rectum. The following complications also occur in gonorrhœa; inflammation of the epididymis, testis, and inguinal lymphatic glands. Lastly, rheumatoid inflammation of the joints and fasciæ, especially the capsule of the lens and iris of the eye, appear in the course of the disease.

The seat of the inflammation varies with its progress. At first, the redness and congestion do not extend beyond the fossa navicularis; soon they proceed downwards, either continuously, or by pauses and onward starts, so that the intensity of the congestion varies in the inflamed urethra from day to day. After a short time, if the urethra is examined with the endoscope, the fore part will be found to have lost its congestion and redness, while the disease is still active farther down. When the bulbous part is reached, the inflammation often stops and lessens in severity. During this decline it holds obstinately to one or two points, generally at the bulb or near the fossa navicularis. At these places it sinks deeper, attacks the submucous tissue and mucous follicles, causing induration and chronic congestion, which alter the aspect of the surface of the urethra, and produce changes of different kinds. A very common one is

arborescent and punctiform marking of the urethra with tortuous bloodvessels near the bulb and prostatic part. Groups of minute granulations are also found after the inflammation has continued a few weeks. Again, in cases of very long standing, the mucous membrane becomes uneven and rigid at places, and, as these indurated parts increase, they project on the surface, and form the beginning of a stricture. Small ulcers of very superficial depth are also seen, sometimes they bleed freely, and they are often beset with papular granulations which enlarge into indolent warts. The orifices of the ejaculatory ducts and of other urethral sinuses are in cases of long standing much deformed, sometimes they are dilated and twisted, at others contracted or closed altogether. Desormeaux describes a granular condition of the urethra, which he believes is produced only by gonorrhœa, and is generally the lesion which causes the discharge in gleet. These granulations are caused, he says, by the congested mucous membrane becoming eroded and thickened here and there; these thickenings soon project and form little round eminences or granulations the size of millet. This process extends over more or less of the surface of the urethra, but is generally confined to the bulbous and prostatic parts.

The *symptoms* may be divided into three stages; 1st, those of irritation and congestion of the mucous membrane; 2nd, those of active inflammation; 3rd, those of recovery and chronic discharge. Before the signs of irritation begin there is generally an interval after contagion which varies between two and eight days. This is short in those who are liable to discharge after coitus, or who have had gonorrhœa before, and long in those who have contracted the trouble for the first time; in such persons four to five days is the ordinary interval before the premonitory symptoms appear. These begin with a little tickling or tightness

at the end of the passage, which at first is not unpleasant. The itching part may be somewhat swollen, and usually a viscid discharge exudes from the meatus, gluing its lips together. This condition lasts a day or two, or even longer, but is then succeeded by acute inflammation.

The second stage begins with much redness and swelling of the mucous membrane, with slight pouting or eversion of the lips of the meatus urinarius. The glans penis swells and the discharge grows purulent, thick, yellowish green, and more abundant. In three to four days these symptoms reach their height, when the penis is swollen, very tender, and semi-erect; the glans is often of a dark-red colour, and the veins are full and turgid. The urethra, from the congestion of the corpus spongiosum, feels like a hard cord, sometimes slightly knotted as far as the inflammation has proceeded. The pain at this time is very severe, and consists of a sensation of heat in the inflamed part, with aching and dragging in the groins, testes, and loins. Micturition is very slow and painful, causing violent scalding that lasts some time after the urine has been voided. This is first felt at the meatus, but as the inflammation descends the urethra, the pain moves lower and lower down. The stream is altered, being either smaller and weaker than before, or the urine comes by drops, even retention may take place through the swelling and dread of pain. The general system, especially in young persons, is disturbed; there is mental depression or weariness, and occasionally pyrexia—heat and chills, thirst, nausea, quick pulse, and other signs of fever. When the inflammation extends down the urethra, to the bulbous part, there is felt a good deal of weight and tenderness in the perinæum. The necessity to rise and make water is frequent at night, and the rest is disturbed by involuntary erections of the penis from reflex irritation. They usually occur when the patient falls

asleep, and are exquisitely painful. From the congested state of the vessels of the corpus spongiosum, distension of the erectile tissue takes place imperfectly, and a characteristic crooked state of the organ called *chordee* is produced.

Third stage.—After seven to fourteen days' duration, the symptoms improve; the inflammation subsides, the swelling and hardness disappear; the *chordee* grows less violent and less frequent; the tenderness and pain of the groins depart; micturition is again free and causes less pain and the discharge, though less, is still greenish and thick. By the end of another week, the pus has become white and much less abundant, and the other symptoms have almost disappeared. A little tickling and occasional smarting often remain in the passage for some time till every sign of disease has slowly disappeared. Naturally, urethritis subsides in a few weeks and leaves no trace of its presence, but this termination is often not attained, for reasons to be mentioned.

If the patient now neglects the precautions he has observed during the acute stage, the scalding and discharge are very apt to return. Both long continuance of the discharge, whether it be copious and purulent, or scanty and thin, and frequent relapse in severity of the inflammation are probably never unavoidable, but always due to the patient's disregard of his directions or to the surgeon's mismanagement of the disorder. Repeated irritation of the urethra by intercourse, erections, and seminal emissions is a most constant obstacle. Patients should always abstain from coitus, or from whatever is likely to produce sexual excitement, for some time after all the discharge has ceased, because remnants of congestion are still left for some time longer, and easily inflame again if irritated by excess. Stimulating articles of drink and food, especially strong wine, beer, spirits, and strong coffee, cannot be borne with saf-

for some time after the discharge has stopped. Asparagus, and highly seasoned dishes, curries, &c., are particularly irritating to the urethra. Then, standing for a long time, walking, dancing, and riding are extremely likely to bring on a discharge again after it has apparently ceased. In the same way I have known a long railway journey cause a gonorrhœa to return with its first violence, when taken while some discharge remained after a smart attack of inflammation.

Ill judged efforts to cure the disorder not infrequently prolong or revive the discharge. If the patient is naturally weakly, or obliged to continue his occupation, depletion by purgation, low diet, and sudorifics, sometimes lowers him so far that the urethritis lapses into chronic gleet. On the other hand, the use of injections of too great strength or in unsuitable conditions of the urethra, is certainly a very frequent cause of continual return of the discharge. A patient uses an injection for a few days; under its influence the discharge quickly subsides, and the injection is laid aside, but the congestion continues, and soon the discharge returns the same as before. It happens not infrequently that the patient, by his unceasing efforts to cure his discharge with one remedy after another, keeps up a congested state of the urethra sufficient to furnish a little thin mucus every time he presses the canal. Such a discharge will cease if he lets it alone, and diverts his mind for a week or two at Malvern or some other bathing-place. Again, the oftener the discharge is reproduced, whether this happens through neglect or unsuitable treatment, or through fresh contagion, the more difficult it is to cure.

Varieties in the course of Gonorrhœa.—The foregoing description applies in its general outline to the majority of well-marked cases, but from this typical representation there are several departures, of which the following are the chief.

The discharge is often the first notification to the patient that he has contracted the disease, for it may precede the swelling and pain by a day or two, and these are slight or altogether wanting. In other cases, the tenderness, scalding, and swelling occasionally continue for some time before the discharge appears at all; this variety has received the name of *Gonorrhœa sicca*, or *dry clap*.

The intensity of the inflammation varies very much. The first attack is commonly the most severe one, but the severity is dependent in some measure on other circumstances, especially on individual peculiarity. The patient's habits with regard to temperance in alcoholic and venereal indulgence and his state of health at the time of infection greatly influence the intensity of the inflammation. Middle-aged men generally have gonorrhœa less acutely than youths, and persons who suffer from acne usually have the disease very severely and obstinately.

Terminations.—There are several ways in which simple gonorrhœa subsides. The first and most frequent is gradual disappearance of the symptoms of the chronic stage. In a certain number of patients the discharge soon becomes very much lessened or departs almost altogether, but the scalding on micturition and chordee remain still violent. The mucous membrane is generally brightly red, and the urethra tender if pressed between the finger and thumb. If the patient is questioned, some irregularity on his part will generally be confessed. He has been riding, playing cricket, or has not been sufficiently abstemious in respect of wine and spirits. Even when the patient has not failed in this respect, he often has for several weeks a small quantity of secretion, and a little itching in the urethra which increases after dinner to scalding and smarting. In another patient the discharge may remain abundant and thick without pain or scalding for months, and in very rare cases

even for years, before it subsides. This form is found in persons of gouty constitution, or who suffer with irritation of the bladder or kidneys.

Another termination of gonorrhœa is termed *gleet*, by which is meant the persistence, often in spite of various treatment, of a scanty, thin, pale white discharge from the urethra. Sometimes the quantity is sufficient to afford a drop whenever the urethra is pressed, at others a drop of matter is obtained only in the morning, on rising from bed. Lastly, there may be only a little continual moisture, with a drop of pus now and then. The sensations felt by the patient at this stage of his disease rarely exceed a little occasional itching and smarting. These obstinate discharges, though unimportant in many cases, as they often continue through life without producing any inconvenience, should always be cured, as at any time they may cause irritation of the genital organs, and rekindle violent urethritis, or inflammation of the prostate or neck of the bladder. A little obstinate discharge is often the outward sign of the formation of an organic stricture, which, growing slowly and imperceptibly, will eventually cause much trouble. There is another danger, too: the state of the patient's mind induces him to constantly examine his genital organs; he grows morbidly anxious about himself, becoming not unfrequently hypochondriacal and unable to pursue his occupation in life, or enjoy society; he is rendered miserable by the dread of various evils, real and imaginary; and in this condition he becomes desperate, and a willing victim of quacks and charlatans.

In gleet the mucous membrane is usually pale and moist, and thickened over a small part of the urethra, where the inflammation has not ceased. The parts which recover their healthy tone least readily after gonorrhœa are the fossa navicularis near the external orifice, and

the bulbous and membranous parts. If the gleet comes from the fossa navicularis, there is often a little tenderness on pressing the urethra about an inch below the meatus, and a little pus oozes from the opening. If the discharge comes from the bulb, there may be a little tenderness, the urethra be pinched behind the scrotum, but usually not even this remains. A very characteristic sign of the condition of the deeper part of the urethra often escapes observation, namely, the appearance of little threads of clot in the discharge in the urine. These clots are formed in the deeper parts of the urethra in the intervals of micturition and should be looked for in the urine passed on rising in the morning, when a long interval has elapsed after making water. Besides the foregoing conditions, a small wart, a ulcer, or an enlarged follicle in the floor of the canal is sometimes the cause of the discharge and point of tenderness. Relaxation of the prostate, when its ducts continue to secrete a small quantity of muco-pus, will often keep up a constant thin discharge. Lastly, a debilitated condition of the system such as scrofula, in which all mucous surfaces are prone to secrete pus, may be the real cause of the discharge from the urethra, without any special local lesion to account for it.

In such various ways the natural course of the disease is interfered with and hampered, so that mismanagement as much as the peculiar character of the disease, produces the frequent relapses and obstinate continuance of the discharge which so constantly characterise the course of gonorrhœa.

Diagnosis.—Gonorrhœa may be most readily confounded with a *urethritis* set up by non-contagious irritation. But in this the inflammation begins immediately after the application of the irritant. In gonorrhœa the symptoms are usually delayed till four or five days have elapsed after the impure intercourse. The course is usually more severe.

in gonorrhœa than in non-specific inflammation. These distinctions serve as a general rule, but often fail to render the diagnosis certain, for purulent inflammation of non-specific origin is occasionally as violent as any gonorrhœa, and as difficult to quell. The only occasion where an absolute diagnosis is required, occurs when question of unchastity is raised in connection with the origin of the discharge, and in these cases the surgeon will, of course, give a decided opinion only on the clearest evidence.

Another affection which is not unfrequently mistaken for gonorrhœa is *urethral chancre*. This form of chancre is, if not close to the meatus, most frequently an indurated one ; it is usually situated at, or just within the meatus, very rarely more than a third of an inch away from that point, hence it can be easily felt as a tender spot becoming hard : I have felt it an inch and a quarter below the meatus, but this is exceptional. The amount of the discharge is very slight, the symptoms of irritation such as erections, pain in the body of the penis, and prolonged smarting after making water are absent, and enlargement of the inguinal glands with other signs of syphilis show themselves.

Balanitis may be mistaken for gonorrhœa, especially for that form in which the glans penis is inflamed as well as the urethra ; but in balanitis, when uncombined with gonorrhœa, there is no discharge from the urethra. Micturition is painless if the foreskin be drawn back so that the urine does not trickle over the inflamed part. The readiness with which the inflammation is reduced by cleanliness, is also a very distinctive character of balanitis.

Syphilis.—Constitutional syphilis has been in very rare and exceptional cases known to succeed discharge without induration. This apparent anomaly is caused by both affections having been contracted at the same time, for we know persons can suffer from the two diseases at once, and

the mucous membrane when swollen and inflamed by gonorrhœa, is an excellent hot bed for the absorption of syphilitic poison. Bating this exception, syphilis has no connection with gonorrhœa. A purulent discharge from the urethra may be owing to abscess or sinus in the prostate, or near the neck of the bladder, communicating with the urethra. Attention to the patient's history will avoid mistaking this for gonorrhœa, and if he is made to pass water into two vessels that which is voided last will generally be mixed with pus. In gonorrhœa the last portions of urine are clear, because the matter in the canal is washed away by what runs first.

The Prognosis is favourable in most instances, if ordinary precaution is taken and no other acute disease is present; nevertheless, instances of fatal result are recorded, if to the gonorrhœa typhoid or scarlet fever be added. Likewise death has been caused by extensive inflammation of the kidneys, bladder, or prostate, with formation of abscess and urinary infiltration. In healthy men the first clap is ordinarily the most severe, but not always so. Immediate appearance of the symptoms indicates a short duration, if other conditions are equal. In weakly scrofulous persons gonorrhœa lasts longer, and more frequently degenerates into a gleet than in others. When an opinion is expressed as to the ultimate consequence of the inflammation, it must be borne in mind also, that stricture is a not infrequent result of gonorrhœa, and that the disease often lingers an indefinite time in the form of gleet.

TREATMENT OF URETHRITIS.

Abortive treatment, or the treatment employed to cut short the disease during the incubating period before acute inflammation begins.—While the symptoms are confined to a little tickling at the meatus, and the discharge is a little clear viscid fluid glueing the lips of the meatus

together, the gonorrhœa may be stopped by the application of a powerful caustic injection, or by administering, at short intervals, large doses of the gonorrhœal specifics, cubebs and copaiba. For injection, a solution of nitrate of silver containing 15—20 grains to the ounce of distilled water should be employed. Half a drachm of the solution should be injected once, twice, or thrice in twenty-four hours, according to the violence of the effect produced: very often one injection is sufficient, and more are needless or hurtful. Besides nitrate of silver, various other powerful irritants are used, among them the acid nitrate of mercury dissolved in water, which I have seen cause a contraction of the meatus without cutting short the gonorrhœa. Chloroform has been injected by Venot of Bordeaux. Liquor potassæ, and other caustics, have also been tried with success about equal to the nitrate of silver. The reaction after these injections is usually violent; there is much swelling, and the pain in the penis, perinæum, and groins is severe; micturition is terribly painful for the first two or three times after the injection. Thin bloody or serous discharge oozes plentifully from the urethra, bringing with it curdy shreds of inspissated mucus. Actual bleeding of the urethra sometimes happens, but is of no moment. The discharge subsides in forty-eight hours, and, if the treatment is successful, it is easily wholly cured in a few days by ordinary means. The constitutional disturbance is often violent, shivers and headache with fever are not infrequent; to remedy these, the patient should keep his room, wrap the penis in cloths wet with ice-cold water, drink plentifully of warm bland fluid, and if shivers come on cover himself with hot blankets. These precautions usually suffice to allay the constitutional disturbance, and the local inconvenience passes away also in a short time. But this happy result is often not attained. This failure may be because injection

has been employed too late, for it is utterly useless when the discharge has become puriform, or when the mucous membrane is injected and swollen; if abortive treatment be employed in this state it greatly increases the violence and duration of the inflammation, instead of allaying it. Injections also often fail to check a discharge, even when applied under the most favourable conditions, and the urethritis runs its course apparently uninfluenced by the attempt to arrest it.

Not infrequently additional suffering and danger are caused by the violent inflammation following caustic injections. Inflammation at the neck of the bladder, abscess in the prostate and perinæum, orchitis, and bubo have all been known to succeed caustic injections, and bring with them their attendant dangers. Painful micturition and retention of urine are not infrequent, but they are easily managed. Stricture of the urethra may follow the use of caustic injections, but the risk of this is exceedingly small, as stricture results from long continued inflammation of the mucous membrane, and where the abortive treatment succeeds, all inflammation is speedily at an end. The cases proper for abortive treatment are those where the inflammation is only just beginning, and has not extended far down the urethra, wherefore there is no necessity to send the injection beyond the first portion of the canal. By tying a tape round the urethra, two inches down the penis, or even by compressing it with the finger and thumb, the deeper part is not cauterised and the danger of inflammation of the neck of the bladder and prostate very much diminished.

Ricord has devised a plan of abortive treatment which is less irritating than the one just described. He uses a solution of acetate of lead and sulphate of zinc, about 10 grains to the ounce, and adds to it a little laudanum. This injection is applied three times daily, and kept each time

three minutes in the urethra. While the injection is being used, the patient takes increasing doses of copaiba or cubebs, beginning with twenty or thirty grains, three or four times a day. In three or four days the discharge should be stopped, or changed to a little thin mucus, when the number and strength of the injections may be gradually lessened, and the copaiba or cubebs diminished. This plan, like all the rest, often fails, and if not successful on the first trial, should not be continued, lest it excite chronic inflammation of the urethra, and so cause gleet and trouble.

Besides injections, large doses of cubebs and copaiba are sometimes successful as abortives. One or one and a half drachms of freshly powdered cubebs made into a bolus with mucilage, should be taken every four hours during twenty-four hours, while the patient remains quiet and keeps on low diet. This method, especially recommended by Mr. Langston Parker, affords occasionally good results. Instead of cubebs, a scruple of copaiba may be taken in a similar manner, or beaten up with yolk of egg and magnesia; but it produces vomiting and purging more frequently than cubebs, and can rarely be borne in such large doses. If the discharge does not stop at the end of three or four days, the treatment may still be persevered in a couple of days longer, but if no effect is produced by this time, it should be laid aside, as it will be of no service. This plan of abortive treatment is so uncertain that it is but seldom employed by surgeons at the present day.

Systematic treatment, which has no pretence to cut short the disorder, but only aims at curing it by allaying irritation of every kind, is often the most expeditious, as well as the pleasantest and least dangerous to the patient; in the long run it is the safest for the reputation of the surgeon. In treating gonorrhœa careful regulation of the patient's habits and diet is most important. Abstinence from every kind of

irritation must be insisted on, not only while the inflammation is acute, when the injunctions are readily complied with, but also for some time after the discharge has ceased. The patient must refrain from sexual intercourse, or sexual excitement of any kind; he must discard highly flavoured dishes, curries, asparagus, strong coffee, effervescing wines and beer. On the other hand, nothing is gained (except, of course, when the acuteness of the inflammation causes constitutional disturbance) by starvation. In delicate people a small quantity of claret or brandy, both being well diluted with water, assist digestion, and further the progress toward recovery. Personal cleanliness must be rigorously observed and the genitals frequently washed to remove the discharge as it collects. The amount of bodily exercise should be very limited; in the acute stages the patient is better in bed, or on a sofa. Under all circumstances, the penis and testes should be carefully supported in a suspensory bandage. For some time after the discharge has ceased the patient must be cautious about the amount of exercise he takes, and avoid hunting, dancing, or other severe bodily exertion. It is well to warn the patient of the risk of purulent ophthalmia in all cases, as many of the uneducated classes are not aware that such contagion may take place.

At first, while the inflammation is slight, and the discharge not great, the patient should rest as much as possible and follow a spare diet of a little meat, eggs, light pudding or milk, and give up every kind of stimulant. He should drink about two pints of barley water, iced water flavoured with lemon-juice, or some other bland fluid, each day between meals. It is well to add an alkali to the drink, and a formula used by Puche is a very agreeable one, it is—

Bicarbonate of Soda	3jss
Powdered Sugar	3ij
Essence of Lemon	Two drops

Mix, and when required for use, dissolve the powder in a quart of water, to be drunk in the course of twenty-four hours.

In cases where the irritation is unimportant, it is not necessary to do more than what has just been directed, and if the urethritis subside in this stage so much the better.

In the *acute* or highly inflammatory stage, depletory measures must be added to the regimen fit for the preliminary stage. The patient, if not taking alkali already, should take every four or six hours a draught containing salines and diaphoretics, such as the following:—

Bicarbonate, or citrate of potash	grs. x—xx
Nitre	grs. iii—v
Ether	℥ vi—x
Tincture of opium	℥ iv—viii
Camphor water	℥ i—ii

This will render the urine less acid, consequently less irritating to the inflamed mucous surfaces it passes, and promote perspiration. The bowels must be cleared with a draught of Epsom salts every morning.

Warm baths, in which the whole of the body is immersed, are very useful. They should be tepid, and the patient must remain half an hour at a time in them. Some French surgeons recommend that they should be taken three times a day for four or five days during the violence of the congestion, and then less frequently until the acute stage is passed. Hot hip baths are not so good as tepid general baths, as they favour the congestion of the genitals instead of checking it. The penis should be wrapped in strips of rag dipped in warm water, and covered with oil-silk. Instead of hot water, ice-cold water sometimes gives greater relief, and whichever eases most should be used. When cold is preferred, it should be continuous, so that the rags are not alternately warm and cold, as frequent change of temperature stimulates injurious afflux of blood into the

inflamed parts. Besides wrapping the penis in ice-cold cloths, patients are much relieved by occasionally injecting spoonful of ice-cold water into the urethra, especially before making water, if that is painful. Pain is also much relieved by 15 to 20 leeches to the perinæum, with warm fomentations after the leeches have fallen. If the relief following the leeches is not permanent, they may be repeated the next day.

During the acute stage injections into the urethra of various kinds are recommended. I have never found that any, with two exceptions, is of the slightest service if the congestion is really violent. Oil, solution of opium, mucilage, &c., appear rather to harass the patient and increase his discomfort, instead of allaying it. Half-hourly injections of tepid water into the urethra, I have seen sometimes give great relief, and shorten the acute stage; but very often the patient finds no relief, and soon loses faith in the remedy. If the congestion be moderate, and the irritation not severe, hourly injections of alum or sulphate of zinc, on a quarter of a grain to the ounce, are often extremely beneficial; but if the irritation increases they should at once be discontinued. It is very doubtful, also, if cubebs or copaiba are ever beneficial at this stage. Ricord is strongly against their use, on account of their irritating quality, both to the stomach and to the urethra. Fournier says he has found very small doses of copaiba allay the pain in micturition when that is very severe, but he discontinues them as soon as the pain is relieved.

Painful micturition is best relieved by alkaline drinks, dilute and render the urine alkaline; by warm baths, rest, and local depletion; these usually render the pain bearable enough. The injection of ice-cold water into the urethra before making water, or the immersion of the penis in a cup of ice-cold water while micturating, is often very

effectual in easing the pain, and Fournier's mode of using copaiba for this purpose may be tried.

During the stage of acute inflammation, *erections* of the penis are always more or less violent, and cause much suffering. They have obtained the name *chordee*, and consist of imperfect distension of the corpora cavernosa and spongiosum excited by the irritation in the inflamed urethra. They are most violent at night as the patient falls asleep, or after he has been asleep a short time. The congestion and exudation into parts of the erectile tissue prevent the blood entering at these places and distension takes place irregularly. The penis is twisted, or even bent down, and the pain becomes excruciating while the erection lasts, which is often for one or two hours at a time. These erections occur again and again during the acute stage, and not infrequently for some time in the chronic stage. Deformity and pain in the penis during erection sometimes becomes permanent, through inflammation of the erectile tissue, but this will be again mentioned among the complications of gonorrhœa.

Chordee may be prevented by avoiding all sexual excitement, by keeping a moderate diet, and by lying on a hard mattress lightly clothed. Stimulating medicines, or drastic purgatives, increase the tendency to erection, the latter by irritating the pelvic nerves. Numbers of drugs have been recommended to ward off or allay the pain, but most have very little effect. Camphor is sometimes useful while the acute congestion lasts: two or three grains should be taken in the form of pills or emulsion. In France, a popular mode of using camphor is to put a bit as big as a pea in a quill, which is held in the mouth like a cigar and the vapour inhaled. Opium is a much more certain remedy; 10 grains of Dover's powder may be taken an hour before going to sleep. A better mode of giving it is as a suppository $\frac{1}{3}$ or $\frac{1}{2}$ grain of morphia in 10 grains of cocoa butter,

passed into the rectum on going to bed. When the pain is violent, 30 to 40 drops of laudanum in a wineglassful decoction of starch should be injected into the rectum, as it acts more speedily than the two former methods. Scarenzi recommends subcutaneous injection of $\frac{1}{10}$ to $\frac{1}{5}$ grain morphia into the perinæum as a means of allaying the chordee without producing general narcotism. Extract of belladonna or henbane, either alone or with opium, may also be given as suppositories, 2 to 3 grains in each suppository. Cold applied to the penis when erection has come on, more speedily reduces it. Strychnia, in doses of $\frac{1}{32}$ to $\frac{1}{16}$ th part of a grain, twice or thrice daily, is often beneficial to prevent nocturnal chordee. This drug was, I believe, first recommended for this purpose by Mr. Henry Lee, its action is capricious; in some instances it fails altogether to exert any influence over the chordee, in others, it controls the erection perfectly.

When irritation has been somewhat allayed by the foregoing means, there is not much to be done until the inflammation begins to subside, or passes to the chronic condition. The frequency of the baths may be lessened, and the quantity of diluent diminished or exchanged for a drink of barley-water, with half a teaspoonful of syrup of tolu and liquorice; or decoction of uva ursi, or some other demulcent. In a few days the discharge changes from greenish to yellow, and grows less; the scalding and erections cease or diminish, and if the patient does not expose himself to fresh irritation, in a week or two more of this expectant treatment all symptoms of his urethritis vanish.

If from any cause the natural termination is not reached, as too often it is not, the discharge must be arrested by repressive agents, *i.e.* local astringents, injections, and

¹ Gazette des Hôpitaux, p. 363. 1866.

medicines of specific virtues. Before attempting to treat a chronic discharge from the urethra, every effort should be made to ascertain the cause. In many cases, even in most obstinate ones, their persistence is due to continued irritation of some kind, and this should always be ascertained before instituting treatment. Moreover, the site of the discharge varies much; the matter may come from the fossa navicularis, from the bulbous part, or from the prostatic part, for these localities may secrete a considerable quantity of discharge when the urethra is not inflamed over a very extensive surface. When the discharge has subsided to a thin gleet, there are many sources from which it may spring: a small abscess in the wall of the urethra, an enlarged follicle, or the prostatic sinuses may continually secrete small quantities of matter. A granulation, or wart, or excoriated patch on the surface of the urethra, is a still more frequent cause. In old long-standing gleans a stricture is often the cause of the discharge. Then many muco-purulent discharges depend more on the anæmic condition of the patient, than on the state of his urethra; instead of feeble, he may be plethoric and gouty in his constitution. All these various conditions must be sought before any treatment is adopted. The sources of irritation must be removed; debility treated by iron, cod-liver oil, and quinine. Good diet, change of air, sea, or fresh water bathing are also requisite to invigorate the patient's system. Gouty persons must have their disposition corrected by colchicum, alkalies, moderate unstimulating diet, and other means of like kind. When the cause of the discharge is confined to the urethra, that should be searched carefully, all tender points and irregularities along the corpus spongiosum noted, and its interior examined by a sound with an olivary point; for stricture is far more readily detected by such an instrument than by an ordinary sound. The exploration of the urethra

with the endoscope should not be omitted in obstinate case of gleet. This instrument is especially useful where, as is often the case, a small ulcer or wart is the cause of the discharge. When the lesion is found to be of this kind, a drop of caustic solution can be introduced with a sponge along the urethral tube to the exact spot where the discharge is secreted, and a cure is sometimes thus very quickly produced. Desormeaux, who claims great superiority for the endoscope in treating gleets, advises it should be frequently passed that the astringent may be applied regularly to the diseased part. I have always found that after the first few times, the irritation following the use of so large and cumbrous an instrument, always excites more discharge than the original lesion. The endoscope is useful to ascertain the condition of the canal, and also to apply caustic once or twice perhaps to a wart or ulcerated patch, but it does not supersede ordinary injections.

Before treating a gleet that has continued a long time, it is a good plan to watch the patient and learn his habits, and as much as possible of the peculiarities of his discharge. Generally some error in management has to be corrected before any specific treatment is likely to succeed. With this object the patient should have careful directions respecting his diet, exercise, and occupations, in order to exclude sources of irritation of that kind. While under observation the patient should have a warm bath every night, and take some simple saline several times a day to render the urine neutral, and allay any irritation that the continued use of injections may have excited. This expectant treatment should be continued for several days, or even three or four weeks, until the discharge has become more purulent and abundant. If injections and specifics are now given a fair trial, success is much easier of achievement than if it had been sought without this delay; moreover, the discharge sometimes subsides of its

while waiting for the proper moment for injection, and a cure is attained without further trouble.

Specific Anti-Gonorrhœal Remedies.—There are several drugs which check discharges from the urethra when excreted from the blood with the urine. Copaiba and cubebs are the most undoubted of them, but the balms of tolu and peru, chian turpentine, canada balsam, tar, pine tops, and other allied substances also arrest urethral discharges to some extent.

Copaiba is diuretic and stimulant to the kidneys, and to all the mucous membranes. Its effect is frequently more marked upon the stomach and intestines than in the genito-urinary passages; if so, it causes nausea, indigestion, and even purgation; but when the urethral discharge is greatly diminished by the medicine, the patient is willing to submit to a certain amount of discomfort for the sake of the benefit he also receives from its stimulant effect on the urethra. It is unsafe to give copaiba where there is persistent pain in the loins or albuminuria, lest it cause hæmaturia. Bumstead¹ relates an instance of this, and a case of the kind has occurred under my own observation, where the urine became of a coffee colour on the second day of taking a copaiba mixture. Copaiba is generally believed to be useful only when taken internally, and inert when used locally, notwithstanding the old fashioned practice of giving copaiba injections. But Hardy of Paris, and Roquette of Nantes, in experimenting on this, found that injections of urine in which copaiba was dissolved very markedly checked a urethral discharge. If given in too large doses, besides purging the patient, it causes febrile reaction and irritation of the skin, over which an erythematous blush (*Roseola balsamica*) spreads. The rash is not confined to any particular part of

¹ Bumstead on Venereal Diseases, p. 97.

the body, and is accompanied by intense itching and desquamation as it subsides. Cubebs has also a specific effect on the discharge, it is less irritating to the stomach and bowels than copaiba; it should be freshly powdered when taken in that form, for the essential oil, which is the active principle, is volatile. To produce a good effect, it is probable that both copaiba and cubebs must be excreted with the urine from the kidneys, and pass over the mucous membrane of the urethra. This is shown by Ricord's experiment: he gave copaiba to a patient with gonorrhœa and a urethral fistula through which all his urine passed; the matter disappeared from the urine, but the discharge from the anterior part of the urethra not bathed by the urine remained unaltered.

The good effect of copaiba and cubebs depends almost entirely on their being given when the mucous membrane is ready for them; if given too early, they fail to do good, and generally do harm; thus it is better to begin too late than too early. The urethra is in the most favourable condition for them when the pain on passing water is gone, painful erections are at an end, the discharge is less in quantity, and yellow rather than greenish and viscous rather than purulent. But the persistence of one or other of these signs, if the inflammation is manifestly subsiding, does not always contra-indicate the use of copaiba. Much pain in passing water is always a sign that specifics will do harm; so also is a congested bright red or livid red state of the mucous membrane, with copious white discharge. Therefore in deciding whether the time is come for giving or withholding these stimulants, the surgeon must assure himself that the acute stage of inflammation is fairly past, and that the irritation the patient may complain of is not depending on a congested condition of the mucous membrane.

In apportioning the quantity to be given also, a few poin

are to be borne in mind. The best effect is produced when the blood is continuously charged with the copaiba or cubebs, hence the doses should be frequent, but as these drugs are extremely apt to disorder the stomach, no more should be given than is necessary. Some persons can only bear copaiba or cubebs in minute doses, others will digest large doses easily, and require them to produce any effect on the discharge. In all cases it is best to give as much as they are likely to bear, and moderate the dose afterwards if necessary; but usually one to two scruples of copaiba per diem, or one or two drachms of cubebs, in divided doses, are as much as the patient can bear without producing nausea, indigestion, and loss of appetite. The best time for taking them is midway between meals, when the stomach is nearly empty of food. The patient should avoid drinking between meals, that the effect of the copaiba may not be weakened by diluting the urine. When specifics are resorted to, they should be kept up some time even when, as often happens, they check the discharge at once, for it should never be forgotten that the condition producing the discharge is always much slower to subside than the discharge itself; hence, if found to act favourably, they must be steadily continued for three or four weeks. While they are taken, beer, wine, and spirits must be withheld, or their good influence will be neutralised by the irritation following this indulgence. Cubebs and copaiba are given often indifferently, but generally one suits each individual better than the other, and this must be learned by experiment in each case. Cubebs is less irritating than copaiba, hence it is better borne by dyspeptics. The irritating quality of cubebs and copaiba is often diminished by giving bismuth or liquor potassæ with them, or alkalies of other kinds. Dover's powder, and bitter tonics, gentian or quassia, are also serviceable in the same way.

The nauseous taste of copaiba has led to innumerable

electuary of three parts of cubebs to one of copaiba and one of magnesia. Cubebs may also, for anæmic persons, be usefully combined with carbonate of iron in the proportion of one drachm of cubebs to a scruple of the carbonate. The oil of cubebs may be given instead of the powder in capsules (five to fifteen a day), or in solution with tincture of steel and tincture of belladonna, and in many other ways.

Oil of sandal wood often quickly cures gleet where it can be borne, but not unfrequently it acts like copaiba by exciting nausea, vomiting, and purging, though in a less degree. It may be given in doses of twenty to sixty drops in peppermint water three times a day; if the remedy is borne, the discharge is usually quite arrested in a week or ten days. Fournier¹ speaks of the oil of rosemary as having specific value in checking gonorrhœa, but he is not prepared to say how far it may be relied on for this purpose.

Injections are by some surgeons almost exclusively employed in the treatment of gonorrhœa, and at every stage of the disorder; while by others they are condemned as almost useless or even hurtful. Moreover, a long list of substances are used for this purpose, many being very different in quality and effect. With the scant knowledge of their physiological effect we possess, it is natural that when prescribed hap-hazard, without regard to the patient's condition, injections should sometimes cure, sometimes have no influence, and sometimes do harm. Nevertheless, when proper precautions are adopted, there is no reason to fear violent inflammation of the deeper part of the urethra, extending to the prostate or the neck of the bladder—accidents that sometimes follow a mistimed use of astringents. Rheumatic affections of the joints and other parts, and strictures of the canal, are often popularly attributed to using injections to

¹ Loc. cit., p. 174.

remove a urethritis, but there is no foundation for this reality. Arthritic complications are just as frequent when no injection has been employed as after using one. Strictures are caused by long-continued inflammation of a part of the canal, and if the injection is rightly used, it would be more likely to prevent a stricture by curing the chronic inflammation than to induce one. Several conditions must be fulfilled to render injections efficacious. Their value is most acknowledged in checking the discharge after inflammation has ceased. It is always a dangerous practice to employ them during acute inflammation, for too early use of injections is often the cause of mischances that sometimes follow their adoption. Recourse to them should not be had until the acute inflammation has completely subsided, and they are most effective when given to complete a cure that has already made progress by other means. After the next place injections must be continued a considerable time, not laid aside as soon as the discharge disappears.

The strength of an injection should always be small at first, never sufficient to excite more than a few minutes' smarting, and gradually increased until the desired effect is produced. The strength should then be gradually diminished, until it reaches what it had at the commencement. Injections must also be used often enough; usually three times daily is sufficient, and the fluid should be retained one and a-half or two minutes before it is allowed to escape. Another indispensable rule in using injections is to give them up whenever they irritate the canal, or to change them until one is found that the urethra can bear. The susceptibility of the urethra to injections varies much in different persons. Reaction sometimes occurs on its first application; in such cases a few days' pause and a weaker solution will enable the patient to begin his astringent treatment again. In some the mucous membrane is stimulated by very w

solutions; in others it requires a solution four times as strong to check the discharge, and restore the urethra to a healthy condition.

Besides prescribing an injection, the patient should always be instructed in the method of using it, for if untaught, he often derives little benefit from its use. The syringe should be made of glass, and should be short and wide, that one hand may work it easily. The nozzle, half an inch in length, should be bulbous at the extremity, that the meatus may be readily closed against it. When the injection is to be used, the patient makes water to clear out the discharge that has collected in the passage, that the membrane may be freed from mucus before the injection comes in. This precaution taken, the patient inserts the nozzle into the canal, but not too far, and pinches the penis with the thumb and fore-finger of the left hand *on each side* of the nozzle, *not above and below*, that he may not compress the fossa navicularis against the nozzle, and prevent the flow of the injection over the part where it is most wanted. All being ready, he depresses the piston with the right thumb until the injection is thrown in. Unless the discharge comes from the prostatic part, it is not necessary to inject more than about two tea-spoonsful at a time, but that much should be retained about two minutes before it is allowed to escape; if it has properly distended the passage, the fluid returns with a spirt from the meatus.

The drugs employed in injections are of various kinds; some suitable to one condition, some to another. If the discharge is thick and tolerably plentiful, but scarcely any scalding remains, two drachms of a solution of nitrate of silver (of one-third or half a grain to the ounce of distilled water) injected thrice daily for three days, will usually produce great diminution of the discharge. Where this fails of effect, but does not excite pain and irritation (in which case

injections must be postponed), it should be changed for some other astringent. The chloride or the sulphate of zinc, in solutions of similar strength, or the acetate of lead in solutions of one to five grains, should be used, beginning with the weaker solution first.

A very useful formula in these cases is the "Four Sulphates," alum, zinc, iron, and copper, ten grains of each being dissolved in eight ounces of water. The solution is not used at full strength at first, but the first day is diluted with three times its bulk of water. If severe smarting follows its injection, it may be even further diluted before it is used again. The strength of the injection is gradually increased till the full strength is used or the discharge stops. This being attained, the injection should be diminished in strength step by step, until plain water is reached. In this plan ten days should be employed, and a pause allowed before any other treatment is adopted should that prove necessary.

Various other drugs, such as oxide of zinc suspended in mucilage and water, have been employed, but their use does not give better results than those obtained by the before mentioned preparations. The injection of copaiba into the urethra is an old remedy, and often successful, but its action is very uncertain. An injection containing from one to two drachms of copaiba to the ounce of thin mucilage, is the most usual form of application. A useful injection for a serous discharge from a relaxed mucous membrane is made of three scruples of white bismuth rubbed up with four drachms of glycerine, and suspended in five ounces of water. This injection should be employed three times daily, for three or four days, and then gradually discontinued. Tincture of steel, of the strength of five to twenty drops to the ounce of water, or protiodide of iron, eight grains to the ounce, form injections that are best employed by commencing with a dilute strength, and increasing them da

by day, till the discharge ceases, when they should be gradually discontinued by successive steps of dilution. Rough red wine, such as Burgundy or port wine, used as injection, is often very beneficial and successful where other means have failed. It should be diluted with once or twice its bulk of water. Occasionally watery solutions of tannic acid, of tincture of rhatany, and other vegetable astringents are beneficial, but they are uncertain, and tannin is apt to cause much painful irritation of the urethra. In old gleet the glycerine of tannin of the British Pharmacopœia, diluted with four times its bulk of water, is very effective when the discharge depends on a general relaxed condition of the mucous membrane.

When the discharge comes from the bulbous or deeper parts of the urethra only, the injections can be best applied by passing them through catheters directly to the part affected. The catheter employed for this purpose should be gilt, perforated with fine holes near the beak for about one and a half inch, and have a small elastic bottle fitted to the mouth. The bottle is filled with a solution of nitrate of silver, or sulphate of zinc, about 20 to 30 grains to the ounce, and screwed on to the catheter, which is then passed into the urethra short of the bladder. If the bottle is compressed, the fluid flows slowly into the membranous part and distends that with caustic injection; after one or two minutes the instrument may be withdrawn and the fluid allowed to escape. This active treatment sometimes excites smart inflammation, and perinæal abscess may follow; but when the precaution is taken of keeping the patient quiet in bed a few days, this hardly ever happens. The following plan of Diday's ensures that the posterior part of the canal shall be thoroughly bathed by the injection. A catheter, to which an elastic bottle, capable of holding six or eight ounces and fitted with a stop-cock and nozzle, can be applied, is passed

into the bladder. The urine is at first withdrawn, and then six ounces of solution of sulphate of zinc of two-thirds of a grain to the ounce are injected slowly; when the fluid has entered the bladder the catheter is to be withdrawn, and the patient told to void the contents of the bladder in a natural manner; by this means, the urethra is distended during some seconds by the injection passing through it, and every part of the mucous membrane is washed by the fluid. The operation should be repeated daily, unless it cause irritation at the neck of the bladder, which is the chief objection to adopting this method. It is successful in obstinate cases of discharge from the prostatic part of the canal, and may be tried when other means have been exhausted.

Again, a catheter of similar construction, but with larger holes, is filled with powder of equal parts of nitrate of silver and starch, and passed to the site of the discharge. The powder is then blown through the holes on to the mucous surface by means of an air syringe fitting the outer end of the catheter. Ricord¹ has lately used with success in obstinate gleet the injection of powdered astringents—bismuth and phosphate of magnesia, by means of a straight catheter open at both ends, in which slides another tube formed at one end into a spoon-like trough, the other end screws on to a small caoutchouc ball. The catheter is introduced to the neck of the bladder, the powder put in the trough, which is passed along the catheter till it projects beyond it in the urethra. The whole instrument is then slowly withdrawn while the ball is compressed, and the air it contains blows the powder out of the trough in a cloud that reaches throughout the lining of the urethra.

The regular introduction of *bougies* is a very efficacious

¹ Bulletin de l'Académie de Médecine, xxxi. 1866.

plan of curing certain obstinate gleet. Discharges from slight stricture, and from indurations of the mucous membrane, are most successfully treated by this plan. A bougie, or sound, large enough to fill the canal, should be passed every day, and kept in the urethra ten or fifteen minutes. The bougies usually excite some irritation and increase the discharge after the third or fourth time of passing, when they may be left off. After the irritation is at an end, the discharge sometimes ceases completely; but it is generally necessary to have recourse to a mild astringent injection to complete the cure. If the bougies fail to cause reaction, they may be passed twice a day, or exchanged for a flexible catheter, and tied in for three or four days. This soon sets up a smart discharge, when the catheter should be removed, and the irritation allayed by demulcent drinks and a few warm baths. If a discharge remains after this, it may be arrested by injections or a few doses of cubebs and steel.

The irritating power of the simple bougie has been increased by covering it with stimulating ointment, of red oxide of mercury, nitrate of silver, and other similar preparations. They are sometimes beneficial, but very uncertain in their effect. Bougies, dipped into solutions of gum and nitrate of silver and allowed to dry, are useful to introduce into the bulbous part when that is the source of the discharge; the gum dissolves in the mucus of the passage, and sets free the nitrate at the place where it is required. Bougies so prepared are difficult to introduce, because the gum rarely dries evenly, but leaves the instrument rough on the surface. Bougies of cocoa butter, which become liquid at the temperature of the body, have been suggested by Sir Henry Thompson¹ for introducing

¹ "Lancet," May 12, 1866.

medicaments in the solid form into the urethra, as Sir James Simpson employs them in treating uterine disorders. Each bougie is 3 to 4 inches long, and contains some one of the following substances; $\frac{1}{4}$ grain, or $\frac{1}{2}$ grain of nitrate of silver, 5 grains of white bismuth, 1 grain of perchloride of iron, 5 grains of biborate of soda, 2 to 4 grains of extract of belladonna, 1 grain of opium, 2 to 3 drops of copaiba, or 5 grains of mercurial ointment. After the introduction the meatus is closed for a few hours with a strip of plaister wound round the glans to keep in the melted ointment. This method is useful in some cases, but like all local remedies is uncertain in its action. The bougies with borax, belladonna, or opium are used to allay irritation when inflammation is active; they may be passed every night when the patient goes to bed, but they are more likely to set up reflex irritation than when the sedative is introduced into the rectum.

Many surgeons still cauterise the urethra for chronic discharges with solid caustic, after the manner of Lallemand. This method has many objections; it often causes violent irritation, pain, and even perinæal abscess; and it is extremely uncertain, from the difficulty of applying the caustic exactly where it is wanted. This method of treatment must for these reasons be reserved for cases where all others have failed, and its ill-effects should be guarded against by preparing the patient with a few days' rest before the cauterisation, and by keeping him very quiet for some days afterwards. Immediately after the operation he should take a warm bath, and stay in bed till the pain has passed off. In patients, whose discharge is trifling, but of great obstinacy and resists the most careful treatment, time will often work a cure if the urethra is left to itself. Such persons must, however, have their impatience allayed by treatment that occupies their attention, and satisfies them

that they are not neglected. Counter-irritation is useful when the discharge depends on chronic prostatitis rather than on inflammation of the urethra; in such cases the effect is often exceedingly well marked. The best way to repeatedly blister the perinæum, is to touch a small surface every other night with a little caustic tincture of iodine or liniment of cantharides. The patient may do this for himself, only he should be taught how small a surface it is necessary to touch at a time to avoid disagreeable irritation and soreness. While doing this, he may take some mixture of soda and gentian, have his habits carefully regulated, and now and then pass a week or two at Malvern, or some quiet sea-side resort.

SUMMARY.

Gonorrhœa is contagious purulent inflammation of the urethra and vagina, with occasional extension to other mucous surfaces by contamination with the discharge from the urethra. Certain complications also attend it now and then; namely, rheumatoid inflammation of the joints, eyes, and synovial bursæ. The chief *causes* of urethritis are gonorrhœal contagion, and excessive irritation of the urethra through sexual excitement and other causes. Acrid discharges in the female, which have not arisen from contagion, may excite urethritis in the male. Thus, the condition of the individual is much concerned in his contracting or escaping urethritis.

The seat of urethritis is at first the urethra as far as the fossa navicularis, thence it travels down to the bulbous and membranous parts. It usually proceeds no further, but dies away gradually, leaving patches of the mucous membrane here and there still inflamed. In certain cases it extends to the prostate and cellular tissue about the urethra, to the neck of the bladder and the epididymis.

The *anatomical changes* in the mucous membrane are general uniform congestion in the acute stage; as inflammation subsides, the surface is marked by patchy redness arborescent and punctiform congestion, fine granulations reaching to the size of warts, induration, and contraction of the mucous membrane, which cause stricture and irregularity of the passage.

Course.—In the first stage, itching, redness, slight serous discharge, and smarting on making water. Presently, violent swelling, copious yellowish green discharge, smarting pain in the urethra, and aching in the penis, perinæum, and groins come on. Micturition and erections at night with much pain are frequently, and general febrile disturbance sometimes present. Naturally, the disorder subsides by the gradual cessation of the symptoms; but it is frequently prolonged or brought back to its first intensity by neglecting the precautions necessary to prevent irritation. There are often deviations from the ordinary course in the quantity of discharge, and in the severity of the pain, which depend on the patient's constitution and habits. The disorder *terminate* in three ways—cessation of pain and discharge; cessation of pain and diminution of discharge; and cessation of all the symptoms, except a minute quantity of serous discharge or *gleet*. The *diagnosis* is often impossible to make between gonorrhœal urethritis and urethritis from other causes, when none of the complications peculiar to gonorrhœa are present but it is a matter of minor importance. Urethral chancre gives a discharge from the meatus, but the ulcer can be seen when the urethra is examined. Syphilis has been supposed to have urethritis for a commencing manifestation; this is not so, syphilis may accompany urethritis from simultaneous contagion, but has no connection with gonorrhœa. Balanitis is easily distinguished by the absence of urethral discharge. It is often present with gonorrhœa. Abscess of the

prostate or perinæum may cause purulent discharge from the urethra; the history and condition of the patient soon distinguish the origin of the discharge. The *prognosis* is favourable if precautions are taken early, but gonorrhœa is the predominating cause of stricture, and may cause many severe consequences and complications.

Treatment is abortive and systematic. *Abortive* treatment strives to cut short the disorder with strong caustic injections, or large doses of specifics before acute inflammation arrives; it is rarely successful and not free from danger. It should never be tried when the congestion and plentiful discharge shew that the preliminary stage is past. *Systematic* treatment first removes all sources of irritation and allays the acute inflammation. When all pain on passing water has ceased, when the discharge is thin, white, and much diminished in quantity, and reflex irritation has stopped, the remaining chronic inflammation may be cured by copaiba or cubebs taken internally, or by astringent injections applied locally. But recourse should not be had to these remedies when there is much smarting on making water, copious greenish discharge, or dull red congestion of the urethra. Other drugs which stimulate the mucous surfaces are used besides copaiba and cubebs, namely, Chian turpentine, balsam of Peru, of Tolu, and oil of red sandal wood, &c.; they are comparatively of little value. Besides injections of various kinds, the passage of bougies is a valuable means for stimulating the mucous membrane. They should be passed often enough to rekindle some of the acuteness of the inflammation and then laid aside for a time. Stimulant preparations are sometimes spread over their surface to increase their activity, and possess a certain amount of value. In the treatment of obstinate long standing discharges, the patient should be thoroughly examined before any treatment is instituted, and kept some time under observation while his

habits are regulated, that the urethra may recover from any influence previous unsuccessful treatment may still retain. This being done, and the cause of the discharge being ascertained, the treatment should be energetically applied and continued a sufficient length of time.

GONORRHŒA.

CHAPTER II.

THE COMPLICATIONS OF GONORRHŒAL URETHRITIS.

Balano-posthitis—Phimosis—Warts—Retention of urine—Inflammation of the lymphatic vessels and glands—Hæmorrhage from the urethra—Inflammation of the corpora cavernosa—Peri-urethral abscess—Inflammation of Cowper's glands—Prostatitis—Inflammation of the vesiculæ seminales—Inflammation of the neck of the bladder—Cystitis, Nephritis—Epididymitis, Orchitis, Sterility.

Purulent discharge from the rectum—Purulent ophthalmia.

Rheumatoid affections of the eye, the joints, the synovial bursæ, and nerves—

Summary.

Balanitis, inflammation of the mucous membrane of the glans, and *posthitis*, inflammation of the inner surface of the prepuce, are often induced by the irritation of gonorrhœal pus, when the patient is not cleanly, or has a prepuce with too small an orifice to allow it to be slipped behind the glans. These affections consist of itching, general redness of the surface, and a copious purulent discharge, with a disagreeable odour from putrefaction of the secretion of the glandulæ odoriferæ. Erosions often occur on the inflamed surfaces, and they sometimes become superficial ulcers that spread rapidly beneath the foreskin. In treatment the first thing necessary is cleanliness; the part should be washed every two or three hours while the secretion is copious, and a piece of lint soaked in a weak solution of sulphate of zinc placed between the inflamed surfaces. If the foreskin cannot be turned back for this purpose, the

discharge must be cleared away by syringing warm water underneath the foreskin and injecting lead lotion freely.

Phimosis is the condition a long tight prepuce assumes when inflammation attacks the glans beneath it. The foreskin swells with œdema, and often sloughs away, from the circulation being arrested by the swelling. In *paraphimosis* the foreskin is constricted behind the glans, either through a long and narrow foreskin having slipped back before swelling began, or less often through the foreskin being so short that it cannot be brought over the glans, and yet too small to allow swelling to take place when inflammation sets in. When the skin is very œdematous, it should be freely pricked with a needle to let the serum escape, and well supported. If sloughing is imminent, it is better to slit up the foreskin at once, and trim away the deformity when the irritation has subsided. When the foreskin is behind the glans, that should be firmly compressed by the right thumb and forefinger till the blood and serum are squeezed out, while the left draws the foreskin forwards. If this is very tight, it may be incised over the dorsum penis till the constriction is relaxed and it can be brought forward. Sometimes the patient neglects to apply for relief until the inflammatory action has produced adhesion, and the prepuce can no longer be brought over the glans; in such cases the constriction must be relieved, and the irritation allayed by rest and fomentation.

Warts, also called *vegetations*, are little rounded round eminences growing on the parts of the skin continually moistened by the discharge, near the genital organs. They are most common on the inner aspect of the prepuce around the corona, and near the frænum. They are enlarged papillæ of the cutis or mucous membrane covered by a thickened epidermis; sometimes they secrete a foetid discharge. To get rid of them they may be snipped off with

scissors, and their roots touched with lunar caustic ; before doing this, it is useful to pinch the root with the finger and thumb, or the hæmorrhage is sharp enough to wash away the caustic and be rather troublesome to arrest. Cleanliness and the use of an astringent lotion will prevent the formation of others. Touching the warts with a solution of chromic acid (1 in 10 of water) a few times is very effectual in causing them to wither and disappear ; but it is a painful resource. They will often shrink rapidly without further trouble if they are touched every morning with the strong solution of diacetate of lead of the Pharmacopœia, and covered with dry lint. Many other plans of treatment are successful, the main condition of all being great care in keeping the warts dry and free from discharge.

Retention of Urine.—This troublesome accessory of gonorrhœa makes its appearance at any time during the continuance of the discharge. It sometimes comes on while the inflammation is at its height from excessive congestion of the urethra closing the canal. But it usually occurs in the later stages of the disease, when subsidence of the inflammation allows the patient to relax his regimen, though the discharge has not wholly ceased ; a fit of retention is then brought on by drinking wine, intercourse, or exposure to cold. It may result from using an injection too soon, or even, though very rarely, from taking copaiba ; sometimes, but still more rarely, the protrusion of an abscess, or of extravasated blood in the erectile tissue, blocks up the urethra. Retention from these different causes is generally transitory, and easily removed ; unless, and this is most commonly the case in retention, the urethra is at the same time permanently contracted by a stricture. The patient should be placed at once in a warm bath, and kept there till faintness comes on ; in this condition it often happens that the urine is passed from the relaxation of the spasmodic

contraction of the canal. In the meantime four drachm of Epsom salts should be given to cause free purgation and while this is waited for a drachm of laudanum and an ounce of thin starch should be injected into the rectum. If the congestion is very severe, eight or ten leeches to the perinæum may be applied as soon as the patient leaves the bath. The condition of the bladder must be noted; if the patient can pass any water at all, there is no need for hurry: the measures just mentioned will soon remove the congestion sufficiently for him to evacuate his bladder easily; but where no urine whatever has been voided for some hours, and the bladder is so distended that it can be plainly felt in the rectum or above the pubes, a catheter should be passed, if possible, when the bath has been tried without success. The patient should be given thirty drops of tincture of opium, and in half an hour the attempt may be made to pass the catheter. If no stricture be present a No. 6 or 7 elastic catheter should be introduced, and steadily, but gently, pushed along the urethra till the bladder is reached; when evacuated, the catheter may be withdrawn. When there is stricture it is, of course, impossible to pass a large catheter, and small ones must be employed. Flexible ones should always be preferred, and can generally be passed though in certain cases, where false passages exist, a silver one can be introduced when a flexible one will not go. If the patient is first anæsthetised by chloroform, the catheter will often pass, when it is too tightly grasped to allow it to slip by if the patient is conscious. Should the surgeon fail to introduce the catheter, he must not hesitate to puncture the bladder by the rectum, a resource that is, however extremely seldom required if due patience and perseverance are exercised with the catheter. When the catheter has been introduced it should be tied in, lest the difficulty in passing water continue and the bladder fill again, in which case the

catheter may not pass a second time. Leaving the catheter in the urethra has been strongly condemned, lest its continual presence increase the irritation of the canal; this danger is over-rated, while the recurrence of retention is almost certain to take place if the catheter is withdrawn before the congestion subsides.

Inflammation of the Lymphatic Glands and Vessels.—During a smart attack of gonorrhœa, the glands of the groin often swell and grow tender for a few days, while the irritation of the urethritis lasts. Very rarely the congestion of the glands runs on to abscess, but this is always a simple non-virulent one, and heals readily by ordinary means. In weakly or strumous persons, a long-standing discharge may excite the glands to enlarge slowly and painlessly. They seldom pass to suppuration, and that when it occurs takes the course of a cold abscess. The management of bubo in gonorrhœa differs in no respect from that of ordinary sympathetic bubo from the irritation of venereal sores.

The *lymphatic vessels* inflame now and then in the course of gonorrhœa. The skin of the penis along the dorsum and near the frænum præputii is marked with a rosy-red streak, which aches and swells into a ridge. The lymphatic vessels can be felt as hard, tender cords along the dorsum on each side the middle line. These signs are soon accompanied by some œdema of the sheath and foreskin, and by pain and swelling in the glands of the groin. In a few days the inflammation subsides, and the skin resumes its ordinary condition. It requires only rest and a few warm fomentations to remove the pain and tenderness. Sometimes, the inflammation of the lymphatic ducts is slow, there is no redness, œdema, or other signs of acute inflammation; the cords themselves can be plainly felt and are usually a little tender along the dorsum, while smaller threads can be traced at the sides and in the prepuce. Now and then little

abscesses form along the course of these indurated vessels which burst and leave small sinuses that will not heal, unless laid open from end to end and closed by granulation.

Fournier¹ ascribes another variety of inflammation in the tegument of the penis to inflammation of the lymphatic network. The foreskin grows red, and swells rapidly into a round firm mass. Sometimes this swelling extends to the whole penis, which then reaches an enormous size, is lumpy and constricted here and there by deep furrows. The pain is very severe, and the constitutional disturbance well marked; micturition is often slow and difficult from the orifice in the prepuce being closed by the swelling. The violent irritation sometimes causes suppuration in the groins, to which the redness and swelling in the skin may also extend. This form of inflammation closely resembles erysipelas by the rapidity with which it extends over the penis, and the amount of œdema it produces; hence, it has received the name of diffused or erysipelatous angeioleucitis. Notwithstanding the seeming gravity of the disorder, it usually subsides in a few days without causing suppuration of the cellular tissue or any other complication. It requires rest, frequent warm fomentations, and relief of the tension by punctures and incisions, without waiting for the appearance of fluctuation. Warm water should also be injected under the foreskin to clear away the discharge as it collects, to prevent balanitis.

Hæmorrhage from the urethra to a small amount is unfrequent in gonorrhœa. The discharge is tinged with blood, or a few drops flow from the urethra after an erection or attack of chordee. When the inflammation attacks

¹ Article, *Blennorrhagie*: Nouveau Dict. de Méd. et de Chirurg. pratique, p. 186. Paris, 1866.

neck of the bladder, a few drops of blood after micturition is a very common symptom. Now and then hæmorrhage is copious, and may be even dangerous if allowed to continue. Fournier¹ mentions a case of a man who rapidly lost a large quantity of blood from rupture of a blood-vessel in the urethra during an attack of chordee. Fournier found his patient blanched like a woman after post partum hæmorrhage, and the bed drenched with blood. Such cases are extremely rare, though smart hæmorrhage from rupture of a vessel during chordee is not unfrequent. When called to treat hæmorrhage, nothing need be done for the small loss that accompanies the discharge, or for the few drops that escape after micturition. Even when the blood is flowing freely, if the penis is much congested and semi-erect, it need not be checked, unless a considerable quantity has been lost, for the bleeding relieves the congestion and nearly always stops spontaneously when the penis is relaxed. Should the feebleness of the patient or the amount already lost render it necessary to arrest the flow of blood, this is best done by putting the patient to bed, clothing him lightly, wrapping the penis in ice-cold cloths, and applying ice to the perinæum. If this does not suffice, ice-cold water may be injected repeatedly into the urethra. Solution of perchloride of iron may be added to the water in greater proportion from time to time, if the bleeding do not stop. Fournier, in the case just mentioned, used one part of perchloride to five of water before he checked the hæmorrhage. Pressure may be employed also, by passing a catheter and winding a compress round the penis, and pressing a well-padded crutch-handle or walking-stick firmly into the perinæum; but this method is more painful and not more speedy than cold and rest.

¹ Loc. cit., p. 180.

Inflammation of the Corpora Spongiosum and Cavernosa.

The congestion of the spongy tissue often causes extravasation of blood into its substance, which may either, by the swelling it occasions, narrow the urethral passage and produce retention, or break through the mucous membrane and give rise to slight hæmorrhage, which gives much relief by emptying the overfilled vessels. Another consequence of inflammation is effusion of plastic matter in the spongy tissue; this causes permanent induration of the penis at one or two points. While the inflammation is in progress, the penis is swollen and tender in two or three places, which afterwards become harder than the rest of the organ, and occasion distortion when erection takes place. Sometimes this deformity is permanent, and sexual intercourse may be made impossible. More often this deformity receives greater attention from the patient than it deserves, and he becomes morbidly solicitous about the condition of his penis, and full of fancies about his capability for sexual intercourse.

Abscess forms about the urethra in several ways. One of the most frequent cause is irritation of the follicles of the submucous tissue. These, having their communication with the urethra cut off during the course of gonorrhœa, become distended with matter, and form small rounded masses beneath the navicular fossa. They remain quiet for a time, then grow tender, enlarge, and, in most cases, make their way to the surface, instead of perforating the urethra. After the escape of the matter, they leave small sinuses that close open from time to time, but are exceedingly slow to heal thoroughly. Now and then larger abscesses than the former form beneath the navicular fossa which slowly make their way through the skin, or into the urethra. They produce a globular tumour on one side of the frenum the size of a pea or even as large as a nut, sometimes they are double, or

on each side of the frenum. Fluctuation is soon well marked in them, but they may distend the foreskin greatly before they come to the surface, which is usually by an orifice in the prepuce close to the frenum. If the urethra has been opened a fistula is left between it and the under surface of the penis, somewhat resembling hypospadias at first sight.

Another favourite locality for these larger abscesses is around the bulb, where they are extremely insidious, and often remain several weeks unnoticed by the patient until they begin to spread, when they cause pain fixed to a certain point, and discomfort on making water. The pain soon becomes constant and throbbing; the stream of urine is often diminished from the projection of the swelling in the wall of the urethra, sometimes even arrested, and retention takes place. If the perinæum be examined, a tender, hard, indistinct fulness is perceived, which increases to a circumscribed tumour placed nearly always in the middle line. Fluctuation is generally indistinct until the matter is very close to the surface; but before this takes place the abscess usually attains the size of half an egg, and forms a projection that is easily seen. In most patients there is also grave constitutional disturbance, such as shivering fits, before the abscess becomes distinct. Commonly the abscess opens on the surface before it communicates with the urethra, in which case it readily heals without further trouble. In other cases the abscess communicates both with the surface of the body and with the urethra. It then forms a *urinary fistula*, or a sinus leading from the urethra, sometimes to the perinæum, sometimes to the rectum. The abscess often burrows widely under the skin in several directions before reaching the surface, and forms a series of tortuous channels, along which the urine escapes whenever the patient makes water.

When the abscess is at the extremity of the penis it rarely causes much inconvenience or danger. It may, nevertheless even here cause great suffering and sloughing of the corpus spongiosum. In a patient recently under my care in University College Hospital, an abscess formed at the fossa navicularis and burrowed along the corpus spongiosum for two inches; it then entered the urethra, and the irritation it excited caused sloughing and troublesome penile fistula. The dangerous peri-urethral abscesses are for the most part those in the perinæum, the more so when they open into the urethra, for the risk of extravasation of urine is considerable, though this accident does not always happen. Many times an abscess breaks into the urethra, pus escapes, and continues to pass away for a time in a small quantity until it ceases, and no further mischance results.

In treating these abscesses about the urethra, the chief object to be avoided is their penetrating into the urethra; hence their progress to the surface should be assisted, and their contents evacuated as soon as possible. When the matter has found its way into the urethra, the patient must be carefully watched, and if any difficulty in passing water remain, a catheter should be tied in the bladder to carry the water freely away, and lessen the danger of infiltration of urine into the cellular tissue. When this does take place the sinuses should be opened, and free exit given to the discharge as quickly as possible.

The Glands of Cowper sometimes inflame during the late weeks of gonorrhœa, and produce a special variety of peri-urethral abscess. The gland grows painful and swells. At first it can be felt as a small tender knot close to the bulb and the raphé. The pain is increased by walking, the chafing of the dress, &c. In a few days the cellular tissue around the gland suppurates, and a soft, round, fluctuating tumour points in the perinæum. Before pointing, however

the matter in this form of venereal abscess is particularly apt to burrow around the urethra and among the muscles of the perinæum. After it has opened, matter drains from the cavity for some time, till the passage closes, and an indurated mass remains. The left gland is more frequently attacked than the right according to Gubler; but both may be simultaneously inflamed. The course of this inflammation is nearly always to the formation of abscess; but it is said that the irritation of the inflamed gland occasionally subsides without suppuration. During the formation of the abscess, the patient frequently, besides pain and sense of fulness in the perinæum, has pain in the urethra, difficulty in making water, and a good deal of constitutional fever. More serious consequences sometimes follow the abscess, namely, purulent infiltration of the perinæum and perforation of the urethra, though this result is less frequent after inflammation of Cowper's glands than after other forms of peri-urethral abscess.

Prostatitis is a rare but very serious accompaniment of gonorrhœa, and is frequently excited by irritating the urethra with powerful injections. It often follows the excitement of sexual intercourse and alcoholic irritation, and it is also likely to happen if a patient, with discharge from the prostatic part of the urethra, undertakes severe bodily exercise, or exposes himself to cold and damp. The prostate then becomes congested, and inflammation extends from the mucous membrane of the urethra to the substance of the organ.

There is an unusual amount of constitutional disturbance, fever, repeated shivering fits, much mental anxiety and distress. Thirst is always a prominent symptom, and the urethral discharge is checked while the prostate is inflamed. Among the earliest symptoms is throbbing and sense of a foreign body in the rectum, and painful frequent desire to

defæcate. Micturition is slow and very painful, often the urine escapes only by drops, but is passed when the patient lies quietly with less difficulty than if he stands up. If, in order to relieve the distended bladder, the catheter is passed the instrument is often diverted from its course when it reaches the prostatic part of the urethra, and always causes much pain in its passage, wherefore it should be employed only when absolutely necessary. If the finger is pressed on the prostate, either in front of or inside the rectum, it gives great pain, and the prostate is found much enlarged, often more so on one side than on the other.

The symptoms last with more or less severity for a few days or a week, and then slowly depart, leaving the organ somewhat enlarged, but all impediment to micturition disappears in most cases. Occasionally the prostate is permanently indurated. After all the enlargement has departed, the prostatic part of the urethra may be so altered in its position with the neck of the bladder, that micturition is very slow, and liable to retention on the least irritation at the neck of the bladder. In some instances the derangement is so great that the catheter has to be passed henceforth every time the urine is voided.

Abscess often forms during the course of prostatitis in and around the prostate. When in the prostate itself, the abscess usually breaks into the urethra, and gives immediate relief, the urine flows easily, and brings away much pus. When the focus of suppuration is rather outside the prostate than within its interior, the abscess points in the rectum or in the perinæum, or even into the bladder. The advent of suppuration is marked by repeated violent shivering fits after which the general fever abates, and the throbbing pain in the prostate gets more distinct and constant. Some time elapses before the abscess reaches the urethra or the rectum during which the patient is still tormented by retention of

urine and pain at defæcation; but the moment the matter escapes relief is immediate, and the power of emptying the bladder with ease is regained. After the escape of the matter by the perinæum, the cavity shrinks, and the patient recovers without further trouble, except some irregular enlargement of the prostate. In other cases the urine gets into the abscess, and infiltrates among the cellular tissue round the neck of the bladder. This mischance is signalled by sudden severe rigor, great distress, and pain. Unless relief be speedily obtained, the patient's strength fails, and after a short period of great suffering he dies, exhausted by the supuration in and around the prostate. Post mortem the prostate is found to be pale, riddled with fistulæ containing putrid matter, and beset with abscesses between the rectum and vesiculæ seminales which communicate often with the bladder and rectum. Peritonitis has occasionally been observed in cases of sloughing and destruction of the prostate through infiltration of urine or fæces into the cavities of the abscess.

Besides these acute and violent forms of inflammation of the prostate, there is a *chronic variety* in which the organ is somewhat enlarged and tender to the touch or during defæcation, if the bowels are costive. The patient feels soreness on making water, and sense of weight in the perinæum after standing some time. There is a thin muco-purulent discharge from the prostatic ducts, which is most abundant towards the close of micturition as the compression of the levator ani muscle drives out the secretion from the ducts, where it collects. This is generally sufficient to cause a little gleety discharge from the urethra, which, as the other symptoms subside, keeps the patient's attention fixed on his disorder, and to removing which he attaches great importance. This chronic prostatitis is very slow in its course, and extremely apt to become acute on the smallest fatigue or exposure to

damp or cold. Indeed, prostatic gleet is often incurable and last for years after every other symptom has long disappeared.

The *treatment* must be active and well-timed to prevent serious disaster. The patient must remain in bed, and the pelvis be raised to a level with the shoulders. The diet should consist of strong soups, that as little drink may be taken as possible. Lumps of ice, dissolved in the mouth with an occasional teaspoonful of acid-drink, slake the thirst best, and keep the quantity of urine at a minimum. Opium may be given in doses of eight or ten drops of liquor Battleyi every three or four hours, care being taken that its effects are not pushed too far. When the patient is much prostrated, brandy and port wine, and ammonia in effervescing mixtures are absolutely necessary, but alcoholic stimuli should be withheld unless absolutely required by the exhaustion of the patient.

Local treatment.—Cupping the perinæum to 6 or 8 oz of blood is very serviceable, and may be repeated if the pain does not subside in a couple of hours after the first application. Ice-cold clysters sometimes alleviate the pain but they are not free from danger. Warmth should be employed in the form of a hot hip bath (106° or 108°) for two minutes, but not longer, as the object of the bath is to induce determination of blood to the surface of the body away from the internal organs. The hot bath may be repeated at intervals of two or three hours if it allay the pain and when combined with opium clysters it may always be tried to relieve retention of urine. The catheter should be kept as a last resource, and then a very flexible French one must be used if possible; but it is often necessary to employ a silver instrument as the flexible one cannot be introduced past the obstruction. When abscesses have formed round the neck of the bladder, as soon as distinct fluctuation is

felt, an incision through the rectum should be made, both to relieve the pain and to prevent the suppuration from spreading more widely than is unavoidable.

The chronic form is most difficult to treat. While the organ is still tender and enlarged the patient must be restricted from walking, riding, and every violent exercise. His diet should be nourishing, but stimulants very cautiously used; claret and light wines being always preferable to port and sherry or brandy. Every precaution against exciting congestion of the prostate must be avoided. Sexual intercourse is inadmissible, and the patient should lie on a mattress at night with only a moderate quantity of covering. The bowels must be carefully cleared every day to prevent congestion of the rectal and prostatic veins, and the patient must take iron and quinine, and other tonics if he is at all debilitated. Medicines in the later stages have little effect on the gleet, but iron in large doses, small long-continued doses of Fowler's solution, bichloride of mercury and bark, are all useful in invigorating the patient's constitution. A course of tepid sea baths in winter, and bathing in the open sea in summer, or a month at Malvern or other watering-place, are much more beneficial. They restore the patient's strength, and keep his mind occupied and himself away from the pursuits likely to excite him, and cause congestion of the sexual organs. The best local treatment while pain is present is a warm hip bath morning and evening. Afterwards, when the pain and tenderness depart, continuous small blistering of the perinæum, or a small seton, when blistering has been fairly tried without producing a good effect on the discharge, is useful. When the prostate is quite callous to pressure, its relaxed ducts may be stimulated by passing a full sized steel sound, No. 11 or 12, twice a week, but this expedient must not be attempted until irritation has subsided, lest it excite too much reaction.

Inflammation of the Vesiculæ Seminales is a complication very little known and seldom seen. Fournier¹ describes the symptoms as being somewhat similar to those of prostatitis. There is pain on defæcation that often runs to the testicles which are also somewhat painful. Erections and emission of semen at night are frequent. The semen Fournier notes to be streaked with blood. When the finger is passed into the rectum two oblong elastic tumours can be felt, which are painful when touched. The inflammation lasts a few days and then subsides without further mischief.

Inflammation of the Mucous Membrane of the Neck of the Bladder.—This is a not unfrequent complication of gonorrhœa, when the inflammation has reached the lower part of the urethra. It is most often excited by using too powerful injections, by taking a long railway journey or other severe bodily fatigue, and indulging to excess in wine while the discharge is copious: yet in many cases none of these causes precedes an attack of cystitis which comes on sometimes, while the discharge is copious during the second or third week of the gonorrhœa, when it may be simply an extension of the urethritis into the bladder. But oftentimes the cystitis does not come on until the discharge has almost disappeared; and when the patient is congratulating himself on the termination of his malady, he is seized with a sudden violent increase of his pain and alteration in the discharge.

Inflammation of the neck of the bladder is characterised by three symptoms, which are always more or less urgent. The first is frequent desire to make water; this is so increased in severe cases that it is irresistible; the urine must be passed at the moment the desire is felt, and the patient must often void it into his dress before he can gain his retiring place. The desire to micturate soon becomes co-

¹ Loc. cit., p. 199.

stant, even every minute, for as soon as a drop escapes from the ureter, it excites uncontrollable desire to emit it. Next, instead of relief following the evacuation, a violent burning pain is felt at the neck of the bladder, which radiates to the loins, groins, thighs, and belly, but is always most intense at the bladder the moment the urine escapes. Thirdly, the urine at each occasion of passing is at first clear, but the last drops are always mixed with pus or blood; in many cases one or two drops of pure blood follow each evacuation, even when micturition has lost much of its frequency, and the water can be retained an hour or more at a time. The constitutional disturbance is generally little; there is no fever and no loss of appetite, but the mental anxiety almost equals the bodily suffering. The dread of further extension is constant and harassing. When the urine is allowed to stand a few hours, the sediment is more or less ropy and adherent to the vessel. After a few days, unless the disorder is aggravated by the neglect of the patient, it subsides gradually, and in a week matters have resumed the condition they were in before the neck of the bladder was attacked. Longer duration than this is uncommon. One of the severest cases I have seen lasted nearly three weeks, in a gentleman who habitually took much bodily exercise and drank his bottle of old port wine every day after dinner; he nevertheless rapidly recovered when his symptoms began to subside. Authors relate cases of much longer duration than this, of one and two months each, where the frequent micturition and the spasmodic pain lasted the whole time. But even in the cases of long continuance, the patients recover without ultimate injury or trace of the inflammation which caused them so much suffering.

In extremely rare cases, instead of subsiding, the inflammation extends to the whole mucous membrane of the

bladder, thus becoming *cystitis*, and displaying the symptoms of that disease. The extension may proceed farther still to the pelvis and substance of the kidneys, producing *pyelitis* and *nephritis*, complications that would be fatal and fortunately they are very rare.

Treatment.—Rest, unstimulating diet, alkaline demulcent drinks, warm baths large enough to receive the whole body, opium suppositories, and clysters of laudanum in cold water generally allay the inflammation in a few days. Sometimes a few doses of copaiba will check the irritability in a more rapid manner, though it very often has no effect at all. After the irritation has subsided, the resumption of injections to arrest the chronic urethral discharge that continues after the cystitis is at an end, must be very cautiously adopted and it is best to be content with copaiba and cubebs.

Epididymitis or *swelled testicle* is, perhaps, the most frequent of all the complications of gonorrhœa. Its mode of origin is still subject of dispute, and several ways have been assigned. The first mode, which probably is sometimes, though rarely, that adopted, is by the inflammation in the prostatic part of the urethra extending along the mucous membrane of the ejaculatory duct and vas deferens to the epididymis. When epididymitis takes place this way, the cord is felt to be swollen and tender as far as it can be traced in the inguinal canal before the epididymis is attacked. But this is not the only way, because the epididymis is often swollen and inflamed before the cord is altered; and, again, epididymitis often occurs before the gonorrhœa reaches the prostatic part of the urethra. Hence this mode of origin will account for a small proportion only of the cases of epididymitis. Among other theories, that of *metastasis* was once generally favoured, namely, that the urethral inflammation changed its site to the epididymis. The main basis of this doctrine is the fact that the discharge often lessens, and

sometimes stops, during the progress of an epididymitis; but against this explanation there come the contrary facts, that the urethral discharge often continues unaltered; and on the other hand, it is often suppressed without epididymitis taking place. Moreover, irritation of the urethra by passing a catheter, or by splitting a stricture, will cause epididymitis where there is no discharge. The only constant connection between epididymitis and the urethra is that irritation of the latter precedes the former. Another theory classes the inflammation of the epididymis among those which attack the fibrous tissues of the joints and other parts during the course of gonorrhœa, but which are not metastases of the urethral inflammation.

Of the causes of epididymitis, urethritis is the essential one; often there is none other present; for it will attack a patient who has accurately followed the most careful treatment to allay the irritation of his urethra. In such persons there is possibly a predisposition to inflammation of the epididymis. If such exists it is much strengthened by successive attacks, for an attack of epididymitis is usually followed by others whenever the urethra is much irritated. When gonorrhœa is present, irritation of the urethra of any kind assists in the production of epididymitis. Among the exciting causes are sexual excitement, excess in drink, strong injections, or the passage of catheters. Violent bodily exertion, such as straining, riding, and dancing, will also call forth inflammation of the epididymis in the course of gonorrhœa. Copaiba and cubebs taken while the congestion is great will also produce epididymitis.

The time when the inflammation takes place varies much in consequence of the variety of the exciting causes which set it going. Among 222 cases collected by Fournier,¹ epi-

¹ Loc. cit., p. 209.

didymitis occurred between the third and the fifth week 93. A few began before the tenth day, and the rest at intervals between two months and several years.

Symptoms.—The pain and swelling in the epididymis itself is sometimes preceded by aching in the groins and loins, weight in the perinæum, and dragging in the cord. After this the testis grows exceedingly tender, and much pain is felt when the patient walks, stands, or even moves from side to side. Not uncommonly the swelling and tenderness extend along the cord to the abdominal ring. The pain commonly subsides after the fourth or fifth day, and only extreme tenderness of the organ remains, so that pain is felt if it be touched or moved even in the gentlest manner; but the patient enjoys comparative ease while he is quiet. In extremely rare cases the pain is of the utmost severity and unceasing, driving the patient into delirium with agony. This excruciating pain occurs when the testis as well as the epididymis is inflamed. If the part is examined, the epididymis is found swollen, overlapping the testis, and much enlarged at the lower part, for the globus minor is usually most affected by the inflammation. Sometimes serous effusion into the tunica vaginalis is so abundant that most of the swelling is due to it, and the fluid is so rapidly poured out that its pressure causes the most acute anguish. As the inflammation proceeds the distended scrotum becomes smooth, red, and shining, and the cord swollen and painful on the affected side. In some way the swelling is due sometimes chiefly to the enlargement of the epididymis, sometimes to the effusion of the tunica vaginalis, sometimes to the oedema and congestion of the cord and scrotum. The swelling of the cord is occasioned by congestion and inflammation of the vas deferens, which may be felt as a round and very tender cord, but the vas deferens and tunics of the vas deferens may participate

escape inflammation. Peritonitis and inflammation of the vesicula seminalis have also followed inflammation of the cord in one or two cases. More or less general febrile disturbance is usual at the outset of epididymitis, but it is rarely serious except in those peculiar cases of agonising pain, then the constitutional condition becomes most serious, and not free from danger.

In the course of four or five days the pain lessens, and the swelling soon afterwards diminishes, first by reabsorption of the fluid effused, and then of the solid enlargement; though this is exceedingly slow to depart. Relapses are very common, especially in persons who are not able to rest completely during the acute stage. Instead of relapsing in the same testis, the inflammation changes sometimes to the other side, which is affected in its turn.

The usual *termination* is gradual but complete resolution, but some induration of the epididymis always remains a long time. The persistent enlargement of the globus minor has been found by Gosselin¹ and others to render the patient sterile by blocking up the excretory duct of the testis at that point. In nineteen patients in whom double epididymitis had taken place, and in whom this thickening remained, he found that, though the patients retained desire and capacity for sexual intercourse, and their semen was unaltered to the naked eye, the microscope showed it to be entirely destitute of the spermatic bodies or spermatozooids. The testicles in these persons were apparently quite healthy, neither swollen nor atrophied. To test his explanation, Gosselin divided the spermatic cord of one side in two dogs. Several months afterwards the dogs were killed, and the isolated testis was found to be healthy; its vasa efferentia were filled with fluid containing spermatozooids in the usual number; hence Gosselin concludes that the great

¹ Archives Générales de Médecine, September, 1853, p. 257.

bulk of the seminal fluid is secreted in the vesiculæ and not in the testis, and that this organ furnishes only the impregnating constituent of the semen. His researches show that sterility may be caused by epididymitis, and how important it is to endeavour to disperse the hardening of the epididymis which obstructs the efferent duct. Gosselin was successful, in two cases where the induration had lasted three and nine months respectively, in removing the enlargement of the globus minor. When the epididymis had regained its natural size the spermatic bodies reappeared in the semen, from which they had previously been absent.

Abscess in the cellular tissue enveloping the epididymis sometimes follows the inflammation, but it is never extensive and soon heals after making its way to the surface.

The *seat* of the inflammation is primarily the epididymis from this the congestion extends to the tunica vaginalis and tunica albuginea, though inflammation of the testis itself is exceedingly unusual. The cellular tissue of the cord and scrotum is also generally more or less congested but the inflammatory action is mainly confined to the areolar tissue enveloping the convoluted excretory duct, that around the globus minor being most affected. It occasionally happens that both epididymes are inflamed one after the other, not simultaneously. This double epididymitis took place 66 times out of 879 cases collected by Rollet and Fournier. There appears to be no difference in the frequency with which the right and left organs are attacked; 51 cases remarked by myself, in 27 the right, and in 24 the left epididymis was inflamed. Of the 879 cases first alluded to, 405 were on the right side, and 408 on the left.¹

The first effect in epididymitis is congestion of the cellular tissue of the vasa efferentia and excretory duct. Plast

¹ Fournier, loc. cit., p. 211.

matter exudes among the efferent ducts and into their interior, producing solid enlargement at these points, and obstruction. After the inflammation has subsided, these hard indurations remain long in the epididymis before they are reabsorbed, but are of no moment, unless, as already mentioned, both vasa deferentia are blocked up, and no secretion of the testis can reach the vesiculæ seminales, so that sterility is produced. In one case,¹ where the post-mortem examination was made twenty-six days after the commencement of the attack, and the acuteness of the inflammation had subsided, the testis, vasa efferentia, and globus major of the epididymis were healthy, but the globus minor at the bottom of the epididymis was enlarged, hard, and firm. Section showed it to be yellow and free from vascularity. The duct was much enlarged, but impervious, being filled with a yellow material, which also infiltrated the walls of the convoluted vas deferens. Under the microscope the yellow substance consisted of granular cells, fatty globules, and débris. The cellular tissue of the scrotum and cord is also congested and thickened by infiltration of plastic matter, which sometimes degenerates into small circumscribed abscesses. The tunica vaginalis is congested and roughened on the surface, and serous fluid is effused into the sac, but further changes have not been noted. The vas deferens of the cord and vesicula seminalis connected with the inflamed testis have been found to be congested in a few cases when examined after death.

The *diagnosis* of epididymitis is usually made with ease. The swelling and pain are of recent origin; they occur at the time of, or soon after urethral discharge; the pain and tenderness extend also to the cord. The epididymis can be felt enlarged independently from the testis; if the latter be

¹ Gazette des Hôpitaux, Decembre 21, 1854; also Gosselin's translation of Curling's "Diseases of the Testis."

also enlarged, it is only slightly so. The tenderness on pressure is much greater in the epididymis than in the testis itself. This is the only acute affection of the epididymis except that rare congestion of the epididymis which is said to occur in early syphilis, and the only enlargement resembling it in shape is scrofulous disease of the testicle, which often begins in the upper part of the epididymis, but has a very different history, being of slow growth, and not acutely painful. Sometimes epididymitis attacks an undescended testis, and causes much perplexity before the true cause of the swelling and pain can be discovered. But the nature of the case may be suspected if the testis is not in the scrotum, and the patient has had a urethral discharge recently.

In *treating* epididymitis the first thing is to make the patient lie down; for this he should keep his bed; or if not possible for him to do so, the testis must be supported in a suspensory. He should also take some saline draught with sedatives, such as citrate of potash with small doses of opium or henbane. His diet must be mild and unstimulating. These measures, with local remedies, generally suffice to allay the inflammation. If the constitutional disturbance is great, small doses of antimony (one sixth or one fourth of grain), with a little ether and camphor julep, should be administered every three or four hours, until the pulse is soft and the skin perspiring. In strong vigorous patients venesection to 8 or 10 oz. gives great relief when the constitutional fever is high. The local abstraction of blood by leeches and cupping, or ice applied to the groin, produces much ease. When ice gives no ease, it should be gradually replaced by warm applications. The testis should be wrapped in flannel wrung out of boiling water, and changed every two or three hours. A small cushion (a pin-cushion) placed between the thighs, relieves the pain by supporting the inflamed testis.

Hot hip baths may be taken at night, 104° F., but the patient should stay in only five or ten minutes, and then return to bed. If the tunica vaginalis be very tense, it should be punctured and the fluid allowed to escape, either through a cannula or into the scrotum, whence it is quickly absorbed. If abscess form in the epididymis or testis, it should be freely opened when fluctuation is distinct, and poulticed. After the acuteness of the inflammation is over, the patient may get up, and the thickening which remains be reduced by pressure, and well supported in a suspensory bandage, which should be lined with wadding.

Pressure by strapping is employed by some surgeons from the beginning of the inflammation, and it sometimes checks the enlargement, and greatly alleviates the pain. On the other hand it often fails, and even aggravates the pain. If used at this stage, it should be applied at the very outset, before there is much swelling, or not until acute inflammation is over. When adopted, the testis is enveloped in strips of diachylon plaster. A number of strips are cut about twelve inches long and half an inch wide, and dipped in hot water when ready to be applied. The scrotum and cord being first shaved, the swollen testis is drawn away from its fellow, and the left fore-finger and thumb grasp the cord above it, including as little of the scrotum as possible. One strip is then rolled round the cord below the thumb and finger to isolate the testis from the rest, then another strip is taken and passed tightly along the middle of the testis from the back to the front of the first circular band. In doing so it compresses the testis firmly against the circular strip; another vertical strip is then applied at the side of the first, overlapping about half its width. By a repetition of these vertical strips, the testis is enclosed in a sheath of plaster. They are then all kept in place by a

long strip wound spirally round them from above downwards over the mass, till a second coat is then added to the sheath. This application must be renewed every three or four days, as the epididymis rapidly shrinks in its case. Pressure may be employed alone, or coupled with mercurial or other stimulating ointments, which may be applied to the scrotum before the plaster is put on.

During the later stages, three to ten grains of iodide of potash two or three times a day is often of great service. Friction of the cord and enlarged testis with stimulating embrocations of soap and camphor liniment are also of good effect in promoting absorption of the exudation.

Purulent Discharge from the Rectum now and then accompanies gonorrhœa, and in nearly all cases it is the result of most depraved habits. Its symptoms are pain at defæcation, sense of heat at the anus, and discharge of pus. The irritation often produces ulcers, abscess, and fistula. It is a very obstinate disorder, and often lasts several months, if not assiduously treated. The greatest cleanliness is necessary, in clearing away the discharge at frequent intervals. The bowel should be injected twice daily with two ounces of dilute solution of acetate of lead and tincture of opium, a slip of lint dipped in the lotion laid in each fold of the skin, and the bowels emptied once regularly every day. The patient should keep his bed, and have a spare unstimulating diet. If the disorder does not mend with these means, the patient should be put under chloroform, to allow the passage of a speculum. A bivalve one should be used, that the inflamed and ulcerated mucous membrane may be carefully dabbed with a solution of nitrate of silver 20 to 30 grains to the ounce of water, after which the bowels should be kept quiet with opium for two days.

Gonorrhœal Ophthalmia.—There are two distinct disorders of the eyes depending on gonorrhœa. One, which has been

long well known, is produced only by contagion. A drop of matter from the urethra is accidentally introduced into the eye, and sets up violent purulent conjunctivitis which often destroys the sight in the eye attacked. Being communicated solely by contagion, it is a not common complication, and is almost unknown among persons of cleanly habits. Even among the lower classes it is rare, Ricord did not observe more than three or four cases per year among the many thousands of venereal patients that apply at the Midi Hospital. The right eye is more often inoculated than the left, probably because the right hand travels more frequently between the genital organs and the eye than the left hand. The disorder is seldom seen in women, because they pass their hands to the genitals less than men. Numerous instances exist of persons having purulent ophthalmia who have no urethral discharge, but who have accidentally inoculated themselves with the discharge of their companions. In such cases the inflammation is identical with that in gonorrhœal patients, and the disease is confined to the eye which has been inoculated.

Gonorrhœal Conjunctivitis begins with painful smarting, heat, rapid swelling, and hard œdema of the eyelids. The violent injection of the conjunctivæ renders them purple red. This quickly produces much chemosis and abundant discharge, which at first is serous, but soon becomes greenish-yellow pus. There is also much aching pain in the eye and radiating round the orbit. If the inflammation is not quickly abated, the cornea becomes swollen and opaque, it softens, and eventually ulcerates. After this the aqueous humour escapes; the iris also protrudes, and becomes adherent to the opening in the cornea. The cornea may even separate in one piece, or break into several large fragments. Thus total destruction of the eye is produced. The constitutional disturbance is often very great, and the

suffering in all cases very severe. This disorder is not with in infants who are inoculated during parturition when the mother has purulent discharge of the vagina. The course of the disease is so rapid that the eye is often destroyed in three or four days, and sometimes even in twenty-four hours.

The *prognosis* is, from the rapidity of the inflammation, very grave. Unless treatment be applied very early, it is impossible to prevent ulceration of some part of the cornea, with the risk of its total destruction is imminent, and the eye seldom or never escapes without permanent injury of some kind. Luckily only one eye is usually attacked, and when the inflammation subsides there is no tendency to return.

The *treatment* must be very active in this form of ophthalmia, and assiduous application of local remedies is indispensable to check the progress of the inflammation. The congestion of the eyes should be relieved by 8 or 10 leeches to the brows and temples, which may be repeated if the relief they afford is not permanent. The general febrile action should be allayed by free purgation, low diet, and confinement to a darkened room. The conjunctivæ must be exposed by everting the lids, and their surface freely scorched with solid nitrate of silver. If this does not check the inflammation by one application, it should be repeated in twelve hours' time. After this the eyes must be bathed every two hours with a lotion of 30 grs. of extract of belladonna to 8 oz. of water, made warm with hot water. The lotion may be used with an eye douche, or with a small piece of rag; but the bathing should be done by an attendant not by the patient himself, that the introduction of the lotion under the lids and complete clearance of the discharge may be ensured. Besides the first cauterisation and bathing, a solution of 4 grs. of nitrate of silver to the ounce of water

should be dropped into the eye morning and evening during the first two or three days, and then once daily. The chemosis must be relieved by free incisions of the conjunctiva, radiating from the cornea, and the margins of the eyelids should be kept smeared with diluted red precipitate ointment. The patient should always be warned to be careful not to let the discharge reach the healthy eye. The after treatment depends on the amount of the injury caused to the eye. Chronic thickening of the conjunctiva will yield to stimulating lotions, blisters to the temples, &c.; change of air, good food, and tonics, such as tartarated iron, will often assist the local treatment. When the cornea has sloughed, there is seldom much to be done, for the sight is irreparably destroyed, and the treatment must depend on the condition of the particular case.

Rheumatoid Ophthalmia is the second disorder of the eye occasioned by gonorrhœa. It attacks the lining membrane of the anterior chamber, the iris, and sclerotic, but the surface of the eye escapes, unless Fournier¹ is correct in attributing a simple conjunctivitis, which sometimes accompanies the iritis, to this cause. In about one-third of the cases it precedes or accompanies rheumatoid affections of the joints and synovial sacs. It is never produced by the accidental contamination of the eye with gonorrhœal matter, hence it is only seen in persons suffering with urethritis. This disorder is far less destructive than purulent ophthalmia, and generally subsides without doing permanent injury to the eye. It differs also from that affection in being equally common in the two eyes, in passing readily from one to the other, and in frequently relapsing when apparently at an end. Though not a very frequent consequence of gonorrhœa, it is much more often observed than purulent conjunctivitis,

¹ Fournier, loc. cit., p. 247.

Fournier¹ says in the proportion of 14 to 1. The predisposing cause is a peculiar disposition in the patient. In man with this peculiarity every attack of gonorrhœa almost certainly excites some rheumatoid affection, often of the eyes, but, if the eyes escape, the joints suffer in their place. The ordinary exciting causes of rheumatism, cold and dampness, or overstraining the eyesight, have apparently no influence in producing an attack; nearly always the inflammation comes on without any assignable cause.

The part first attacked is the membrane of Demours, and an aquo-capsulitis is produced. This is characterised by cloudiness of the anterior chamber; the cornea remains unaffected, unless it projects a little more than the other; vision is slightly misty, and there is often a sense of fulness in the eye, but no photophobia. The pupil is unaltered until the iris is also attacked, which is not always the case. When however, that membrane is affected, the pupil is irregular and sluggish. The iris alters its colour, contracts, and forms adhesions to the lens, which become permanent if allowed to continue. The conjunctiva is injected, and the sclerotic shows a pink ring of congestion around the cornea, and generally, lymph is exuded in patches on the iris. There is also pain in the eye and around the orbit; the sight is misty, and other signs of the congestion of the iris, such as fear of strong light, exist. The disorder reaches its height in a few days, and subsides in two or three weeks, passes from one eye to the other. Now and then both eyes are attacked at once, but it is more usual for one eye to become inflamed before the other is affected, and the disorder may hover between each eye, one being better, the other worse, for some time before the inflammation ceases.

The *prognosis* is generally good, the membrane of the

¹ Fournier, loc. cit., p. 245.

anterior chamber recovers its ordinary condition, but the iris sometimes forms permanent adhesions and deformity; this is rare, usually the vision is perfectly restored.

Fournier¹ has collected the various recorded cases of rheumatoid ophthalmia, and added them to thirty-nine cases of his own. He finds that in nearly all of them the patients were attacked in the joints as well as in the eye. In a small number of cases the eye was alone attacked and the joints escaped; generally many joints and synovial sacs were affected when the eye was also inflamed; and not infrequently the pain and congestion passed from the eye to the joints, and *vice versâ*, showing that all these structures were attacked by the same disorder. Or, again, a patient suffering several attacks of gonorrhœa may have the eye inflamed in one attack, and in another, swelling of some of the joints. Fournier records a case where a man had four attacks of gonorrhœa in five years: with the first attack he had double ophthalmia, and no articular rheumatism; with the second, first the eyes and then the joints suffered; with the third, first the joints and then the eyes; with the fourth attack, he had articular rheumatism only.

The *treatment* of the rheumatoid ophthalmia seldom need be very severe. In light cases the patients need not be confined to a dark room, they may go about if their eyes are protected by a shade, and not employed. The eyes should be bathed three or four times a day with a belladonna lotion, and if the inflammation is slow to subside, a few flying blisters may be applied to the temples. The diet should be mild and moderate in quantity, while all stimulants must be avoided. The bowels should be well purged with saline and hydragogue purges; sulphate of magnesia, compound extract of colocynth, with a small quantity of gamboge, will

¹ Blennorrhagie, p. 249. See also Rollet: Mal. Ven. Paris, 1866.

cause several watery stools, and thereby relieve the congestion of the eye. The purgative should be repeated or three times according to the progress of the case.

When the iritis is severe the treatment must be more active. Free purgation and local depletion by leeches should be first administered, and the pain assuaged by warm belladonna lotions, with low diet and confinement to a dark room. No time should be lost in dropping atropine into the eye to dilate the pupil. The patient should also take frequent doses of salines with colchicum wine after the preliminary purgation. If this does not arrest the inflammation, the patient must be quickly brought under the influence of mercury. The tendency to relapses, and even sometimes the progress of the disorder, is often checked by the balsam of peru, copaiba, or cubebs, for these medicines appear to have a specific effect on the rheumatoid complications of gonorrhœa, as well as over the urethral discharge. If the patient remains in a feeble condition, cubebs with iron will greatly benefit him, with change of air.

Rheumatoid Arthritis.—A certain proportion of gonorrhœal patients have rheumatoid inflammation of the synovial and fibrous membranes. Of 2423 persons with gonorrhœa,¹ 1 in 25 had also acute arthritis. The symptoms of this disorder so closely resemble ordinary rheumatism, that doubt still remains respecting the distinctions to be drawn between the two disorders. The swelling and inflammation has been observed in nearly all the joints, though, in this differs from ordinary rheumatism, it frequently attacks only one joint in the same person, and has great predilection for the knee. The sheaths of the tendons, the plantar and palmar fasciæ, the sclerotic, and the iris, are also attacked, but less frequently, than the joints. Of the nerves, the great sci-

¹ Rollet : *Traité des Maladies Vénériennes*. Paris, 1865.

appears the only one liable to this inflammation. Rollet alludes to cases, and I have notes of two cases, where the pain in the sciatic nerve was particularly obstinate. The heart and other serous membranes are probably exempt from gonorrhœal rheumatism, as no record of their being attacked exists.

Gonorrhœal arthritis is exceedingly rare in women. This exemption is supposed to be owing to the fact that rheumatoid gonorrhœa only follows urethritis, and the urethra frequently escapes in women when the vagina is inflamed.

The causes of rheumatoid arthritis are obscure. It is very possible that the rheumatic diathesis exists in those who are attacked by it during their urethritis, though certain French surgeons deny any connection between the two, and insist that the patients, who have gonorrhœal arthritis, do not suffer from ordinary rheumatism. They strengthen their argument by pointing out that exposure to damp and cold does not excite sudden inflammation of the joint during gonorrhœa; and that the medicines efficacious in ordinary rheumatism are often quite valueless in the gonorrhœal form, which is controlled by the specifics against urethritis. At present the matter is undecided. The pain and swelling of the joint or eye are not produced by metastasis of the disorder, for the discharge from the urethra does not cease during the swelling in the joint, and return when that subsides, but the inflammation is apparently uninfluenced by the condition of the discharge. Of late there has been much discussion concerning the nature of these rheumatoid complications of gonorrhœa. By Grisolles,¹ Fournier, and others, it is maintained that they are not rheumatism, and quite distinct from it, being, according to Fournier, possibly due to some reflex influence of the gonorrhœa on the

¹ Gazette des Hôpitaux, July 3, 1866.

urethra. Others again, conceive it possible (Texier¹) that the gonorrhœal poison is more than a local irritant; that it infects the system somewhat similarly to scarlet fever and that the suppuration of mucous membranes excited by it corresponds to the cuticular eruptions produced by the latter malady. In their opinion, arthritic and other affections occurring in gonorrhœa are simply the ordinary sequelæ of a gonorrhœal diathesis. Lorain,² and with him many others, maintain that the joint and eye affection are purely rheumatic in nature; that people with the rheumatic predisposition are more likely to be attacked if they contract gonorrhœa than others; that the gonorrhœa in short, is the exciting cause of the rheumatic inflammation. These views are all too speculative to be accepted until supported by further observation; the known facts on which all are agreed being, that the arthritic and ophthalmic inflammations of gonorrhœa have certain points of difference from rheumatism excited by ordinary causes.

Symptoms.—Premonitory symptoms of chills and heat are usually wanting, the first indication being the swelling and aching of the joint attacked, which soon becomes severe pain. The amount of effusion is often considerable and the skin shines and even grows red over the distended joint. The constitutional disturbance is seldom great; usually the local pain and swelling are the only important symptoms.

The *duration* extends from six to eight weeks, and the *termination* is nearly always resolution; in very few instances have either ankylosis or suppuration taken place. It is however, prone to relapse, especially if a repetition of gonorrhœa takes place, and the relapses are as tedious as the first attack.

¹ Union Medicale, Dec. 1866.

Ibid.

For the joints, *local treatment* is most efficacious. Fomentations, leeches, and presently blisters, in the form of small ones repeated several times. In the after stages, pressure by strapping and bandages is useful. Internal remedies are uncertain; it is best to continue to treat the gonorrhœal discharge, for the joint recovers itself when the gonorrhœa yields in the urethra. Colchicum, iodide of potass, and liquor potassæ in moderate doses, with Dover's powder to relieve the pain, are serviceable.

SUMMARY.

Balanitis is inflammation of the surface of the glans penis; posthitis, inflammation of the inner surface of the prepuce; they are common in uncleanly persons with a narrow foreskin when attacked by gonorrhœa. They are easily allayed by frequent syringing underneath the foreskin, and relieving constriction if necessary. Phimosis is inflammation in a foreskin which is too narrow to be drawn back. Paraphimosis is the same condition in a foreskin which has slipped behind the glans, or is too short to be drawn forwards. Both these conditions excite congestion, suppuration, even sloughing of the foreskin. Warts not unfrequently grow in the furrow behind the glans, and on the inner aspect of the prepuce, in long continued gonorrhœa. They may be snipped off, or made to wither by strong astringents, liq. plumbi being very effectual for this purpose. Retention of urine may come on at any time; it is due to violent congestion of the urethra. In the early stages of gonorrhœa it is generally simply this congestion, but in the later stages there is usually some permanent stricture also. Sedatives, warm baths, and purgation should be tried, and a catheter passed, if speedy emptying of the bladder is imperative; recourse being had to other measures if a catheter cannot be introduced into

the bladder. Inflammation of the lymphatic glands and vessels is not infrequent; the first causes sympathetic but the latter produces painful enlargement of the lymphatics the skin of the penis, and also general solid œdema of the cellular tissue; these usually soon subside in a few days when the irritation is allayed. Hæmorrhage from the urethra from rupture of the congested vessels during gonorrhœa is frequent, but very rarely otherwise than beneficial. When copious, it must be stopped by ice-cold application by injections of ice-cold water, or solutions of perchloride of iron, and by pressure. The corpora spongiosum and cavernosa sometimes inflame, this causes violent pain and irregular erection, and sometimes permanent induration at the inflamed spots. Abscess about the urethra results in several ways, the most common is by suppuration of the follicles and mucous glands beneath the mucous membrane. They are generally found near the glans, or else near the bulbous part; in the latter case they make perinæal abscesses, are liable to open into the urethra, and allow the escape of urine into the cellular tissue, with all the signs of the extravasation of urine. Sometimes the abscess is due to inflammation of Cowper's gland, when the abscess is closely connected with the bulb. Prostatitis is a severe and very painful complication of gonorrhœa; it causes swelling of the prostate, painful slow micturition, often complete retention, and great irritation of the bowel, with constant desire to defæcate. Prostatitis often runs on to abscess, and usually leaves permanent enlargement of the organ. If an abscess takes place, the pain increases till the matter escapes which it does most often into the urethra, and comes away with the urine; but the abscess may also open into the rectum, the perinæum, or the bladder. If urine or fæces get into the caverns made by the abscess, they keep up much irritation which sometimes produces a fatal termination, and

always greatly defers the recovery. The treatment is to allay the irritation by hot baths, fomentations, and opium, while the occasional passage of a catheter to relieve the bladder is necessary. Abscesses must be opened in the rectum, or in the perinæum. The chronic enlargement with gleet discharge is best managed by careful attention to the health, and by counter irritation continued a long time. The vesiculæ seminales are sometimes inflamed as a consequence of prostatitis and of epididymitis. It causes painful defæcation, frequent emissions, and bloody semen. The finger passed into the rectum discovers two oblong elastic tumours tender to the touch. Inflammation of the neck of the bladder is more important and more frequent than the last complication. The chief symptoms are constant desire to void urine, intense scalding after micturition, and the drops passed last being often purulent or bloody. It comes on during the later stages of gonorrhœa, and is generally due to fresh irritation of the urethra, but not always. In very rare cases it spreads to the whole of the bladder, and even to the kidneys. It is best treated by rest, alkaline demulcent drinks, warm baths, and opium suppositories or injections. Epididymitis is the most frequent complication of gonorrhœa. It is likewise often excited by fresh irritation, and is most common in the third and fourth week of the discharge. The inflammation attacks the lower part of the epididymis, and the congestion extends from thence to the cord, the tunica vaginalis, and the scrotum, the testis itself being very rarely implicated. The mode of origin has been referred to extension from the prostatic part of the urethra along the cord to the epididymis. This will account for very few cases. That it is a metastatic change of the inflammation from the urethra to the testes is without foundation. No good explanation has been found of it. In a large number of cases the right and left organs were

attacked with about equal frequency. Now and then both epididymes are inflamed one after the other. The symptoms consist in swelling, violent pain, aching, and extreme tenderness of the epididymis, which continues after the pain has ceased. The scrotum gets tense and shiny, the tunica vaginalis fills with serum (acute hydrocele). If the epididymis is examined in this state, the vasa efferentia and vas deferens are found to be congested and embedded in plastic matter effused around them, which also fills their interior and blocks them up. In a week the symptoms change by the pain ceasing, the tenderness lessening, and the swelling disappearing. Some weeks elapse before the tenderness is all gone, and some months before all swelling subsides. When both cords are attacked they may become obstructed, and the patient, while they are impermeable, is sterile. The treatment of epididymitis consists in absolute rest, fomentations and opiates, puncturing the tunica vaginalis when tense, and allaying the febrile disturbance with febrifuge medicines. Venæsection or leeches may be used if the fever is high and the congestion of the scrotum very great. The enlargement which remains after induration may be left to itself, as it will in time subside, or its departure may be assisted by pressure applied by strapping the testis. Iodide of potash is given internally at the same time to aid the absorption of the exudation. Sometimes gonorrhœa may attack the rectum; it is very obstinate and difficult to cure, requiring very frequent washing and dressing to clear away the discharge as it collects. Two distinct disorders of the eye depend on gonorrhœa, the one is violent conjunctivitis caused by the application of matter to the eye. The other is a rheumatoid inflammation of the lining membrane of the anterior chamber, iris, and sclerotic, which, without obvious cause, attacks certain persons if they have urethritis. The course of the latter disorder is generally mild, but

affects both eyes in turn, and is liable to relapse again and again. Besides the eyes, the joints, synovial bursæ, fasciæ, and great nerves are also often the seat of rheumatoid inflammation in those liable to this complication. They much resemble ordinary rheumatism in their course and symptoms, and anti-rheumatic treatment is often most efficacious. Some patients derive no benefit from these medicines, but are much relieved by copaiba and cubebs, and medicines having power over urethral discharges.

GONORRHŒA.

CHAPTER III.

GONORRHŒA IN WOMAN.

Forms—Seat—Extent—Frequency—Causes—Vaginitis : Symptoms—Termination—Diagnosis—Prognosis—Treatment—Complications of Gonorrhœa—Vaginitis : Vulvitis—Urethritis—Inflammation of the vaginal portion of the uterus ; of the cervix—Metritis—Peritonitis—Summary.

VAGINITIS is both acute and chronic ; when originating in contagion, it begins by acute inflammation, and subsides into the chronic catarrhal form before it ceases altogether. The disorder commences at the fore part of the vagina, but it rarely stops here. It spreads, as some suppose, by the irritation of its secretions flowing over adjacent parts, but it is also possible that this inflammation extends along the substance of the tissue in which it is seated, as an erysipelatous inflammation extends along the tissue which it has attacked. By whatever mode it extends, the gonorrhœal inflammation invades usually the vulva, the urethra, the upper part of the vagina, and the cervical portion of the uterus ; at this part it commonly passes within the meatus to the cervix. But beyond this point the inflammation seldom extends, though on rare occasions it spreads over the interior, and even reaches the substance of the uterus or the peritoneum by way of the fallopian tubes. In this manner peri-uterine and peri-vaginal abscess may follow in the train of gonorrhœal vaginitis ; such accidents are nevertheless, excessively uncommon. Ovaritis has been

said also to be occasionally consequent on vaginitis, but there is much doubt if such is ever the case. On the side of the urethra, also, cystitis is said to follow urethritis. As this happens in men, it is also possible in women; but it is never observed. In the vulva the irritation of the surface often causes suppuration of the sebaceous follicles and abscess in Bartholine's glands.

Vaginitis, which is the most common of all venereal affections among the lower classes, is much less often seen by the surgeon in its early acute stages than in the chronic form, or as an extension from the point and form by which it commences. Among my out-patients at the Lock Hospital, out of 157 cases of non-syphilitic venereal disorders, 94 had vaginal and uterine discharge, without ulcers of the external genitals, but the vagina was acutely inflamed in only 19 of them; in the rest the inflammation had become chronic by the time they applied for relief.

Acute vaginitis may be set up by several causes, besides contact with gonorrhœal matter. Violent sexual intercourse, especially when that is much repeated about the menstrual period, often causes inflammation of the mucous membrane. Vaginitis is also commonly seen in children who have been subjected to criminal attacks, and it may occur in newly-married women. The presence of foreign bodies, such as a sponge, or pessary, or strong injection, when used for some disease of the uterus, will cause vaginitis, but inflammation thus engendered will often subside readily if the cause is removed; the acute vaginitis of contagion is more violent, and consequently more prone to become chronic before it subsides. Acute vaginitis will sometimes arise in the course of measles or small-pox, or after exposure to damp and cold. Chronic vaginal catarrh may be produced by chlorosis, by congestion of the hæmorrhoidal and uterine vessels, and other conditions in weakly women.

Gonorrhœal Vaginitis.—The inflammation of the vagina produced by the gonorrhœal discharge is not different from that caused by any other irritant; hence the symptoms are merely those of vaginitis, at first in an acute form, and afterwards becoming chronic before it ceases altogether.

Symptoms.—A few days after coitus, a tickling sensation changing to heat and burning, occupies the external genitals. The mucous membrane grows dry, brightly red, and tender; the labia swell, and cause discomfort or pain in walking. Sometimes even sitting down must be cautiously done to avoid pain; scalding with micturition is usual. The swelling often becomes considerable by the œdema extending throughout the external genitals; a condition which corresponds to balanitis in the male is thus produced. Dull aching pain in the sacral region, and in the limbs or body generally, is not infrequent when the attack is severe. The discharge is at first thin and watery, and small in quantity but it soon grows whitish yellow, or even greenish in colour of an offensive odour, and so profuse that it flows copiously from the vagina when that is opened by the finger. If the finger is passed into the vagina, the papillæ are felt to be prominent and distinct on the fore part of the mucous membrane. When the speculum can be introduced, the mucous membrane of the whole vagina, and often over the vaginal portion of the uterus, is seen to be bright red, while around the os tincæ it may be raised into a group of papillæ, which gives the cervix a strawberry-like appearance. These papillæ or granulations are sometimes ulcerated, and then form yellowish dots about the margin of the os uteri. The cul de sac behind the neck of the uterus is generally filled with thick yellow matter, and the epithelium of the whole of the vagina is easily abraded, so that it bleeds if any roughness is employed in using the speculum. When the inflammation is very intense, the

constitution participates in the disturbance. There is loss of appetite, thirst, hot skin, pains in the limbs and restlessness, with other signs of fever.

When the acute congestion and copious discharge have continued a few days the irritation subsides, the discharge is whiter, the mucous membrane assumes a somewhat livid hue and is very lax; here and there, patches of it are excoriated or even ulcerated. The granular condition is still present, and generally very distinct. If the patient avoids fresh irritation, the discharge gradually gets less in quantity and more like the natural secretion, and the parts return to their ordinary condition in two or three weeks. But this termination is often missed; and the inflammation before it ceases, changes its ground to the urethra, or neck of the uterus; or it may still hang about the upper part of the vagina, when it has ceased near the entry. The glands of the groin often swell and grow tender while the vaginitis is at its height; or the irritation may even proceed to abscess, which is simply sympathetic and never virulent. This complication is much more frequent when the vulva as well as the vagina is inflamed, but it is not necessary it should be so.

Granular Vaginitis.—This variety, which was at one time supposed to be peculiar and distinct from ordinary vaginitis, appears to be simply the result of the congestion of the mucous membrane being greater in certain parts than in others, and always accompanies the ordinary form.¹ It is most usually seen in pregnant women, especially when they are about twenty-eight to thirty years of age. If this condition is produced, the mucous membrane is dark purplish in patches, and dotted with little granular elevations of a darker hue than the surface they spring from.

¹ Scanzoni : *Traité pratique des maladies des organes sexuels de la femme*. Traduction française, p. 449. Baillière, Paris, 1858.

As they have but very slight prominence, these little elevations may be bathed in discharge and escape notice, unless the vagina is cleared by an injection or by wiping it with a dossil of cotton-wool. The cervix uteri is very often the seat of these little granulations, and, as before said, will give that part a strawberry-like appearance. Granular vaginitis has the same course, duration, and termination as the ordinary form, and requires similar remedies; but is a sign of obstinacy in the inflammation.

The *diagnosis* of vaginitis from other disorders is seldom a difficult matter. The bright red mucous membrane which secretes serous pus, or thick matter, and is tender and bleeds if chafed, distinguishes vaginitis. The mere presence of pus in the vagina is not sufficient to diagnose vaginitis, as the matter may come from an abscess in the wall of the vagina, or from an ulcerated tumour of the uterus; but the speculum shows at once if the discharge come from such a cause. It may be impossible to say, when the vaginitis has no complication, whether it arises from contagion or from other causes; nor is the infectious nature of the secretion peculiar to gonorrhœal vaginitis, as it is tolerably certain that the discharge of any vaginal inflammation is more or less contagious. The only condition on which reliance can be placed, is the co-existence of urethritis with the vaginitis. This complication very rarely follows any vaginal inflammation than that produced by contagion. Indeed, Guérin still maintains that gonorrhœa alone produces urethritis, and that urethritis is the inevitable consequence of vaginitis from contagion.

The *prognosis* of vaginitis is very favourable when it is not neglected, or allowed to extend to the urethra or uterus. If, on the contrary, it reaches the urethra, it causes obstinate

¹ *Maladies des organes génitaux externes de la femme*, p. 303. Paris, 1864.

urethritis; and when the uterus is also inflamed, the disease is more difficult to treat, and the suffering of the patient is greatly increased, while there is some risk of pelvic peritonitis or abscess in the wall of the vagina, though these results of gonorrhœa are exceedingly rare.

A more interesting question to be decided is, the possibility of a particular discharge communicating gonorrhœa. This is often extremely difficult to settle; very often the discharge becomes apparently merely mucus, yet retains the infectious quality very strongly. Again, the greater part of the vagina may have recovered its natural condition, while a certain small area, the cul de sac behind the uterus, for instance, still secretes a contagious discharge. Guérin believes that the urethra, and some of the ducts of the glands in the vulva, may continue long inflamed after gonorrhœa; then if the genital organs are irritated, or unusually excited, these small foci of disease may secrete matter in sufficient quantity to propagate the disease, if sexual intercourse be indulged in at the time.

The discharge at the chronic stages is generally whitish, milky, even creamy, or translucent like gum, when the congestion is very slight; the reaction is always acid. The discharge consists of pavement epithelium, pus, and mucus corpuscles, and very often infusoriæ; one of them, the trichonomas, was at first supposed to distinguish a gonorrhœal from simple vaginitis, but Scanzoni has detected them in every form of abnormal vaginal discharge, though not in healthy mucus.

TREATMENT OF VAGINITIS.

Attempts to cut short the inflammation at the beginning by any kind of abortive treatment, are seldom of any avail. While the swelling and irritation continue, the patient must

rest in bed, and take a warm bath twice daily. It is best when practicable, to immerse the whole body, not merely the hips, that the blood may not be attracted to the pelvic organs. The vulva and vagina should be cleared three times daily with injections of tepid water; and pieces of rag wetted with warm water, or warm lead lotion should be laid between the labia to separate the inflamed surfaces from each other. When the irritation lessens the warm water injections may be changed for cold, or made astringent, by adding to them a few grains of alum, or sulphate of zinc or tannin, to the ounce of water. Such injections should be used regularly night and morning. Nitrate of silver in weak solutions is objectionable, because it stains the linen, and has no advantage over other astringents. During the acute stage, saline purges are necessary and moderate doses of tartarated soda, sulphate and carbonate of magnesia, or sulphate of soda, are useful to promote free secretion from the mucous membrane of the intestines, and thereby relieve the congestion of the genital organs. The diet must be very simple, and all stimulants avoided. The patient may drink freely of barley-water, linseed-tea, or other diluent, to allay the thirst or dilute the urine.

The chronic course of the discharge must be combated more actively, and the treatment should be directed to the part that is diseased by means of local application. The first necessity is great cleanliness; hence, the cold or tepid astringent injections should be used regularly. As soon as the inflammation will let a speculum be introduced without much pain, pledgets of cotton-wool, containing powdered alum or tannin may be introduced into the vagina, and are very effectual in checking the discharge. The best method of preparing these pledgets or *tampons* is, to take a thin layer of cotton-wool, about the size of the

palm ; pour on to it one or two scruples of alum or tannin, and catch together the edges with a piece of thread wound round them ; the end of the thread should be left about twelve inches long, that it may be easily caught hold of when the plug has to be withdrawn. The speculum is passed, and the plug pushed down to the fundus, before the speculum is withdrawn. The powder gradually dissolves in the mucus, keeping the parts constantly saturated with a strong astringent solution for forty-eight or seventy-two hours, until the alum or tannin is all dissolved. A fresh plug should be passed every third day. While the pledget is retained, syringing with warm water should be continued night and morning. The patient must be cautioned that after the cotton-wool is withdrawn, the injection will bring away shreds of inspissated mucus that may be mistaken for pieces of skin, and cause her much alarm. This method of applying the astringent is the one I have found most successful in treating chronic vaginal discharges among the out-patients of the Lock Hospital, whose neglect of their instructions, and irregular attendance, very greatly impede every treatment which may be tried. When the discharge is very profuse, tannic acid and oxide of zinc are better than alum. Other preparations may be introduced into the vagina in the same way ; the carbolic acid and glycerine of the Pharmacopœia, or tincture of iodine, can be suspended on cotton-wool, and passed to the fundus through the speculum ; the carbolic acid is most useful when there is ulcer, and the iodine when the cervix is enlarged. Sometimes an obstinate discharge from the vagina can be cured by using a strong injection of nitrate of silver. The speculum should be passed, and the vagina well cleared with an injection of water ; then about an ounce of distilled water, containing two scruples or a drachm of nitrate of silver is poured into the speculum, and the solution made to bathe

every part of the vagina by slowly withdrawing the speculum; the vagina contracts as the speculum retires before it. When the whole mucous membrane is bathed, the lotion may be allowed to escape. Besides this, the vagina should be regularly injected night and morning with water, and the strong injection applied again every four or five days. Three or four applications are generally sufficient to cure the discharge. The granular condition of the mucous membrane is best managed by the strong nitrate of silver injection, and when the patient is not pregnant, by the tannin or alum plugs. When the mucous membrane is very indolent, it may be dusted with powdered alum, diluted with half its bulk of white sugar. To do this, a speculum should be passed, and the powder dusted on to the mucous membrane with a dry brush, made by tying a dossil of cotton-wool to the end of a stick. In the same way, dried sulphate of zinc diluted with three or four times its bulk of magnesia may be used, but I have generally obtained better effects by inserting the astringent in the cotton-wool envelope.

Constitutional treatment.—The specifics which are so useful in checking chronic urethral discharge in men, have no influence over vaginitis, and very little even when the inflammation has extended to the urethra. Copaiba, cubebs, tar, turpentine, oil of sandal wood, have been tried over and over again without exerting any but a very trivial effect on the mucous membrane. The only general treatment that is of any service consists in improving the bodily health, in regulating the action of the bowels, and in removing any anæmia that may be present. While the local applications are being regularly used, the patient should take a scruple of sulphate of magnesia with one or two grains of sulphate of iron and a little tincture of calumba in water two or three times a day, or some other preparation of iron if this one disagree with the stomach. As the moral character of

the majority of women suffering from gonorrhœa is seldom free from reproach, it is well to warn them of the danger they expose others to if they permit intercourse while a discharge remains. The treatment of the consequences of vaginitis is described along with each complication, which have now to be taken into consideration.

THE COMPLICATIONS OF GONORRHOEA.

The earliest and most constant complication is inflammation of the external organs of generation, the larger and smaller labia and the clitoris; this is called *vulvitis*, and is the analogue of balano-posthitis in the male. The causes are irritation of all kinds; habitual neglect of cleanliness, especially if the patient is fat and the weather warm, will cause inflammation without any gonorrhœal contagion. But this is the most frequent cause of vulvitis, either by the inflammation extending from the vagina to the vulva, or less frequently the disorder begins there and spreads to the vagina. An inflamed chancre and violent masturbation are occasionally causes of vulvitis when gonorrhœa is not present.

The symptoms begin with itching, smarting, redness, and swelling of the large and small labia, from which the redness generally extends to the skin of the perinæum and thighs. The secretion of the sebaceous glands is greatly increased, and often collects in thick adherent layers in the folds of the mucous membrane. An offensive muco-purulent discharge drains from the vulva, which frequently causes erythema, erosions, and inflammation of the hair follicles of the skin outside. If this secretion is wiped off the glandulæ project in small round yellowish eminences on the red surface. While the parts are swollen, walking and even sitting upright are very painful. This inflammation continues a few

days only, and subsides readily if the patient allays the irritation by rest and local application. When the irritation is great, or in weakly persons, the inflammation becomes often erysipelatous, and then it may cause abscess and sloughing of the labia and parts adjacent. The abscesses generally arise from suppuration in the sebaceous glands, in the glands of Bartholine, and they greatly enhance the severity of the disorder. Like vaginitis, vulvitis occasionally excites sympathetic irritation of the inguinal lymphatic glands and bubo.

In *treating* vulvitis the patient must rest, bathe frequently and wash off the secretion with an alkaline lotion of carbonate of soda or ammonia, to dissolve the fatty secretion. The inflamed surfaces must be separated by layers of lint, either dry or dipped in weak lead lotion. During the first few days, warm fomentations or bread and water poultice may be laid between the labia. In the later stages the surfaces should be kept very clean, dried after each washing and dusted with powdered rice starch, white bismuth, or oxide of zinc diluted with rice starch. Should any ulcer appear after the inflammation has continued a few days, the ulcer must be touched with caustic solution of nitrate of silver and kept covered with lint dipped in astringent solution. They are probably chancres, and require appropriate treatment.

Urethritis, which is a very frequent accompaniment of gonorrhœal vaginitis, is extremely rare as a simple disorder. Guérin, after four years' practice, never saw such a case at Lourcine Hospital.¹ It may, according to some authorities, arise through contagion without accompanying vaginitis, by the infecting discharge passing directly into the meatus urinarius without reaching the vagina. While a

¹ Guérin : *Maladies des organes génitaux externes de la femme*, p. 300. — Paris, 1864.

mitting the possibility in theory, I have never seen urethritis without vaginitis, or traces of vaginitis having been active.

The symptoms vary much, according to the intensity of the neighbouring inflammation in the vagina or vulva. When the urethritis is very acute, the patient complains of smarting and frequent desire to make water, but unless this is the case she generally does not complain of anything more than a little itching at the meatus; tenesmus, or even increase of pain in making water, is rarely acknowledged by the patient. Cystitis is comparatively unknown. The mucous membrane is red and swollen round the meatus; the redness being often punctiform, and the papilla between the meatus urinarius and the vagina is thrust prominently forward. There is generally a whitish muco-purulent or purulent discharge oozing from the meatus, though when the inflammation has become chronic it often needs some trouble to make the existence of the discharge evident. To do this the meatus should be wiped, and the finger passed into the vagina and pressed against the urethra while being slowly withdrawn. This manœuvre will generally bring a drop of pus to the meatus. When the patient has recently passed water the urethra may be quite clear of discharge. In such cases the ducts of the follicles which open at the surface close to the meatus urinarius, some outside it, will exude matter that is the remains of a gonorrhœal inflammation, which has spread along them as well as into the urethra. This minute source Guérin maintains to be capable of giving gonorrhœa when every other is exhausted. Notwithstanding that he brings a case to illustrate it, this opinion must be accepted with reserve: muco-pus can often be pressed out of crypts and follicles of the mucous membrane after a long continued vaginitis, but this does not show that urethritis has been present, or that a person in such a condition is capable of giving disease to others.

Urethritis continues in the chronic stage an indefinite time—for months and even years—before it subsides; and as it takes origin in contagion, it is impossible to say when it ceases to be dangerous and unable to excite gonorrhœa in others.

In *treating* this obstinate disorder only very simple means are requisite in the acute stage, diluent drinks, warm baths, and tepid lotions. When, as generally happens, the discharge is not discovered till the inflammation has become chronic, the most useful remedies are warm baths and astringent injections (tannin, alum, sulphate of zinc, or subacetate of lead). A strong solution (℥j to ʒj) of nitrate of silver may be applied by a brush to the interior of the urethra, when the discharge resists the previous remedies. This application should be repeated every three days for a few times until the secretion is considerably increased. After this, if injections of water only are used, the discharge generally subsides in a short time. A long pencil of nitrate of silver may in very obstinate cases be introduced into the urethra. After this cauterisation the patient should take a warm bath immediately, and repeat it every day for a few days. There is far less danger in using caustic applications to the interior of the urethra in women than in men, and they may be used more freely in the former sex. When the discharge is furnished by the ducts of the follicles opening near the meatus urinarius, a fine probe coated with nitrate of silver should be thrust along them, or still better, some caustic injected with a very fine pointed syringe.

Acute inflammation of the Cervix and Os Uteri.—When the vaginitis reaches the fundus it very commonly extends over the vaginal part of the uterus and enters the os, by which it may attain the cavity of the uterus, but the inflammation is usually confined to the cervix.

The *symptoms* are generally combined with those of vagi-

nititis; but the irritation of the uterus is denoted generally by a sudden accession of constitutional disturbance, a chill, or even a shiver, loss of appetite, or nausea. When these are well marked, the cavity of the uterus is involved as well as the neck. If pain at the sacrum has accompanied the vaginitis, it increases, and, if not present before this symptom, is rarely absent when inflammation of the cervix begins. There often is also pain at the hypogastrium, and dragging sensation in the groins. The uterus is sometimes tender when pressed, but not enlarged. Irritation of the bladder and rectum produces frequent micturition and tenesmus, and the urine is turbid with lithates. By the fourth or fifth day the constitutional disturbance ceases, and a discharge appears, at first clear, then opaque, making stiff spots on the linen. The secretion from the neck of the uterus has much greater visciditv than the vaginal pus, but when mixed with that coming from the cavity of the uterus, assumes a creamy appearance, little distinguishable from the pus secreted in the vagina. It differs from the latter, however, in being alkaline, and is said not to produce eczema or irritation of the skin over which it may flow. The speculum should be employed for exact diagnosis, which can usually be introduced without difficulty, because the vagina is no longer tender. The cervix, when thus examined, is seen to be swollen, red, and excoriated round the os, which is dilated and filled with discharge. This discharge varies very much with the stage of the disorder: while the cervix is swollen and red, the discharge is very tenacious and copious, and is extremely difficult to extract from the cervix. This is the early stage of acute congestion. But in a few days the redness of the cervix lessens, the swelling also is less, and the discharge, which has become purulent, trickles freely from the os uteri, especially if the patient is told to bear down for a moment. This is the stage of acute

suppuration; and when the discharge is copious or escapes from the os in gushes, it is furnished by the interior of uterus as well as by the neck. If the uterus is examined it will be found large and tender. In a week, or sometimes less, the discharge will be again different. In this third stage it is much less in quantity, more viscid than when in the second stage, but still purulent. The os is often superficially ulcerated, and if the discharge be cleared away, the cervix within is seen to be excoriated also. The uterus is no longer tender, but the cervix is hard and enlarged, sometimes very considerably, when the chronic congestion has continued a long time. The inflammation has now reached the stage of chronic uterine catarrh, and is not distinguishable from a catarrh produced by other causes than gonorrhœal inflammation, and will be described under the head of Catarrh of the Cervix.

If the inflammation does not lapse into a chronic catarrh in about ten or fourteen days, the redness and swelling depart, the sensation of fulness and irritation in the pelvic organs ceases, and the discharge, rapidly diminishing, becomes serous before it stops altogether. Scanzoni¹ states that the discharge often stops completely at a period of menstruation, though this cause of congestion sometimes renews the discharge when it has nearly disappeared.

There is no peculiarity about inflammation of the cervix uteri when originating in gonorrhœal vaginitis that distinguishes it from inflammation through other causes. Yet there can be no doubt that a discharge of this kind is constantly the cause of gonorrhœa in men, and the more so because in the chronic form it often escapes the patient's attention altogether. If she is aware of the existence of a discharge, she is usually very anxious to know whether it is contagious; a question

¹ Loc. cit., p. 152.

that is often very difficult to answer. The discharge in all probability arises from contagion, if there has recently been vaginitis, or if any discharge can be obtained from the urethra. But when there is no urethral discharge, no vaginitis, and the inflammation set in during or shortly after the menstrual period; if the patient has been exposed to cold, fatigue, or is newly married, the disorder has probably arisen independently of gonorrhœal contagion.

The Inflammation of the Cervix, in the acute stage, demands similar *treatment* to vaginitis. Warm baths, warm injections, saline aperients, absolute rest, and simple diet. If the womb is very tender, and the cervix much swollen, six or eight leeches may be applied to the cervix, to lessen the congestion. With care and early attention to the patient's condition, the disease is often arrested before it becomes a chronic catarrh, of which the treatment is mentioned further on.

Metritis.—Inflammation of the substance of the womb is described by certain authors as a consequence of gonorrhœa. If it really occurs this complication is excessively rare, and has nothing distinctive from metritis through other causes. Its symptoms are very much those which accompany catarrhal inflammation of the interior of the uterus, beginning with shivering, loss of appetite, pain and fulness in the pelvis, with irritation of the rectum. If the uterus is examined, the fundus is enlarged, and tender when touched.

Peritonitis is also a consequence of gonorrhœal metritis. The serous covering around the uterus, and that forming the cul de sac between it and the rectum, is most frequently attacked; or the inflammation may reach the perinæum along the fallopian tubes, when the broad ligament is most affected, but it is extremely rare for the peritonæum to be inflamed from gonorrhœa.

SUMMARY.

Vaginitis is acute and chronic. The inflammation begins at the fore part of the vagina, and extends over the vagina to the uterus, and over the vulva to the urethra. In doing this it sometimes produces abscess of accessory parts. In the cervix uteri and the urethra it becomes chronic and very obstinate. When seen by the surgeon the acute stage is usually over, and the chronic catarrh remains. The causes of vaginitis are chiefly contagion; next, violent sexual indulgence, rape, the irritation of foreign bodies left in the vagina, and certain disorders, such as measles. Chronic catarrh, besides being a relic of gonorrhœa, is common in chlorotic women or others subject to cold and damp, and to congestion of the pelvic bloodvessels. Acute vaginitis causes swelling of the genitals, with heat, itching, smarting or making water, and aching pain at the sacrum and loins. The mucous membrane gets dry and bright red; at first, it secretes thin, transparent mucus, which quickly becomes thick creamy matter, and copious in quantity. The mucous membrane is more or less studded with little eminences (*vaginitis granulosa*). This condition is especially well seen if the patient is pregnant. The inflammation subsides by becoming chronic; the pain, swelling, and congestion cease, but the discharge, though less creamy than before, remains plentiful. It is usually secreted in the cul de sac, or in the cervix, or some other part less easily cleared than the anterior part of the vagina. The diagnosis of vaginitis depends on the swelling and red congestion, in the acute stage; on the partial congestion, excoriation, and copious discharge, in the chronic stage. The discharge may come from the cervix, or it may come from an abscess in the wall of the vagina; but the introduction of the speculum soon makes this clear. The distinction between vaginitis from

contagion and vaginitis from non-specific irritation is often difficult, and sometimes impossible; it generally has a contagious origin if there be urethritis present also. The prognosis is favourable; sometimes the disorder is cured before it becomes chronic, and dangerous complications are very uncommon. Great difficulty exists in deciding whether a particular discharge is likely to communicate disease. Probably any discharge, however scanty and serous it may be, provided it is the remnant of inflammation from contagion, will be again contagious if increased by accidental irritation. The treatment during the acute stage consists in allaying irritation, by rest in bed, repeated warm baths, injections of warm water, and moderate purgation. As the congestion subsides, an astringent injection and the alum or tannin in powder must be applied, by means of the speculum, to the interior of the vagina. Copaiba and cubebs are useless in treating vaginitis; the only general treatment of any value is regulation of the general health and habits of the individual.

The Complications of Gonorrhœa.—Among the earliest is *vulvitis*; the labia and clitoris grow red, swell, and a foetid discharge is secreted by the mucous membrane. If irritation is allayed by baths and clean applications, the inflammation subsides in a few days. Sometimes when neglected it causes sloughing of the parts, or abscess in the groin. *Urethritis* is the most constant, and, according to some, an inevitable consequence of gonorrhœal vaginitis. It is rarely acute enough to cause much irritation. It is marked by itching and smarting at the meatus, which is red and swollen. A purulent or mucous discharge oozes or can be pressed from the passage, unless the patient has just micturated. Even then a little can be found in the ducts of two glands which open close to the meatus. This discharge is very persistent, and probably continues a source of contagion for a long time after the discharge from other parts has

ceased. Unlike male urethritis, inflammation of the female urethra does not excite cystitis. The best treatment is frequent baths, weak astringent injection, and the application of caustic, either in a concentrated solution, or by a pencil of solid nitrate of silver. In *acute inflammation of the cervix and os uteri*, the neck of the uterus is swollen, red, and often excoriated about the os, whence a copious discharge issues, at first clear and viscid, then purulent. This subsides in a short time to a thin mucus, and either shortly ceases, or more commonly passes to chronic catarrhal flux, that lasts an indefinite time, and long retains its contagious quality. Acute inflammation of the cervix is best treated by complete rest, warm baths, warm injections, and saline aperients. In the chronic stage its treatment is that for uterine catarrh. Metritis and perimetritis are observed in a certain number of cases, but these are rare consequences of gonorrhœal inflammation of the mucous surfaces, and have no peculiar characters when originating in this way.

DIVISION V.

ACCESSORY VENEREAL DISORDERS.

FEMALE : Warts—Inflammation ; of Bartholine's glands ; of the sebaceous follicles of the vulva, of the vagina and cervix—Ulcers of the os uteri, —Uterine Catarrh or Leucorrhœa.

MALE : Chafing and herpetic eruptions—Lacerations ; of the frenum ; of the membrane lining the furrow behind the glans penis—Rupture of the corpus spongiosum at the bulb ; of the corpora cavernosa—Hæmorrhage and extravasation into the erectile tissue.

WARTS, though nearly always the result of secretions disordered through venery, do not owe their origin to any specific secretion, but arise from continual moistening of the parts with unhealthy discharges. Thus gonorrhœa and syphilis, especially the former, are frequent causes of warty growths, yet they do not exclusively arise from either. Gonorrhœa produces them by furnishing a copious irritating discharge which trickles down the parts where the warts spring up. So syphilis furnishes, by its suppurating mucous patches, a secretion and a congested surface on which warts may grow, hence it is not uncommon to see warts growing on mucous tubercles, or the latter changing into the former. Warts do not secrete a discharge that will reproduce warts on other individuals ; hence, they are not contagious. Probably, as warts are so numerous on some persons, and do not form on others who apparently have similarly irritating discharges trickling over congested surfaces, a peculiarity of constitution or a certain

predisposition may be necessary, as well as the exciting causes, to produce warts.

The mucous membrane of the female external genital is so frequently irritated by acrid discharges from the vagina, the uterus, and other parts, that warts are more often produced in this situation than in any other part of the body, and far more often in women than in men; but they are identical in the two sexes, and their appearance in men has already been described. Of the female genitals the great and small labia, the clitoris and its prepuce, and the entry to the vagina, near the carunculæ, are favourite localities for warts. They also grow on the deeper parts of the genitals, on the cervix uteri, or within the meatus urinarius, but far less often than on the external organs. Outside the genitals the perinæum and the margin of the anus are again common situations for these excrescences.

They assume various shapes, are mostly of a pinkish red colour, some pedunculated, others sessile. They divide and sprout out into numberless points or eminences. They are sometimes small and isolated, sometimes they coalesce and spread widely, or thicken into large masses. Some are very turgid or readily dilated, and bleed easily, others do not bleed, but are exceedingly sensitive when touched. Whatever promotes congestion favours their growth, thus they are more frequent and more difficult to eradicate during pregnancy, when the impediment to the return of the blood causes passive congestion of the mucous membrane on which they grow. If allowed to take their course unchecked, they may attain the size of a fist or of a child's head, and being chafed and ulcerated, they cause much suffering. In this condition they secrete a thin, purulent, foul-smelling discharge that produces fresh outgrowths on the parts it trickles over. They have various terminations, the large

ones often inflame and slough; the small ones remain stationary for years, or wither away and leave no trace. This end is very common after pregnancy has terminated.

Warts may be removed either by excision or by caustic. Small ones may be snipped off with scissors, and the base cauterised with lunar caustic. Large masses cannot be cut off on account of the free hæmorrhage that follows; and the *écraseur*, or wire loop, should be used to remove them. The loop should not include the skin, and should be tightened very slowly to prevent hæmorrhage after the mass is cut through. Caustics are very useful, and most convenient. Nitric acid, or glacial acetic acid, are both very manageable; nitric acid is painful, but unless allowed to remain on the wart for a minute it does not penetrate to the base, and the wart grows again if this is not destroyed. Glacial acetic acid is far less painful, and causes the tissue to which it is applied to liquefy, and as it were melt away after a few seconds. Chromic acid is more powerful than either of the two preceding; when used undiluted it destroys the tissue instantaneously, but causes far more violent pain than nitric acid. In treating warts among the out-patients at the Lock Hospital, I often direct them to apply the strong liquor plumbi diacetatis every day to the warts. This causes them to dry and wither slowly in a way less speedy than cauterisation or excision, but which also causes no pain, and allows the patients to pursue their occupations uninterruptedly, which the soreness left after excision or cauterisation often prevents.

Inflammation of Bartholine's glands.—This small racemose gland is situated on each side of the entry to the vagina, beneath the furrow lying between the labium majus and minus. In the natural condition it is too small to be felt, being about as large as a hempseed or a pea, but when diseased can often be distinguished near the lower part of

the nympha. The excretory duct opens on the inner aspect of the nympha close to the *carunculæ myrtiformes*. The orifice can readily be seen at the juncture of the middle and posterior thirds of the distance between the anterior and posterior margins of the entry to the vagina if the labium minus is put a little on the stretch. The secretion, in the natural state, is a transparent and somewhat viscid fluid; when the gland is inflamed it becomes purulent. The causes of inflammation are generally of a venereal kind; sexual excitement, repeated violent coitus, produce continual congestion of the gland, and increase the quantity of its secretion. In this state the irritation often runs on to abscess; or a bruise, during violent intercourse, will set up inflammation immediately.

The hypersecretion of the gland is frequent among persons of lascivious habits, and during sexual excitement, ejaculation of the secretion takes place and causes a disagreeable moistening of the vulva, which often alarms the patient and induces her to apply for relief. If she is examined, the gland can sometimes be felt as a small globular body, and gentle pressure of the finger will cause a drop or two of the secretion to flow out of the excretory duct. Sometimes these glands eject their contents during sleep, and then cause a species of nocturnal emission in women; this hypersecretion occurs only in young women after puberty is reached, and is said to be frequent at the menstrual period. When abscess takes place, the glands of both sides are seldom attacked at once; but in some women they inflame repeatedly; in this case the abscess forms now on one side now on the other.

When inflammation begins the entry to the vagina grows hot, painful, and very tender; the mucous membrane reddens, and the nympha swells from oedema. Before supuration sets in there is often febrile disturbance for a day or two; the pain becomes throbbing in the gland and aching

about the perinæum; this generally increases during micturition. When the patient is examined, an exceedingly tender oval mass, the size of a nut or even of a walnut, is found between the entry to the vagina and the ischion; it is doughy, and when matter has collected, fluctuating at one point. Sometimes the matter escapes along the duct as fast as it is formed, in which case the swelling is due to the enlarged gland alone. In other cases matter forms around the gland, and produces an oval fluctuating tumour between the lesser and greater lip. At times the matter collects in the duct, of which the mouth has been closed; it then forms a soft, fluctuating tumour in the nympha itself, which projects and covers the entry to the vagina.¹ These abscesses usually evacuate themselves either through the excretory duct, or on the inner aspect of the nympha near to it. Less often they perforate the superficial perinæal fascia under which they are situated, and open between the labia. When this takes place there is a sudden flow of pus, the tumour disappears, and pus continues to flow away for some time in small quantity until the inflammation subsides and the abscess has healed. Guérin says, that when the pus has escaped on the inner aspect of the nympha and the place has healed, it often leaves a depressed scar that may be mistaken for the site of a chancre. When the abscess opens between the labia it sometimes does not heal, but continues to discharge more or less, for an indefinite time. In this condition it is extremely apt to inflame again and again, and cause the patient much trouble. There is another danger: if the patient has chancres when these abscesses open, they are very likely to be inoculated also.

Abscess in Bartholine's gland may be distinguished from abscess in the cellular tissue of the labium majus, by its being

¹ Hugnier: *Sur les Maladies des Organes genitaux externes de la Femme*. Mémoires de l'Académie de Médecine, 1850; t. xv., planche 1., fig. 3.

limited to the furrow between the labia, and by its pointing on the inner side of the nympha, or in the furrow. Abscess in the labium majus is consequent on follicular inflammation, and may form in any part of the labium, and generally points near the anterior margin of the inner surface. Abscess coming from the ischio-rectal fossa sometimes points in the labium, but such a tumour is ill-defined, and extends over a greater area; pressure generally causes much of the matter to return up the fossa; an abscess round Bartholine gland does not alter its position if it is pressed.

The *treatment* consists in warm fomentations, bread and water poultices, and if the matter points between the labia it should be freely opened as soon as fluctuation can be detected, though an opening in this situation is very slow to close up. Usually the matter courses inwards; it does not cause very much pain, and may be allowed to open spontaneously either through the excretory duct, or by an opening on the inner surface of the nympha. When the abscess leaves an obstinate sinus, or the gland inflames afresh from time to time, it is best to remove it by a vertical incision in the fissure between the labium majus and nympha; seizing the gland with a hook and dissecting cleanly out. One or two small vessels usually bleed freely and should be ligatured; after that the wound quickly heals.

Phlegmonous abscess in the labium is caused by violent intercourse, or injuries of the labia from other causes. It also very commonly follows the irritation of chancres, follicular inflammation, gonorrhœa, or neglect of cleanliness. It is a very frequent disorder among the poorer class of prostitutes. The abscess forms in any part of the labium which swells rapidly and grows dusky red; the looseness of the cellular tissue allows the abscess to reach a great size before it points, and it causes great suffering. For the

reasons the matter should always be let out as soon as fluctuation takes place.

Inflammation of the Follicles of the Vulva.—Huguier¹ says this disorder is generally produced by want of cleanliness in hot weather, combined with irritation of the parts through a long journey on foot, violent oft-repeated intercourse, masturbation, or pregnancy. It begins with the formation of small projections on the surface of the nymphæ, prepuce of the clitoris, and both surfaces of the labia; those on the outer part always beginning in a hair follicle. They vary in number between three or four and forty or fifty, scattered indifferently over the surfaces affected. The little eminences in a day or two become pustules, which break and leave small ulcers with sharply cut edges, and large enough to lodge a pea. In a short time, if the irritation is allayed by rest and cleanliness, they heal, and leave no mark, or only a very slight one. The irritation of this pustule causes violent itching, which soon increases to smarting or burning; the mucous membrane swells, and secretes a very offensive viscid mucus; this glues the parts together, and dries into thick crusts, which excoriate the parts on which they form. When the inflamed follicles are few, there is not much irritation, and the ulcers heal up, but are followed by others, so that the disorder continues a long time, or relapses follow each other repeatedly unless cured by treatment.

The treatment is very simple: cleanliness by means of baths, warm lotions, separation of the parts by placing linen rag between them, a saline purge, and rest. If the pustules have extended into ragged ulcers, they must be kept clean, and dressed with black-wash until they heal.

Ulcers of the Os Uteri are commonly produced in the course of inflammation of the mucous membrane of the cervix; hence they are a very frequent venereal complaint.

¹ Mémoires de l'Académie de Médecine, t. xv. 1850.

Of venereal sources gonorrhœa is a prolific one, by causing inflammation of the cervix. In syphilis catarrhal inflammation also often causes ulcers of the os. Chancrous pus again sometimes is inoculated in the cervix uteri. The irritation of oft-repeated sexual intercourse excites chronic congestion, inflammation, and abrasion of the mucous membrane; a condition which almost always ends in ulceration. In whatever way they are produced, ulcers of the os have very similar characters, and require similar treatment.

There are three varieties, the erosion, the indolent granular ulcer, and the fungating ulcer.

The *erosion* is the simplest form, and consists in denudation of the epithelium of one or both lips of the os tinæ. The epithelium of the inflamed mucous membrane of the cervix is loosened, and by the chafing of intercourse or by rubbing against the walls of the vagina, it is stripped off. Sometimes the epithelium is lifted up in minute vesicles or blisters scattered over the cervix; when these break, they leave small superficial erosions. Thus simple erosions are produced in two ways when the mucous membrane is inflamed. The erosion appears as a bright red spot, around which the mucous membrane is generally rosy red and shining. A glairy discharge trickles from the os, and very commonly there is also a purulent discharge in the vagina.

At this stage the erosion is easily cured, but if left, it soon becomes an indolent ulcer. In treating them the inflammation or irritation of the mucous membrane must be allayed by frequent injections of warm water or weak solution of borax, and the congestion removed by rest, simple diet, and moderate purgation. If the cervix is much congested and tender, with pain in the sacrum or at the groins, four or five leeches should be applied to it, and may be repeated if the tenderness does not subside. In five or six days, when the irritation has been subdued by these means, the

injection should be made astringent with alum or sulphate of zinc (about two to three grains to the ounce). The speculum should be passed, and the whole surface of the cervix painted with a solution of nitrate of silver, twenty grains to the ounce. When this is done, a plug of cotton wool should be inserted into the vagina, to prevent the walls from chafing the eroded surface. If the congestion has subsided, and there be much mucous discharge from the cervix, the plug of cotton wool may be filled with a scruple of oxide of zinc and magnesia, in equal parts.

Whatever application is selected, the most important part of the treatment consists in the regular use of injections twice or thrice daily, to wash away the secretion, and the application, every four or five days, of a strong astringent to the cervix by means of the speculum. The general health must also be promoted by plain diet, fresh air, and moderate exercise, congestion of the pelvic organs being prevented by regular evacuation of the bowels and abstention from sexual intercourse.

The granular ulcer.—Where the disorder which produced the erosion is allowed to run on unchecked, or increased by continual irritation, the abrasion becomes an ulcer. The denuded margin of the os deepens, small granulations spring up over the surface; these are so closely set and so prominent that sometimes the cervix has a strawberry-like appearance. In other ulcers the surface is livid, even, and covered with thick white pus, which, with the glairy discharge from the os conceals the ulcer, and must be cleared away before that can be seen, by a gentle stream of tepid water injected through the speculum against the os uteri. If the surface is wiped with a pledget of cotton wool, the vascular granulations of the sore will bleed, and sometimes freely; this interferes with the examination, but is of no importance otherwise. The ulcer often extends into the meatus and the

interior of the cervix, which is excoriated as far as it can be seen. The uterus itself is sometimes acutely inflamed, but more often is hard and enlarged from the chronic congestion the ulcer has occasioned. This form of ulcer never heals spontaneously, but will remain in the same condition for years, causing pain, too great discharge at the menstrual period, and occasional attacks of pain in the back, when the congestion is increased from some passing cause. In cases of long standing the ulcer deepens into a considerable cavity, or disfigures the cervix, and puckers the entry with cicatrices where it partially heals. There is always more or less discharge, which in some women is so slight as to escape their notice. The patient suffers in other ways; indigestion, irregularity of the catamenia, chlorosis, and nervous irritation, are all consequences of the continual irritation these ulcers excite.

In *treating ulcers of the os tinæ* the most important thing is to remove the congestion of the uterus. This may be obtained by a frequent mild purgation: with this object sulphate of magnesia, compound decoction of aloes, or some other aperient must be given two or three times daily. The general health often needs good diet, wine, sea-bathing, and some tonic of which iron is the most useful form. The local treatment requires the regular application of caustic to the ulcer; solid nitrate of silver may be rubbed in once or twice a week according to the effect produced; while the patient uses injections of alum, or sulphate of zinc, or some of the preparations recommended in treating Chronic Catarrh. When, as often happens, nitrate of silver has no effect on the sore, the Vienna paste, or the acid nitrate of mercury may be applied: if these strong caustics are used, the excess should always be washed away as soon as the surface has been sufficiently acted on, by injecting a stream of water on to the cervix through the speculum. The sulphate of zinc,

from which the water of crystallisation has been driven off, is very effectual for setting up healing action in the ulcer, though it sometimes causes great pain. Among hospital out-patients, whose attendance is always irregular, the most successful plan of all I have tried at the Lock Hospital is the following,—to touch the ulcer with solid nitrate of silver, and then introduce a plug of cotton wool holding a drachm of tannin; this the patient wears four days, and in that time she syringes the vagina twice daily with water or weak solution of borax. When she removes the cotton, she syringes freely to remove the inspissated mucus. This cauterisation and plugging with tannin should be repeated once a week. After four or five weeks of this treatment the ulcer has generally very much diminished, or even altogether healed. Scanzoni¹ strongly urges the advantage of repeatedly leeching the cervix. This is of great benefit when acute inflammation intervenes, or when there is well marked congestion; but in most cases where I have seen them used, very little benefit arises from leeching if only chronic induration remains from the congestion. Iodide of potass, even in large doses, has apparently no influence over the indurated cervix, unless the chronic thickening have a syphilitic origin; and in such cases the benefit is far better marked if small quantities of mercury be combined with the iodide. This has already been adverted to in the chapter on the Treatment of Syphilis.

The *fungating ulcer* is a variety of the long standing ulcer, and is formed by the granulations growing to a large size, so that they project in wart-like excrescences around the os, and block up the aperture. They generally secrete a copious purulent discharge and bleed frequently, often to a large amount, especially at the menstrual period. Their

¹ Loc. cit., p. 178.

readiness to bleed renders them particularly troublesome, as the patient is often much weakened by repeated loss of blood; and they are of all ulcers the most intractable and difficult to heal.

The most speedy way of treating the granulations when they are at all large, is to excise them with long curved-bladed scissors, and to dab the surface, and what cannot be cut off, with caustic solution of nitrate of silver, or of corrosive sublimate. These applications should be made with care, while the speculum is pushed well to the fundus to protect the vagina from accidental contact with the caustic. Besides the application of caustic, the discharges must be regularly washed away with an astringent lotion; five grains of tannin, or five grains of tartarated iron, to the ounce of water, make an injection that checks the tendency to bleeding which belongs to these fungating ulcers. The cauterisation and excision must be repeated from time to time as the granulations grow, until the character of the ulcer is gradually destroyed and a healing surface procured. The regulations for the patient's health are the same as in those for the indolent ulcer.

Chronic Uterine Catarrh, or Uterine Leucorrhœa, comes under discussion here, only when it is the result of the gonorrhœa in the vagina extending to the uterus, in which case vaginitis returns again and again, or when produced by the congestion accompanying excessive venereal indulgence. Hence it is frequently met with in prostitutes, and now and then in newly married women. It is again not uncommon in the later stages of syphilis. Besides these venereal causes, there are a host of others depending on constitutional and local derangement.

Symptoms.—The most important one is a persistent viscid discharge like white of egg, producing little irritation of the parts over which it flows, wherein it differs from vaginal

discharges, which are often very irritating: the reaction also is alkaline, that from the vagina being acid. It usually happens in venereal leucorrhœa that the vagina secretes some part of the discharge, which is then mixed, and when it reaches the external parts is whitish and puriform. Puriform matter comes also from the interior of the uterus when the lining membrane is inflamed, and can often be seen escaping from the os uteri along with the gelatinous clear mucus. The vaginal portion of the womb is enlarged, and hard, the os is patulous with firm margins. When the speculum is introduced, the cervix is seen to be of a livid red colour, often excoriated at the os uteri, which is wide and plugged with viscid secretion, that ooses slowly from it if the patient is told to bear down. The condition of the cervix is similar to the os; its follicles are enlarged, its colour dark and livid, while the ovula Nabothi are charged with clear secretion. This cannot be seen during life, but has been ascertained to exist by post mortem examination.

In *treating* this disorder the general condition and the local affection must be attended to, local means being the most important of the two. In the first place, injections into the vagina must be practised regularly by the patient morning and evening. Those best suited for this purpose are, liquor plumbi diacetatis dil.; solutions of three grains to the ounce of sulphate of zinc, acetate of lead, alum, borax, or tannin. Carbolic acid and glycerine, diluted with six to eight parts of water, are very useful if there is discharge also from the vagina. The surgeon should once or twice a week inject a caustic solution, twenty to thirty grains to the ounce, of nitrate of silver into the cervix and cavity of the uterus, for the discharge often comes from the inner surface higher up than the cervix. This is best done by holding the cervix with a hook, and then introducing a syringe with a long nozzle into the os, and injecting water until all the

mucus is cleared away through the speculum. The interior of the cervix may then be injected with the caustic solution. When injecting into the uterus, a syringe should be used with a nozzle too narrow to fill the cervix, that the cavity of the uterus may not become distended with fluid, for if this happens, it is said the fluid will permeate along the Fallopian tubes, and so reach the peritonæum; but while the fluid can flow freely away, the resistance is too great to let it enter the Fallopian tubes. The most reliable means for checking the discharge from the cervix, is to pass into it a stick of solid nitrate of silver, and keep it there one or two minutes. This may occasionally replace the liquid injection. After cauterisation glycerine should be applied to the cervix, and it is a valuable component of the injection, for it greatly promotes the healing of abraded surfaces.

The following mode of treatment Dr. Greenhalgh reports to be very efficacious. He soaks a pellet of cotton wool in iodine dissolved in glycerine, and passes it up to the os uteri. The iodine is rapidly absorbed, and in a few days great diminution of the congestion and discharge results. The patient should not go about much, but remain quiet on the sofa while undergoing this treatment. Tincture of iodine, well diluted with water, is very useful when injected by a syringe into the os uteri; this should be repeated twice a week, for a few times.

The constitutional treatment is, as in all uterine affections, of the utmost importance. Though it cannot entirely supplant local treatment, it is a powerful aid to recovery.

The patient should avoid everything likely to interfere with the due performance of the functions of the body. She should take moderate walking exercise in the open air daily, and be free from harassing or exciting mental occupation. The diet should be simple and non-stimulating; wine and beer are to be withheld, unless the enfeebled digestion

requires the stimulus of a small quantity of sherry or champagne. The bowels should be kept freely opened by salines, and iron with quina taken for lengthened periods. In plethoric women the discharge is often associated with disordered digestion and irregularity of the catamenia; and a continued course of salines, taken during some weeks, sufficient to produce a fluid evacuation of the bowels every morning, is of great service. This may be most advantageously effected by a course of the Cheltenham or Kissingen waters, if pharmaceutical preparations do not suit. In some women, where the system is exhausted or anæmic, the iron preparations are most useful. The sulphate or potassio-tartrate in small doses, or, again, the chalybeate waters of Schwalbach or Harrogate, &c., are of great service. The waters of the former place are often successful where the iron given as medicine has proved of no service in improving the health of the patient.

IN THE MALE.

Chafing of the surface of the glans penis, and *laceration* of the membrane lining the furrow behind the corona, are very frequent accidents of intercourse. They would have no importance if the circumstances under which they are contracted did not generally inspire much alarm in the patient; and if neglected or not kept clean, these breaches of surface get sufficiently irritated to cause inflammation of the prepuce, with much swelling and phimosis. They are distinguished from chancres by their shallowness, by their irregular lacerated shape, and by the smarting and itching which follow a few hours after the intercourse which has produced them. Moreover, they quickly lose their irritation if kept clean with some simple cooling lotion. Herpes preputialis is a constitutional disorder, but an attack is readily excited during hot weather in persons prone to it and who

are not cleanly, or if they have intercourse with a person who also neglects to keep herself clean. Herpes betrays itself by reddening and itching of the inner surface of the prepuce and glans penis. When examined, the red area is beset with a group of minute vesicles, which are at first colourless, then yellow, and soon break into very slight excoriations that heal quickly if the irritation is allayed, but if neglected, they may, like chafings, cause violent phimosis and even sloughing of the prepuce.

Persons with a long prepuce are very liable to two accidents during intercourse. In one, the *opening* of the prepuce *splits* by being forced back over the distended glans penis; the chinks so produced radiate round the orifice. They are very sore, and slow to heal, and not unfrequently afford an entry to syphilis, becoming hard and indurated when the incubation of that disease is completed.

A second accident is *paraphimosis*: the long foreskin is thrust back behind the corona glandis, where the orifice of the prepuce girdles the penis, like a tight ring; in a few hours this causes much swelling, and, if allowed to go on, great pain, until sloughing of the nipped parts relieves the strangulation. Adhesive inflammation then fastens the prepuce in its new position to the corpora cavernosa, and leaves the thickened retracted foreskin much disfigured, with a knob-like projection beneath the glans penis.

The immediate treatment of these is to allay the irritation by cold water dressing and frequent syringing between the glans and the prepuce. The chinks should be occasionally touched with nitrate of silver to hasten their healing. The paraphimosis must be removed by drawing the foreskin forwards again over the glans. This may be done if the penis is grasped between the finger and thumb of the left hand, like a ring, while the thumb and two next fingers of the right hand compress the glans till it is small enough to

let the left hand bring the foreskin over it. This is always very painful, and both suffering and time are saved, when the paraphimosis has existed more than a few hours, by putting the patient under chloroform before the reduction is attempted. If the foreskin has been kept behind the penis long enough for the strangulation to be liberated by ulceration, it is better simply to release any tight bands that may remain, and when the parts have healed, to trim away the deformities. If the prepuce has been brought forward, and is long and narrow, it should be circumcised; if contracted by scars or chronic inflammation, the margin should be slit up sufficiently to allow the foreskin to slip backwards and forwards easily.

Rupture of the frenum, or of the meatus urinarius, is a very common accident during intercourse if the frenum is too short. Before it gives way the glans is drawn tight underneath during erection, and intercourse is often rendered very painful. When torn through, the hæmorrhage is sometimes very smart, especially if the meatus is lacerated; and though such a consequence is extremely rare, a large quantity of blood may be lost this way before the bleeding ceases, as the patient has seldom sufficient presence of mind to pinch the part tightly between the thumb and finger till the erection has subsided. The bleeding should always be arrested by cold application, styptics, or by acupressure. The ligature is best, if the artery of the frenum is the bleeding point. I have seen the blood spring from the erectile tissue at the meatus in a stream as large as a crow quill by a recurrence of the bleeding two hours after the accident had happened. It was only arrested by transfixing the bleeding part with a fine harelip pin, and applying a twisted suture. Mr. Langston Parker¹ also recommends that the ligature or acupressure

¹ On some Diseases and Accidents to the Sexual Organs not of a Syphilitic Character.—British Medical Journal, May 16, 1868.

should always be applied, lest, if the bleeding has been arrested by cold or styptics alone, it begin again when the patient gets warm in bed and the surgeon has left him.

If the shortness of the frenum render intercourse painful, it should be divided by passing a narrow straight bistoury underneath it. The ether spray is very useful to remove sensibility during this little operation. Where, as in these cases, no inflammatory action exists, congelation of the surface by the spray gives very little pain, and is a very satisfactory way of annulling sensation; on the other hand, it greatly aggravates the patient's sufferings if used, as I have known it done, before drawing the prepuce forward in paraphimosis. The whole organ cannot be frozen, but the pain of freezing the inflamed skin is very great, and the risk of subsequent sloughing, which happened in the case alluded to, is also great.

Rupture of the Erectile Tissue of the penis, with extravasation of blood, or hæmorrhage from the urethra, often proceeds from violent repeated intercourse; it also occurs during the chordee and distension accompanying acute urethritis. The amount of blood lost in this way may be very great, and cause syncope—even death. The case of Fournier, related in a previous chapter, arose from sexual excitement during the course of gonorrhœa. Mr. Langston Parker¹ relates a case where hæmorrhage from the urethra, which lasted three days, was accompanied by extravasation into the corpus cavernosum, and traumatic stricture. A similar case was brought into University College Hospital a few years ago. A young man, after a night of violent sexual excitement, had sudden hæmorrhage from the urethra. When he was brought into the hospital the blood flowed from the urethra so rapidly that at first sight he appeared to be

¹ Loc. cit.

evacuating the bladder; the quantity lost before his admission was sufficient to drench his clothes, and bring him near to syncope. In this case the hæmorrhage was arrested in a few minutes by applying ice to the perinæum, and ice-cold cloths round the penis, while ice-cold water was injected through a double current catheter, for the point whence the hæmorrhage proceeded was not made out at the moment. After lying in bed with a catheter in the urethra for two days, he left the hospital free from pain and able to pass his water freely, and was seen no more.

Sometimes the urethra is not ruptured, and the blood then percolates into the corpora cavernosa without escaping by the urethra. The penis is distended, painful, and swollen at one place, over which the skin is often red, or even black, according to the amount of the rupture and blood that is extravasated. Mr. Langston Parker has seen the effusion pass from the penis to the scrotum and perinæum in very serious cases, but this is exceptional. The results of extravasation are, first, violent aching pain in the penis, which is very acute during micturition; this may even be arrested altogether by the swelling the extravasation causes. When the urethra is lacerated, urine is very apt to percolate into the corpus spongiosum, and produce abscess or sloughing of the penis. When no great amount of tissue is lacerated, the blood extravasated is soon reabsorbed, and the penis regains its ordinary condition. Not unfrequently, however, adhesive inflammation glues and binds part of the erectile tissue together, so that the penis is distorted during erection, so much so, that intercourse may be impossible, and tough incurable stricture of the urethra take place when the rupture has torn the corpus spongiosum. The immediate treatment consists of complete rest in bed, cold applied to the perinæum and to the swollen part by winding ice-cold cloths round the penis; and when urethral hæmorrhage is

present injecting ice-cold solutions of perchloride of iron, beginning at 1 part of perchloride in 20 of water, and increasing the strength of the solution if the hæmorrhage continues. The after treatment must depend on the nature of the case; stricture of a troublesome kind is a very frequent result of this accident.

Besides the erectile tissue of the corpora cavernosa and about the urethra being ruptured during intercourse, the bulb itself is sometimes the seat of hæmorrhage. Mr. Langston Parker quotes a case of Demarquay's, where a young man after a furious debauch, was seized with sudden prostration, difficulty in micturition, that soon became absolute retention. The next day he died. Post mortem, the bulb was found the size of a hen's egg, extremely hard, and full of extravasated blood.

ADDENDA.

To the account of the communication of Syphilis by Vaccination on page 51, the following instance may be added:—

In the year 1866, an outbreak of syphilis took place at Morbihan, in France, among newly vaccinated children. The matter was investigated by a commission from Paris, and reported to the Academy of Medicine (Bulletin, t. xxxii., p. 20; 13 Nov. 1866) by Depaul. The lymph used in the vaccination was supplied from the Prefecture at the neighbouring town of Vannes. It was inserted in the first instance into two children; one had the vaccine disorder lightly, the other severely, but neither suffered syphilis. The second child was employed on the seventh day to furnish lymph for a third; from this third child, who remained healthy, 80 children were vaccinated. Depaul was able to inspect 42 of them, and found 39 suffering from

syphilis; in most of them the point of vaccination was indurated and ulcerated, showing that syphilis had entered the system by this mode. Further vaccination was made, two of the 39 syphilitic children supplied lymph to a second series, of which the number was unknown, but lay between 50 and 60. Of this series, 17 children were traced by Depaul, and 15 were found syphilitic.

Depaul draws the following conclusions in his report; which is very complete, and fully describes the condition of the children.

- 1st. There is no doubt that the children were attacked by syphilis.
- 2nd. That in most of them vaccination communicated the syphilis.
- 3rd. That the original lymph from Vannes was probably the source of the syphilis.

The last conclusion of Depaul is open to question; if the lymph was syphilitic in the first instance, how did the three first children escape? It appears more probable that some one of the series of 80 was syphilitic, and gave the disease to the rest. The report tells us that all of the 39 syphilitic children except one were vaccinated on the same day (5th of June), by a midwife who used the same lancet for all. The date of the examination of this one exception is not stated; he may have been vaccinated on the 5th, and was certainly vaccinated with the same lymph, and by the same person as the rest. Then again, we do not know the condition of the rest of the 80 who were vaccinated on the 3rd and 4th of June with lymph from the third child; probably they escaped syphilis, as their condition did not attract the attention of Depaul; but if the lymph was syphilitic as it came from Vannes, some of them would assuredly have caught the disease. The communication of syphilis to the second series is easily explained; they were vaccinated from children

who afterwards suffered from syphilis themselves. This outbreak of syphilis differs from that of Rivalta, in the disease being confined to the vaccinated children, and not spreading to the parents and relations of the patients. The course of the disease did not differ in any respect from the ordinary course of acquired syphilis.

After the chapter on Nervous Disorders was printed, a Paper by Dr. Hughlings-Jackson appeared in the first volume of the Transactions of the St. Andrew's Medical Graduates' Association, containing a very interesting series of cases of nervous disorders in children suffering from inherited syphilis. Dr. Jackson rightly assumes the presence of syphilis from the permanent central incisors being pegged, from the cornea being nebulous through past interstitial keratitis, and from other signs of the inherited disease. In several of his cases the patients had themselves remains of syphilitic disease; in a few, only the parents or brothers and sisters showed signs of syphilis. The disorders which Dr. Jackson is anxious to attribute to syphilis are choreic and epileptic convulsions, with hemiplegia. Dr. Jackson has seen convulsions, and in one case paraplegia with irritation of the portio dura, in infants; but all the other nervous disorders have been seen in children or adolescents. As several of the patients cited are still living, Dr. Jackson has not been able to verify, post mortem, the condition of the brain in these children, except in one case where the child died of typhoid fever, and nothing was found in the brain.

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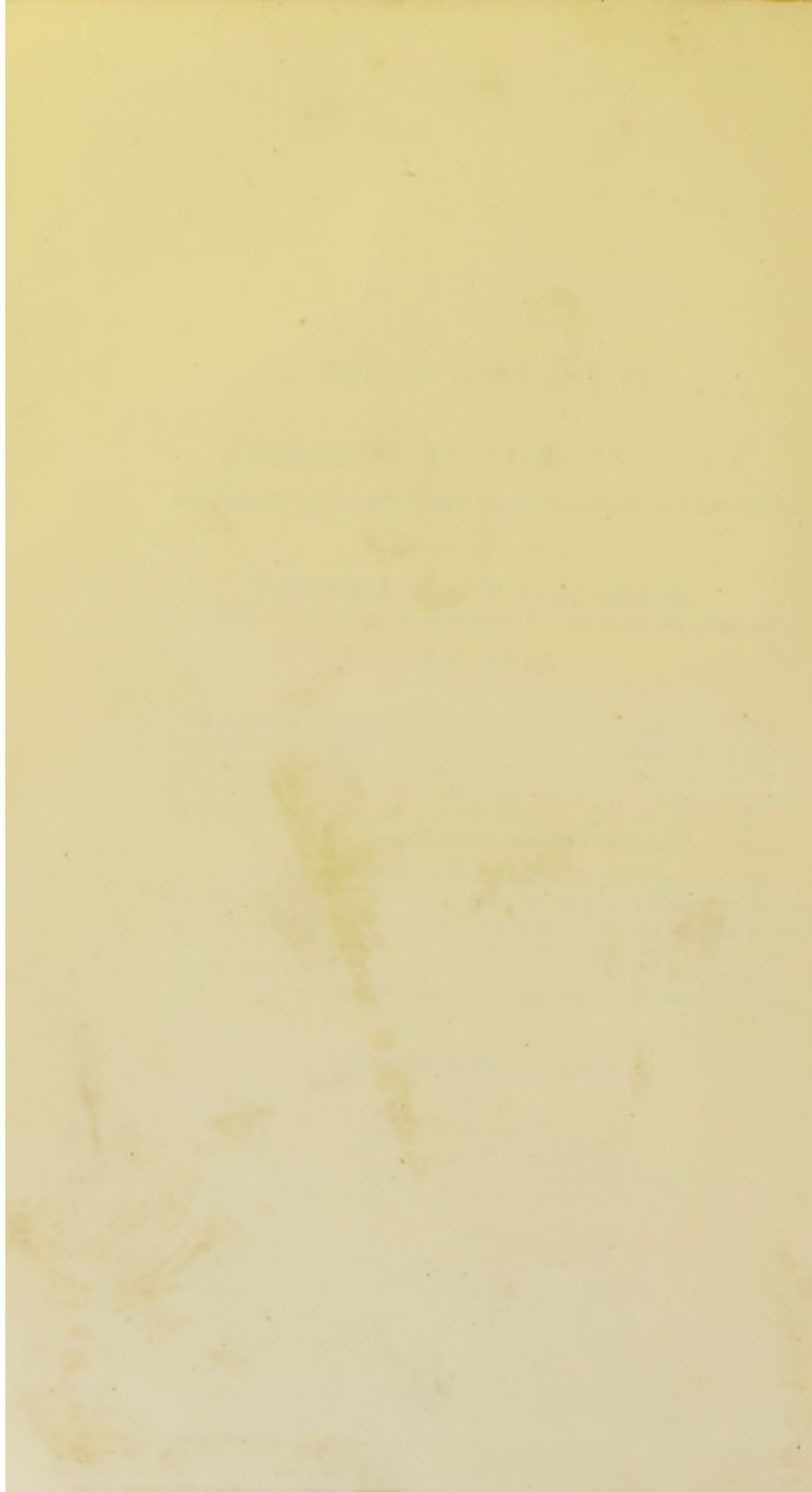
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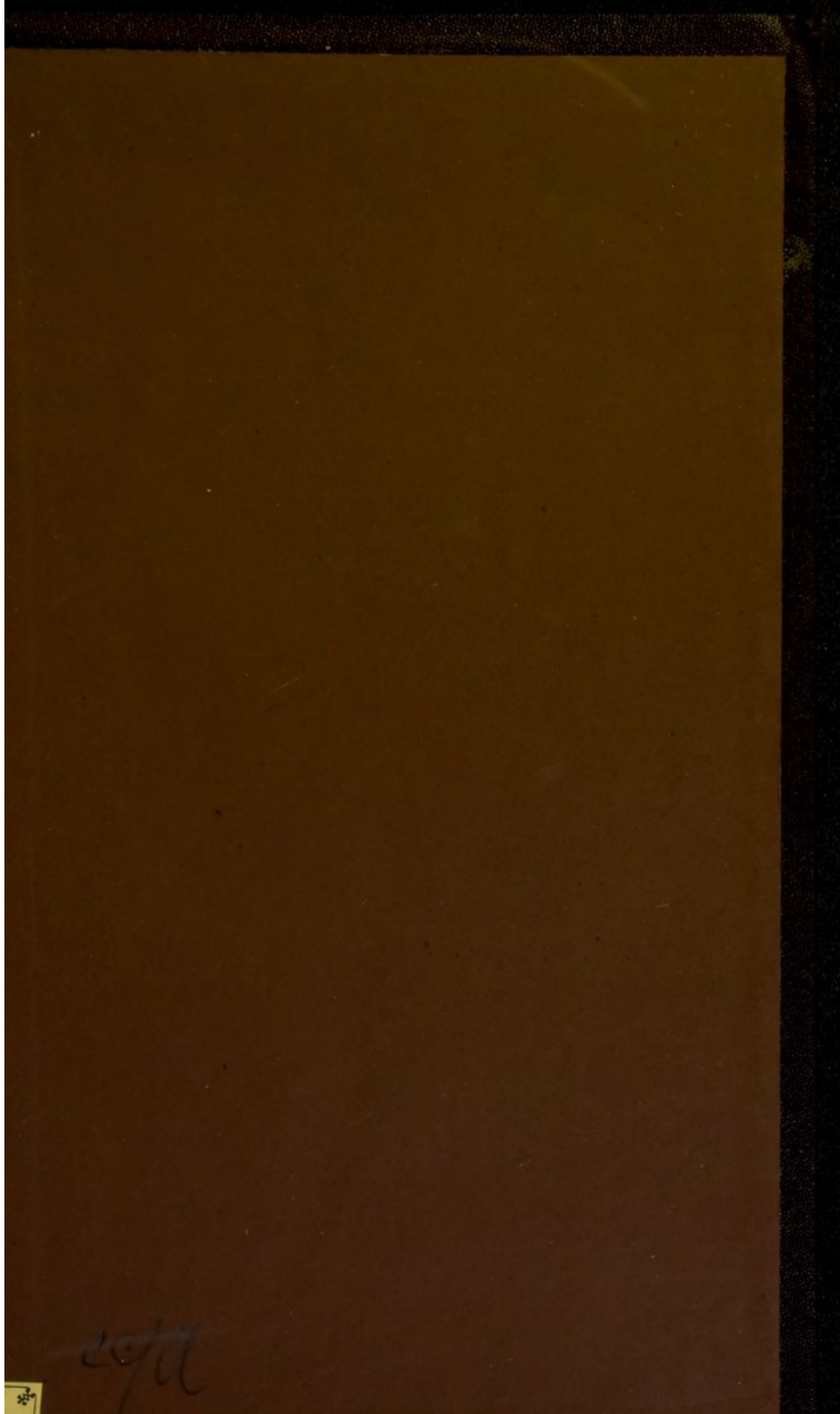
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