The student's manual of venereal diseases : being a concise description of those affections and of their treatment / by Berkeley Hill and Arthur Cooper.

THE STUDENT'S MANUAL

OF

VENEREAL DISEASES.

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BEING A

CONCISE DESCRIPTION OF THOSE AFFECTIONS

AND OF THEIR TREATMENT

BY

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PREFACE TO THE FOURTH EDITION.

In the preparation of a new edition of this little work our aim, as heretofore, has been to place before the student as concisely as possible the main elementary facts relating to Venereal Diseases and their treatment. While trying to effect this our chief difficulty has been to keep down the size of the book. By careful revision and compression of the text, however, we have been able to find room for additional matter in almost every chapter without very considerable increase in bulk. Some additions and alterations will also be found in the list of Formulæ. We hope the result will be to make the Manual more useful to the student.

Those who seek fuller information on the subject will find that the arrangement of the present work corresponds, as far as possible, with that adopted in our larger treatise "Syphilis and Local Contagious Disorders."

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March, 1886.

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THE STUDENT'S MANUAL

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VENEREAL DISEASES.

INTRODUCTORY.

CHAPTER I.

HISTORICAL.

Venereal Diseases are three: Syphilis, Chancre, and Gonorrhœa. The last two have immemorial antiquity, being described in Chinese systems of medicine 4500 years old; also in Hindoo, Arabic, Greek, and Latin literature. There is much reason for attributing to syphilis an equally remote origin, though the proof is less positive. In the Middle Ages a general eruptive disease called lepra was often propagated by sexual intercourse along with local venereal disorders. This was probably syphilis. In the years 1490-9 an epidemic spread rapidly through Europe, which was also probably syphilis. At the time it was called the 'great pox,' was contagious, and was communicated most readily during sexual intercourse. As this disease had extended to several countries of Europe about the time of his return,

there is small foundation for supposing that Colombus brought it from America. Sixty years after this outbreak, its description by Fracastor and others shows that syphilis had become then what it is now. About the middle of the sixteenth century authors began to attribute all venereal disorders to one source, having previously drawn a distinction between syphilis and other venereal diseases. This confusion reigned until the present century. In the seventeenth and eighteenth centuries, the true nature of certain forms of syphilis prevailing in isolated districts was not recognised; hence the diseases called, at different times, sibbens in Scotland, radezyge in Norway, scherlievo in Dalmatia, and by many other names in various parts of the world, were not considered to have a venereal origin, until proved to be simply varieties of syphilis.

CHAPTER II.

MODERN VIEWS.

The theory which maintained that a common virus excites constitutional syphilis, gonorrhœa, and local contagious ulcers, has been abandoned since Benjamin Bell and Ricord demonstrated gonorrhœa to be distinct from syphilis. In 1852 Bassereau substantiated the truth of another suggestion of Ricord, namely, that of the two kinds of venereal

sore, one is a local disorder, the other a part of the constitutional disease syphilis. Those who agree with Ricord and Bassereau are *dualists*; while those who assign a common origin to the exciting virus of both disorders are now called *unicists*. Dualists however are not all agreed respecting the nature of the virus which produces the local sore. Some believe it may be caused by pus in an unusual state of acridity from inflammatory or other ordinary processes. Others maintain that it is due to a special virus; and this is the view which is most in harmony with the present state of knowledge on the subject.

The dualist theory is the one adopted in this book. The term *chancre* will be applied solely to the local contagious venereal ulcer, while the term *syphilis* will be used only when speaking of the general constitutional disease.

SYPHILIS

CHAPTER I.

OUTLINE.

Synonyms.—Pox ; Fr. *Vérole* ; Ger. *Lustseuche.*

Syphilis is a specific disease which may be acquired or inherited. It is communicable 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. The poison is conveyed throughout the body by the blood. The effects of syphilis are displayed both on the surface of the body and internally. The natural course of the disease is to recovery.

When the syphilitic poison, unmixed with irritating matter, has been inoculated, it gives no evidence of its presence for three or four weeks ; 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 (the initial lesion or manifestation), which may or may not become an ulcer with a hard base. About eleven days later than the appearance of the papule, the glands nearest the point of infection are found to

have become enlarged. Within a few weeks from this, usually four or five, a red macular eruption appears. It may be unperceived by the patient, as it causes no discomfort. The rash is often preceded by headache and loss of appetite, and sometimes by fever. As the first eruption disappears, others, generally of a papular character, may develop on the skin and on the mucous membrane, especially that of the throat and mouth. Emaciation and loss of strength sometimes set in at this period. Having made this progress, the disease may subside completely, and never revive. Usually, however, after a time, an 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 pains, iritis, and other symptoms. The affection becomes either continuous by fresh crops of eruption following closely on each other, or the spots alternately vanish and return, during a period not often exceeding two years. During this time it is common for the patient's strength and vigour to be greatly lessened. Thus the second period of the disease terminates. Should it go further, a new series of morbid processes occupies the body. If the skin is attacked, hard tubercles appear in that tissue, which are very prone to ulcerate. But the internal organs may be also the seat of similar solid formations, and of other changes. Syphilis, *per se*, is not often directly fatal in adults; but by altering the structure of organs of vital importance, it ren-

ders the patient unable to repair accidental injury to those organs, and thus, indirectly, frequently causes death.

Though the earliest manifestation is as much a part of the general disease as are the subsequent ones, it has been found convenient, to arrange them in three groups. First, those developed at the point of contagion and in the nearest glands—the so-called *primary* symptoms; next, the widely spread affections, observed mainly on the surface of the body, called *secondary;* and lastly, those attacking usually a limited area, or a special organ, named *tertiary* affections. These sets of symptoms are usually separated by pauses. Not invariably; for now and then patients present simultaneously symptoms proper to all three periods. To such cases the term 'malignant' or 'galloping' syphilis has been applied. In the majority of cases, however, when the disease does not end with the secondary stage, tertiary symptoms do not appear earlier than five years after contagion.

Pathological Anatomy.—The changes produced by syphilis are of an inflammatory nature and are chiefly due to the production of a morbid growth which undergoes certain processes of increase and degeneration. This change begins by the formation of small round cells embedded in a delicate stroma. The structure is at first similar to that of ordinary granulation tissue, and does not present any elements peculiar to syphilis. The growth may develop in a diffused infiltrating form,

or in the circumscribed masses known as *gummata*. Probably no organ or part of the body is exempt from liability to be attacked; and though the new growth is essentially the same wherever and at whatever period of the disease it occurs, it of course varies according to the tissue or organ that is its seat. The gummy growth is at first highly organised and very vascular, but subsequently there is a marked tendency to plugging of its vessels and consequent degeneration. If disintegration take place the consequences vary according to the seat of the growth. If the skin is affected an irregular ulcerated surface remains, while in the case of internal organs a tough cicatricial fibrous tissue results, which by contraction may seriously or even fatally interfere with the functions of the affected viscus.

Contagion is not repeated.—By this it is meant that a man who has once suffered from syphilis thereby gains 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 who after a lapse of years again contract the disease.

In the best recognised and undoubted cases of reinfection, a regular recurrence takes place, namely, incubation, indurated initial lesion, enlarged glands, and eruptions of the cutaneous and mucous surfaces. In the second mode in which syphilis is said to be repeated, the course is much modified. The earlier stages 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 general infection. As such cases have no clear distinction from others which are simply revivals of a former attack, they are open to doubt.

Duration.—This varies much in different persons. As a practical rule, *one and a half or two years* should be fixed as the probable period during 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 often the reward of perseverance, for the number of incurable cases of syphilis lessens as our knowledge of the disease becomes more complete.

CHAPTER II.

CONTAGION.

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 infeebles the condition of the individual increases the severity of syphilis. All

races are subject to the disease. When it invades a district not previously accustomed to it, its course, like that of other contagious diseases, is for a time more severe. Probably there are individuals insusceptible to syphilis, who escape that contagion as they escape contagion of other kinds.

The sole *exciting cause* of syphilis is a subtle non-volatile principle called the virus, which, except in the case of inheritance, enters only at a breach of surface. The essential nature of the virus is unknown. Certain observers, especially in Germany, claim the discovery of a *bacillus* peculiar to syphilis; but the question at present remains unsettled.

The length of time which elapses between inoculation and absorption of the virus is also unknown. Excision of the initial lesion has hitherto failed to prevent general infection—indeed cauterisation within twelve hours after contagion has also failed.

The vehicles of the virus are—The *secretions of all early syphilitic affections and the blood;* but the fluids of the body usually cease to be contagious when only the so-called tertiary affections are left.

The physiological secretions of a syphilitic person—*e.g.*, saliva, sweat, tears, milk, semen—have not been proved to be inoculable when free from admixture with syphilitic secretions or with the blood.

The *secretions of co-existing diseases* in syphilitic persons should always be regarded as capable of conveying syphilis, though the evidence that they have done so, except under the conditions mentioned in the preceding paragraph, is imperfect.

Modes of Contagion.—Syphilis may be propagated by (1) direct contact; by (2) mediate communication; or by (3) hereditary transmission.

1. *Direct Contact.*—Syphilis is most commonly communicated during coitus; but it is not necessarily a venereal disease, for it is sometimes conveyed by kissing, by suckling, by examining diseased persons, as in the case of doctors, students and midwives, and in various other ways.

2. *Mediate Communication.*—More rarely syphilis is conveyed through the medium of drinking vessels, spoons, pipes, towels, or other articles that have been used by syphilitic persons. Dentists' and surgeons' instruments have also acted as media of contagion—as, for instance, in vaccination.

3. *Hereditary Transmission.*—Our knowledge is imperfect respecting the ways in which syphilis may be transmitted from parent to child. There is no doubt that if the mother be infected shortly before or at conception, the child will almost always receive the disease. The child will probably contract the disease if the mother be 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 is often healthy.

It is believed by many that the child may inherit the disease from the father, and may in turn infect the mother through the placental circulation, or in

some other way (' *choc en retour* '); but this is not established beyond doubt.

There are also those who believe that syphilis may pass from father to child while the mother escapes. It is most probable, however, that the mother of a syphilitic child never really escapes, for under such circumstances she never catches the disease from her child after its birth (Colles's Law).

CHAPTER III.

THE INITIAL MANIFESTATION.

The interval between the introduction of the poison and the commencement of its activity is called the *incubation*. This period lasts most commonly about twenty-four days. The limits of incubation are between ten and forty-six days. The reasons of this variation in different individuals are yet to be learned.

When incubation is over, a change takes place at the site of inoculation. This change, the *initial manifestation* (initial lesion, primary syphilitic sore, hard or infecting chancre), has three forms: 1, the elevated desquamating papule; 2, the superficial hard ulcer; 3, the indolent ulcer, with a hard widely extended base. These three forms are produced quite independently of any local irritation. In the first variety the hard deposit remains dry, losing the cuticle from its surface, without reaching ulceration.

In the second and commonest form, the induration of the tissue beneath the ulcerating surface is less abundant, and sometimes, instead of being developed in a mass, it is spread in a thin layer under the surface which secretes a serous discharge; this form is called 'parchment induration.' In the third, induration is well marked, and also ulceration, but the discharge is not copious or purulent. This is the most easily recognised form which is often called a 'Hunterian chancre.' When fully developed it has a hard, resisting base; the surface is covered by a scanty adhesive discharge; the edges are sloping and rounded; and the induration extends beyond the ulcer.

Effects of Local Irritation. — 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 depend on the *acridity* of the irritant. Similar effects ensue if the irritant be applied to a syphilitic ulcer after it is developed. Chancrous pus applied to the surface of an indurated sore incites it to suppurate freely, and to acquire some of the characters of a chancre, in which case the discharge becomes auto-inoculable. When the syphilitic virus and chancrous pus are inoculated together, the lesion which results is called a 'mixed chancre,' by Rollet. Sloughing action at the point of inoculation is no preservative against syphilis.

The initial manifestation is usually single. It may be met with on any part of the surface of the

body, the prepuce and glans penis being the most frequent sites in the male, and the labia and nymphæ in the female. The induration at the point of inoculation varies, according to its situation and the sex of the patient; it may be scanty, and thus liable to be overlooked by a superficial observer, but it is rarely wholly absent. Copious induration is not always an indication of a severe course of the disease.

The *lymphatic glands* connected with the point of contagion enlarge, slowly and painlessly, about *eleven* days after induration of the point of contagion. The cellular tissue around the glands remains unchanged, and they can be plainly felt as a *group* beneath the skin. This local change is sometimes followed by general glandular enlargement, those most plainly affected being the cervical glands. This further change is accompanied by diminution in the number of the red corpuscles of the blood, pallor and langour. Enlargement of the lymphatic glands is sometimes ill-marked, and escapes observation. When it subsides, 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 local irritation, never dependent on syphilis alone. Suppuration is not protective against general infection.

The *lymphatic vessels*, which connect the initial lesion with the glands, can often be felt as hard cords beneath the skin.

The *diagnosis* of a syphilitic initial lesion depends

on the incubation, the induration, the indolent superficial quality of the ulceration should that be present, and the painless general enlargement of the nearest group of lymphatic glands.

The *prognosis* is that of syphilis.

CHAPTER IV.

AFFECTIONS OF THE SKIN.

After the development of the initial manifestation and glandular enlargement (primary symptoms), there is another interval before the appearance of the general or secondary symptoms; and this period of quiescence is sometimes called the 'second incubation.'

The period of general eruption, when not influenced by specific treatment, begins about nine or ten weeks after contagion, six or seven after induration of the point of inoculation, and four or five after the lymphatic glands are perceived to have enlarged. Malaise, pains in the head, back, and limbs, and pyrexia may precede or accompany the outbreak of the rash. The febrile action and pain are sometimes intense, and the former may assume a periodic intermitting course. The fever generally subsides when the eruption is fully out.

General Remarks on Syphilides.—The various aspects of the rashes in syphilis resemble those

of the non-syphilitic eruptions in some degree. There are several characters common to all the *earlier syphilides*. 1. The *papular* is the commonest eruption. All the others are usually mingled with papules, and thus the papule becomes the type or basis of syphilitic eruptions. The different rashes do not become typical examples of the eruptions among which they are classed; the vesicles, for example, are abortive, and the scaling patches desquamate but scantily. 2. *Symmetry*. In the early stages both sides of the body are beset with spots, because the virus producing them pervades all parts of the system. 3. *Colour*. At first this is often bright red, but it usually changes to the hue of raw ham, or assumes a coppery tint. 4. *Rarity of irritation*. Syphilitic rashes are almost always free from heat, itching or smarting. 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 often escape, and the backs of the hands and feet are rarely marked. The palms and soles are frequently attacked by syphilis—situations commonly avoided by non-syphilitic rashes. Again, simple macular eruptions prefer the extremities, while syphilitic maculæ often spare them. Common psoriasis always prefers the outer and rough aspect of the limbs. Syphilitic scaly eruptions show a preference for the flexor aspect. 6. *The form and arrangement* of the spots and patches in syphilis are

often arches or circles, or segments of circles. 7. *Multifarious character.* Syphilitic eruptions are very often present together; thus papules appear among the maculæ, and scaling patches co-exist with mucous patches, or with pustules. 8. *Transformation of one form into another* is often observed when there is opportunity for watching the progress of the disease; *e.g.* smooth papules may become scaly, vesicular or pustular, or, if kept moist, develop into mucous tubercles.

The later syphilides, which appear when the disease is losing its activity, are seldom spread widely over the body. The brown tint is then well marked. Such limited forms are slow in progress: in feeble persons they are prone to ulcerate, and the ulcers leave indelible scars. They are often the only syphilitic symptoms present. They commonly heal readily under proper treatment, but are apt to recur when the treatment is discontinued.

Macular syphilide.—*Roseola* is the earliest rash after infection; but besides being often overlooked, is not invariably present. It consists of spots, rosy red and fading under pressure when fresh, often turning to coppery-brown before disappearing. The patches are usually slightly elevated, and sometimes desquamate as the rash subsides. The eruption lasts commonly two or three weeks, but may disappear in a few days, especially under specific treatment. Papules often form among the roseolous spots. There are two varieties of spots, the large and the small. The flanks, abdomen and

chest are the common seats of the eruption, but in rare cases it spreads all over the body. It relapses now and then. The *diagnosis* depends on the accompanying enlarged inguinal glands, the induration of of the point of contagion, the erythematous redness of the fauces, the small amount of irritation and of constitutional disturbance, the rash being always most fully developed on the trunk, and the slow course.

Papular Syphilides.—When the papules are minute they are called miliary; when small, lenticular; when large, nummular; when desquamating, squamous; when arranged in circles or figures of eight, leprous syphilides. When the palms or soles are attacked, the term psoriasis palmaris or plantaris is often used. Miliary and lenticular syphilides are most frequent in the first six months after contagion; the scaly form is generally rather later; lepra and papulo-squamous affections of the palms and soles are most often seen when the disease is of long standing. The papular syphilide may attack all parts of the body, and is the eruption which most frequently relapses. The colour common to all syphilitic papular eruptions is rosy at first, fading to coppery or purplish brown. When the papule reaches full development, the cuticle separates in dry scales, leaving a characteristic silvery border. The usual accompaniments of these eruptions are ulcers or papules in the throat, enlarged lymphatic glands in various parts of the body and alopecia; less frequently, periosteal pains, nodes, and iritis.

Mucous Patches are merely syphilitic papules altered by moisture. When large and prominent they are called *mucous tubercles* or *condylomata*. They form on the mucous surfaces, at the orifices of the body and on the skin where it is kept moist. They secrete a thin purulent fluid which is highly contagious. When near to each other they often coalesce into large patches. When developed around the anus, they are frequently subdivided by fissures called rhagades.

Vesicular and Pustular Syphilides are much rarer than the papular forms. 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 a few days the vesicle shrinks to a small scale on the areola and falls off, leaving a coppery-red papule. Sometimes, instead of drying up, the liquid becomes purulent, converting the vesicle into a pustule, and the congestion of the areola increases. Various names (herpetiform, varicelliform, acneiform, impetiginous, etc.), have been given to these syphilides from their resemblance to the corresponding simple eruptions. They appear usually during the first year after infection; the duration varies from three or four weeks to several months, according to treatment. If the patient be well cared for a serious effect is seldom produced; if he be neglected deep ulcers often form. The *diagnosis* is rendered positive by the presence of syphilitic lesions elsewhere, and by the characters

which this eruption shares with all syphilitic rashes.

Rupia is a form rarely seen till some years have elapsed after infection, unless the general progress of the disease be very rapid. Here the pustule quickly shrinks and the contents dry into a crust, the skin ulcerates under the crust, the fresh secretion dries into a layer wider than the first while ulceration extends beneath, until a thick scab of several layers, of a brownish-green hue, is formed. Sometimes, though rarely, the vesicle is well developed. The crops may succeed each other for several months. Rheumatoid and periosteal pains and debility ordinarily accompany this eruption.

Pemphigus is of exceeding rarity in adults. When it attacks a child with inherited syphilis it is frequently fatal. It is one of the earliest of all syphilides, being in most cases present at birth. It develops on the palms and soles, and extends up the arms and legs.

Tubercular Syphilide.—This consists of solid rounded elevations of the skin. Being a late affection, it appears usually in persons infected at least three or four years. The nodules are prominent, coppery or purple-brown in colour, collected commonly into groups, and most frequent on the face. This eruption is never widely spread. The tubercles are very liable to ulceration, and then leave indelible white scars. The course is slow, for fresh tubercles may appear as the old ones subside, and the eruption recur again and again.

The Serpiginous Syphilide.—Creeping ulceration may attack a tubercle. Where this takes place little tubercles develop at the margins of the first deposit, and merge into each other. The original tubercle soon ulcerates and a scab is formed under which an ulcer creeps, healing where the tubercle first began to melt away, and spreading by the destruction of the tubercles at the margin of the ulcer. The course of the affection is indefinite unless controlled by treatment.

Gummata of the cellular tissue, more rare than the last, are usually met with only in cases of long-standing syphilis. At first they form solid nodules beneath the skin. Presently the skin over the tumour becomes adherent to it, thin, bluish-red in colour, and breaks down by slow ulceration. The contents then escape and a ragged interior is left which heals with a depressed scar. Under proper treatment the mass is often absorbed before ulceration is reached. The gummy swelling is found oftenest on the limbs, but may form on any part of the surface; it is identical with the gummy tumour of internal organs.

The Hair.—The hair frequently becomes dry and withered during the course of the cutaneous eruptions. It often falls partially from the scalp (alopecia), and the eyebrows, lashes, and down of the body occasionally fall too, causing complete baldness. In a few weeks new woolly hairs grow, and commonly in the course of a few months the hair is completely restored.

The ulcerating eruptions which beset the scalp sometimes destroy the follicles; the hair then comes away in patches and permanently bald spots are produced.

The Nails in syphilis may be attacked primarily (onychia) or by extension from the surrounding parts (perionychia).

Onychia.—In the commonest form, the nail first loses its healthy lustre, becomes dull, brittle, and notched at the free edge. In some cases also the nail gradually separates from its matrix. The separation is usually limited to the distal portion; but sometimes the whole nail falls off, and when reproduced is often grooved and irregular. In rare cases again the nail becomes hypertrophied and greatly increased in thickness.

Perionychia.—One form arises from the extension of a papular syphilide to the nail-matrix, producing dull spots and subsequently chipping and irregularity of the nail itself. An inflammatory form of perionychia begins with indolent dull red swelling of the parts surrounding the nail, and of the matrix. The nail often necroses, and ulceration is produced.

Syphilitic affections of the nails are distinguished by their multiplicity, chronicity, and the presence or history of syphilitic signs elsewhere.

CHAPTER V.

THE ALIMENTARY SYSTEM.

The Tongue is very commonly attacked in the first and second years after contagion, most frequently by excoriations and fissures along the borders and tip. Mucous patches also are not infrequent; they accompany the papular eruptions of the skin. At a later period the mucous membrane and submucous tissue sometimes indurate in broad patches. In such cases sinuous fissures and ulcers often form from accidental irritation; and when they heal white shining scars remain. Lastly, gummy nodules may develop in the substance of the tongue; when superficial they break on the surface, and leave large, ragged, ulcerating cavities. Irritated syphilitic ulcers on the side of the tongue may be confounded with the simple ulcer set up by chafing the organ against ragged teeth, or with cancer; the first is distinguished by the rapidity of its healing when the cause is removed; the second by the hard everted edges, the shooting pain, and by the enlargement of the sublingual lymphatic glands. Nevertheless, the diagnosis is often difficult.

The Mouth and Pharynx.—At the time of roseolous rash on the skin a similar redness often spreads over the throat, lasting a few days, and

never going beyond very superficial excoriation. Small, round, sharply-cut ulcers of a superficial kind, and mucous patches, are seldom absent from the fauces and tonsils during the early papular eruptions of the skin. They never sink deeply or leave contracted scars. Deep ulcers are the consequence of gummata 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. When ulceration follows the diffused form of infiltration, instead of destroying deeply, it sometimes migrates over the surface of the palate and pharynx, which becomes indurated widely before it ulcerates. Usually the action is confined to the mucous and submucous tissues; at times it extends to the base of the skull and vertebræ, through which it may reach the brain or spinal cord, and produce 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 and 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 Œsophagus.—Stricture of the œsophagus now and then occurs among the later consequences of syphilis. It results from gummy infiltration of the submucous tissue followed by contracting cicatrisation.

The Stomach and Intestines.—Various digestive troubles, as well as nodules and ulcers of the stomach, small intestine and colon, have been attributed to syphilis ; but as regards these organs our knowledge is at present imperfect.

The Rectum is liable to be attacked by syphilis, but not often until several years after contagion. *Ulcers* are rare, and when present are usually merely an extension of ulceration from the anus. *Circumscribed gummata* have been reported, but are of extreme rarity. The most important affection of the rectum is that which is usually discovered as a *stricture* of the lowest portion, and which is probably caused by contraction following a diffused syphilitic infiltration of the rectal walls. The great majority of those who thus suffer are women. The anus is generally also involved, and is sometimes surrounded by fistulæ and flattened red elevations, which, when present, are diagnostic. The rectum is narrowed at one or two inches within the sphincter, whilst above the stricture the gut is widened and ulcerated. The disease has a slow course and, except in the earliest stage, is not affected by specific remedies. The *symptoms* are at first very slight; hence the disease is rarely discovered early. The later symptoms are difficult and painful defecation, with discharge of pus and blood from the bowel, added to the pathological characters just mentioned.

The Liver.—Of the internal organs the liver is probably the one most frequently attacked by syphilis, whether acquired or inherited. As in other

organs the morbid change may take the form of *diffused infiltration* or of *gumma*. The former, which is most common, originates in Glisson's capsule. In adults the organ is usually only partially affected, but in infants the change is more widely spread. During the growth of the new tissue the liver increases in size, but when the stage of cicatrisation and contraction is reached the liver becomes cirrhosed, puckered and reduced in bulk. *Gummata* often grow in the fibrous cicatricial tissue. They form greyish-yellow, opaque, rounded masses, varying from the size of a pin's head to that of a hen's egg; sometimes almost diffluent, sometimes of cheese-like consistence cohering sufficiently to be extracted *en masse* from a capsule of vascular cellular tissue.

The *cirrhosis* of syphilis is characterised by the great degree to which the contraction is carried, so that the diseased parts are deeply seamed, while much of the organ is often unaffected; peritoneal adhesions also are usually present. In cirrhosis from alcoholism the contraction is not so extreme, but is more general throughout the organ, and the adhesions of the surface are generally wanting. Gummata are distinguished from tubercles by their larger 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 structure.

Lardaceous disease is one of the most frequent

visceral changes in syphilis, but it is identical with that produced in other diatheses. *Acute atrophy* has also been seen in syphilitic persons.

The symptoms of hepatic disease often attract but little attention at first. Pain is usually absent; now and then alteration in form and size are perceptible by palpation or percussion. Before contraction the liver is enlarged in some patients. Enlargement also of a part may occur by the enormous growth of a gumma. Ascites, epistaxis, and hæmorrhoidal flux may be consequences of the syphilitic, as of other forms of cirrhosis. The disease has usually a fatal end, but may be cured if discovered early.

Besides the occurrence of these organic changes, which are essentially late or tertiary affections, symptoms of hepatic derangement are occasionally observed at an early period. Temporary *jaundice* is one of the consequences of this derangement. It usually disappears spontaneously in the course of a fortnight. The area of dulness is rarely increased, but occasionally it is so, and there may be also tenderness on pressure over the region of the liver.

The Spleen is frequently enlarged temporarily, especially in children, during the exanthematous stage of syphilis. The specific changes which occur in the spleen are similar to those of the liver, but are much more rarely met with, gummata of this organ being especially infrequent. When the spleen is affected the liver is usually diseased also. Lar-

daceous disease of the spleen is not uncommon in syphilis.

The Pancreas.—Induration and gummata of this viscus have been reported in a few cases. The *salivary glands* are also said to be affected by syphilis.

The **Suprarenal, Thyroid,** and **Pituitary Bodies** have been found altered by changes of a probably syphilitic nature.

CHAPTER VI.

THE RESPIRATORY AND CIRCULATORY SYSTEMS.

The Nose.—The nasal mucous membrane is sometimes inflamed while roseola is present on the skin. The symptoms are redness, dryness, and itching, followed by copious secretion of mucus. *Follicular ulcers* inside, and *fissures* or mucous patches around the nostrils, often occur with the papular eruptions.

Disease of the *bones of the nose* is usually a late affection. The process begins by the growth of gummy material in the mucous tissue and periosteum. Ulceration then occurs and the bone or cartilage eventually becomes exposed. Necrosis follows and finally the dead bone comes away piecemeal. Perforation of the septum also is not infrequent, and if the process be not checked great deformity

may result. Extension may take place along the vomer to the hard palate, or upwards to the base of the skull; and sometimes the mouth, nose, and pharynx become one cavity. Whilst ulceration and necrosis are going on a very offensive discharge escapes from the nares; hence the term *ozena*. When the nasal bones suffer in inherited syphilis it is generally in later childhood towards puberty, or afterwards.

The Larynx.—The *early forms* of syphilitic disease are erythema, superficial ulcers, and mucous patches. These are usually associated with similar affections of the mouth or pharynx, and are sometimes accompanied by œdema. The *later forms* consist in the diffused or circumscribed form of new growth, with ulceration and the formation of contractile fibrous tissue whereby the larynx may be partially or wholly occluded. Perichondritis and necrosis of the laryngeal cartilages may also occur, especially if energetic treatment be not adopted at an early stage of the disease. Ankylosis of the crico-arytænoid articulations and laryngeal paralysis are also occasional consequences of syphilis. Any of these affections may be accompanied by œdema which may threaten life and thus necessitate the performance of tracheotomy.

The Trachea and Bronchi.—Syphilitic affections in these situations are much more rare than in the larynx. Gummy infiltration, ulceration, and stenosis from cicatricial contraction have been met with. Such cases are usually fatal.

The Lungs, like other viscera, may be attacked by the diffused or circumscribed form of syphilitic growth. The affection is met with both in inherited and acquired syphilis. In the latter it is rarely seen until at least five or six years after contagion. *The symptoms* are obscure at first. At a later period they are in many respects similar to those of tubercular phthisis. The chief points of difference between the two diseases are that in the syphilitic affection the physical signs are at first usually limited to the middle or lower lobe of one (usually the right) lung, the apex being only involved at a later period; and that the amount of fever is much less than in ordinary phthisis. Hæmoptysis is very common. In making a diagnosis, the larynx, as well as other parts of the body, should always by examined for signs of syphilis, and the personal and family history carefully investigated. Frequently, however, the diagnosis can only be made by watching the effect of specific treatment which in syphilitic disease is often surprisingly rapid.

The Heart is occasionally the seat both of the diffused and circumscribed forms of growth; but such cases are often only found out after death which is usually sudden. Symptoms of heart disease in a syphilitic person, in the absence of more probable causes, should suggest a trial of specific remedies.

The Blood-vessels.—The *arteries* are sometimes attacked by syphilis, the larger vessels at the base of the brain being those in which the change has

been most frequently observed. The process begins by an irregular cell-growth in the internal coat of the vessel. This soon causes a projection into its lumen and consequent narrowing of the channel, which may proceed to total occlusion of the vessel. Usually, however, blocking occurs at an earlier stage by the formation of a clot at the site of narrowing. The other coats of the artery also become gradually affected by the new growth.

The exact relation of syphilis to *atheroma* and *aneurism* of the aorta and great vessels is still undetermined.

Certain *veins*, especially the umbilical vein in dead-born syphilitic children, have been found thickened in a similar manner to the arteries.

CHAPTER VII.

THE NERVOUS SYSTEM AND ORGANS OF SPECIAL SENSE.

Syphilitic affections of the nervous system are usually a somewhat late manifestation of the disease. The most common time for their occurrence is between the third and tenth years after contagion; but in rare instances they occur within the first year.

The Brain may be attacked by meningitis, by gummata, or by arterial disease. *Meningitis* of a sub-acute or chronic form is not very uncommon. It may be caused by extension of the inflammatory pro-

cess from the neighbouring bone or from gummata, or it may begin independently.

Gummata.—The brain may suffer from the pressure of nodes situated on the internal surface of the cranial bones; or gummata may develop in the meninges, either on the surface or deep down among the convolutions. They spring more frequently from the pia mater and arachnoid than from the dura mater.

Arterial Disease.—The cerebral vessels may be attacked by the change mentioned at the end of the preceding chapter. The middle and posterior cerebral and basilar arteries are those most commonly affected. The usual result is blocking of the vessel and localised softening of the brain; but occasionally aneurism occurs.

The symptoms of syphilitic disease of the brain are various. Headache, often of a most severe form, and usually worse at night, is the most constant early symptom of meningitis or of gumma. There may be also giddiness, mental excitement, and insomnia. *Convulsions* are most commonly caused by meningitis or by growths involving the surface of the brain. The attacks differ from those of ordinary epilepsy, in that the convulsion usually begins locally—in one limb, or in the face, for example—and that consciousness is retained during at least the early part of the fit. *Paralysis* is a most important symptom; its seat of course varies according to the seat and extent of the lesion which produces it. Hemiplegia is the commonest form; but the

palsy may be irregularly distributed or limited to one limb or even to one group of muscles. In meningitis and gumma paralysis is usually gradual; whilst in arterial disease it is sudden, and, as a rule, not accompanied by loss of consciousness. *Optic neuritis* is very common in meningitis and gumma.

The Spinal Cord may be affected by meningitis or gummata; but arterial disease has not yet been demonstrated. *Gummata* may occur at any part of the cord, but they usually affect one side before the other. When they spring from the dura mater the surrounding portion often presents a diffused thickening (*pachymeningitis*), and thus the nerve roots may be compressed. The pia mater may be inflamed independently of the dura mater. In rare instances meningitis is set up by disease of the vertebræ. *Myelitis*, usually of a sub-acute or chronic character, occasionally occurs in syphilis. In *locomotor ataxy* there is also often a syphilitic history, but the exact relation of this affection to syphilis is still a matter of dispute.

The symptoms of syphilitic spinal affections vary according to the seat of the lesion, and are similar to those produced by non-syphilitic changes. Pain at the seat of disease and over the area to which the nerves are distributed, tenderness, and spasm, occur both in meningitis and gumma. Hyperæsthesia, anæsthesia, numbness, stiffness, rigidity, wasting, and exaggerated or diminished reflex action, are also symptoms which may be present at various times and in various degrees, according to the extent and

seat of the lesion. Paralysis, again, may be caused by the pressure of growths, by thickening of the meninges, or by damage to the nerve roots. The symptoms are gradual.

The Nerves may be affected directly by superficial or interstitial disease; indirectly, by the pressure of nodes or by compression through thickening of the meninges or of the periosteum in their foramina of exit. The cranial nerves suffer far more frequently than the spinal, and those which supply the eyeball and its muscles most frequently of all. Atrophy of the optic nerve may be caused by neuritis or by pressure. All the cranial nerves may be attacked; but very little is known with respect to syphilitic affections of the glosso-pharyngeal and pneumogastric nerves.

Inherited Syphilis.—The subjects of inherited syphilis may suffer from nervous affections similar to those already described; but meningitis is most common, and growths are rare. It has also been suggested that certain functional disorders such as chorea and epilepsy, are sometimes the result of inherited syphilis.

The diagnosis of syphilitic disease of the nervous system is often difficult, and in many cases can only be arrived at by a process of exclusion; or even by watching the effect of specific remedies. The following suggest syphilis. *Headache*, persistent, intense, worse at night. *Convulsions*, unilateral, local, irregular, and especially if they appear for the first time in adult life. *Paralysis*, irregular, local, par-

ticularly of cranial nerves—the third nerve, for example. Sudden hemiplegia in early adult life is a very suspicious symptom. In all cases the history must be carefully inquired into, and the condition of the heart and kidneys investigated.

The prognosis is most hopeful when the symptoms develop gradually—*i.e.*, when they depend on irritation or pressure caused by syphilitic growth, provided that energetic treatment be speedily carried out. In paralysis from vascular thrombosis the prospect of recovery is less favourable; for the softening which follows plugging of the vessel is of course uninfluenced by remedies. The prognosis in all forms of nervous disease is more favourable in acquired than in inherited syphilis.

The Eye.—The initial lesion, papules, mucous patches, and gummata, are occasionally met with on the eyelids, caruncles, or conjunctiva. The lacrimal gland also has been found to be enlarged in syphilis. In children during the second dentition, the *Cornea* is the seat of interstitial keratitis which may disappear under treatment without injury, but when neglected it often leaves permanent opacities. This affection has also been observed, though very rarely, in acquired syphilis. *Iritis* in acquired syphilis is most common within the first six months after infection; when it occurs in the later periods it is sometimes combined with disease of the deeper structures. The distinguishing characters of iritis are, a pink zone round the iris, dulness of its colour, turbidity of the aqueous, and sluggishness or irregu-

larity of the pupil. Sometimes gummy nodules are seen at one or two points on the surface. Iritis may subside without leaving permanent injury behind, but if untreated often causes synechia or other injury to the eye. Iritis is also seen in inherited syphilis, mostly in connection with keratitis (corneo-iritis). *Choroiditis* is the commonest deep-seated affection of the eye; it occurs both in acquired and inherited syphilis; but in the former is much less common than iritis. It is usually a later symptom than iritis, but in the majority of cases comes on within the first year. The inflammation often spreads to the *retina* and the *vitreous*, causing impairment of vision and sometimes complete blindness. Primary syphilitic retinitis is rare. The course of choroido-retinitis is slow. The *prognosis* depends upon the extent and duration of the affection, and on the adoption of prompt and energetic treatment. Relapses are frequent; hence the prognosis should always be guarded.

The Ear.—*The auricle and external meatus* may be the seat of the earlier or later syphilides, especially of mucous patches. *The middle ear* may become inflamed in the secondary period; most frequently in connection with mucous patches or ulcers of the pharynx by extension along the Eustachian tube.

The internal ear.—Deafness may occur during the early stages of syphilis, without any lesion of the conducting part of the ear being discovered. Such cases recover under general treatment. Deafness may also occur in the later stages, and then is often

permanent. This form is most common in inherited syphilis from five to fifteen or twenty years of age. Its chief characters are rapidity of development, high degree of deafness, and absence of pain, without any change in the middle ear.

CHAPTER VIII.

THE GENITO-URINARY SYSTEM.

The Urinary Organs.—Syphilitic affections of the *urethra* are limited almost wholly to the orifice which is often the seat of the initial lesion in both sexes. On rare occasions it has been found more deeply in the male urethra. It is uncertain whether syphilis attacks the *bladder* and *ureters*.

The kidneys are rarely affected by syphilitic disease. They suffer very similarly to the liver, the changes being chiefly cirrhosis of the interstitial cellular tissue, gummata, and lardaceous disease. 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. The gummy nodules form round, defined, yellow masses along the seams of fibrous tissue produced by the cirrhosis. Lardaceous disease, the most frequent change met with in syphilitic persons, renders the organ smooth and

large; on section the surface is pale, and the Malpighian tufts are large and distinct. Temporary *albuminuria* during the period of the early eruptions is not very infrequent.

The symptoms of renal disease in syphilis are similar to those of other chronic affections of the kidney. The *diagnosis* can only be made from the history, the presence of signs of syphilis elsewhere, and in some cases from the effects of treatment.

Male Generative Organs.—*The penis* is frequently the seat of syphilitic eruptions, especially mucous patches, in the earlier stages, and at a later period gummata sometimes develop in the sheath of the penis, the prepuce, or the corpora cavernosa. How the *vasa deferentia, vesiculæ seminales*, and *prostate* are affected by syphilis, we have no accurate knowledge.

The epididymis, during the earlier stages of the disease, is temporarily enlarged in rare cases, and one or both organs may be attacked. The enlargement is generally limited to the globus major.

The testis proper is seldom attacked till two or three years after infection, and often at a much later period. The testis is at first slightly uneven, but as it enlarges usually becomes smooth and hard; the testicular sensation also is soon lost. The epididymis remains unaltered until lost in the encroaching testis. Pain is generally absent, or is confined to aching in the loins. One organ being enlarged, the other often follows the same course; later, the testis sometimes degenerates into a small fibrous mass. The scrotum

usually remains healthy; but occasionally adhesive inflammation takes place, on which softening, abscess, and fungous protrusion may follow. Two pathological changes take place—*induration of the fibrous structures*, and *gummata*. The first begins by congestion and thickening of the tunica albuginea at a few limited points on the surface, from which arise adhesions of the tunica vaginalis and serous effusion into its cavity. The inflammatory action also spreads inwards, leading to cell growth between the tubules of the testis. This new tissue contracts and indurates, and the secreting structure is thus more or less destroyed. Gummata may form in this contracted tissue, but are less often seen than the interstitial induration. The testicle usually recovers if treated at an early stage, but relapses are frequent. Syphilitic orchitis is sometimes seen in children. The *diagnosis* depends on the freedom of the cord and scrotum from disease, the smooth or only slightly uneven surface, the absence of pain, the diminished sensibility, and the presence or history of syphilitic disease elsewhere. When gummata form near the surface the nodular condition of the organ may suggest tuberculous disease, but this in the great majority of cases begins in the epididymis.

Female Generative Organs.—*The vulva*, besides being the usual seat of the initial lesion, is also frequently affected by papular and erosive syphilides, and sometimes by gummy disease giving rise to ulceration and contraction of the vaginal orifice.

The upper portion of the *vagina* and the *cervix*

uteri are also not infrequently the seat of erosions, papules, and ulcers similar to those which occur in the mouth and throat in the secondary stage. More rarely gummata form in the cervix. The earlier lesions disappear without local treatment, but are important because they are frequently the source of contagion to others. Leucorrhœa, abrasions and induration of the cervix, are also common in syphilitic women, but are probably not directly due to syphilis. *The placenta* in syphilitic women is frequently diseased. *The Fallopian tubes* generally escape, but gummy nodules have been observed in them. *In the ovary and breast* also on rare occasions gummy masses are found.

CHAPTER IX.

THE OSSEOUS AND MUSCULAR SYSTEMS.

The Osseous System is liable to be attacked both in acquired and in inherited syphilis, at an early or late period of the disease. In adults, however, osseous lesions are not common until several years after contagion.

Ostealgia frequently occurs just before the outbreak of secondary symptoms: it consists in violent aching pain (osteocopic) in the bones of the head, trunk, or limbs, and is nearly always worse at night. It commonly subsides when the rash appears. At

this time often nothing wrong can be felt at the painful spots; but at a later period ostealgia is usually connected with obvious lesions of the periosteum or bone.

Osteo-periostitis.—Inflammatory affections due to syphilis, like those depending on other causes, may begin in the periosteum or in the medulla, and may lead to similar results, *viz.*, caries, necrosis, exostosis, and localised or diffused thickening of a part or the whole of the bone affected.

The commonest osseous lesions in syphilis are the circumscribed sub-periosteal swellings called *nodes.* They are most frequent on the cranium, tibia, ulna, clavicle, ribs, and sternum; and may appear during the first few months after contagion. Usually, however, they are not seen until four or five years have elapsed. Early nodes disappear quickly under treatment, or even spontaneously; but at a later period, though they may still be amenable to treatment, they not infrequently lead to permanent exostosis, or break down and discharge themselves, leaving necrosis of the bone beneath.

Besides this circumscribed form of periostitis, a bone may also be thickened by a similar process for a considerable part of its length, or large prominent tumours may develop. Such large nodes sometimes occur in the later stage of inherited syphilis.

The bones may also be attacked by *gumma* in a diffused or circumscribed form. In the former the new growth gradually causes absorption and wasting of the bony tissue, and after the gummy material has

itself disappeared a rarefied and porous condition of the bone remains. One form of this process, which is almost limited to the cranial bones, gives rise to the condition called *caries sicca*, in which irregular pits or furrows, surrounded by bony ridges, are produced. The depressions thus formed can be felt through the skin and are characteristic of syphilis.

Gummy nodules may form in the periosteum or endosteum, and are sometimes found in the hollows excavated by the so-called dry caries. They may disappear under treatment or may break down and cause more or less extensive necrosis.

Besides these changes which begin in the periosteum or medulla, the bones may also be involved by extension of the syphilitic process from neighbouring tissues. This is most common in the bones of the hard palate and nose, which may be thus more or less completely destroyed. Periostitis is often set up beneath syphilitic ulcers of the skin when situated over a subcutaneous bone. In such cases the bone may be permanently thickened, or its superficial layers may become necrosed.

Dactylitis.—This name has been given to an enlarged condition of the fingers and toes, and sometimes also of the metacarpal or metatarsal bones, which is occasionally seen in syphilitic children and, though rarely, in adults also. The fingers are more often affected than the toes, though both may be attacked in the same patient. In the fingers the proximal phalanx is usually first affected. The part is bluish-red, swollen, and firm to the touch. The

usual result is resolution of the swelling under treatment; but sometimes necrosis occurs with subsequent shortening or other deformity of the part affected.

Osseous changes in inherited syphilis.—Certain affections peculiar to syphilitic infants have been described of late years. One form which has been called *osteochondritis*, is due to disturbance of the process of ossification in the long bones. At first there is undue cell-proliferation in the layer of epiphysial cartilage; calcification then proceeds rapidly but irregularly, and finally there is delay or even total arrest of true bone formation. The affection causes loss of power in the neighbouring joint, and more or less swelling just above the epiphysis. The humerus, radius, tibia and femur are most often thus affected, and both limbs usually suffer. Complete recovery is the rule; but occasionally separation of the epiphysis and even suppuration occur.

A second change consists in the formation of bony swellings or *osteophytes*, which occur most frequently on the frontal or parietal bones in the immediate neighbourhood of the anterior fontanelle. Sometimes there are four such swellings, symmetrically placed, and separated by the coronal and sagittal sutures. These enlargements are believed to be the cause of the prominent forehead at a later period of life. Of the long bones the inner surfaces of the humerus and tibia are the commonest seat of the osteophytes.

Besides these changes others—craniotabes, for example—are attributed by some authors to inherited syphilis; but further research is necessary to define

exactly the bone lesions of infantile syphilis and those of rickets.

The *symptoms* of syphilitic disease of the bones depend much on its situation and on the relation of the bone to surrounding parts. If situated within the skull, irritation of the surface of the brain or of one or more of the cranial nerves from pressure, may produce various symptoms, *e.g.*, severe pain, convulsions, paralysis, or coma, according to the seat and extent of the lesion. It should be remembered that the pain of syphilitic bone-affections is nearly always worse at night.

The *consequences* vary according to the individual, and according to the treatment adopted. If the nature of the lesion be made out early, and treatment promptly adopted, recovery without necrosis frequently takes place. But in some cases whole bones, those of the nose or palate for example, are destroyed, causing irremediable deformity. Again, the skull may be perforated; whilst in other cases permanent thickening of the bone remains. Another consequence that sometimes follows syphilitic osteitis in the long bones is extreme fragility, leading to fracture from very slight causes. This is seen both in acquired and inherited syphilis.

The Joints may be affected immediately before the outbreak of the first rash; or during the first twelve months of infection; or, lastly, not until several years have elapsed.

The *prodromal* form consists in aching (mainly nocturnal) pain in one or more joints. Usually the

pain is slight; sometimes it is intolerable. The pain commonly departs when the rash comes fully out. There is no effusion, and rarely tenderness on pressure. The *secondary* form, which is rare, consists of a somewhat fugitive synovitis, in some cases indicated by pain on movement, tenderness, and puffy swelling; in other cases by almost painless hydrathrosis.

In the *tertiary* stage of syphilis gummata may form around the joint, with chronic thickening of the soft parts, and effusion into the synovial cavity.

The Cartilages of the larynx and trachea, as well as the costal cartilages, are sometimes attacked by perichondritis leading to necrosis, as in the case of the bones. The intervertebral substances also may suffer in syphilis, as well as the vertebræ themselves; but articular cartilage is probably involved only by extension from the bone.

The Muscles.—Pains in the muscles increased by their action, temporary debility and wasting, and, as a very rare occurrence, muscular contraction, are occasionally met with soon after infection. This contraction generally selects one biceps brachii for its seat.

The late affections consist in the circumscribed or diffused form of syphilitic growth. *Gummata* occur as greyish or yellowish-white nodules among the fibres of the muscles, usually near their attachment to the bone.

In the *diffused form* the muscular fibres are welded together by the new growth, and the muscle finally

becomes contracted and atrophied. The change is accompanied by aching pain increased by movement. Any of the muscles may be attacked, but those of the limbs suffer most frequently. In its early stage the affection is readily curable; but when fibrous contraction has taken place but little benefit is to be expected from remedies.

The Tendons are rarely affected in syphilis. During the *early* stages, both simple effusion into their sheaths and inflammatory swelling of the tendons themselves may occur. The *late* affections are identical with those of the muscles, which they generally accompany. The aponeurosis of the thigh, the tendo Achillis, and the tendons of the flexors of the fingers, are most commonly affected.

The Bursæ.—Simple effusion may occur during the early eruption, but when the bursæ are attacked by syphilis it is nearly always at a late period of the disease. They may be affected primarily by gummy infiltration, or secondarily by its extension from the skin or other neighbouring structures. Both forms are rare. The bursa in front of the patella is the one most frequently attacked.

CHAPTER X.

INHERITED SYPHILIS.

In inherited syphilis the 'primary symptoms' are of course wanting; but with this exception the course and symptoms are in many respects similar to those of the acquired disease.

Syphilis frequently causes abortion or premature birth of the fœtus, which is sometimes expelled in a decomposed state, or marked with bullæ of pemphigus; but it may be quite free from signs of disease. If the child be born at full term, and do not at once display the disease, it appears healthy for the first few weeks (from two to six), and is often plump and well nourished. This healthy aspect is in most cases soon lost; though some children, who are but slightly affected, retain a flourishing appearance throughout. In a well-marked case the child snuffles as with a cold, is fretful, and wastes; by the end of three or four weeks he has generally lost the robust condition he possessed at birth, and gradually gets to look like a little old man; his skin is wrinkled and of a muddy or bistre hue on the forehead, chin, and other prominent parts, and often breaks around the mouth, eyes, and nose into chaps that bleed easily; the cuticle peels from the fingers, palms and soles, on which coppery patches can generally be found; the hair of the scalp, the eyebrows,

and lashes may fall, and the nails are small and ill-developed. The bones may be affected in the ways already described at a very early period, even before birth. The cry is hoarse, peculiar, and snuffling from the nostrils being stuffed with thick yellow mucus. The mouth and the anus are beset with mucous patches and sores. In the course of a few weeks the wasting becomes extreme, the child is seized with vomiting and diarrhœa, bronchitis, pneumonia, or other visceral disorder, and dies. If untreated, this termination is the ordinary one, especially among the poor; but 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.

After death, no particular morbid change is always found, but in a certain proportion of cases the various changes peculiar to syphilis are developed in the viscera and bones. These morbid processes have been described in the preceding chapters.

Late forms of Inherited Syphilis.—The most common periods for the appearance of these are during the second dentition; on reaching puberty; and during the ossification of the epiphyses and general knitting of the frame. It is believed by some that such late signs may be the first manifestation of inherited taint.

The local changes are often confounded with scrofulous disorders. The skin is very prone to ulcerate. A common situation for these ulcers is

around the mouth and nostrils, where they leave linear and radiating scars; but they may occur in any other region. In addition to the stunted development of the individual, the complexion is often muddy or earthy, and the hair thin and brittle. The lymphatic glands may slowly enlarge, suppurate, and involve the skin in the ulceration thus set up. The bones of the cranium are thickened, whereby flattening of the vertex, prominence of the forehead and widening of the occiput are produced. The shafts of the long bones are often the seat of nodes. The bones of the palate and nose are very liable to be attacked, the bridge of the nose may sink, and the spongy bones and more or less of the hard palate may be cleared away. The soft parts of the mouth also are generally involved in the extensive destruction of the bones. The eyes may be the seat of corneitis, iritis, or choroiditis. Deafness may also occur about the time of puberty, or later. So also the viscera are liable during this period to changes which have been already described. In the *permanent teeth* a peculiar change was first pointed out by Hutchinson. It consists in a general dwarfing of the tooth which is both too short and too narrow; but it is broader at the neck than at the cutting edge, hence the term 'pegged.' The cutting edge also breaks or wears away in an irregular manner, leaving a single shallow semilunar notch at the centre. This is best seen in the two central incisors of the upper jaw, and these are the only teeth which afford conclusive evidence.

CHAPTER XI.

GENERAL DIAGNOSIS AND PROGNOSIS OF SYPHILIS.

Diagnosis.—The diagnosis of syphilis may be easy or difficult according as the symptoms are well marked or the reverse. In cases where a sore appears a few days after exposure to contagion, the exclusion of syphilis will be impossible at first; but when the incubation period is over the diagnosis is generally easy, the induration of the initial lesion with its accompanying adenopathy being characteristic. Sometimes, however, the application of irritants to a simple sore excites an inflammatory thickening of its base, which for a time much resembles the syphilitic induration. A single gummy ulcer of the genital organs may also be mistaken for the initial lesion; but the absence of glandular enlargement and the history of the case will usually decide the point.

If the initial lesion has been unnoticed, the headache, rise of temperature, and febrile disturbance which sometimes occur about the time of outbreak of the first eruption might be mistaken for the onset of some acute specific fever; *e.g.*, syphilitic roseola has been mistaken for measles, and an early vesicular syphilide for small-pox. In such cases careful attention should be given to the temperature, the condition of the tongue, throat, and air passages,

and the presence or absence of other signs of syphilis. The characters of the cutaneous eruptions described in Chapter IV., are sufficient in most cases to separate the syphilitic from the non-syphilitic diseases of the skin; but the whole body should be carefully examined, especially the genital organs and the mouth and throat, as well as the glands of the groin, neck, and elbow.

In later syphilis, when disease of the brain or other viscus is suspected to have a syphilitic origin, the skin and mucous membranes should be searched for scars or gummy deposits; and palpation of the bones and testes should not be forgotten. The eyes may afford important information by the detection of synechiæ, or changes in the choroid and retina. The presence or history of local paralyses, especially of the ocular muscles, is of great importance.

When no positive evidence of syphilis can be obtained, the absence of characters distinctive of other diseases (such as cancer or tubercle) are of value. When no light can be thrown on the subject from any of these sources, the history becomes all-important. The patient should be questioned concerning the bygone occurrence of a venereal sore with lumps in the groins and followed by spots on the skin, relapsing soreness of the throat or tongue, loss of hair or bad eyes. Lasting or repeated nocturnal pains in the bones are signs of much value. Should the history yield no trustworthy information, anti-syphilitic remedies must be tried, and their effect awaited; but care must be taken to

avoid the error of attributing to the remedy what may be due to other causes. Nor is the failure of mercury or iodide of potassium always conclusive evidence that the affection is not syphilitic; for certain processes set in motion by syphilis, the infiltrating sclerosis for instance, after a time become insensible to the influence of specific remedies.

In inherited syphilis one of the earliest and most valuable diagnostic signs is the inflammation and swelling of the nasal mucous membrane, giving rise to the well known 'snuffling.' The skin eruption also, and desquamation of the palms and soles should be looked for. Pemphigus of these parts is diagnostic of syphilis, but it is rare. The peculiar cry, with cachexia, wasting, sleeplessness, or restlessness may also assist. Again, cracks round the mouth and nostrils, or mucous patches about the orifices of the body, are nearly always present sooner or later. Enlargement of the spleen is a valuable corroborative sign. The cranium and the long bones should be carefully examined for osteophytes or epiphysial disease.

In later life the diagnostic signs are the low stature and puny development; the peculiar condition of the teeth; the thick, pasty and greasy skin, especially that of the face; the muddy complexion; the sunken bridge of the nose; the scars round the mouth; the prominent forehead; the signs of present or past mischief in the eyes, the bones or the skin, and in the mouth or throat. When no conclusive evidence can be gained from the appearances pre-

sented by the patient, careful inquiry into his early history and into that of both his parents will often furnish satisfactory proof.

Prognosis.—In many persons syphilis ends spontaneously; and in the great majority the disease subsides completely within two years. The incurable cases are comparatively few. Again, if the disease does obstinately recur, its ravages are usually limited to one or two localities. In recurrent syphilis the symptoms are not exclusively those called tertiary, but are often dry eruptions on the skin—most frequently lepra. Medical treatment both alleviates and shortens the course of the disease, and diminishes the liability to relapses; hence the kind of treatment and the length of time it has been pursued in the early stages of the disease become important factors in prognosis. A wide-spread eruption at an early period usually foretells a short continuance. On the other hand, a history of scanty development or absence of the early symptoms is common in those who suffer from tertiary syphilis. Idiosyncrasy, climate, age, condition, and habits of the patient, especially as regards drinking, also affect the severity of the disease. It is usually worse in the young and growing, and in the aged and enfeebled, than in vigorous adults.

In inherited syphilis, the longer the interval between birth and the appearance of the symptoms, the more probable does recovery become. Two conditions mainly influence the gravity of the prognosis. First, the degree of general cachexia. A puny child, which

is born with or soon becomes covered by eruption, will almost surely die. The appearance of pemphigus or ecthyma is also bad for the prognosis, and the irritation attending ulcers of the skin is frequently the cause of exhaustion which ends in death. Second, the degree to which local affections hinder nutrition. Thus, hepatic disease causes vomiting, diarrhœa, and otherwise prevents digestion. If the spleen be very greatly enlarged the child usually dies. The nasal catarrh, when severe, blocks the nostrils, so that the child cannot breathe through his nose while he sucks, and he is thus put in danger of starvation; or bronchitis and lobular pneumonia may follow. The prognosis is favourable if the rash be not profuse, if the child's nutrition proceed favourably, if his skin remain fresh-coloured and well supported by subcutaneous fat, if the nasal catarrh be too slight to impede the power of sucking, if the digestion be good, and the bowels regular.

The prognosis of the later forms of inherited syphilis is favourable if the true cause of the disease be made out and appropriate treatment instituted. If the destructive affections of the throat or face be treated as 'scrofulous,' irremediable loss of tissue and deformity will probably occur.

CHAPTER XII.

TREATMENT OF SYPHILIS.

The indications to be followed in treatment are—1. To insure the highest possible condition of bodily vigour. 2. To control the influence of the poison. 3. To dissipate and heal the local affections. 4. To prevent the spread of the disease to others.

Period preceding General Eruption on the Skin.—Bodily vigour should be maintained by cleanliness, warm clothing, unstimulating diet, regular action of the bowels, abstinence from alcohol, and moderate exercise in the open air, unless the weather be very damp and cold. As soon as a diagnosis of syphilis has been made, mercurial treatment should be begun.

The initial lesion, if healthy, merely requires cleanliness, and the application of a piece of lint wetted with a mild astringent lotion, such as F. 20 or 22; if the surface be indolent, F. 23 or 24 may be used; if, through neglect, suppuration occur and the ulcer be inclined to spread, it should be well cleaned, dried, and dressed with powdered iodoform every six hours. If the neighbouring lymphatic glands be tender, they should be fomented four or five times a day, and a poultice of linseed meal applied between the fomentations, the patient keeping as much as possible in the horizontal position.

If abscess be already produced, it must be treated as an ordinary bubo.

The treatment of initial lesions of the *female genitals* is similar to that of sores in men. The patient should use the vaginal douche three or four times daily, and dress all excoriated surfaces with rag dipped in lead lotion (F. 20), arranging the dressing so that it intervenes between all opposed surfaces. If the organs become œdematous and inflamed, the patient should also keep her bed and take some saline febrifuge draught.

Spreading or suppurating ulcers should be treated as in the male. The uterus should be examined as soon as the passage of a speculum can be borne, and the discharges or erosions treated as directed in the section on accessory venereal disorders.

The Period of General Eruption.—The short period of lassitude, inappetence, and headache, that in many cases precedes the outbreak of the first rash in patients not under the influence of mercury, is best treated by a saline purge to clear the bowels; after which mercury should be given. The discomfort subsides rapidly as the drug is absorbed. The diet should be good, and tonics may be necessary (F. 30, 31, 46).

Mercury.—If given early, it promotes the dispersion of the induration at the point of contagion and of the enlargement of the glands; it delays and lessens the severity of the cutaneous eruptions, and of all the symptoms which accompany them. If a rash be resent it grows pale, the spots sink down,

and ulcerated surfaces begin to heal. Before the mercurial course is begun, encrusted or decayed teeth should be scaled, stopped, or removed, and the gums put into a healthy condition by frequent washing with solution of alum (F. 2).

Cases in which Mercury is appropriate.—Whenever a patient has a hard based indolent sore, with enlarged inguinal glands. In all the earlier affections of the skin and mucous membrane, and in progressive ulceration, if iodide of potassium fail to check it. Mercury must be cautiously given to persons broken in health or affected by renal disease; but even here, when syphilis is the cause of the debility, mercury frequently restores the strength more rapidly than any other medicine. In short, whenever the disease makes no progress without mercury, however late the stage or whatever the form, that drug should be tried.

The Length of Time Mercury should be administered. Mercury should be given, more or less continuously, for at least a year after infection. If symptoms be present at the end of that time, treatment should be continued for about three months after the last of them has disappeared. During this period it will be often necessary to omit mercury for a time. Iodide of potassium or tonics may be given in the intervals according to circumstances.

The Effects of Mercury are substantially the same by whatever channel it is introduced. After absorption it is in part excreted in the urine, sweat, saliva, and intestinal mucus, but a portion remains for a

time in the tissues. In small doses it is a tonic, promoting the action of the liver and digestion generally. The aim should be to limit its action to the tonic effect. When given in large doses the characteristic effects of the drug are produced. The gums swell, grow tender and spongy, and the teeth ache when snapped together. This condition is accompanied by fœtor of the breath, coppery taste in the mouth, and increase of saliva. All the useful effects of mercury are usually attained when the slightest possible sign of its influence is betrayed by the gums.

Salivation.—If the irritation become violent the gums ulcerate 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 sometimes set up by inadvertence. Further effects are extremely rare at the present day. The symptoms are best relieved by discontinuing the mercury, and giving a smart purge of colocynth and sulphate of magnesia, followed by F. 37. The mouth should be frequently washed with F. 2 or 3, and the teeth 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. Salivation is not the constant sign of injurious mercurial action, which may also show itself by depression, sweating, loss of appetite, purging, nervous irritability or anæmia.

Mercury is given *internally* in pills and mixtures and sometimes in suppositories (F. 64, 66). It may also be introduced by inunction, by the mercurial vapour bath, or by subcutaneous injection.

When mercury is administered to a person who has not previously taken it, the dose should be small and in a form not likely to irritate the bowels; F. 47, 48, 52 are suitable to begin with, the fact that women and lads are more susceptible to the influence of mercury than full-grown men being borne in mind. If blue pill be employed to produce the effect of mercury rapidly, it is best to begin with F. 49 three times a day. While this dose is given the patient should be seen frequently. When the mercury begins to be felt, he should omit it for a day, and then continue with about two-thirds of the quantity at first employed.

The *perchloride* is ill-adapted for producing the requisite effect quickly. Hence it is better suited to the later forms of the disease, where the action of mercury is required only to a slight degree. A useful mode of giving it is F. 53. It may also be combined with iron, as in F. 34. The *bicyanide* is sometimes borne when other preparations of mercury disagree with the patient (F. 54). The *red iodide* is very useful in relapses of the scaly eruptions on the skin (F. 33). The *green iodide*, from the readiness with which it decomposes, sometimes fails to produce any effect, and is apt to cause griping and purging, unless the dose be very small (F. 50, 51). A preparation of mercury with sarsa-

parilla and aromatics, called *Zittmann's decoction*, is of value in some cases of tertiary syphilis.

Inunction.—This is a very good mode of administering mercury, especially when the drug is not well borne by the stomach. From 20 to 60 grains of mercurial ointment or of oleate of mercury (10 per cent.) should be rubbed every night into some part of the body. The parts best adapted for rubbing are the axillæ, the sides of the arms, the thighs, and the flanks; but when large quantities are used, the whole body should be anointed in turn. A trained rubber anoints more effectually than the patient himself can do. Before commencing the inunction, the skin should be well cleaned, and the effect is materially aided by warm baths and other methods of provoking perspiration. Mercurial friction excites in some persons an erythematous or pustular eruption, besides occasionally causing the irritation of the alimentary canal which often follows the administration of the drug by the stomach. If greatly prolonged, inunction usually produces weakness, loss of appetite, accelerated pulse and sleeplessness. Hence, the course of rubbing should rarely extend beyond six weeks, without a break of two or three months.

In the *mercurial vapour bath* (F. 1), an atmosphere of steam and mercuric vapour is produced, which deposits on the skin a thin coating of mercury. The bath may be taken every night until the gums swell; after this, twice or thrice weekly.

Mercury may be *injected* beneath the skin

(F. 60); but this mode is only to be recommended when other means fail, or when it is necessary to obtain the influence of mercury as quickly as possible.

Iodine and its Compounds.—Iodine often fails to cure *per se*, but, in conjunction with mercury or other medicines, it is the most valuable remedy we have for the late stages of syphilis. It is sometimes of value also in the early stages.

Iodine is given for gummy swellings of the cellular tissue, rupia, affections of the bones, muscles, and viscera. In elderly persons, and those in whom the cachexia is strongly marked, or in the affections of later childhood in inherited syphilis, iodine is of great service. Commonly the disease is simply controlled by the iodides, and is liable to break out again when they are discontinued.

The form of iodine most used is the *iodide of potassium*. The amount to be given varies very much; when administered in the early stages of syphilis in conjunction with mercury or to increase or resuscitate its effect, the iodide may be given in doses of five to eight grains in two ounces of water at night, or two or three grains may be combined with each dose of mercury (F. 39). When given alone, it is best taken three or four times daily, in combination with ammonia which increases the activity of the iodide and also assists to prevent its depressing effects (F. 35). Some persons can bear only a very small quantity of iodine; others are insensible to small doses. In most if not all persons, the influ-

ence soon diminishes, and the requisite amount of action on the syphilitic affection can be secured only by frequently increasing the dose or by discontinuing the iodide for a short time. If the patient be much enfeebled, tartarated iron may be combined with the iodide (F. 38).

The *iodide of sodium* or of *ammonium* may be used in similar doses when iodide of potassium disagrees.

Iodoform has been given with benefit in the later stages of syphilis, but is liable to cause irritation of the stomach and bowels. It may be prescribed instead of the iodides, or in cases where those preparations have failed (F. 55).

Iodism.—When iodine disagrees the deleterious effects are shown first on the mucous membrane, beginning with coryza and pain in the frontal sinuses, congestion of the conjunctivæ and swelling of the eyelids, irritation of the throat and bronchial tubes. Irritation of the alimentary canal is sometimes the chief symptom. The skin may be the seat of eruptions of various kinds. The nervous system is occasionally affected.

The *bromides of potassium and ammonium* are used either in conjunction with iodide of potassium or alone. They are serviceable where the system has become insensible to iodine, or in syphilitic epilepsy or other varieties of nervous excitement (F. 36).

Iron is much used to restore the system from its anæmic condition, and is usually required at some time during the progress of syphilis. Quinine also is often of service (F. 30, 31, 34, 46). *Cod-liver oil*

is often necessary. *Sarsaparilla.*—The liquid extract is sometimes beneficial in enabling the patient to bear larger doses of iodide than he could take when dissolved in other menstrua. Some patients improve rapidly when sarsaparilla is given while they are taking or have recently taken prolonged courses of mercury. *Opium* 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. It is also sometimes necessary to allay the pain of periostitis and other local affections.

SPECIAL TREATMENT OF THE AFFECTIONS OF SYPHILIS.

The Skin.—The earlier syphilides commonly cause no discomfort. Sometimes, if the rash spread rapidly, it itches a little. Soap and water allays this very well. Conspicuous spots on the face or neck may be powdered with starch, and painted with oleate of mercury (5 per cent.) at night. In the later eruptions, when the papules crack, ulcerate, or suppurate, iodoform ointment or red oxide of mercury ointment may be used. For chinks round the mouth or nose F. 43 or 44 is serviceable. Spreading ulcers of the skin are usually benefited by iodoform in powder or ointment, or mercurial plaster. In exhausted persons the sores may be dressed with F. 27.

Local fumigation by mercurial vapour is occasionally used to heal ulcers of the skin, or to procure the

subsidence of obstinate leprous or tuberculous patches of eruption.

In papulo-scaly eruptions of the palms or soles red oxide of mercury ointment, or equal parts of ammoniated mercury and zinc ointments should be well rubbed in at bedtime after bathing with hot water, gloves or socks being worn during the night. When the hair falls, F. 28 may be prescribed, though new hair grows again readily if constitutional treatment be carried on. Cracks and ulcers about the nails should be dressed with strips of mercurial plaster, or with red oxide of mercury ointment. Ulcers between the toes are to be treated by frequent washing, drying, and powdering with iodoform, or wrapping round each toe a strip of lint soaked in black wash.

Mucous patches should be washed two or three times daily, well dried, dusted with F. 57, and covered with lint or rag.

The Alimentary System.—*In the mouth*, ulcers should be touched every other day with nitrate of silver, and the mouth washed with F. 2 or 3, especially after eating. Ulcers of the fauces are quickly relieved by a gargle of perchloride of mercury (F. 4). Ulcers at the side of the tongue are often kept up by being chafed against ragged teeth; these must be filed or removed. The acute inflammation of the fauces that sometimes accompanies ulceration is relieved by the inhalation of the steam of hot water, to which a drachm of compound tincture of benzoin has been added. In ulceration of the

pharynx a spray producer is very useful for making the necessary applications (*e.g.*, F. 3, 4, 25, 26, 59). When necrosis of the bones of the palate has occurred, and the fragments are loose, they must be removed, and the mouth frequently rinsed with F. 25 or 26. In all syphilitic affections of the mouth and throat smoking should be prohibited.

In syphilitic affections of the *anus and rectum* the bowels must be carefully regulated. Ulcers should be kept scrupulously clean, and dressed with iodoform or calomel ointment (F. 43, 44). In ulceration within the rectum iodoform suppositories should be used (F. 67). In stricture of the bowel bougies should be carefully passed. In extreme cases division of the stricture or colotomy may be necessary.

The *general treatment* of the affections of the alimentary system depends mainly on the condition of the patient, and the length of time that has elapsed since infection. If he be in good health, and in a comparatively early period of the disease, mercury should be administered at once. In the later stages when the affection does not yield speedily to iodide of potassium, it is advisable to try the effect of mercury, though in extremely feeble persons the experiment must be made cautiously. Whichever method of treatment is found to succeed best should be continued for some months, and in the case of visceral disease until the patient is in sound health. The best result often requires an occasional resort to specifics.

The Air-passages.—Follicular ulceration and chinks within the nostrils are much relieved by keeping them constantly soft with red oxide of mercury ointment. The fœtid discharges from the nose require frequent cleansing with F. 25 or 26, by means of a syringe or nasal douche. All the affections of the nose and air-passages are increased by exposure to keen winds.

In the larynx, the spasmodic irritation caused by ulcers is relieved by iodine or creasote inhalations. If the ulcers can be seen with the laryngoscope, they may be brushed over with a solution of nitrate of silver (F. 58). Dyspnœa and chronic irritation are often relieved by applying a blister to the throat, and dressing it with diluted mercurial ointment. Rapid œdema of the larynx may occur early in syphilis, but it is usually soon relieved by mercury and iodide. In later syphilis dyspnœa is usually due to cicatricial contraction; in which case specifics are of much less value, and tracheotomy may be necessary.

Syphilitic disease of the lungs requires the same treatment as other kinds of phthisis, with the important addition of iodide of potassium and mercury.

The Nervous System.—In affections of the brain, spinal cord, and nerves, iodide of potassium and tonics should be employed; but mercury must also be given for some months after relief has been obtained. Bromide of potassium is especially useful when syphilitic disease of the brain causes epilepsy (F. 36). In cases of coma, convulsions, or other

grave nervous symptoms, treatment must be prompt and energetic; *e.g.*, a solution of mercury (F. 60) may be injected beneath the skin twice or thrice in the twenty-four hours, and fifteen to twenty grains of iodide given internally every three or four hours, the dose being increased every other day, until some effect is produced, after which the treatment may be modified according to circumstances.

The Eye.—Sores and mucous patches of the *eyelids* must be washed and anointed with the red oxide of mercury ointment. Loose lashes should be removed. *Corneitis* is generally arrested by mercury; F. 47 is the form most readily borne; or the mercury may be introduced through the skin. Iron, cod-liver oil, quinine, and a diet of which milk forms a large part, are best suited to feeble children. The eyes should be shaded, and atropine (F. 62) used three times a day until it can be ascertained whether iritis be present. The treatment of *iritis* is of great importance from the rapidity with which irremediable mischief may be caused. A strong solution of atropine (F. 61) should be dropped into the eye every two hours, until the pupil is fully dilated; afterwards a weaker solution (F. 62) may be used three or four times a day. The eye may also be kept bound up with warm belladonna lotion (F. 29). Opiates are often required. If the pain be violent, three or four leeches should be applied to the temple. No time should be lost in getting the patient under the influence of mercury: F. 49 may be given every four or six hours till the gums begin to swell, when the

dose should be reduced. In the affections of the *choroid* and *retina*, iodide of potassium, or mercury, or both, must be given for months, and in severe cases for a year or longer. Leeches are useful when there is much pain, and a dark room is beneficial.

The Ear.—Ulcers or mucous patches of the external ear must be frequently cleansed and powdered with iodoform; if within the meatus a syringe should also be used daily. The local treatment of affections of the middle ear is that of inflammation from other causes. General specific treatment must of course be carried out in all these cases as well as in those where the internal ear is affected.

The Generative Organs.—The treatment of these is the same as that of other late forms of syphilis. When the *testis* is attacked long after infection, iodide of potassium should be given in gradually increasing doses (F. 35). Some cases are very little improved by iodide alone, and to prevent relapses it is always desirable to give mercury as well (*e.g.*, F. 33 or 39).

The Uterus.—The local treatment of syphilitic disorders is the same as that for corresponding non-syphilitic affections, and is described in the chapter devoted to them. But constitutional treatment with iodide and mercury is indispensable.

The Bones and Muscles.—The pains in early nodes are relieved by spirit lotion and blisters. When suppuration really occurs, the swelling may be opened. Otherwise, puncturing the node is always to be avoided.

The diseases of the bones, muscles, joints and bursæ are most readily controlled by iodide of potassium (F. 35), given in slowly increasing doses, and continued for a considerable time; small quantities of mercury should be added later.

TREATMENT OF INHERITED SYPHILIS.

Besides careful attention to the general state of health, mercury should always be given to a syphilitic child. Twice daily he may take a grain of grey powder with a little sugar; but the effect upon the bowels must be watched, and the dose diminished or combined with a grain of compound ipecacuanha powder, if diarrhœa or colic begin. If the symptoms be not affected by this quantity of grey powder, the dose may be cautiously increased to two grains; but this amount is very likely to produce purging, and it is not often necessary. Mercury applied *externally* to children is less likely to cause diarrhœa than when given internally. It may be done by rubbing the ointment into the skin, or by spreading fifteen to thirty grains of mercurial ointment diluted with its weight of lard on a piece of flannel which the child should wear constantly round its waist. The ointment should be renewed every night, and the child's skin carefully washed with soap and water every third or fourth night before the flannel is replaced. The nostrils must be cleared regularly with a camel-hair pencil dipped in water, and excoriations touched with the ointment of red oxide of mercury. The

mouth must be carefully cleaned after each meal with warm water and a small piece of sponge on the end of a stick; and ulcers or patches painted with a solution of borax (F. 59). The treatment of the other local affections is the same as that already described for those of the acquired disease. The duration of treatment will of course vary according to the case; but it should always extend over a period of about six months.

Whenever the mother can suckle her child she should always do so. The risk of communicating syphilis renders it impossible to employ a wet-nurse, unless one who has had the disease can be procured. In other cases ass's, goat's, or cow's milk must be employed 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 of the child.

The treatment of the later forms of inherited syphilis is similar to that of the corresponding affections in acquired syphilis, and has already been indicated in the preceding pages. Iodide of potassium combined with mercury in some form according to circumstances is of the greatest value, and iodide of iron and cod-liver oil are most useful adjuvants.

PREVENTIVE TREATMENT OF SYPHILIS.

Every syphilitic person should be cautioned as to the danger of spreading it to others. Coitus must be forbidden while the disease remains active. The contagious nature of lesions of the mouth and throat

should also be pointed out, and the consequent risk attending kissing, and the use of pipes or drinking vessels, towels, etc., in common with healthy persons.

The student should also remember that syphilis has been conveyed by dirty surgical and dental instruments and appliances; hence the necessity for extreme care in cleansing all such articles.

Marriage.—Syphilis in an adult usually subsides into quiescence within two years. But the disease sometimes retains its activity much later than this; in which case, after the last symptoms have disappeared, there should be an interval of at least twelve months before marriage takes place. Under any circumstances, the shortest period between infection and marriage ought to be three years.

When marriage has already taken place, and the husband suffers a relapse, he must at once desist from sexual intercourse, and from close embraces or kissing, and submit to renewed treatment of his disease. As regards the wife it is best, as a general rule, to wait for evidence of syphilis before submitting her to specific treatment, but she ought to be watched, that treatment may be begun as early as possible if events show it to be necessary. A woman who has already borne a syphilitic child ought to be treated throughout her pregnancy. In this way the child may often be shielded from syphilis during its maturation in the womb, and the mother also cured of her disease.

Nursing.—The lesions of acquired and of in-

herited syphilis being equally contagious, it of course follows that a healthy nurse should never suckle a syphilitic child, and that a healthy child should never be nursed by a syphilitic woman.

CHANCRE.

CHAPTER I.

Description.

Synonyms.—Local, soft, simple, non-infecting chancre or sore; Amer. *Chancroid*; Fr. *Chancre mou*; Ger. *Schanker.*

Chancre is a local virulent contagious sore which is never the beginning of syphilis. It is produced by inoculating the pus of a similar ulcer on the patient himself or on another person.

Chancre is often co-existent with syphilis. It has no period of incubation; irritation begins immediately, but the activity varies much in different persons. The chancre is generally discovered as a minute but well-defined ulcer, about five or six days after contagion. It always causes destruction of the tissues around the point of inoculation. There are three varieties. In one, the sore reaches through the whole thickness of the skin or mucous membrane. Another variety is very shallow. The third variety is prominent with spongy granulations over the surface. The leading characters of the local chancre are, suppleness of the base, sharply cut undermined edges, uneven spongy floor, irritating and abundant

purulent discharge, consecutive inoculation of neighbouring parts producing fresh sores, activity and liability to inflame and spread. In men the furrow behind the glans penis, in women the fourchette and entry to the vagina are favourite sites.

The main *complications* of chancre are inflammation, sloughing phagedæna, and slow phagedæna or serpiginous ulceration. The first is a consequence of irritation from violent exercise, debauchery, or other cause. Phagedæna often occurs in debilitated persons, but its exciting cause is not seldom obscure.

The *diagnosis* of the local from the syphilitic sore depends on the history; the absence of incubation; the activity of the ulceration; the tendency to multiplication; the absence of induration, and of indolent multiple enlargement of the nearest group of lymphatic glands. Though the base of a typical chancre is supple, a certain degree of inflammatory hardness is often seen in practice. Such hardness, however, is like that of a boil, not like the induration of syphilis. Still, both in syphilis and in chancre, the application of caustics or other irritation may cause so much inflammation, that a diagnosis cannot be made at the time. A primary sore on the body of the penis is usually syphilitic. Herpes and excoriations are distinguished by their readiness to heal when kept clean. Secondary or tertiary syphilides when ulcerated sometimes resemble chancres, but the presence or history of other signs of syphilis distinguishes them.

The *prognosis* of chancre is good; the sore usually

heals in a month or six weeks when kept clean and free from irritation, and in much less time if appropriately treated. The phagedænic form may, in exceptional cases, last for months or even years.

Bubo is a common accompaniment of chancre; it occurs more frequently in men than in women. There are two varieties; one, simple lymphatic abscess from irritation; the other, the *virulent* bubo, which may be caused either by accidental contamination of a simple abscess with matter from a chancre, or by absorption from the sore itself, and transmission of the virus along the lymphatic ducts to the gland. The gland 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 from direct absorption of venereal matter without previous chancre has been supposed possible, but such swellings are probably due to strain or irritation of that kind. They are called by the French *Bubons d'emblée.* The lymphatic *vessels*, as well as the glands, sometimes inflame, and small abscesses may form along their course, leaving tedious sinuses.

CHAPTER II.

TREATMENT.

Severe exercise, stimulating diet, wine, and sexual excitement, must be always avoided. The horizontal position greatly promotes healing of the sore, and lessens the risk of bubo.

Local Treatment.— Most chancres are best treated with iodoform; under its use healthy sores heal rapidly, creeping sores generally cease to spread, and sluggish ones take on healthy action. The sore should be washed twice or thrice a day, dried, and sprinkled with finely-powdered iodoform or painted with an ethereal solution (F. 63), and covered with a piece of lint or wool, over which oil-silk should be applied if the sore be situated on an outward part, like the dorsum penis or groin. When the sore involves the urethral orifice a shred of lint should be inserted. Contraction nearly always follows chancres in this situation. When iodoform is not used, lead lotion (F. 20), or black wash (F. 23), or a solution of boric acid and glycerine may be applied. The penis should be supported in a suspensory bandage or handkerchief against the abdomen. If the sore be under the foreskin, lint should be placed between it and the glans. Chancre under the foreskin with phimosis must be treated according to the directions given in the section on phimosis. (p. 98).

In women strips of lint should be laid between the labia and in the folds of mucous membrane round the vagina, and a pledget of cotton wool placed in the entry to the vagina. Œdema of the vulva is best managed by frequent bathing and by lying down.

If a Chancre slough or become phagedænic, and iodoform alone fail to arrest its progress, the patient should be kept in a hip-bath (98° Fahr.) for *nine* or *ten hours* a day, care being taken that the affected part is thoroughly immersed. The bath must be continued until the sore becomes healthy. During the night iodoform or other dressing may be applied. If phimosis be present, the prepuce, together with all loose sloughy tissue, should be removed before the patient is put into the bath. Persulphate or perchloride of iron, or the actual cautery, may be used in case of severe hæmorrhage. *Caustics* are rarely needed. Ricord's paste (F. 45), and the strongest nitric acid are best adapted for this purpose. Before a caustic is applied, the sore must be freed from loose sloughs, and well cleaned and dried. The escharotic must be thoroughly laid on with a stick or a glass brush to the whole of the diseased surface, as well as to its edges. The galvanic cautery or hot iron may be used where a large amount of tissue has to be destroyed. When dealing with large sores, ether or chloroform should be administered. The after treatment consists in the application of a poultice or water dressing; when the eschar has separated, iodoform should be

used. Patients with sloughing phagedæna require tonics (F. 32), opium, and good diet.

Treatment of Bubo.—On the first appearance of pain and swelling in the groin, the patient must desist from exercise if he have not already done so, and should lie in bed as much as possible. When the glands are swollen and painful a lead lotion (F. 20) may be applied, but cold applications sometimes aggravate the pain, in which case hot fomentations must be employed. Not unfrequently these precautions suffice to allay the irritation when it is not due to absorption. But if not, rest, poulticing with linseed meal, and fomenting with hot water must be maintained to promote suppuration.

Pressure will often disperse very slowly forming buboes, which are composed of enlarged glands and congested cellular tissue with little tendency to degenerate into matter. A thick pad of cotton wool or folded lint should be adjusted over the swelling, and kept in position by a firm spica bandage or by strips of plaster carried round the body and thigh. The patient should avoid exercise during this treatment. Plasters of iodine, of belladonna, or of mercury spread on leather, may sometimes be applied with advantage underneath the pad. When a bubo has been opened, and is non-virulent, the closure of the abscess is hastened by applying pressure over the dressings.

Vesicants are serviceable at various stages of the bubo's progress, especially when the glands remain enlarged after the chancre has healed. But if irri-

tants be applied to the skin over glands already swelled by the irritation of a sore on the genitals, the probability of abscess is increased. Thus the custom of painting the skin over tender glands with iodine is delusive and injurious.

Incisions should be made as soon as the swelling fluctuates, for the pus must come out, and burrowing of matter under the skin is lessened by giving it free exit. It is in most cases best to make a small vertical opening into each pointing part, that every focus of matter may be drained; but if the abscess extends widely along the fold of the groin, it should be opened freely in that direction. A scrap of lint should be inserted into each incision to prevent the wound from closing before the matter has drained away. After a few days, the contraction of the abscess may be hastened by injecting some astringent (F. 22) into the cavity morning and evening.

Sinuses should be opened freely with a director and bistoury. Afterwards the channels must be filled with dry lint until suppuration begins, when the granulating surfaces may be dressed with strips of lint, soaked in carbolic lotion (F. 21), or a solution of boric acid, or red wash (F. 22), according to the state of the sore. The patient's usually debilitated state of health requires tonics and good diet. Sometimes a mass of enlarged glands lies at the bottom of the wound; red precipitate powder may be sprinkled over them daily, and pressure applied by means of a pad and bandage. If this treatment

fail, the glands may be removed with the sharp spoon, or destroyed by caustic. Any borders of skin which overhang the wound and are much undermined, may be cut off with scissors.

If the bubo be *virulent*, the treatment must be similar to that of chancre.

GONORRHŒA.

CHAPTER I.

URETHRITIS IN MAN.

Synonyms.—Clap, Blennorrhagia; Fr. *Chaude-pisse;* Ger. *Tripper.*

Gonorrhœa in males is contagious purulent inflammation of the urethra and its continuations but it occasionally attacks other mucous surfaces, the conjunctival for example. Certain rheumatoid affections also attend it now and then; namely, inflammation of the joints, eyes, and synovial bursæ. The chief *causes* of urethritis are gonorrhœal contagion, and excessive irritation of the urethra through sexual and other causes. Acrid discharges in the female, which have not arisen from contagion, may excite urethritis in the male. It has been asserted that the peculiar contagious property of gonorrhœa is due to the presence in the discharge of a special micro-organism, called by Neisser its discoverer, the *gonococcus*; but this is not yet proved.

The *seat* of urethritis is at first the urethra as far as the fossa navicularis, whence it gradually travels down to the bulbous part. It usually proceeds no

further, but in certain cases it extends to the cellular tissue about the urethra, to the prostate, to the neck of the bladder, or to the epididymis.

The *anatomical change* in the mucous membrane is general uniform congestion in the acute stage: as inflammation subsides, the surface is marked by patchy redness, arborescent and punctiform congestion, and sometimes by fine granulations. After a time induration and contraction of the mucous membrane and submucous tissue may take place, causing stricture and irregularity of the urethra.

Course.—The first symptoms of gonorrhœa usually appear from two to eight days after contagion, and consist in tickling near the meatus with redness and swelling of its lips and scanty viscid secretion. The discharge gradually increases in quantity and becomes purulent, and by the end of about a week is generally copious, yellowish green and often bloody. There may be also tenderness along the urethra, painful micturition and aching in the penis, perinæum, and groins. Painful erections and chordee are frequent, and general febrile disturbance is sometimes present. After the acute stage has lasted from seven to fourteen days all the symptoms improve, and naturally the disorder subsides in a few weeks; 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 symptoms, which depend on the patient's constitu-

tion and habits. The disorder may *terminate* in gradual but complete cessation of pain and discharge; or in cessation of all the symptoms, except a small quantity of discharge or gleet. *Gleet* may be due to constitutional or local causes, the most common of the latter being chronic inflammation at one or two places of the urethra after acute urethritis; but it may proceed from a periurethral abscess, follicular inflammation, stricture, warts, or a relaxed prostate.

The *diagnosis* between urethritis from contagion and urethritis from other causes is often impossible, but the treatment is similar for both. Urethral chancre causes a discharge from the meatus, but the ulcer can be seen when the lips are separated. Syphilis may accompany urethritis, and a slight muco-purulent discharge from the urethra without pain or much swelling is occasionally present during the period of initial lesion in syphilis. Balanitis is distinguished by the absence of urethral discharge; but it is often present with gonorrhœa. Abscess of the prostate or perinæum may cause purulent discharge from the urethra; but the history and condition of the patient distinguish the source of the discharge.

The *prognosis* is favourable if precautions be taken early, but gonorrhœa is the predominating cause of stricture, and may inflict many severe consequences and complications.

The Treatment of urethritis is abortive and systematic. *Abortive* treatment with strong caustic

injections, or large doses of so-called specifics, is rarely successful, and not free from danger. Another form of abortive treatment, planned on the assumption that gonorrhœa has a parasitic origin, consists in the introduction of bougies of cocoa butter containing iodoform and eucalyptus oil. It has failed in our hands. *Systematic* treatment, the safest and best, first removes all sources of irritation, and allays the acute inflammation. Abstinence from alcoholic liquors, coffee and strong tea, stimulating food, sexual excitement, and severe exercise must be insisted on. Cleanliness should be strictly observed, and the risk of infecting the eyes pointed out. The testes should be supported in a suspensory bandage. While the pain and swelling are great and the discharge copious, the bowels should be kept freely open, and an alkaline mixture (F. 40) taken several times daily. Warm baths are useful. *Painful micturition* is often relieved by immersing the penis in ice-cold or very hot water during the act. For the relief of *chordee*, F. 56 or 65, or a draught containing 15 to 20 grains of chloral hydrate with as much bromide of ammonium, may be prescribed.

These measures provide for the acute stage of urethritis, during which the so-called specifics and injections are not advisable. When the inflammation and pain subside, and the discharge becomes yellow, instead of greenish, and less in quantity, copaiba (F. 41), or freshly powdered cubebs in one or two drachm doses, may be given. Either of

these drugs may cause an eruption on the skin. In *copaiba rash* the spots are raised, deep red in colour, usually attended by intense itching, and most numerous on the backs of the hands, wrists, elbows, and knees. These characters distinguish it from syphilitic roseola, for which, however, it is sometimes mistaken. Sandal wood oil (F. 42) resembles copaiba in its action, but it is often better borne by the stomach and is much less likely to cause a rash on the skin. When the inflammation is originally subacute the discharge may often be speedily controlled by an injection ; but it should contain belladonna or opium, and be at first only weakly astringent (F. 5). Directions for the mode of using an injection are given on p. 105. When pain has disappeared, the strength of the injection should be increased gradually ; or the particular form may be altered from time to time (F. 6-14) according to the obstinacy of the disorder. When the discharge has apparently ceased, the injection should be slowly discontinued by using it in a more dilute form, and less often, for a week or fortnight longer.

In *gleet*, besides injections of various kinds, soluble bougies are useful in some cases. A bougie should be passed at bed-time, and secured by a capote or cap of gutta-percha or oiled silk. The best are Mitchell's or Bell's, containing chloride or sulphate of zinc, tannin, or rhatany, with or without belladonna or opium. Before passing, the bougie is dipped into water to make it slippery on the surface. Again, the passage of bougies and metal sounds is a

valuable means for curing chronic discharge from the urethra, especially when, as often is the case, it depends on slight stricture. They should be passed every other day, and in gradually increasing sizes, until the largest the meatus will admit slips easily along the urethra. Should the meatus not admit a sound as large as No. 12 of the English scale, it should be incised until a No. 14 or 16 slips in easily. For diagnostic purposes, a bougie with a bullet-shaped end is necessary; strictures being detected by their resistance, and inflamed patches by the pain felt as the bullet passes over them. The endoscope also is of use in determining the source of gleet, as well as in its treatment.

In all cases of long-standing gleet, the patient should be thoroughly examined, both locally and generally, and the cause of the discharge ascertained before any treatment is instituted. Attention to the general health is often of quite as much importance as the local application of remedies.

Complications.—*Balano-posthitis* is a common complication of gonorrhœa when the prepuce is narrow. *Phimosis* and *paraphimosis* also occur in some cases. Either of these conditions may excite congestion, suppuration, or even sloughing of the parts (see p. 98).

Retention of urine may come on at any time, but usually in the later stages; it may be due to congestion and reflex muscular spasm of the urethra; but there is often some permanent stricture also. Sedatives, warm baths, and purgation should be

tried, and a No. 6 or 7 flexible olivary or coudée catheter passed without delay, if speedy emptying of the bladder be imperative.

Inflammation of the lymphatic glands and *vessels* is not infrequent; the former causes sympathetic bubo, the latter produces painful enlargement of the lymphatics in the skin of the penis, and œdema of the cellular tissue; with rest, and lead lotion (F. 20) locally, these usually subside in a few days.

Hæmorrhage from the urethra through rupture of the congested vessels during gonorrhœa is frequent, but very rarely otherwise than beneficial. When copious, it must be stopped by ice-cold applications, by injections of ice-cold water, or of a diluted solution of perchloride of iron, and by pressure. The corpus spongiosum occasionally inflames, causing violent pain and irregular erection, and sometimes permanent induration at the inflamed spots.

Abscesses about the urethra may arise 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 the bulbous part; in the latter case they form abscesses which point in the perinæum, are liable to open into the urethra, and allow the escape of urine into the cellular tissue. Sometimes the abscess is due to inflammation of Cowper's gland; in that case it is closely connected with the bulb on one or other side. As soon as they begin to point the abscesses should be opened.

Acute prostatitis is a severe complication; it causes

swelling of the prostate, painful slow micturition, often complete retention, sense of fulness or weight at the anus, and irritation of the bowel with constant desire to defecate. Prostatitis may run on to abscess, and often leaves permanent enlargement of the organ. If suppuration take place, the pain increases till the matter escapes, then sudden relief follows. The abscess generally opens into the urethra, and the pus comes away with the urine; but it may open into the rectum, the perinæum, or the bladder. If urine or fæces get into the caverns made by the abscess, much irritation is set up, which sometimes causes a fatal termination, and always greatly defers the recovery. *The treatment* of prostatitis is to allay the irritation by rest in bed, hot baths, fomentations, laxatives, and sedatives (F. 40, 65). If retention occur the regular passage of a catheter will be necessary. When an abscess points in the rectum or perinæum it should be opened.

Chronic prostatitis with gleety discharge is best managed by careful attention to the health, and by counter-irritation continued a long time. In some cases the passage of steel sounds is very beneficial.

Inflammation of the mucous membrane of the neck of the bladder (*cystitis*) is much more frequent than acute prostatitis. The chief symptoms are constant desire to void urine, the drops passed last being often purulent or bloody, intense scalding after micturition, and violent spasmodic contraction of the muscles at the neck. It comes on during the later stages of gonorrhœa, and is generally due to fresh

irritation of the urethra, but not always. It is very prone to relapse. In very rare cases it spreads to the whole of the bladder, and even to the kidneys. It is best treated by rest, alkalies (F. 40), warm baths, and sedative suppositories (F. 65).

Epididymitis is the most frequent complication of gonorrhœa. It is often excited by fresh irritation, and is most common in the third and fourth weeks of the discharge. The inflammation travels to the lower part of the epididymis by extension from the prostatic part of the urethra along the vas deferens, and the congestion extends thence to the tunica vaginalis and the scrotum, the testis itself being less severely implicated. The right and left organs are attacked with about equal frequency; but now and then both suffer. The symptoms are swelling, aching, often violent pain, and extreme tenderness of the epididymis. The scrotum is red and swollen, and the tunica vaginalis often fills with serum (acute hydrocele). If the epididymis be 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 double epididymitis the patient is of course sterile as long as both vasa deferentia are obstructed. In four or five days the symptoms begin to subside; but several weeks often elapse before the tenderness is all gone, and some months before all swelling disappears, that at the tail of the epididymis being most persistent.

The treatment of epididymitis consists in absolute

rest, fomentations, purgatives, febrifuge medicines (F. 40), and opiates, puncturing the tunica vaginalis when tense, and the testis also if it be swollen and the pain very acute. Venæsection or leeches may be used if the fever be high and the congestion very great. Painting the surface of the scrotum with collodion once daily gives great relief in cases of moderate severity. The enlargement which remains after epididymitis may be left to itself, or its departure may be assisted by the application of an elastic bandage, or by strapping the testis. Iodide of potassium is given internally at the same time to aid the absorption of the exudation.

Two distinct *disorders of the eye* depend on gonorrhœa. The one is *purulent ophthalmia*, caused by the application of pus to the eye itself; the other is a *rheumatoid inflammation* of the conjunctiva, and sometimes of the iris and sclerotic as well, which attacks certain persons if they have urethritis. It often affects both eyes in turn, and is liable to relapse. In most cases the joints are affected as well as the eye. The gonorrhœal origin of these disorders does not affect their treatment, which is that suitable for purulent and rheumatic ophthalmia respectively.

Gonorrhœal Rheumatism.—The joints, synovial bursæ, fasciæ, and great nerves are sometimes the seat of inflammation in gonorrhœa, most frequently in persons of rheumatic or gouty tendency.

In *treatment*, the first point is the cure of the urethritis. Purgatives, alkalies, sedatives, iodide of

potassium, quinine, and salicylate of soda, are the most useful internal remedies. In arthritis the joint should be kept at rest by splints; and fomentations, sedatives, or counter-irritants applied, according to the more acute or chronic nature of the case.

CHAPTER II.

GONORRHŒA IN WOMAN.

Gonorrhœa in woman consists primarily of contagious catarrhal inflammation of the vulva and vagina, often extending to the mucous membranes connected therewith; rheumatoid inflammation of the fibrous tissues is less frequent than in males.

Vaginitis is acute and chronic. The inflammation begins at the lower part of the vagina, and may spread upwards to the uterus, and over the vulva to the urethra. It sometimes produces abscess of accessory parts, such as Bartholine's gland or the lymphatic glands. In the cervix uteri and the urethra it often becomes chronic and very obstinate. *The causes* are chiefly contagion; next, violent sexual indulgence, rape, the irritation of foreign bodies in the vagina, and certain general disorders, such as scrofula and measles. Chronic catarrh, besides being a relic of gonorrhœa, is common in chlorotic women or others exposed to cold and damp, and subject to congestion of the pelvic blood-vessels.

Acute vaginitis causes swelling of the genitals, with heat, itching, smarting on making water, and aching pain at the sacrum and loins. The mucous membrane is at first dry and bright red; but it soon secretes a thin transparent discharge, which quickly becomes purulent and copious. The mucous membrane is more or less studded with little eminences (vaginitis granulosa). The inflammation begins to subside in about a week; the pain and swelling cease, but the discharge though less creamy than before, remains plentiful. It is then mostly secreted in the cul de sac behind the cervix, which is less easily cleared than the anterior part of the vagina. *The diagnosis* of vaginitis depends on the swelling, acute inflammation and purulent discharge in the early stage; on the partial congestion and copious discharge in the chronic stage. A purulent discharge may come from the cervix, or from an abscess in the wall of the vagina; but the introduction of the speculum makes this clear. The distinction between vaginitis from contagion and vaginitis from non-specific irritation is often impossible; it generally has a contagious origin if there be pus in the urethra also. *The prognosis* is favourable; and dangerous complications are very uncommon. Great difficulty exists in deciding whether a particular discharge is likely to communicate disease. Probably any discharge that has originated in contagion, however scanty and serous it may be, will be again contagious if increased by irritation.

The treatment during the acute stage consists in

rest in bed, warm baths, frequent injections of warm water, and moderate purgation. When the congestion has subsided, an astringent injection (F. 15 to 19) should be used, and alum or tannin plugs inserted by means of the speculum as described on page 103; the only general treatment of any value is regulation of the health and habits of the individual.

Complications.—Among the earliest is *vulvitis*; the labia and clitoris grow red, swell, and a fœtid discharge is secreted. If irritation be allayed, the inflammation subsides in a few days. Sometimes, when neglected, it causes ulceration of the parts, or abscess in the groin.

Urethritis is the most common, 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 have just micturated; even then a little can often be found in the ducts of two glands which open close to the meatus. This discharge is very persistent, and probably continues to be a source of contagion for a long time after the discharge from other parts has ceased. *The treatment* consists in weak astringent injections, the internal administration of copaiba (F. 41), oil of sandal wood, (F. 42), or cubebs; and in obstinate cases the application of caustic either in a concentrated solution, or by a pencil of solid nitrate of silver. Inflammation of the female urethra rarely excites cystitis.

In *acute inflammation of the cervix 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 to a thin mucus, and either shortly ceases, or becomes chronic and long retains its contagious quality. Acute inflammation of the cervix is best treated by complete rest, warm injections, and saline aperients. In the chronic stage its treatment is that of uterine catarrh. (See p. 102).

Metritis, *perimetritis*, and *ovaritis* are observed in a certain number of cases, but they have no peculiar characters when originating in gonorrhœa.

ACCESSORY VENEREAL DISORDERS.

I. AFFECTIONS COMMON TO BOTH SEXES.

Abrasions are very frequent accidents of intercourse. If neglected they may cause phimosis in men or vulvitis in women. They are distinguished from chancres by their shallowness, by their irregular lacerated shape, and by the smarting which follows quickly after the intercourse which produced them. Simple abrasions heal readily under cleanliness and the application of a lead or sulphate of zinc lotion. (F. 20, 22).

Warts do not owe their origin to a specific virus, but arise from the continual moistening of the parts with unhealthy discharges. Thus gonorrhœa and syphilis, especially the former, are frequent causes. Warts do not secrete a discharge that will reproduce them on other individuals. Probably a peculiarity of constitution or predisposition is necessary, as well as the exciting cause. The external genitals are their most frequent seat. Pedunculated warts may be tied, or snipped off with scissors, and the base touched with nitrate of silver. For sessile growths caustics are very useful. Nitric acid and glacial acetic acid are both very manageable. The strong

liquor plumbi subacetatis applied daily sometimes causes warts to wither slowly, and is painless. But whatever application is used it is essential that the surface be kept clean and dry. When warts are large enough to cause phimosis, division or removal of the prepuce will be necessary. For large masses in women, the écraseur or galvanic wire loop should be used.

Herpes of the Genital Organs.—*Herpes Progenitalis* (Willan). This affection manifests itself by circumscribed reddening and itching or burning of the inner surface of the prepuce or glans penis. The red area is quickly beset with a group of small vesicles, at first colourless, then yellow, which soon break into very shallow sores that heal quickly if the irritation be allayed. Herpes also occurs, though rarely, in women. The chief characteristic of this form of herpes is its tendency to recur time after time at intervals of a few weeks or months. In those subject to it, an attack may be excited by local irritation of any kind or by disordered digestion.

An ordinary case of herpes is not likely to be mistaken for any other disease. The group of vesicles with red areola, and the preceding slight itching or burning, together with the freedom of the lymphatic glands, and its disappearance under simple cleanliness within a week would leave no doubt as to its nature. If, however, irritation be set up either by the application of caustics, or neglect of cleanliness, especially if the patient be in bad health from alcoholism or other cause, the spots may become ulcers

that spread, and produce many of the consequences of the inflamed chancre.

The treatment consists in bathing the part twice or three times a day, the application of a little starch and oxide of zinc powder, and the interposition of a piece of fine linen rag between opposed surfaces.

Phtheiriasis of the genital region depends on the presence of the Phtheirius or Pediculus pubis, commonly called the crab-louse. The pediculi usually cause intense itching, and the scratching resorted to for its relief frequently gives rise to a papular rash, which in dirty people may become pustular; it then sometimes causes enlargement and even abscess of the lymphatic glands.

Washing with soap and hot water, and the plentiful application of ammoniated mercury ointment, quickly kill the pediculi.

Scabies is sometimes limited to the genital organs, and is then not infrequently mistaken for a venereal affection. The irritation and scratching produce a rash consisting of vesicles, papules, and pustules which, like phtheiriasis, may cause enlargement and even suppuration of the glands of the groin.

The intense itching, more severe at night, the presence of the furrows produced by the acarus, and, if careful search be made, the discovery of the acarus itself, render the diagnosis easy. General scabies is sometimes mistaken for a syphilide by careless observers; but the characters just mentioned, together with the absence of syphilitic lesions elsewhere, should be sufficient to prevent such a blunder.

II. AFFECTIONS PECULIAR TO MEN.

Balano-Posthitis.—Inflammation of the opposed surfaces of the glans penis (*balanitis*), and of the prepuce (*posthitis*), is a very common affection in dirty people, especially when the foreskin is tight or long. Balano-posthitis may be acute and general, or chronic and limited to the furrow behind the corona. Simple accumulation of secretion from want of cleanliness often gives rise to it, but it is also caused by irritation from the discharge of gonorrhœa, warts, chancre, or primary or secondary syphilitic lesions.

Treatment.—The parts must be washed with soap and water twice or thrice a day; they should then be dabbed as dry as possible and sprinkled with oxide of zinc and starch. A piece of lint should be placed in the furrow to keep apart the inflamed surfaces when the foreskin is drawn forwards. In some cases the application of lint soaked in a solution of sulphate of zinc (two or three grains to the ounce) answers better than the powder. When the disorder is chronic and limited to the furrow, it should be painted with a solution of nitrate of silver, ten or fifteen grains to the ounce. When the prepuce cannot be retracted, the discharge must be washed away by frequently injecting carbolic or lead lotion (F. 20, 21) between the glans and the foreskin with a long nozzled syringe.

Phimosis.—This is a condition of the foreskin which prevents exposure of the glans penis. It may be congenital or acquired. In gonorrhœa temporary phimosis is not infrequent, from the swelling of the foreskin accompanying lymphangitis, and a partial but more permanent form occasionally arises from the chronic œdema that sometimes remains in such cases. Inflamed chancres often give rise to phimosis when situated on the inner surface of the prepuce or on the glans, especially if the former be at all narrow. In such cases sloughing may occur. In syphilis the induration of the initial manifestation not infrequently prevents retraction of the foreskin. Phimosis may also be caused by balanitis and by warts.

Treatment.—When phimosis occurs as a complication of gonorrhœa, the patient should lie down continuously, with the penis wrapped in lint, kept wet with lead lotion (F. 20), which must also be freely syringed beneath the swollen prepuce every two or three hours.

As a complication of inflamed chancres, phimosis is a more serious affection. When the inflammation and swelling are not very great, and when the parts are not too sensitive to allow of the necessary manipulation, careful cleansing of the preputial cavity by means of a syringe with a nozzle long enough to reach beyond the corona glandis will be all that is required, provided the patient remain at rest. Every two hours a lotion of lead (F. 20) or carbolic acid (F. 21) should be injected. If the syringe cannot be inserted owing to excessive swelling or hard-

ness of the tissues, and in any case if sloughing be going on, the diseased parts must be exposed by division or complete removal of the prepuce. The subsequent treatment is that of sloughing chancre.

Phimosis caused by syphilitic induration disappears under the influence of general specific treatment.

Paraphimosis.—This condition is the reverse of phimosis—*i.e.*, instead of inability to retract the prepuce, it cannot be drawn forward after it has been retracted. Paraphimosis is a frequent complication of venereal diseases.

Treatment.—When a prepuce naturally so narrow that it clips the glans has been accidentally retracted, reduction should always be effected without delay. When a patient who habitually wears the glans uncovered, becomes affected by any disease, venereal or otherwise, which causes swelling of the glans or prepuce, the treatment must be by rest, cooling lotions, and other means calculated to reduce the swelling. Only when the constriction is so tight that there is danger of sloughing should an attempt at reduction be made. To bring forward the foreskin, the penis should be grasped by the left forefinger and thumb in the form of a ring, while the thumb and fingers of the right hand compress the glans till it is small enough to allow of the foreskin being brought forward. If the foreskin has been kept behind the glans 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.

Rupture of the Frænum is a common accident during intercourse. Hæmorrhage is sometimes very smart, especially if the meatus be also lacerated. The bleeding should be arrested by a ligature or by acupressure.

Rupture of the Erectile Tissue of the Penis may be caused by violent intercourse; it also occurs sometimes 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. When the urethra is lacerated, extravasation of urine is very apt to occur and produce abscess or sloughing. Sometimes the urethra is not ruptured, and the blood then percolates into the erectile tissue without escaping externally.

The treatment consists in rest in bed, cold to the perinæum and to the swollen part by ice-cold cloths round the penis, or by maintaining a continuous cold current through Otis's coil or Leiter's tubes. Stricture of a troublesome kind is a very frequent result of this accident.

III. AFFECTIONS PECULIAR TO WOMEN.

Vulvitis is a very common disorder, and may arise from a variety of causes. The *treatment* is simple: cleanliness by means of baths, lead lotion (F. 20), separation of the parts by placing linen rag between them, a saline purge, and rest.

Inflammation of the Vulvo-vaginal (Bar-

tholine's) Glands.—The most common cause is the extension of gonorrhœal inflammation from the vulva along the duct to the gland. Abscess in these glands may be distinguished from abscess of the labium by its being limited to the furrow between the labia, and by its pointing on the inner side of the nympha, or in the furrow. The *treatment* consists in warm fomentations and poultices. If abscess form it should be opened as soon as fluctuation can be detected.

Phlegmonous Abscess of the Labium may be caused by mechanical injury of any kind. It also sometimes follows irritation set up by chancres, follicular inflammation, gonorrhœa, or neglect of cleanliness. The matter should always be let out as soon as possible.

Chronic Endometritis (chronic uterine catarrh, uterine leucorrhœa) may be the result of acute endometritis caused by extension of inflammation from the vagina; but it also often begins in a chronic form. The patient complains of pain in the back with a sensation of dragging in the groins and weight in the pelvis. Walking or standing increases her distress. The most characteristic symptom is leucorrhœa, the fluid being tenacious and viscid like white of egg. In venereal leucorrhœa the vagina usually secretes some part of the discharge, which thus becomes puriform. The cervix is enlarged, hard, of a livid red colour, and often excoriated around the os, which is patulous and plugged with the viscid secretion.

Treatment.—The patient should avoid everything likely to interfere with the due performance of the functions of the body. The diet should be simple and non-stimulating; and the bowels should be kept freely open by saline purgatives. Bromide of potassium is very useful if the nervous system be at fault. In anæmic women iron is most beneficial. The local treatment consists at first in irrigation of the cervix and vagina for ten or fifteen minutes two or three times a day with warm water, followed by the injection of some astringent solution (F. 17 to 19). If these means do not suffice to cure the disease, iodine or caustics must be applied to the cervical canal. After any such application the parts must be at once cleansed by injecting water through the speculum; a plug of cotton wool soaked in glycerine should then be applied to the os, and withdrawn by the patient in ten or twelve hours, a thread having been attached to the wool for that purpose.

Granular Erosion of the Cervix Uteri.—Gonorrhœa is a common cause of this affection. The erosion in its simplest form consists in denudation of the epithelium of one or both lips of the os tincæ. A glairy discharge trickles from the os, and very commonly there is also a purulent discharge from the vagina. If the disorder which produced the erosion is not checked, small granulations spring up over the denuded surface, and often extend along the interior of the cervix. When the granulations grow to a large size, they project in

wart-like excrescences around the os, and may block up the aperture. They secrete a purulent discharge and bleed frequently, especially at the menstrual period.

Treatment.—The most important thing is to remove the congestion of the uterus. 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, sea-bathing, and tonics (F. 30, 31, 46). If the patient be syphilitic, mercury or iodide of potassium, or both, according to the stage of the disease, should be prescribed. Copious injections of warm water should be employed two or three times a day, followed by a solution of borax (F. 16). If the cervix is much congested, four or five leeches may be applied. When irritation has been subdued an astringent injection (F. 17 to 19) may be used, and the cervix painted with a solution of nitrate of silver (F. 58). If the surface is granular, solid nitrate of silver should be rubbed in once or twice a week according to the effect produced. When this fails nitric acid may be carefully applied; but among hospital out-patients the best plan is to apply solid nitrate of silver, and then introduce a plug of cotton wool holding a drachm of alum or tannin; this the patient wears four days, and during that time syringes twice daily with water. After removing the cotton, she syringes freely to clear away the inspissated mucus. The process should be repeated once a week.

FORMULÆ.

THE MERCURIAL VAPOUR BATH.

1.

The apparatus consists of a lantern supporting a shallow saucer in the centre, surrounded by a deeper one; the first receives the drug to be volatilised, the second contains water. Beneath these is a spirit lamp. A blanket or cloak is needed to enclose the patient, who sits naked on a cane-seated chair, in front of which the lantern is placed. The length of time necessary for each bath varies with the form and quantity of mercury employed. Calomel is most frequently used, of which the average dose is 20 to 30 grains, requiring from 15 to 20 minutes for volatilisation.

GARGLES.

2.

Alum	10 to 15 grs.
Water	1 oz.

3.

Chlorate of Potassium .	10 to 15 grs.
Water	1 oz.

4.

Perchloride of Mercury .	$\frac{1}{4}$ to 1 gr.
Dilute Hydrochloric Acid .	3 min.
Glycerine	$\frac{1}{2}$ dr.
Water to	1 oz.

The patient must be cautioned as to the poisonous nature of this gargle; and when it cannot be used a solution of perchloride (4 to 8 grs. to the oz.) may be applied with a brush.

INJECTIONS FOR THE URETHRA.

When an injection is prescribed, the patient should always be instructed in the method of using it. The syringe 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. When the injection is to be used, the patient makes water to clear out the discharge that has collected in the passage. He then inserts the nozzle into the canal, pinches the glans penis *on each side* with the thumb and forefinger of the left hand, and slowly depresses the piston. It is not necessary to inject more than about two tea-spoonfuls at a time, but the fluid should be retained one or two minutes before it is allowed to escape; if it has properly distended the passage, it returns with a spirt from the meatus. Injections should be used three or four times a day; they should never be strong enough to cause severe pain.

5.

Sulphate of Zinc . .	3 grs.
Extract of Belladonna .	5 to 10 grs.
Mucilage of Acacia . .	½ dr.
Water to	1 oz.

Begin with two parts of water to one of injection, and gradually lessen the quantity of water. This is a suitable formula to begin with.

6.

Sulphate of Zinc . .	1 to 5 grs.
Water	1 oz.

The sulpho-carbolate or acetate of zinc may be used in similar proportion.

Useful for purulent discharges.

7.

Permanganate of Zinc .	⅛ gr.
Distilled Water . . .	1 oz.

Useful where there is no scalding.

8.

Subacetate of Lead . .	1 to 5 grs.
Distilled Water . . .	1 oz.

May alternate with No 6.

The following six formulæ are of service in obstinate gleets.

9.

Nitrate of Silver . .	½ gr.
Distilled Water . . .	1 oz.

10.

Subnitrate of Bismuth .	8 grs.
Mucilage of Tragacanth .	½ dr.
Water to	1 oz.

11.

Tincture of Perchloride of Iron	5 to 10 min.
Water	1 oz.

12.

Glycerine of Tannic Acid .	15 min. to 1 dr.
Water to	1 oz.

13.

Alum	3 to 8 grs.
Water	1 oz.

14.

Alum	of each 1 gr.
Sulphate of Zinc . . .	
Sulphate of Iron . . .	
Sulphate of Copper . .	
Water	1 oz.

To be diluted, at first with an equal quantity of water, and the strength gradually increased. Not to be used if the patient be unaccustomed to injections.

INJECTIONS FOR THE VAGINA.

15 to 19.

Subacetate of Lead . .	40 to 100 grs.
or Borax . . .	
or Alum . . .	
or Sulphate of Zinc .	
or Tannic Acid . .	
Water	20 oz.

To be injected twice or thrice daily by means of Higginson's syringe or an irrigator.

Used in vaginitis, erosion of the cervix, chronic uterine catarrh, etc. Lead and Borax are suitable for the more acute stages.

LOTIONS.

20.

Solution of Subacetate of Lead	5 to 20 min.
Rectified Spirit . . .	20 to 60 min.
Distilled Water to . .	1 oz.

21.

Carbolic Acid . . .	12 to 20 grs.
Glycerine	10 min.
Water	1 oz.

22.

Sulphate of Zinc . . .	1 to 3 grs.
Compound tincture of Lavender	5 min.
Water	1 oz.

23.

Calomel	3 grs.
Lime Water	1 oz.

(Black wash.)

24.

Perchloride of Mercury .	2 grs.
Lime Water . . .	1 oz.

(Yellow wash.) Used for indolent sores.

25.

Solution of Chlorinated Soda	½ to 1 dr.
Water to	1 oz.

26.

Solution of Permanganate of Potash	10 to 20 min.
Water to	1 oz.

When this or the preceding solution is used for the nose it should be mixed with an equal quantity of warm water, and common salt in the proportion of a tea-spoonful to a pint may be added.

27.

Tartarated Iron . . .	10 to 60 grs.
Water	1 oz.

28.

Tincture of Cantharides .	½ dr.
Glycerine	½ dr.
Spirit of Rosemary . .	1 dr.
Rose Water to . . .	1 oz.

For the scalp in alopecia.
To be used with a sponge night and morning.

29.

Extract of Belladonna . .	10 grs.
Distilled Water . . .	1 oz.

Used in iritis and corneitis.

MIXTURES.

30.

Sulphate of Quinine . .	1 to 2 grs.
Sulphate of Iron . . .	1 gr.
Dilute Sulphuric Acid . .	4 min.
Infusion of Quassia to . .	1 oz.

To be taken three times a day. ½ to 1 dr. of sulphate of magnesia may be added if necessary.

31.

Tincture of Perchloride of Iron	15 min.
Glycerine	20 min.
Spirit of Chloroform . .	10 min.
Water to	1 oz.

To be taken three times a day.

32.

Carbonate of Ammonium .	5 to 8 grs.
Tincture of Opium . .	5 to 10 min.
Spirit of Chloroform . .	20 min.
Decoction of Cinchona to .	1 oz.

To be taken three or four times a day.
Useful in sloughing sores, etc.

33.

Red Iodide of Mercury . .	$\frac{1}{16}$ to $\frac{1}{4}$ gr.
Iodide of Potassium . .	3 to 5 grs.
Compound Tincture of Cardamoms	20 min.
Water to	1 oz.

To be taken twice or thrice daily.
Useful in relapses of the scaly eruptions.

34.

Perchloride of Mercury . .	$\frac{1}{16}$ to $\frac{1}{8}$ gr.
Solution of Perchloride of Iron	15 min.
Spirit of Chloroform . .	15 min.
Water to	1 oz.

To be taken three times a day.
A useful mode of giving mercury when there is great debility.

35.

Iodide of Potassium .	2 to 100 grs. or more
Aromatic Spirit of Ammonia . .	20 min.
Water to . . .	1 oz.

Infusion of quassia, decoction of cinchona, liquid extract of sarsaparilla, etc., may be used instead of water, according to circumstances. The quantity of iodide should be gradually increased about every third day if necessary, and each dose taken in a tumblerful of water. Milk is also a very good vehicle for the iodides, especially in children.

36.

Iodide of Potassium .	10 grs. and upwards
Bromide of Potassium or of Ammonium .	15 grs. and upwards
Carbonate of Ammonium	5 grs.
Spirit of Chloroform .	15 min.
Water to . . .	1 oz.

To be taken three or four times a day in water.
Used in syphilitic affections of the nervous system.

37.

Chlorate of Potassium . .	10 to 20 grs.
Dilute Hydrochloric Acid .	10 min.
Decoction of Cinchona to .	1 oz.

To be taken four or five times daily.
Used in salivation, etc.

38.

Tartarated Iron . .	5 to 20 grs.
Iodide of Potassium or of Sodium . . .	5 grs. and upwards
Spirit of Chloroform .	15 min.
Infusion of Quassia to .	1 oz.

To be taken three times a day in water.

39.

Perchloride of Mercury . .	$\frac{1}{16}$ to $\frac{1}{8}$ gr.
Iodide of Potassium . .	2 or 3 grs.
Peppermint Water . .	1 oz.

To be taken three times a day.

40.

Bicarbonate or Citrate of Potassium	15 to 20 grs.
Nitrate of Potassium . .	3 to 5 grs.
Tincture of Henbane . .	$\frac{1}{2}$ to 1 dr.
Camphor water to . . .	1 oz.

To be taken every three, four, or six hours in water. For robust patients $\frac{1}{12}$ to $\frac{1}{6}$ gr. of tartarated antimony may often be added with advantage.

41.

Copaiba	20 min.
Essence of Cinnamon . .	20 min.
Mucilage of Gum Acacia .	$\frac{1}{2}$ oz.
Water to	1 oz.

To be taken three times a day.

(Copaiba may also be prescribed in the form of capsules, globules, etc.)

42.

Oil of Sandal Wood . .	10 to 30 min.
Mucilage of Gum Acacia .	$\frac{1}{2}$ oz.
Cinnamon Water to . .	1 oz.

To be taken three times a day.

OINTMENTS.

43.

Calomel	20 to 60 grs.
Vaseline or Lard . . .	1 oz.

When absorption of the drug is not desired, vaseline is better than lard as a basis for some ointments, as it does not turn rancid.

44.

Iodoform in *fine* powder . .	20 to 60 grs.
Benzoated Lard . . .	1 oz.

PASTE.

45.

Strongest Sulphuric Acid .	of each a
Willow Charcoal	sufficiency.

This is known as the carbo-sulphuric or Ricord's paste.

PILLS.

46.

Sulphate of Quinine . .	1 gr.
Dried Sulphate of Iron . .	1 gr.
Dried Carbonate of Soda . .	2 grs.
Extract of Rhubarb . .	1 gr.

To be taken twice or three times daily.

47.

Mercury with Chalk . .	1 gr.
Compound Ipecacuanha Powder	1 or 2 grs.

Useful when there is irritation of the stomach or bowels.

48.

Mercurial Pill . . .	1 gr.
Extract of Gentian . . .	1 gr.

To be taken three or four times a day with meals.

49.

Mercurial Pill . . .	3 grs.
Powdered Opium . . .	$\frac{1}{3}$ to $\frac{1}{2}$ gr.

To be taken three or four times daily.

50.

Green Iodide of Mercury . .	$\frac{1}{4}$ gr.
Sugar of Milk . . .	a sufficiency.

To be taken four, five, or six times a day.

51.

Green Iodide of Mercury .	$\frac{1}{4}$ gr.
Extract of Opium . . .	$\frac{1}{4}$ gr.
Extract of Logwood . .	1 gr.

Useful when No. 50 purges.

52.

Tannate of Mercury . .	1 or 2 grs.
Extract of Gentian . . .	1 gr.

To be taken three times a day.

53.

Perchloride of Mercury . .	$\frac{1}{16}$ to $\frac{1}{8}$ gr.
Sugar of Milk	a sufficiency.

To be taken twice or three times a day.

54.

Bicyanide of Mercury . .	$\frac{1}{16}$ to $\frac{1}{8}$ gr.
Sugar of Milk . . .	a sufficiency.

To be taken twice or three times a day.

55.

Iodoform	$\frac{1}{2}$ to $1\frac{1}{2}$ gr.
Extract of Gentian . . .	1 gr.

To be taken three or four times daily with a draught of barley water.

56.

Camphor	3 or 4 grs.
Extract of Belladonna . .	$\frac{1}{4}$ to $\frac{1}{2}$ gr.

To be taken at bedtime.

POWDER.

57.

Calomel	1 part
Oxide of Zinc	2 parts.

SOLUTIONS.

58.

Nitrate of Silver . . .	20 grs.
Distilled Water . . .	1 oz.

59.

Borax	30 grs.
Glycerine	1 dr.
Water to	1 oz.

60.

Ragazzoni's Solution for Hypodermic Injection.

Red Iodide of Mercury	4 grs.
Distilled Water to .	256 min.
Iodide of Sodium .	sufficient to dissolve the Iodide of Mercury.

Dose—10 minims.

61.

Sulphate of Atropia . .	4 grs.
Distilled Water . . .	1 oz.

62.

Sulphate of Atropia . .	1 gr.
Distilled Water . . .	1 oz.

One grain of Sulphate of Zinc may be added if conjunctivitis be present.

63.

Iodoform	80 grs.
Ether	1 oz.

SUPPOSITORIES.

64.

The Mercurial Suppository (B.P.), containing 5 grains of Ointment of Mercury.

65.

Hydrochlorate of Morphine .	$\frac{1}{3}$ to $\frac{1}{2}$ gr.
Oil of Theobroma . . .	10 grs.

The addition of $\frac{1}{3}$ to $\frac{1}{2}$ gr. of extract of belladonna is often beneficial.

66.

Ointment of Mercury . .	10 grs.
Oil of Theobroma . . .	1 dr.

Form into a suitable shape for introduction into the vagina.

67.

Iodoform	5 grs.
Oil of Theobroma . . .	10 grs.

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