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THE

STUDENT'S MANUAL

OF

VENEREAL DISEASES

BEING A

CONCISE DESCRIPTION OF THOSE AFFECTIONS
AND OF THEIR TREATMENT

BY

BERKELEY HILL

PROFESSOR OF CLINICAL SURGERY IN UNIVERSITY COLLEGE, LONDON
SURGEON TO THE UNIVERSITY COLLEGE AND TO THE LOCK HOSPITALS

AND BY

ARTHUR COOPER

LATE HOUSE SURGEON TO THE LOCK HOSPITAL



SECOND EDITION

NEW YORK

WILLIAM WOOD & COMPANY

1881

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J. M. Conner

VENEREAL DISEASES

Wm. G. ...

VENTNERS DRUGS

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STANDARD METHODS

FOR THE DETERMINATION OF

WATER AND SOIL POLLUTANTS

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PREFACE TO THE SECOND EDITION.

LESS than a year having elapsed since the appearance of the first edition, the present one has needed but little alteration.

Nevertheless we have thoroughly revised the whole of the text, and have made some additions, both to the body of the work and to the formulæ.

BERKELEY HILL,
55 Wimpole Street.
ARTHUR COOPER,
25 Welbeck Street.

April, 1878.

PREFACE TO THE FIRST EDITION.

THIS brief summary of Venereal Affections has been constructed from the larger work on Syphilis, written by one of us. While preparing a new edition of the latter for publication, it appeared that the summaries at the end of each chapter of the book on "Syphilis and Local Contagious Disorders" might be usefully removed and issued in a separate form. In doing this we have endeavored to bring the descriptions in accord with the knowledge of the present day. We trust that for those unacquainted with these disorders this little work may be a useful guide. The chapters are numbered similarly in the small and in the large books, to assist readers when referring to the larger work for further information. We employ in this little epitome, as in the more compendious account, the term "Syphilis" only when speaking of the general disease, and the term "Chancre" exclusively for the local contagious venereal ulcer.

April, 1877.

STATE OF NEW YORK

IN SENATE

January 15, 1908

REPORT

OF THE

COMMISSIONERS OF THE LAND OFFICE

IN RESPONSE TO A RESOLUTION PASSED BY THE SENATE

1908

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THE STUDENT'S MANUAL

OF

VENEREAL DISEASES.

INTRODUCTORY.

CHAPTER I.

HISTORICAL.

VENEREAL diseases are three : Chancre, Gonorrhœa, and Syphilis. The first 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 Columbus 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 same time, or in the middle of the sixteenth century, authors began to attribute all venereal disorders to one source, having previously drawn a distinction between syphilis 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 recognized ; hence the diseases called, at different times, yaws in the West Indies, sibbens in Scotland, radezyge in Norway, scherlievo in Dalmatia, and by 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 ulcer, one is a local disorder, the other a part of the constitutional disease syphilis. Those who agree with Ricord and Bassereau are *dualists*. Others assign a common origin to the exciting virus of both sores; sustainers of this theory are now called *unicists*. The view adopted in this book looks upon the principle producing the local contagious ulcer as distinct from that producing true syphilis.

SYPHILIS.

CHAPTER I.

OUTLINE

WHEN the syphilitic poison, unmixed with matter from ulcers, has been inoculated, it gives no evidence of its presence for three weeks or a month ; this period is called its *incubation*. Then it reveals its presence by induration of the tissue at the point of inoculation, and by the formation of an elevated papule, which may, or may not, become an ulcer with a hard base. About eleven days later than the appearance of the papule, several glands nearest the point of infection are found to have become slowly and painlessly enlarged. Within a few weeks from this, usually four to six, a red macular eruption commonly appears on the chest and abdomen. It may be unperceived by the patient before it fades, as it causes no discomfort. The rash is often preceded by loss of appetite, and even by fever or headache. As the first eruption disappears, others develop, generally of a papular character, scattered over the surface of the body and on the mucous membranes, especially of the fauces and tonsils. 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 two or three months of apparent quiescence, a fresh eruption of a scaly, or less commonly of a pustular character, appears on the skin, with excoriated patches on the fauces. They are accompanied in the more severe cases by rheumatoid and periosteal pain of the bones, iritis, 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 or three years. During this time it is common for the patient's strength and vigor 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 it attack the skin, hard tubercles appear in that tissue, which are very prone to ulcerate. But the internal organs—liver, lungs, brain, and muscles—may be also the seat of similar solid formations, and of other changes. Syphilis, *per se*, is rarely fatal in adults ; but by altering the structure of organs of vital importance, it renders the patient unable to repair accidental injury to those organs, and thus indirectly very 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, from the character of the symptoms, to arrange them in three groups. First, those developed

at the point of contagion—the so-called primary symptoms ; next, the 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. The morbid products of syphilis are histologically identical at all stages of the disease. Under the microscope, the new material is the same both in the indurated site of the inoculation of the poison, and in the tumor of the liver or other parts developed in cases where the disease has long existed.

Contagion is not Repeated.—By this it is meant that a man who has been inoculated with syphilis thereby gains an immunity for the future, and further inoculations have no effect upon him. This law, commonly true, is not absolutely so ; undoubted instances exist of patients having had syphilis, who, after a lapse of years, again contract the disease by a fresh contagion.

In such cases of reinfection, syphilis is repeated in two ways ; in the best recognized and undoubted mode, 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.—The length of the period in which the syphilitic poison may be kindled into activity and, consequently, capable of transmission by contagion or to the offspring, varies much in different persons.

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.

PROPAGATION.

THE causes of syphilis are *predisposing* and *exciting*. Predisposing causes are conditions facilitating the spread or increasing the severity of the disease. Syphilis is more severe in cold than in temperate climates ; and in hot ones for natives of cooler climates. Any cause which enfeebles the condition of the individual, increases the severity of syphilis. All races are subject to the disease : when invading 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 the contagion of scarlet fever.

The sole *exciting cause* of syphilis is a subtle principle called the virus. The poison must be passed from the infected to the non-infected, and it enters only at a breach of surface. It is non-volatile, easily destroyed by altering the chemical constitution of its vehicle, by the action of heat or acids.

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. It is uncertain whether the saliva, milk, or semen, unless mixed with syphilitic secretions, can convey the disease.

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

Modes of Contagion.—Mainly by sexual intercourse, less frequently by examining diseased persons, by suckling, by sucking wounds, by using unclean instruments, spoons, cups, and other articles.

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

Infection from the Father.—Indirectly, the child may receive the disease from the father if the mother is also attacked. It is believed by some that the child may inherit the disease from the father, while the mother escapes; but this is not established beyond doubt.

It is supposed that the mother may become infected from the fœtus; this still remains doubtful.

CHAPTER III.

PROGRESS OF THE DISEASE.

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 fifteen and forty-six days. The reasons of this variation in different individuals are yet to be learned; but in this respect syphilis is analogous to other contagious diseases where the incubation varies within certain limits.

When incubation is over, a change takes place at the site of inoculation. This change, the *initial manifestation*, 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 inde-

pendently 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, 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, though the discharge is not copious or purulent. This is the most easily recognized form. When fully developed it has a hard, resisting base; the surface is covered by a scanty adhesive discharge; the edges are sloping, rounded; and the induration extends 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 laid on the surface of an indurated ulcer, incites it to suppurate freely, and to acquire the character of a suppurating chancre. This is called a "mixed chancre," by Rollet. Sloughing action at the point of inoculation is no preservative against syphilis.

Syphilitic ulcers are usually single. They are 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 is rarely, if ever, wholly absent. The stay of the induration is long—ninety days being commonly a short period. Its anatomical structure is like that of syphilitic productions at any other period of the disease; it consists of nucleated cells and ill-formed fibres massed together. These cells do not develop into a defined tissue, but degenerate into granules and pigment, especially when ulceration is going on. Copious induration at the seat of contagion is not always an indication of a severe course of the disease, though the two often go together.

The *lymphatic glands* connected with the point of contagion enlarge, slowly and painlessly, about *eleven* days after the induration of the point of contagion itself begins. This enlargement results from general congestion and irregular hypertrophy of the glands. The cellular tissue around them remains unchanged, and they can be plainly felt as a *group* beneath the skin. In weakly persons 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 languor. Enlargement of the lymphatic glands is sometimes ill-marked, and escapes observation. When it departs, the glands shrink back to their original size, or even, by fatty and calcareous degeneration, lose their normal structure.

Suppuration in these glands, so common a complication of the local chancre, is unusual, and is the consequence of local irritation, never dependent on the disease alone. The number of cases where the glands suppurate is relatively small. Suppuration is not protective against general infection.

The lymphatic vessels sometimes thicken as they run along under the skin to the glands.

The *diagnosis* of a syphilitic initial lesion depends on the incubation, the induration, the languid superficial quality of the ulceration, should that be present, and the painless general enlargement of the nearest group of lymphatic glands.

The prognosis is that of syphilis.

CHAPTER IV.

ERUPTIONS ON THE SKIN.

THE period of general eruptions begins about ten weeks after contagion, six or seven after induration of the point of inoculation, and four or five after the lymphatic glands are perceived to have enlarged. Malaise and pyrexia may precede or accompany the outbreak of the rash. The febrile action and pain may even be intense, and the former has been known to 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 syphilides. 1. The papule generally forms the base on which the scaling, pustular, and suppurating eruptions develop. 2. The rash may appear on any part of the surface. 3. The color is peculiar: though called "coppery," it most resembles the hue of raw ham. 4. Irritation, smarting, or itching are rarely prominent symptoms, and are usually altogether absent. 5. The rash has favorite localities, such as the trunk, the forehead along the scalp, and the nape of the neck. 6. The favorite localities of syphilitic rashes are not those of the corresponding non-syphilitic eruptions. 7. The different forms run much into each other. 8. Several are usually present together, and other syphilitic affections accompany the cutaneous rashes.

When the disease is losing its activity the eruptions are seldom spread widely over the body. Their brown tint is then well marked. Such limited forms are slow in progress, and in feeble persons 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.

Special Syphilides.—*Roseola* is commonly 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, sometimes desquamating as the rash subsides. The eruption lasts commonly two or three weeks. Sometimes papules form among the roseolous spots. There are two varieties of spots, the large and the small. The flanks and chest are the common seats of the eruption, but in rare cases it spreads all

over the body, head, and limbs. It relapses now and then. The diagnosis from other roseolous eruptions depends on the accompanying enlarged inguinal glands, the induration of the point of contagion, erythematous redness of the fauces, the small amount of constitutional fever, the rash being always most fully developed on the trunk, and the slow course of the eruption.

Papular Syphilides.—When the papules are minute they are called miliary S. ; when small, lenticular S. ; when large, desquamating, and irregularly scattered, scaly S. ; when arranged into groups of circles or figures of eight, leprous S. ; when on the palms or soles, psoriasis palmaris or plantaris ; when found on moist parts of the body, mucous patches. Miliary S. and lenticular S. are most frequent in the first six months after contagion ; scaly S. is generally rather later ; lepra and psoriasis of the palms are most often seen when the disease is of long standing. The papules attack all parts of the body, and are the eruptions which most frequently relapse. The structure of the papule consists of a solid elevation of the skin, which commonly begins in a hair- or sebaceous- follicle. This, growing to a less or greater degree, forms the smaller or larger papules. The color common to all papular eruptions is rosy at first, then fading to coppery or purplish brown. When the papule reaches full development, the cuticle separates in dry scales, forming a characteristic silvery border. The usual accompaniments of these eruptions are ulcerated papules on the fauces, and enlarged lymphatic glands on various parts of the body, with, less frequently, periosteal pains, fall of the hair, and iritis.

Mucous Patches form at the outlets of the body, or where the skin is kept moist. They have a brighter red tint than the dry papules, and secrete a thin purulent fluid. They consist of flat, smooth elevations, inclining to circular ; when near to each other they coalesce into larger patches. When developed around the anus, they are often subdivided by fissures called rhagades. If the patches are kept clean and free from irritation, they soon change into dry scaling surfaces. The discharge of mucous patches is highly contagious.

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

positive by the presence of other syphilitic disease elsewhere, and by the characters this eruption shares with all syphilitic rashes.

Syphilitic 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 vesicle quickly shrinks, the contents dry into a crust, the skin ulcerates under the crust, the fresh secretion dries also 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 of bullæ succeed each other till several months have elapsed. Rheumatic and periosteal pains and bodily debility ordinarily accompany this eruption. *Pemphigus* is of exceeding rarity in adults. It develops on the palms and soles, and extends up the arms and legs.

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

Gummy Tumors of the cellular tissue, more rare than the last, are met with only in cases of long-standing syphilis. They form solid nodules beneath the skin. Presently the skin becomes absorbed over the tumor, and bluish-red in color, breaking down by slow ulceration. The contents then escape, and a round swelling with a ragged interior is left, which heals with a depressed white scar. Sometimes the mass is absorbed before ulceration is reached; in that case it leaves no trace. The gummy swelling is found oftenest on the neck, but may form on any part of the surface; it is identical with the gummy tumor of internal organs.

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, 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.

Alopecia.—The hair becomes dry and withered at the outset, or during the course of the cutaneous eruptions. It often falls partially from the scalp; but the eyebrows, lashes, and down of the body occasionally fall too, causing complete baldness. In a few weeks new woolly hairs grow, and 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.

Onychia.—The nails are attacked in three ways. In the first form, most commonly seen while a scaling rash is present elsewhere, the matrix is beset with papules; these ulcerate and destroy the nutrition of the nail, which, act-

ing like a foreign body, causes obstinate sores. 2d. The nutrition of the nail is altered, it becomes brittle, and its edge notched and ragged. 3d. The superficial layers split or peel off, so that the nail becomes spotted and opaque where it breaks away.

CHAPTER V.

THE ALIMENTARY CANAL.

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. Papules of the surface, copper-colored when denuded of epithelium, white when scaling freely, are not infrequent. They accompany the papular eruptions of the skin. The mucous membrane and submucous tissue also indurate in broad patches; these are apt to ulcerate and creep over the surface of the tongue, leaving white shining scars. Among these excoriated patches, sinuous fissures form, which cause much pain. Lastly, gummy nodules develop in the substance of the tongue; when superficial, they break on the surface, and leave large, ragged, ulcerating cavities. Irritated syphilitic ulcers 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 wideness of the surrounding induration, and by the general enlargement of the sublingual lymphatic glands. Nevertheless, the diagnosis is often difficult.

Mouth and Pharynx.—At the time of roseolous rash on the skin an erythematous redness spreads over the fauces, lasting a few days, and never going beyond very superficial excoriation. Small, round, sharply-cut ulcers of a superficial kind, and erosion of the surface of raised papules and mucous patches, are very 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 gummy nodules forming in the submucous tissue, which, reaching the surface, rapidly disintegrate to a grayish adherent slough that gradually escapes and leaves a deep cavity with sharply-cut edges. This ulcer attacks the tonsil and soft palate most particularly. The ulceration, instead of destroying deeply, sometimes migrates over the surface of the palate and pharynx in the mucous membrane, which, before it ulcerates, becomes indurated widely. Usually the action is confined to the mucous and submucous tissues; at times it extends to the bones of the base of the skull and vertebræ, through which it may reach the brain and spinal cord, when it produces epilepsy or paralysis. Asthenic fever often accompanies this ulceration, the throat is dry, parched, and brown; any attempt at swallowing is most painful, and the voice is hoarse 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 Gullet.—The best known affection is stricture of the œsophagus, which now and then occurs among the later consequences of syphilis. It results from inflammation of the submucous tissue, accompanied by ulceration and contracting cicatrization.

The Stomach and Intestines.—Of syphilis in these organs nothing at all satisfactory is at present known.

A Stricture of the Rectum occurs in women who have had syphilis. But the evidence that this stricture is a syphilitic affection, though strong, is imperfect. Some believe it to be simply a local affection excited by continuous irritation. The skin around the anus is dull red, hard and leathery, fissured by ulcerating chinks. The anus itself is beset with suppurating patches; the rectum is narrowed at one or two inches within the sphincter, and above that part the gut is enlarged; the submucous tissue is thickened, the surface is red and eroded, while over the stricture it is often ulcerated deeply, causing much pain to the patient during defecation. The disease has a slow course, is not affected by syphilitic remedies, and though curable for a time, always recurs if treatment is interrupted. The symptoms are mainly—difficult and painful defecation, discharge of pus and blood from the bowel, added to the pathological characters just described.

The Spleen.—Enlargement of the organ is common in the inherited form of the disease from amyloid degeneration of the Malpighian bodies and blood-vessels, from hypertrophy of the fibrous stroma, and much less frequently from gummy nodules. It has also been observed in acquired syphilis.

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

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

The gummy nodules 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 bands.

Cirrhosis of the liver is the most common form; the gummy nodules are often absent. The cirrhosis of syphilis is characterized by the great degree to which the contraction is carried, so that the parts affected are deeply seamed, while much of the organ is often unaffected. In cirrhosis from alcoholic irrita-

tion the contraction is not so extreme, but is general throughout the organ, and the adhesions of the surface are generally wanting. *Jaundice*, without apparent change in bulk of the organ, is occasionally observed in early syphilis.

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

Acute Yellow Atrophy is, though very rarely, seen in syphilis.

The Symptoms of hepatic disease attract little attention during life; pain is usually absent; now and then, when the contraction of the liver is advanced, alteration in form and size are perceptible. Before contraction the liver is enlarged in some patients. Enlargement also of a part may occur by the enormous growth of a gumma, and the pressure of this mass on the portal veins causes dropsy and other symptoms. Ascites, epistaxis, and hæmorrhoidal flux are also consequences of the cirrhosis. The disease has usually a fatal end, but may be cured if discovered early.

CHAPTER VI.

THE AIR PASSAGES.

The Nose.—Catarrhal inflammation of the lining membrane may take place during the early eruptions of 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, occur with the papular eruptions. Periostitis and necrosis of the delicate bones of the nose are late sequelæ of the disease. This continued ulceration produces a putrefying fœtid discharge, *ozæna*, that is very obstinate. The nose, mouth, and pharynx, by extension of this periostitis and necrosis, become a common cavity, when the senses of taste and smell may be lost. This is met with in adults and in children suffering from inherited syphilis, at 8 or 9 years of age.

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

The Trachea is similarly affected by papules, contracting ulcers, and necrosis of the rings. In the *bronchi*, chronic *bronchitis*, causing numerous ulcers, is attributed to syphilis.

The Lungs are attacked by changes identical with those of other viscera. *Interstitial fibrous inflammation* and *gummy nodules* are best ascertained to belong to syphilis. The latter are generally multiple roundish gray masses, between a pea and a small walnut in size. The lung around these masses is hard, and impermeable for a short distance. The interstitial inflammation arises by increase of the cellular tissue of the bronchi, but especially of the blood-vessels, causing contracting cords and induration of a small circumscribed space in the lung. They have been seen most unmistakably in infants, but also in adults. When the disease makes active progress, it causes what has been called *syphilitic phthisis*, and is marked by loss of flesh and strength, sweating, cough, pallor, occasional attacks of pleurisy, harsh breathing, and moist rhonchi. When the consolidation is sufficient to produce physical signs, dulness is marked at the middle lobe, not at the apex, as in tubercular phthisis. The symptoms are usually rapidly relieved by iodide of potassium.

CHAPTER VII.

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

The Bones and Periosteum are attacked by syphilis before and during the epoch of eruptions, and also when eruptions have commonly subsided.

The *early form* consists chiefly of aching pains in the bones, worse at night than by day, and changing from place to place. The bones most often attacked are the os frontis, sternum, clavicle, ulna, and tibia. The pain usually subsides when the eruption is fairly out. The painful places are not tender or swollen unless the progress of the disease be unusually rapid, and a true node appear while the pain is present.

Late Affections.—These are met with on the superficial bones, and their existence is revealed by fixed pain, great tenderness, and soft, fluctuating, colorless swelling over the painful part. The osseous enlargements sometimes compress the trunks of nerves and cause violent pain or paralysis of the parts supplied by the nerve. The bone is altered by slow *inflammation* and *special gummy formation*. These produce *nodes* of the surface, *caries* and *necrosis* of the substance, and *gummy outgrowths* in the midst of the preceding nodes. In the *simple inflammatory form* a small area of the periosteum becomes congested, and raised above the surface of the bone by an effusion of fluid, thus forming a fluctuating tumor; presently fibrous tissue and rough bone convert the fluctuating tumor into a solid permanent one, called a syphilitic exostosis.

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

Caries and Necrosis.—The hard tissue of the bone is worn away or absorbed along the canals and spaces to make way for an increase of the medullary tissue, which itself then withers, and leaves the bone a porous honeycomb. Necrosis is produced in the thin bones, where the inflammation and degeneration of the vascular periosteum cut off their nutrition; the bones of the nose and hard palate are most frequently attacked. Again, the bone around the part specially attacked by syphilis is irritated into *chronic inflammation*, and often becomes hard, dense, and thick, and may rise to a ridge about the carious parts. The dead bone, acting like a foreign body, sometimes excites the neighboring living bone to ulceration and suppuration.

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

The Joints.—In the late stage of the disease, gummy deposits around the joint outside the synovial membrane, chronic thickening of the soft parts, and acute inflammation of the capsule, have been noticed a few times.

In the *bursae* gummy swellings occur at a late period of the disease. The bursa in front of the patella is said to be most frequently attacked. In this affection the capsule is thickened, and distended with tenacious yellow fluid, while sometimes slender bands of connective tissue and blood-vessels pass from side to side of the cavity.

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

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

The Tendons, especially the tendo Achillis, are attacked by gummy tumors like the muscles; also by interstitial inflammatory thickening of their sheaths, causing a general brawny hardness of the parts around them, resembling that of strumous inflammation.

The Heart may be affected by the same forms of disease as the muscles.

Vessels.—The outer and inner coats of the arteries are attacked at several points of their length by changes peculiar to syphilis. New small cells develop in the fenestrated layer and longitudinal fibres of the inner coat of the vessel; some become highly organized into fibrous tissue, among which are formed new blood-vessels. A similar growth from the endothelial layer encroaches on the channel of the vessel, and may altogether occlude it. The arteries most frequently recorded to be thus altered are the basilar and middle cerebral of the brain. Special syphilitic disease has not yet been observed in the veins.

CHAPTER VIII.

THE BRAIN, NERVES, AND ORGANS OF SPECIAL SENSE.

NERVOUS affections are excited by disease of the meninges, and of the brain or nerves themselves ; the former more frequently disturbs the function of the nerves. Chronic interstitial condensation develops tough adhesions of the dura and pia mater, and increased consistence of the brain. Besides this, gummy nodules may be produced in the midst of the indurations. The brain is softened near the hardened parts, through defective nutrition from impeded flow of blood in the often diseased vessels. The gummy nodules are found on the convexity and at the base of the brain, when they spring from the meninges, or in the more vascular parts of the interior, when they originate in the blood-vessels of the brain. The minute structure of these tumors is often deficient in well-marked peculiarities ; still to the naked eye they are generally very different in appearance from tubercle, or from fibro-cellular tumor of the brain.

The *symptoms* of disease in the brain depend greatly on the locality of the lesion. If that originate in the skull or meninges and press on the surface of the brain, persistent and most intense headache is the leading symptom, but convulsions, delirium, and dulness of the intellect are also usual. General wasting paralysis is caused when the surface of the brain is widely altered by slow induration and adhesion of the pia and dura mater. When the growth is at the base, hemiplegia is a prominent symptom. If the gummy mass grow inside the brain, headache, giddiness, and confusion come first ; coma and convulsions follow later.

The diagnosis in many cases can be reached only by a process of exclusion.

In arterial occlusion there will be paralysis, often sudden, and as a rule without loss of consciousness. A characteristic of syphilitic nervous disease is paralysis limited to one or two muscles or groups of muscles. As a general rule, in any case where there are symptoms of intracranial disease, more particularly in early adult life, when such symptoms cannot be traced to an obvious cause, *e.g.*, injury or Bright's disease, specific remedies should be administered ; even though no history of syphilis may be obtained, nor any special sign of syphilis be present.

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

Lesions of the Eye are the best known of those attacking the organs of special sense. Papular and other eruptions often affect the lids, and mucous patches form on the conjunctiva. In children after the second dentition, the *cornea* is the seat of interstitial keratitis, which will disappear under

treatment without injury, but when neglected often leaves permanent opacities. *Iritis* is common within the first six months after infection during the papular eruption, and is very apt to relapse many times during the progress of the disease elsewhere. When occurring in the later periods, it is often combined with disease in the *choroid* and *retina*. The distinguishing characters of the early iritis are, a red zone in the sclerotic round the iris, dulness of its color, sluggishness or irregularity of the margin of the pupil when the iris contracts or expands. In the late iritis, the nodules of lymph are plainly seen at one or two points on the surface. Both varieties, if untreated, often cause synechia or other injury to the eye. The early iritis may subside without leaving permanent injury behind. Nevertheless permanent irregularity of the pupil not infrequently betrays its previous occurrence. Iritis is also very common in infants who inherit syphilis. Choroiditis and retinitis frequently cause amaurosis; irregular patches of an inflammatory kind form on the retina or on the choroid beneath it, and these, if they are neglected, cause permanently defective vision, but if treated at an early stage are capable of complete cure.

The Ear.—Deafness may temporarily 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.

Catarrhal inflammation may reach the middle ear by extension from the fauces along the Eustachian tubes. These cases generally recover, but sometimes suppuration with rupture of the membrane takes place. Deafness may also be produced by syphilitic growths of the external meatus. Deafness is more frequent in inherited syphilis, and is incurable, being then due to alteration of the expansion of the auditory nerve.

CHAPTER IX.

GENITO-URINARY ORGANS.

In the Urinary Organs the syphilitic affections of the *urethra* are limited almost wholly to ulcerations at the point of contagion. It is unknown if syphilis attacks the *bladder* and *ureters*.

The Kidneys suffer very similarly to the liver, the changes being chiefly cirrhosis of the interstitial cellular tissue, gummata, and amyloid degeneration. 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 first affection. Amyloid degeneration, perhaps the most frequent change met with in syphilitic kidneys, renders the organ smooth, large, not shrunken; on section the surface is pale, and the Malpighian tufts are large and distinct. Temporary albuminuria during the period of eruptions is not infrequent.

Of the Male Genitals the corpus cavernosum penis is occasionally the seat of a gummy nodule. This causes no inconvenience, except that erection is painful and crooked. How the *vasa deferentia*, *vesiculæ seminales*, and *prostate* are affected by syphilis, we have no accurate knowledge.

The Testis is variously affected. *The epididymis*, during the earlier stages of the disease, is temporarily enlarged in rare cases, and both organs are usually attacked. The gland proper is seldom attacked till two or three years after infection, and often at a much later period, when nodes or rupia on the skin are present. The affection is often accompanied by other signs of syphilis. The testis is at first slightly uneven, but enlarges and grows smooth, less elastic, and less sensitive than in the natural state. The epididymis remains unaltered until lost in the encroaching testis. Pain is generally altogether absent, or is confined to aching in the loins. One testis being enlarged, the other often follows the same course; then the testis slowly dwindles and sometimes degenerates into a small fibrous mass, destitute of glandular structure. The scrotum usually remains healthy, and non-adherent; occasionally adhesive inflammation takes place, on which softening, abscess, and a fungous protrusion from the cavity follow. *Two pathological changes* take place—*inflammation of the fibrous structures* and *gummy swellings*. In the first, congestion and thickening of the tunica albuginea begin at one or two points, and pass inwards along the lobules to the corpus Highmorianum. This new tissue contracts and indurates; in doing this, it more or less destroys the secreting structure of the testis at these parts. The gummy swellings are formed in this contracted tissue in roundish yellow masses, surrounded by a grayish vascular capsule. They vary in size from a pin's point to a bean, in consistence from hard cheese to glue, in color from bright yellow to reddish gray. They are less often seen than the interstitial induration of the fibrous stroma of the testicle. The testicle usually recovers from this affection if the morbid action be arrested at an early stage, but relapses are frequent. *The diagnosis* depends on the freedom of the cord, epididymis, and scrotum from disease, the smooth surface, the absence of pain, the diminished sensibility, the presence of syphilitic disease elsewhere, and the history of former syphilis.

Of the Female Genitals, *the vagina and nymphæ* are, but very rarely, the seat of gummy nodules; if these ulcerate through the surface, large ragged sores result, which suppurate freely. In old cases of syphilis, the vagina may be greatly contracted and deformed by fibrous interstitial inflammation. The resulting scars easily break down into intractable ulcers. *In the uterus*, besides gummata in the muscular tissue, eczematoid eruptions of the vaginal portion of a purely syphilitic nature are common. Leucorrhœa, abrasions and thickening of the cervical portion, are also common in syphilitic women, but are probably due to causes independent of syphilis. *The placenta* in pregnant syphilitic women is frequently thickened and beset on the maternal side with hard nodules, composed of a whitish capsule, and soft red or yellowish-red contents. The life of the fœtus is often destroyed by the disease in the placenta obstructing its nutrition. *The Fallopian tubes* generally escape the influence of syphilis, but gummy nodules have been observed in them. *In the ovary and breast* also on rare occasions gummy masses are found.

CHAPTER X.

INHERITED SYPHILIS.

SYPHILIS in children may be either acquired or inherited.

Inherited syphilis has a course and symptoms in many respects similar to those of the acquired disease. The symptoms commonly noted are, cutaneous eruptions, superficial ulcerations of the mucous membranes, and other affections which, should the child survive the exhaustion attending the disease, subside usually in a few months. Not always; for in later childhood or adolescence tertiary sequelæ may appear. These are chiefly affections of the skin, bones, teeth, and eyes. Whether these delayed appearances may constitute the first signs of inherited disease in the individual is yet unknown.

Syphilitic disease of the uterus frequently causes abortion, or premature birth of the fœtus, which is sometimes expelled in a decomposed state, or marked with bullæ or 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 wasting; by the end of three or four weeks he has generally, but not always, lost the robust condition he possessed at birth. The child gets to look like a little old man; his skin is wrinkled and loose, of a muddy or bistre hue. This color is best marked on the forehead, chin, and other prominent parts. The skin, though loose, breaks around the mouth, eyes, and nose into chaps that bleed easily; the cuticle peels from the fingers, hands, and feet, on which coppery patches can generally be found; the hair of the scalp, the eyebrows, and lashes fall, and the nails are small and ill-developed. The child's cry is hoarse, peculiar, and snuffling from the nostrils being stuffed with thick yellow mucus. The inside of the mouth and the palate are beset with white patches and sores. Around the anus there are also bright coppery-red patches. In the course of a few weeks the wasting becomes extreme, the child is seized with vomiting and diarrhœa, bronchitis, pneumonia, or other visceral disorder, and dies. If untreated, this termination is the ordinary one, especially among the ill-fed children of the poor; but death is not invariable. Children with good nutrition in whom the disease has been slow to develop, often recover in a short time, and either suffer no further from its influence or become in later childhood again its prey. The plugging of the nares hinders the child's sucking, by obliging him to keep his mouth open to breathe; thus the nasal catarrh seriously interferes with his chance of recovery.

After death, no particular morbid change is always found. In a certain proportion of the patients the various changes peculiar to syphilis are developed in the viscera and bones. The viscus most frequently affected is the liver. The lungs, the thymus body, and spleen are also occasionally the seat of these morbid processes. They have been described in Chapters V. and VI.

CHAPTER XI.

DISEASES CONFOUNDED WITH SYPHILIS.

Tubercle.—Syphilis is a predisposing cause of tubercle by the debility and bad nutrition it induces. There is no ground for supposing that syphilis and tubercle are connected together, still less for supposing that tubercle is in any way a form of syphilis.

Scrofula.—It is extremely probable that syphilis is an excitant of scrofulous disease where there is predisposition to that affection, in the same way that it favors the progress of tuberculous disease, but there is no evidence that scrofulous disorders are commuted forms of syphilis.

CHAPTER XII.

PROGNOSIS.

In many persons syphilis ends spontaneously. The incurable cases are comparatively few ; in the great majority the disease subsides completely at the end of the second year. Again, when the disease does obstinately recur, its ravages are usually limited to one or two localities. In recurrent syphilis the symptoms are not exclusively 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. A wide-spread eruption at an early period usually foretells a short continuance. On the other hand, scanty development or absence of the early symptoms is common in those who suffer hereafter from tertiary syphilis. Climate, age, condition, and habits of the patient affect the severity of the disease. It is worse in the young and growing, and in the aged and enfeebled, than in vigorous adults.

CHAPTER XIII

TREATMENT.

General Management.—The indications to be followed in treatment are—1st. To insure the highest possible condition of bodily vigor. 2. To control the influence of the poison. 3. To dissipate and heal the local affections. Sexual intercourse must be abstained from.

Period preceding General Eruption on the Skin.—All attempts to eradicate the disease at this stage are useless ; but bodily vigor should be maintained by cleanliness, warm clothing, unstimulating diet, abstinence from alcohol, and moderate exercise in the open air.

Local Treatment.—The initial lesion, if healthy, merely requires cleanliness, and the application of a piece of lint wetted with cold water or F. (23); if the surface be indolent, F. (24 or 25) 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 neighboring lymphatic glands be tender or ache, they should be fomented four or five times a day with flannels wrung out of boiling water, and a poultice of linseed meal applied between the fomentations, the patient keeping as much as possible in the horizontal position. If abscess be already produced, it must be treated as an ordinary bubo (see the Chapter on Chancre). Any strangulation or swelling of the prepuce, if not quickly relieved by rest and cold lotions, must be incised at the constricting points. The penis, if the chancre be large, should be supported in a suspensory bandage.

The treatment of initial lesions of the *female genitals* is similar to that already given for 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. (21), and arrange the dressing so that it intervenes between all opposed surfaces. If the nymphæ become œdematous and inflamed, and the glands tender in the groin, the parts should be fomented every three or four hours, and poultices applied to the groin; while the patient keeps her bed and takes 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 local treatment of uterine venereal affections.

The Period of General Eruptions.—The short period of lassitude, inappetence, and headache that in many cases precedes the outbreak of a rash on the skin, is best treated by a saline purge to clear the bowels; after which, resort should be had to mercury. The discomfort subsides rapidly as the drug is absorbed. In this stage the diet should be good, and tonics may be necessary, F. (33, 34, 48).

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. It must be cautiously given to persons broken in health, or affected by renal disease; but even here, when syphilis is the cause of their debility, mercury frequently restores their strength more rapidly than any other medicine. 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 some warm astringent lotion, such as F. (2 or 3).

Cases in which Mercury is appropriate.—When the patient is in fair health, has a hard-based, indolent ulcer, with enlarged inguinal glands. Whenever the eruption has a desquamating form. In obstinate relapses of the eruption, when the affection is limited to a few tubercular or leprous patches, and in progressive ulceration of the skin, iodide of potass having failed. Whenever the patient in a long course of syphilis is enfeebled and reaps little benefit from ordinary tonic or restorative treatment. In short, whenever the disease makes no progress without mercury, however late the stage or whatever the form, mercury should be tried.

The Length of the Time that 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 may be given in the intervals, and mercury resumed according to circumstances.

The Effects of Mercury.—These 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 deposited 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 taken in syphilis it first relieves the languor that often precedes the eruption. If a rash be present, it grows pale, the spots sink down, and ulcerated surfaces begin to heal. Next come the characteristic effects of the drug. The gums swell, grow tender and spongy, and the teeth ache when snapped together. The swelling quickly extends along the gums and the whole mucous membrane of the mouth. This condition is accompanied by fœtor of the breath, coppery taste in the morning, and increase of the 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. (40). The mouth should be frequently washed with F. (2 or 3), and cleaned several times daily with a soft brush, especially after eating, and the gums rubbed with powdered alum. 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 action, for this may show itself as depression, sweating, loss of appetite, purging, nervous irritability, anæmia, and eczema.

Mercury is given *internally* in pills and mixtures and sometimes in pessaries and suppositories, F. (47, 64). It is applied to *the surface* of the body by mercurial vapor baths, inunction, subcutaneous injection, and by bathing in a solution of the perchloride.

When mercury is administered to a person who has not previously taken it, the dose should be small and in a form least likely to irritate the bowels; F. (50, 51, 52, 54) 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. (52) every night and morning, and three times by day. While this dose is given the patient should be seen frequently. When the mercury begins to be felt, the patient should omit his dose for a day, then continue with about two-thirds of the quantity at first employed.

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 very slight degree. A very useful mode of giving it is F. (55). It may also be combined with iron, as in F. (37).

The *Bicyanide* is sometimes useful when other preparations of mercury disagree with the patient, F. (56).

The *Red Iodide* is very useful in relapses of the scaly eruptions on the skin, F. (36).

The *Green Iodide*, from the readiness with which it decomposes, often fails to produce any effect, and is apt to cause griping and purging. It may be used to replace the other forms of mercury, F. (49, 53).

In Germany a preparation of mercury with sarsaparilla and aromatics, called *Zittmann's Decoction*, is much used.

In the *mercurial vapor bath*, F. (1), an atmosphere of steam and mercuric vapor is produced, which deposits on the skin a thin coating of mercury.

It may be taken every night until the gums swell—after this, twice or thrice weekly. Salivation is not often induced by this mode of introducing mercury.

Mercury may be *injected* beneath the skin, F. (61); but this mode is only to be recommended when other means fail, or where it is necessary to obtain the influence of mercury as quickly as possible.

Inunction.—A scruple of mercurial ointment should be rubbed every night into some part of the body. The parts adapted for rubbing are the axillæ, the sides of the arms, the thighs, and the flanks. Before commencing the inunction, the skin should be well cleaned. In the morning a warm bath of soap and water should be used before dressing.

Mercurial friction excites in some persons an erythematous eruption.

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 sequelæ of syphilis. It is of value also in the early stages, through its property of dissolving mercury that has been absorbed into the tissues and become inert.

Therapeutic Effect.—Iodine is chiefly beneficial at the late stages of the disease. It is appropriate for gummy swellings of the cellular tissue, for *rupia*, for affections of the bones, muscles, and viscera. In elderly persons, and those in whom the cachexia is strongly marked, or in the pseudoscrofulous affections of later childhood in inherited syphilis, iodide of potass is of great service. Commonly the disease is simply controlled by the iodides, and breaks out again in a few weeks if they are discontinued.

The general action of iodine is to stimulate the kidneys, the skin and mucous membranes, and the absorbent system.

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

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 effects, the iodide may be given in doses of five to eight grains in two ounces of water or infusion of orange peel once a day before breakfast, or by combining two or three grains with each dose of mercury dissolved in a bitter infusion, F. (42). When given to produce its own effect, it is best to give it three or four times daily, F. (38). Many persons can bear only a very small amount without experiencing the evil effects of iodine ; others are insensible to small doses. In most, if not all persons, the influence soon diminishes, and the same amount of action on the syphilitic affection can be secured only by frequently increasing the dose, or by discontinuing the use of the iodide for a short time. The risk of iodism may be sometimes avoided by combining ammonia or bromide of potassium with the iodide, F. (39). Ammonia also renders the iodide more active in persons growing accustomed to it. If the patient be much enfeebled, tartarated iron may be combined with the iodide, F. (41).

The *iodides of sodium and ammonium* may be used when iodide of potassium disagrees.

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.

Iodoform has been given with benefit in the later stages of syphilis. It may be prescribed instead of the iodides, or in cases where those preparations have failed, F. (57A).

Iron is much used to restore the system from its anæmic condition, and is often required at some time during the progress of syphilis. F. (33, 34, 37, 48).

Cod-liver Oil is often necessary.

Sarsaparilla.—The liquid extract is beneficial in enabling the patient to bear larger doses of iodide of potass than those 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 necessary to allay the pain of periostitis and other local affections.

SPECIAL TREATMENT OF THE AFFECTIONS OF SYPHILIS.

The Syphilides commonly cause no discomfort. Sometimes, if the rash spread rapidly, it itches a little. Soap and water allays this very well. Patients are often anxious to hide conspicuous spots on the face and neck, for this they may use a little rice starch or other simple cosmetic ; oleate of mercury and morphia may be painted over the spots. In the later eruptions, when the papules crack, ulcerate, or suppurate, the red oxide of mercury ointment, the pitch ointment, or zinc ointment may be used. For the obstinate

chinks round the mouth F. (45) is serviceable. The spreading ulcers of the skin are usually benefited by iodoform ; or F. (63) may be applied, and cold water dressing afterward used.

Local fumigation by mercurial vapor is occasionally used to heal ulcers of the skin, or in procuring the subsidence of obstinate leprous or tuberculous patches of eruption.

In very exhausted persons the sores may be dressed with F. (29). The itching or smarting in psoriasis palmaris is relieved by equal parts of glycerine and oil of cade used as a lotion, and gloves worn at night. When the hair falls, F. (30) 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. Patches and ulcers between the toes are easily cured by frequent washing, drying, and wrapping round each toe a strip of lint spread with mercurial or other ointment, or soaked in black-wash.

Mucous patches should be washed two or three times daily, well dried, dusted with F. (58), and covered with lint or rag.

The Alimentary Canal.—*In the mouth*, the ulcers should be touched every other day with nitrate of silver, and the mouth washed with F. (2 or 3), especially after eating, to clear away morsels of food. The obstinate ulcers of the fauces are quickly relieved by gargles of perchloride of mercury, F. (4). F. (27) is also excellent as a wash for the mouth. The ulcers at the side of the tongue are often kept up by being chafed against ragged teeth ; these must be filed or removed. The acute inflammation of the fauces that sometimes accompanies the ulcers is relieved by inhalation of the steam of hot water, into which a few drops of creasote or tincture of iodine have been thrown. Lumps of ice in the mouth ease the dryness and pain. Pulverized fluids, F. (4 or 31), may be inhaled when the ulcerative action has spread over a considerable extent of the fauces and pharynx. 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. (26 or 27).

The general treatment of the affections of the alimentary canal 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 all cases where the affection does not yield speedily to iodide of potass, 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 should be continued for some months, and in the case of visceral disease until the patient is in firm bodily health. The best result often requires an occasional resort to iodide of potassium.

The Air-passages.—The fœtid discharges of the nose require frequent cleansing with F. (26 or 27), by means of the nasal douche.

Follicular ulcerations and chinks just within the *alæ nasi* are much relieved by keeping them constantly soft with red oxide of mercury ointment. All the affections of the nose and air-passages are very much increased by exposure to keen winds.

In the larynx, the spasmodic irritation caused by the ulcers in chronic inflammation is relieved by iodine or creasote inhalations. If the ulcers can be seen with the laryngoscope, they should be brushed over with F. (59). Dyspnœa and chronic irritation are often relieved by a small blister on the throat, and dressing it with diluted mercurial ointment. When dyspnœa is urgent, laryngotomy may be necessary.

Syphilitic disease of the lungs requires the same treatment as other kinds of phthisis, with the important addition of iodide of potass in large doses.

The Affections of the Bones.—The pains in early nodes are benefited by spirit lotion and blisters. When suppuration really occurs, the swelling may be opened and poulticed. *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 potass, F. (38), given in slowly increasing doses, and continued for a considerable time; small quantities of mercury should be added as the patient's strength will permit.

In Affections of the Brain and Nerves, iodide of potash and tonics should be employed. Bromide of potassium is especially useful when the syphilitic disease of the brain causes epilepsy. F. (39).

Affections of the Eyes.—Sores and mucous patches on the *eyelids* must be washed and anointed with the red oxide of mercury ointment. Loose lashes should be removed.

Cornœitis is generally arrested by mercury; F. (50) is the form most readily borne. When the patient is an infant or very feeble, the mercury may be introduced through the skin. Iron, cod-liver oil, quinine, and a diet of which milk and cream form a large part, are best suited to feeble children. The eyes should be shaded, and bathed several times daily with F. (32). But the general specific and tonic treatment is of far more importance than any local application.

Syphilitic Iritis.—The treatment of iritis is of great importance from the pain of the affection and the rapidity with which irremediable mischief is caused. Solution of atropine, F. (62), should be dropped on the inner canthus of the eye twice a day, until the pupil is fairly dilated and the congestion of the iris subsides. Besides this the eye should be bathed with F. (32) used warm two or three times a day. The eyes should be protected from the light. Opiates are sometimes required. If the pain be violent, leeches to the temple, and a fifth of a grain of morphia injected subcutaneously, will quickly relieve it.

No time should be lost in getting the patient under the influence of mercury; F. (52) must be given every six hours till the gums begin to swell, when the dose should be reduced to a pill night and morning, or only every night.

In the nodular or chronic form of iritis which occurs at a late period, and in the affections of the choroid and retina, iodide of potash alone, or with mercurial inunction or mercurial vapor baths, is the most effectual medicine. Very marked benefit also sometimes follows several small blisters on the temples dressed with mercurial ointment. In infantile iritis, mercury

speedily procures absorption of the effused lymph, if recent. Little other treatment is necessary.

Affections of the Generative Organs.—The treatment of *syphilitic testis* is the same as that for other late forms of syphilis. When the testis is enlarged by gummy inflammation after long infection, iodide of potassium should be given, F. (38), in gradually increasing doses. Some cases are very little improved by iodide of potassium alone, and to prevent relapses it is always desirable to give mercury as well.

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 of potash and mercury is indispensable.

TREATMENT OF INHERITED SYPHILIS.

To prevent the Descent of Syphilis from Parent to Child.—

The activity of syphilis in an adult usually continues for two years before the poison subsides into quiescence. But the disease also frequently regains 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 before the wife is pregnant, he must at once desist from sexual intercourse, and from close embraces or kissing, and submit to renewed treatment of his disease. In the mean time his wife must be watched, that treatment may be applied as early as possible if events show it to be necessary. If the wife become pregnant when the husband has a relapse, both parents should be submitted to such treatment as their condition permits, but mercury should always be employed when it can be used with safety. By these precautions the child may sometimes be shielded from syphilis during its maturation in the womb, and the mother also cured of her disease.

Treatment of the Child.—Mercury should always be given. Twice daily he should take a grain of gray powder with a little sugar; while doing this the effect upon the bowels must be watched, and the dose diminished or combined with a grain of compound ipecacuanha powder, if any diarrhoea or colic begin. If the symptoms be not affected by this small quantity of gray powder, the dose may be cautiously increased to two grains; but this amount is very likely to produce purging, and is not often necessary. Mercury applied *externally* to children is less likely to cause diarrhoea than when given internally. It may be done by rubbing the ointment into the skin, or by spreading five to fifteen 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 ; excoriated surfaces and aphthous patches being touched with solution of borax, F. (60).

Management of the Diet.—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, and hand-feeding 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.

CHANCRE.

CHAPTER I.

DESCRIPTION.

CHANCER, or the local contagious sore, is produced by inoculating its discharge on a breach of surface. Often coexistent with syphilis, it may be nevertheless considered distinct from that disease, as it causes no constitutional symptoms. It has no period of incubation ; it begins to irritate immediately, but the activity of its progress varies very much in different persons. It is generally discovered as a minute but well-defined spreading 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, has an irregular form, and sharply cut edges ; the floor is not hardened, but spongy and covered with thick pus. Another variety is very shallow, or prominent with spongy granulations over the surface. The third variety is produced by the changes of acute inflammation and rapid destruction of tissue. The leading characters of the local sore are, suppleness of the base, sharply defined area, irritating and abundant discharge, consecutive inoculation of this discharge and the production of fresh sores ; lastly, activity and liability to spread.

In men the furrow behind the glans penis, in women the fourchette and entry to the vagina are the favorite localities. Ulcers about the neck of the uterus are seldom true chancres, though undoubtedly they are so occasionally. The main complications of chancre are inflammation, rapid sloughing, and slow prolonged phagedena. The first is a consequence of irritation from violent exercise, debauchery, or other cause. The second is produced by the same irritation acting on a very feeble or exhausted condition of the body. The slow phagedena also generally occurs in debilitated persons, but its exciting cause is obscure.

The *diagnosis* of the local from the syphilitic sore depends mainly on the absence of incubation ; the activity of the ulceration ; the tendency to multiplication ; the aspect of the ulcer ; the absence of hardness in the base ; the readiness with which it inflames and spreads ; and the ease with which it is repeated on the same person time after time. Herpes preputialis, fissures and excoriations are all distinguished by their readiness to heal when kept

clean. Mucous patches when ulcerated often closely resemble chancres, but the presence of syphilis elsewhere distinguishes them.

The *prognosis* is good, as this sore usually heals in six or eight weeks, when kept clean and free from irritation, but in much less time if appropriately treated. The phagedenic form may, in exceptional cases, last for months, or even years.

Bubo.—There are two varieties ; one, simple lymphatic abscess from irritation ; the other, the *virulent* bubo, which may be caused either by accidental contamination of the open abscess with matter from the sore, or by absorption from the sore itself, and transmission of the virus along the ducts to the lymphatic 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 irritation of venereal matter without chancre has been supposed possible, but that swelling of the glands is probably due to strain or irritation of that kind. It was called by the French *Bubon d'emblée*. The lymphatic *vessels*, as well as the lymphatic glands, sometimes inflame, and small abscesses may form along their course, leaving tedious sinuses.

CHAPTER II.

TREATMENT.

SEVERE exercise, stimulating diet, wine, and especially venery, must be always avoided. The horizontal position greatly promotes healing of the sore and lessens the risk of bubo. Erections at night may often be prevented by the last meal being a light one.

Local Treatment of the Sores.—All 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 a day, dried, and sprinkled with powdered iodoform, or painted with an ethereal solution, F. (63A), 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 iodoform is not used, weak solution of sub-acetate of lead, F. (21), or black wash, F. (24), may be used to soak the lint with which the sores are dressed. The penis should be supported in a suspensory bandage or handkerchief against the abdomen. If the sore be underneath the foreskin, lint should be so interposed that the skin does not touch it. In women strips of lint should be laid between the labia and in the folds of mucous membrane round the vagina. A pledget of cotton wool dipped in some weak astringent (sub-acetate of lead, sulphate of copper, alum, or borax) may be placed in the entry to the vagina. Œdema of the vulva is best managed by allaying the irritation with frequent washing and by lying down.

Chancre within the Urethra requires salines, and copious diluent draughts. A solution of sulphate of zinc, F. (14), should be injected twice daily into the urethra, into which a shred of lint is also inserted till the chancre

heals. A catheter should be occasionally passed, lest a stricture develop from the cicatrix.

Chancre under the Foreskin with Phimosis must be treated by syringing F. (21 or 22) between the glans and the foreskin several times daily. This is best done with a syringe holding one or two ounces and having a nozzle two inches long. Inflammation with phimosis is treated on p. 49.

If a Chancre slough or become phagedenic, 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 cases of severe hæmorrhage. *Cautistics* are very rarely needed. Ricord's paste, F. (46); 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 phagedena always require tonics, F. (35); 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, cold applications often 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, constant 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 be applied underneath the pad. Again, when buboes have been opened, and are non-virulent, the closure of the abscess is greatly hastened by applying pressure over the dressings.

Vesicants are serviceable at various stages of the bubo's progress, but most advantageous when the glands remain enlarged after the chancre is healed. But if irritants 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. 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. (23), into the sinuses morning and evening.

If the abscess have been converted into several fistulæ, they should be opened freely with a director and bistoury. Afterward the channels must be filled with dry lint until suppuration begins, when the granulating surfaces must be dressed every day with strips of lint, laid in the bottom of the wound. 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; they should be destroyed by caustic, and the wound well poulticed. 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.

GONORRHŒA in males is contagious purulent inflammation of the urethra and its continuations ; but it occasionally attacks other mucous surfaces, the conjunctival and rectal 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 excitement and other causes. Acid discharges in the female, which have not arisen from contagion, may excite urethritis in the male.

The *seat* of urethritis is at first the urethra as far as the fossa navicularis, thence it travels down to the bulbous and membranous parts. It usually proceeds no further, but dies away gradually, leaving patches of the mucous membrane here and there still inflamed. In certain cases it extends to the prostate and cellular tissue about the urethra, to the neck of the bladder and the epididymis.

The *anatomical 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, fine granulations sometimes reaching to the size of warts. After a time induration and contraction of the mucous membrane and submucous tissue may take place, causing stricture and irregularity of the urethra.

Course.—In the first stage itching, redness, slight serous discharge, and smarting on making water are leading symptoms. Presently, swelling, copious yellowish-green discharge, smarting pain in the urethra, and aching in the penis, perinæum, and groins come on. Painful micturition and erections at night are frequently, and general febrile disturbance sometimes, present. Naturally, the disorder subsides by the gradual cessation of the symptoms ; but it is frequently prolonged or brought back to its first intensity by neglecting the precautions necessary to prevent irritation. There are often deviations from the ordinary course in the quantity of discharge and in the severity of the symptoms, which depend on the patient's constitution and habits. The disorder *terminates* in three ways—cessation of pain and discharge ; cessation of pain and diminution of discharge ; and cessation of all the symptoms, except

a minute quantity of serous discharge or *gleet*. This scanty discharge is most commonly caused by chronic inflammation at one or two places of the urethra after acute urethritis. Sometimes a stricture, a small wart, or a relaxed prostate secretes shreds of mucus, and thus causes gleet.

The *diagnosis* between urethritis from contagion and urethritis from other causes is often impossible when none of the complications peculiar to gonorrhœa are present, but this is of minor importance; the treatment is similar for both. Urethral chancre causes a discharge from the meatus, but the ulcer can be seen when the urethra is examined. 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. This discharge always subsides spontaneously in a week or two. Balanitis is easily distinguished by the absence of urethral discharge. It is often present with and caused by gonorrhœa. Abscess of the prostate or perinæum may cause purulent discharge from the urethra; the history and condition of the patient distinguish the origin of the discharge.

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

The Treatment of simple urethritis is abortive and systematic. *Abortive* treatment strives to cut short the disorder with strong caustic injections, or large doses of specifics before acute inflammation arrives; it is rarely successful, and not free from danger. It should never be tried when the congestion and plentiful discharge show that the preliminary stage is past. *Systematic* treatment first removes all sources of irritation, and allays the acute inflammation. Abstinence from alcoholic liquors, sexual excitement, and severe exercise should be insisted on. Cleanliness should be strictly observed, and the penis and testes supported in a suspensory bandage. In the acute stage the bowels should be kept freely open, and F. (43) taken several times daily. Tepid baths are useful. *Painful micturition* is often relieved by immersing the penis in ice-cold water during the act. For the relief of *chordee*, F. (57 or 65) may be prescribed; strychnia in doses of $\frac{3}{10}$ to $\frac{1}{4}$ of a grain twice or thrice daily sometimes prevents it. When all pain on passing water has ceased, when the discharge is thin, white, and much diminished in quantity, and reflex irritation has subsided, the remaining chronic inflammation may be cured by copaiba, F. (20), or cubeb taken internally, or by astringent injections applied locally, F. (5 to 13). But recourse should not be had to these remedies when there is smarting on making water, copious greenish discharge, or dull red congestion of the urethra. Oil of yellow sandal wood, F. (44), much resembles copaiba in its action, and though less trustworthy, is sometimes borne by the stomach when the latter is rejected. It is also less likely to cause erythema balsamica. Besides injections of various kinds, the passage of bougies is a valuable means for stimulating the mucous membrane in cases of gleet. They should be passed often enough to rekindle some of the acuteness of the inflammation, and then laid aside for a time. Stimulant preparations are sometimes spread over their surface to increase their activity, and possess a certain amount of value. In cases of obstinate long-standing

discharge, the patient should be thoroughly examined before any treatment is instituted, and kept some time under observation while his habits are regulated, that the urethra may recover from the influence of any previous unsuccessful treatment. This being done, and the cause of the discharge being ascertained, the treatment should be energetically applied, and continued a sufficient length of time.

COMPLICATIONS.—*Balanitis* is inflammation of the surface of the glans penis; *posthitis*, inflammation of the inner surface of the prepuce; they are common in uncleanly persons with a narrow foreskin, especially when attacked by gonorrhœa. Adhesions of the prepuce to the furrow and neighboring part of the glans are frequently caused by posthitis. The disorder is easily allayed by frequent syringing underneath the foreskin, and relieving constriction if necessary.

In *phimosi*s the free border of the foreskin is too narrow to be drawn back. In *paraphimosi*s the tight foreskin has slipped behind the glans. Both these conditions excite congestion, suppuration, even sloughing of the foreskin. (See page 49.)

Retention of urine may come on at any time; it is due to violent congestion and reflex muscular spasm of the urethra. In the early attacks of gonorrhœa it is generally simply this, but in the later attacks there is usually some permanent stricture also. Sedatives, warm baths, and purgation should be tried, and a soft flexible No. 6 catheter passed without delay if speedy emptying of the bladder be imperative.

Inflammation of the lymphatic glands and vessels is not infrequent; the first causes sympathetic bubo, the latter produces painful enlargement of the lymphatics in the skin of the penis, and also general solid œdema of the cellular tissue; these usually subside in a few days, when the irritation is allayed.

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 and corpora cavernosa sometimes inflame, causing violent pain and irregular erection, and sometimes permanent induration at the inflamed spots.

Abscesses about the urethra result 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 near the bulbous part; in the latter case they make perinæal 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. As soon as they begin to point the abscesses should be opened.

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 sometimes great irritation of the bowel with constant desire to defecate. Prostatitis may run on to abscess, and usually 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 also open into the rectum, the perinæum, or the bladder. If urine or fæces get into the caverns made by the abscess, they keep up much irritation, which sometimes produces a fatal termination, and always greatly defers the recovery. *The treatment* of prostatitis is to allay the irritation by hot baths, fomentations, and opium, while the regular passage of a catheter to relieve the bladder is usually necessary. Abscesses, when fluctuation is evident, must be opened in the rectum, or in the perinæum. The chronic enlargement with gleet discharge is best managed by careful attention to the health, and by counter-irritation continued a long time.

Inflammation of the Mucous Membrane of the Neck of the Bladder is much more frequent than the last complication. 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, alkaline demulcent drinks, warm baths, and opium suppositories.

Epididymitis is the most frequent complication of gonorrhœa. It is likewise often excited by fresh irritation, and is most common in the third and fourth 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 epididymes are attacked with about equal frequency. Now and then both epididymes are inflamed one after the other. The symptoms consist in swelling, violent pain, aching, and extreme tenderness of the epididymis, which continues after the pain has ceased. The scrotum gets tense and shiny, the tunica vaginalis fills with serum (acute hydrocele). If the epididymis 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 a week the symptoms change by the pain ceasing, the tenderness lessening, and the swelling disappearing. Some weeks elapse before the tenderness is all gone, and some months before all swelling subsides, that at the tail of the epididymis being most persistent. When both cords are attacked they may become obstructed, and the patient, while they are impermeable, is sterile. The treatment of epididymitis consists in absolute rest, fomentations and opiates, puncturing the tunica vaginalis when tense, and allaying the febrile disturbance with febrifuge medicines, F. (43). Painting the surface of the scrotum with collodion once daily, in cases of moderate severity, gives great relief. Venesection or leeches may be used if the fever be high and the congestion of the scrotum very great. The enlargement which remains after induration may be left to itself, as it will in time subside, or its departure may be assisted by pressure applied by strap-

ping the testis. Iodide of potass is given internally at the same time to aid the absorption of the exudation.

Gonorrhœa may attack the rectum ; it is obstinate and difficult to cure, requiring very frequent washing and syringing to clear away the discharge as it collects.

Two distinct *disorders of the eye* depend on gonorrhœa. The one is *violent conjunctivitis* caused by the application of matter to the eye (*purulent ophthalmia*) ; the other is a *rheumatoid inflammation* of the lining membrane of the anterior chamber, iris, and sclerotic, which, without obvious cause, attacks certain persons if they have urethritis. The course of the latter disorder is sometimes severe, and generally very painful. It affects both eyes in turn, and is liable to relapse again and again. The gonorrhœal origin of these disorders does not affect their treatment, which is that suitable to purulent ophthalmia and rheumatic iritis respectively.

The joints, synovial bursa, fasciæ, and great nerves are also often the seat of rheumatoid inflammation in those liable to this complication. They much resemble ordinary rheumatism in their course and symptoms, and anti-rheumatic treatment is often most efficacious. Some patients derive no benefit from these medicines, but are relieved by copaiba and cubebs, and medicines having power over urethral discharges.

Acute sympathetic bubo is a not infrequent accompaniment of gonorrhœa.

CHAPTER II.

GONORRHŒA IN WOMAN.

GONORRHŒA in woman consists primarily of contagious catarrhal inflammation of the vulva and vagina, extending to the mucous membranes connected therewith, but with less liability to rheumatoid inflammation of the fibrous tissues frequently seen in males.

Vaginitis is acute and chronic. The inflammation begins at the fore part of the vagina, and extends over the vagina to the uterus, and over the vulva to the urethra. In doing this it sometimes produces abscess of accessory parts, such as Bartholine's gland or the lymphatic glands. In the cervix uteri and the urethra it becomes chronic and very obstinate. When seen by the surgeon the acute stage is frequently over, and the chronic catarrh remains. *The causes* are chiefly contagion ; next, violent sexual indulgence, rape, the irritation of foreign bodies left in the vagina, and certain disorders, such as measles. Chronic catarrh, beside 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 gets dry and bright red ; at first, it secretes thin, transparent mucus, which quickly becomes thick, creamy matter, and copious in quantity. The mucous membrane is more or less

studded with little eminences (*vaginitis granulosa*). This condition is especially well seen if the patient be pregnant. The inflammation subsides by becoming chronic; the pain, swelling, and congestion cease, but the discharge, though less creamy than before, remains plentiful. It is usually secreted in the cul de sac, or in the cervix, or some other part less easily cleared than the anterior part of the vagina. *The diagnosis* of vaginitis depends on the swelling and red congestion, in the acute stage; on the partial congestion, excoriation; and copious discharge, in the chronic stage. The discharge may come from the cervix, or it may come from an abscess in the wall of the vagina; but the introduction of the speculum soon makes this clear. The distinction between vaginitis from contagion and vaginitis from non-specific irritation is often difficult, and sometimes impossible; it generally has a contagious origin if there be pus in the urethra also. *The prognosis* is favorable; sometimes the disorder is cured before it becomes chronic, and dangerous complications are very uncommon. Great difficulty exists in deciding whether a particular discharge is likely to communicate disease. Probably any discharge, however scanty and serous it may be, will be again contagious if increased by accidental irritation.

The treatment during the acute stage consists in allaying irritation by 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 in powder applied, by means of the speculum, to the interior of the vagina. Copaiba and cubebs are useless in treating vaginitis; the only general treatment of any value is regulation of the health and habits of the individual.

COMPLICATIONS.—Among the earliest is *vulvitis*; the labia and clitoris grow red, swell, and a foetid 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 constant, and, according to some, an inevitable consequence of gonorrhœal vaginitis. It is rarely acute enough to cause much irritation. It is marked by itching and smarting at the meatus, which is red and swollen. A purulent or mucous discharge oozes or can be pressed from the passage, unless the patient have just micturated; even then a little can be found in the ducts of two glands which open close to the meatus. This discharge is very persistent, and probably continues a source of contagion for a long time after the discharge from other parts has ceased. Unlike male urethritis, inflammation of the female urethra does not excite cystitis. *The treatment* is frequent baths, weak astringent injection, and the application of caustic, either in a concentrated solution, or by a pencil of solid nitrate of silver.

In *acute inflammation of the cervix and os uteri*, the neck of the uterus is swollen, red, and often excoriated about the os, whence a copious discharge issues, at first clear and viscid, then purulent. This subsides to a thin mucus, and either shortly ceases, or more commonly passes into chronic catarrhal flux, that lasts an indefinite time, and long retains its contagious quality. Acute inflammation of the cervix is best treated by complete rest, warm baths,

warm injections, and saline aperients. In the chronic stage its treatment is that of uterine catarrh.

Metritis, perimetritis, and ovariitis are observed in a certain number of cases, but these are rare consequences of gonorrhœal inflammation of the mucous surfaces, and have no peculiar characters when originating in this way.

ACCESSORY VENEREAL DISORDERS.

IN THE MALE.

Warts occur most frequently in the furrow behind the corona glandis, whence they may extend over the inner prepuce and glans into the meatus urinarius. For treatment, see page 50.

Herpes preputialis is a constitutional disorder, but probably sometimes excited by simple irritation. More often, however, it resembles a neurosis, the attacks being repeated with tolerable regularity, and each being preceded by disordered digestion. The affection manifests itself by circumscribed reddening and itching of the inner surface of the prepuce or glans penis. The red area is beset with a group of minute vesicles, at first colorless, then yellow, which soon break into very shallow sores that heal quickly if the irritation be allayed, but if neglected, they may, like chafings, cause inflammation and even sloughing of the prepuce.

Chafing of the surface of the glans penis and *laceration* of the membrane lining the furrow behind the corona are often mistaken for chancres by the patient; if neglected they cause swelling and phimosis. They are distinguished from chancres by their shallowness, irregular lacerated shape, and by the smarting and itching which follow a few hours after intercourse. Unlike chancres, they quickly lose their irritation if kept clean.

Phimosis.—Persons with a long and narrow prepuce are liable to accidents during intercourse. In one, the *opening* of the prepuce *splits* by being forced back over the distended glans penis; the chinks so produced radiate round the orifice. They are slow to heal, and not unfrequently afford an entry to syphilis.

Paraphimosis is a second accident; the long foreskin is thrust back behind the glans, where the orifice of the prepuce girdles the penis like a tight ring; much swelling and great pain follow, until sloughing of the nipped parts relieves the strangulation.

Besides laceration and constriction, phimosis predisposes to congestion, suppuration, even sloughing of the foreskin, a common occurrence where there is gonorrhœa or chancre within the prepuce.

When the foreskin is inflamed, cold-water dressing and frequent syringing between the glans and the prepuce are necessary. The constricted or brawny parts should be relieved by incisions. The chinks should be occasionally touched with nitrate of silver. The paraphimosis must be removed by draw-

ing the foreskin forward. The best way to do this, is to nip the penis behind the constriction between the fore and middle fingers of both hands, and then compress the swollen glans with the thumbs, till it is small enough to slip through the tight foreskin. If the foreskin has been 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. If the prepuce has been brought forward, and is long and narrow, it should be circumcised; if contracted by scars or chronic inflammation, the margin should be slit up sufficiently to allow it to slip backwards and forwards easily.

Rupture of the Frenum or of the Meatus urinarius is a common accident during intercourse if the frenum be very short. When torn through, the hæmorrhage is sometimes very smart, especially if the meatus be lacerated. A ligature may be used when the artery of the frenum is the bleeding point.

If the *shortness* of the frenum render intercourse painful, it should be divided by passing a narrow straight bistoury underneath it.

Rupture of the Erectile Tissue of the penis, with extravasation of blood, or hæmorrhage from the urethra, sometimes proceeds from violent repeated intercourse; it also occurs during the chordee and distension accompanying acute urethritis. The amount of blood lost in this way may be very great, and cause syncope—even death.

Sometimes the urethra is not ruptured, and the blood then percolates into the corpora cavernosa without escaping by the urethra. The *treatment* consists of complete rest in bed, cold to the perinæum, and ice-cold cloths round the penis. When there is urethral hæmorrhage, a No. 10 silver catheter should be passed, and the penis bandaged firmly round it. Stricture of a troublesome kind is a very frequent result of this accident.

IN THE FEMALE.

Warts do not owe their origin to any specific secretion, but arise from continual moistening of the parts with unhealthy discharges. Thus gonorrhœa and syphilis, especially the former, are frequent causes of warty growths. Warts do not secrete a discharge that will reproduce them on other individuals. Probably a peculiarity of constitution or a certain predisposition is necessary, as well as the exciting causes, to produce warts. The external genitals are their most frequent seats. Small warts may be snipped off with scissors, and the bases cauterized with lunar caustic. For large masses, the écraseur, or galvanic wire loop, should be used. Caustics are very useful. Nitric acid and glacial acetic acid are both very manageable. Chromic acid is more powerful than either of the two preceding; when used undiluted, it destroys the tissue instantaneously, but causes far more violent pain than nitric acid. The strong liquor plumbi subacetatis, applied daily to the warts, sometimes causes them to wither slowly, and is painless. But whatever application is used it is essential that the surfaces be kept dry.

Abscess in Bartholine's Gland may be distinguished from abscess in the cellular tissue of the labium majus, by its being limited to the furrow between the labia, and by its pointing on the inner side of the nymphæ, or in the furrow.

The *treatment* consists in warm fomentations and poultices. If the abscess point between the labia, it should be freely opened. The matter is often evacuated through the duct; it usually does not cause very much pain, and may then be allowed to open spontaneously.

Phlegmonous abscess in the labium is caused by violent intercourse, or injuries of the labia from other causes. It also very commonly follows the irritation of chancres, follicular inflammation, gonorrhœa, or neglect of cleanliness. The matter should always be let out as soon as fluctuation can be detected.

Inflammation of the Follicles of the Vulva begins with the formation of small projections on the nymphæ, prepuce of the clitoris, and both surfaces of the labia. The little eminences in a day or two become pustules, which break and leave small ulcers with sharply cut edges. In a short time, if the irritation be allayed by rest and cleanliness, they heal.

Ulcers of the Os Uteri are commonly produced in the course of inflammation of the mucous membrane of the cervix; hence they are a very frequent venereal complaint.

There are three varieties, the erosion, the indolent granular ulcer, and the fungating ulcer.

The *erosion* consists in denudation of the epithelium of one or both lips of the os tinæ. A glairy discharge trickles from the os, and very commonly there is also a purulent discharge from the vagina.

At this stage the erosion is easily cured, but if left, it soon becomes an indolent ulcer. In *treating* it, the inflammation or irritation of the mucous membrane must be allayed by frequent injections of warm water or weak solution of borax, F. (19), and the congestion removed by rest, simple diet, and moderate purgation. If the cervix be tender to the touch, with pain in the sacrum or groins, four or five leeches should be applied. In five or six days, when the irritation has been subdued, the injection should be made astringent, F. (15 to 18). The speculum should be passed, and the whole surface of the cervix painted with F. (59). When this is done, a plug of cotton wool should be inserted into the vagina, to prevent the walls from chafing the eroded surface. The most important part of the treatment consists in the regular use of injections twice or thrice daily, and the application, every four or five days, of a strong astringent to the cervix. The general health must also be promoted by plain diet, tonics, fresh air, and moderate exercise on foot, with much rest in the horizontal position, regular evacuation of the bowels, and abstention from sexual intercourse.

The *granular ulcer* forms when the disorder which produced the erosion is allowed to run on unchecked. It often extends into the interior of the cervix. The uterus is sometimes acutely inflamed, but more often is hard and enlarged from chronic congestion. In cases of long standing the ulcer deepens into a considerable cavity, or puckers the entry with cicatrices where it partially heals.

The fungating ulcer is a variety of the long-standing ulcer, and is formed by the granulations growing to a larger size. They bleed frequently, especially at the menstrual period.

Besides the general treatment and astringent injections recommended for erosion, the granular and fungating sores often require the regular application of caustic. Solid nitrate of silver may be gently laid on once or twice a week according to the effect produced. When nitrate of silver has no effect on the sore, the Vienna paste or the acid nitrate of mercury may be applied; if strong caustics be used, the excess should always be washed away by injecting a stream of water through the speculum. There is always risk of causing metritis by caustic applications, especially when they are used near the menstrual period. Hence they must be adopted only when the ulcer has no tendency to heal.

Chronic Uterine Catarrh or Leucorrhœa may be the result of gonorrhœa extending to the uterus, or produced by the congestion accompanying excessive venereal indulgence. The most important *symptom* is a persistent viscid discharge like white of egg, producing little irritation of the parts over which it flows, wherein it differs from vaginal discharges, which are very often irritating; the chemical reaction is alkaline, that of the vaginal discharge being acid. In venereal leucorrhœa, the vagina secretes part of the discharge, which, when it reaches the external parts, is whitish and puriform. Puriform matter comes also from the interior of the uterus when the lining membrane is inflamed. The inflamed cervix is large, livid red, and hard; the os is patulous, with firm margins.

The most reliable means for checking the discharge from the cervix is to pass into it a stick of solid nitrate of silver, once weekly. After cauterization glycerine should be applied to the cervix. The regular use of astringent injections is most important, together with the general treatment previously recommended. The chronic congestion is benefited by 20 or 30 drops of the liquid extract of ergot, with or without the 24th of a grain of strychnia, in water or orange-peel infusion twice or thrice daily.

FORMULÆ.

THE MERCURIAL VAPOR 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 volatilized, the second contains water. Beneath these is a spirit lamp. A blanket or waterproof cloak is needed to enclose the patient, who sits naked, on a wooden-seated chair, under 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 volatilization.

GARGLES.

2

Alum.....	120 grains
Water.....	8 fluid ounces

Dissolve.

3

Chlorate of Potash..	80 grains
Water.....	8 fluid ounces

Dissolve.

4

Perchloride of Mercury.....	4 to 8 grains
Dilute Hydrochloric Acid.....	24 minims
Glycerine.....	$\frac{1}{2}$ fluid ounce
Water to.....	8 fluid ounces

Dissolve.

Used in syphilitic ulceration of the throat.

INJECTIONS.

Before prescribing an injection, the patient should always be instructed in the method of using it. The syringe should be made of glass, and should be short and wide, that one hand may work it easily. The nozzle, half an inch in length, should be bulbous at the extremity. When the injection is to be used, the patient makes water to clear out the discharge that has collected in the passage. This precaution taken, the patient inserts the nozzle into the canal, and pinches the

penis with the thumb and fore-finger of the left hand *on each side* of the nozzle, *not above and below*. He then depresses the piston with the right thumb until the injection is thrown in. Unless the discharge come from the prostatic part, it is not necessary to inject more than about two teaspoonfuls at a time, but that much should be retained about two minutes before it is allowed to escape; if it has properly distended the passage, the fluid returns with a spirt from the meatus.

5

Sulphate of Zinc.....	20 grains
Extract of Belladonna.....	60 grains
Mucilage.....	$\frac{1}{2}$ fluid ounce
Distilled Water to.....	8 fluid ounces

Dissolve.

Begin with two parts of water to one of injection, and gradually lessen the quantity of water. This is suitable to begin with when some tenderness remains.

6

Nitrate of Silver.....	4 grains
Distilled Water.....	8 fluid ounces

Dissolve.

7

Sulphate of Zinc.....	8 to 40 grains
Distilled Water.....	8 fluid ounces

Dissolve.

8

Alum.....	} of each 10 grains
Sulphate of Zinc.....	
Sulphate of Iron.....	
Sulphate of Copper.....	
Distilled Water.....	8 fluid ounces

Dissolve.

This injection is to be diluted, at first with three times its bulk of water, and the strength gradually increased.

Never to be used if the patient be not accustomed to injections.

9

Subnitrate of Bismuth.....	60 grains
Mucilage of Tragacanth.....	2 fluid drachms
Glycerine.....	6 fluid drachms
Distilled Water to.....	8 fluid ounces

Mix.

Used in old gleet.

10

Tincture of Perchloride of Iron.....	40 to 160 minims
Distilled Water.....	8 fluid ounces

Mix.

Commence with the weaker solution; and increase the strength gradually.

11

Subacetate of Lead..... 8 to 40 grains
 Distilled Water..... 8 fluid ounces
 Dissolve.

12

Glycerine of Tannic Acid..... 2 fluid ounces
 Distilled Water..... 8 fluid ounces
 Mix.

13

Alum..... 8 to 40 grains
 Distilled Water..... 8 fluid ounces
 Dissolve.

14

Sulphate of Zinc..... 4 grains
 Distilled Water..... 8 fluid ounces
 Dissolve.

INJECTIONS FOR THE VAGINA.

15 to 19

Alum.....	} 60 grains
or Sulphate of Zinc.....	
or Subacetate of Lead.....	
or Tannic Acid.....	
or Borax.....	
Water.....	20 fluid ounces

Dissolve.

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

Used in vaginitis, ulcers of the cervix, chronic uterine catarrh, &c.

COPAIBA.

20

Copaiba..... 20 minims
 Essence of Cinnamon..... 20 minims
 Mucilage of Acacia..... 1 fluid drachm
 Water to..... 1 fluid ounce
 Mix.

To be taken three times a day.

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

LOTIONS.

21

Solution of Subacetate of Lead..... 1 fluid drachm
 Distilled Water to..... 10 fluid ounces
 Mix.

22

Carbolic Acid..... 2 fluid drachms
 Distilled Water to..... 10 fluid ounces
 Mix.

23

Sulphate of Zinc..... 1 to 3 grains
 Compound Tincture of Lavender..... 5 minims
 Distilled Water to..... 1 fluid ounce
 Mix.

Useful as a dressing for the initial lesion of syphilis, &c.

24

Calomel..... 15 grains
 Lime Water..... 5 fluid ounces
 Mix.

(Black Wash). Used for indolent sores.

25

Corrosive Sublimate..... 9 grains
 Lime Water..... 5 fluid ounces
 Mix.

(Yellow Wash). Used for indolent sores.

26

Solution of Chlorinated Soda..... $\frac{1}{4}$ to 1 fluid drachm
 Water to..... 1 fluid ounce
 Mix.

May be used as a gargle.

27

Solution of Permanganate of Potash..... 1 fluid drachm
 Water to..... 5 fluid ounces
 Mix.

28

Tannic Acid..... 5 grains
 Water..... 1 fluid ounce
 Dissolve.

29

Tartarated Iron..... 10 to 30 grains
 Distilled Water..... 1 fluid ounce
 Dissolve.

30

Tincture of Cantharides..... $\frac{1}{4}$ fluid ounce
 Glycerine..... $\frac{1}{4}$ fluid ounce
 Spirit of Rosemary..... 1 fluid ounce
 Rose Water to..... 8 fluid ounces
 Mix.

To be used with a sponge night and morning.

31

Sulphate of Zinc.....	8 grains
Water.....	8 fluid ounces

Dissolve.

32

Solution of Sulphate of Atropia.....	60 minims
Distilled Water.....	4 fluid ounces

Mix.

Used in iritis and corneitis.

If there be conjunctivitis, 8 to 10 grains of sulphate of zinc may be added.

MIXTURES.

33

Quinine.....	1 to 2 grains
Sulphate of Iron.....	1 grain
Dilute Nitric Acid.....	4 minims
Infusion of Quassia to.....	1 fluid ounce

Mix.

To be taken three times a day.

34

Tincture of Perchloride of Iron.....	15 minims
Glycerine.....	20 minims
Spirit of Chloroform.....	10 minims
Water to.....	1 fluid ounce

Mix.

To be taken three times a day.

Tonic mixtures useful in syphilis and general debility.

35

Carbonate of Ammonia.....	5 to 8 grains
Tincture of Opium.....	5 to 10 minims
Spirit of Chloroform.....	20 minims
Decoction of Cinchona to.....	1 fluid ounce

Mix.

To be taken three or four times a day.

A useful tonic in sloughing sores, &c.

36

Red Iodide of Mercury.....	$\frac{1}{8}$ to $\frac{1}{4}$ grain
Iodide of Potassium.....	3 to 5 grains
Compound Tincture of Cardamoms.....	20 minims
Water to.....	1 fluid ounce

Mix.

To be taken twice or thrice daily.

Useful in relapses of the scaly eruptions.

37

Solution of Perchloride of Mercury.....	1 fluid drachm
Solution of Perchloride of Iron.....	15 minims
Spirit of Chloroform.....	15 minims
Infusion of Quassia to.....	1 fluid ounce

Mix.

To be taken three times a day.

A useful mode of giving mercury, where there is great debility.

38

Iodide of Potassium.....	2 to 5 grs. and upwards
Aromatic Spirit of Ammonia.....	20 minims
Water to.....	1 fluid ounce

Mix.

Infusion of quassia, decoction of cinchona, liquid extract of sarsaparilla, &c., may be used instead of water, according to circumstances. The quantity of iodide should be gradually increased about every third day, and the dose taken in half a pint of water.

39

Iodide of Potassium.....	2 to 5 grs. and upwards
Bromide of Potassium.....	5 grains and upwards
Carbonate of Ammonia.....	5 grains
Spirit of Chloroform.....	15 minims
Water to.....	1 fluid ounce

Mix.

To be taken three times a day.

Used in syphilitic affections of the brain and nerves.

40

Chlorate of Potass.....	10 to 15 grains
Dilute Nitric Acid.....	10 to 15 minims
Decoction of Cinchona to.....	1 fluid ounce

Mix.

To be taken four or five times daily.

Used in salivation, &c.

41

Tartarated Iron.....	5 to 20 grains
Iodide of Potassium.....	5 grains and upwards
Spirit of Chloroform.....	15 minims
Infusion of Quassia to.....	1 fluid ounce

Mix.

To be taken three times a day.

42

Perchloride of Mercury.....	$\frac{1}{4}$ to $\frac{1}{2}$ grain
Iodide of Potassium.....	3 grains
Infusion of Quassia to.....	1 fluid ounce

Mix.

To be taken three times a day.

43

Bicarbonate or Citrate of Potash.....	10 to 20 grains
Nitrate of Potash.....	3 to 5 grains
Ether.....	5 to 10 minims
Tincture of Henbane.....	$\frac{1}{2}$ to 1 fluid drachm
Camphor Water to.....	$1\frac{1}{2}$ fluid ounce

Mix.

To be taken every four or six hours.

Used in the acute stage of gonorrhœa.

In epididymitis $\frac{1}{17}$ to $\frac{1}{4}$ grain of tartarated antimony should be added.

44

Oil of Yellow Sandal Wood.....	1 fluid ounce
Rectified Spirit.....	2 fluid ounces
Oil of Cinnamon.....	25 minims

Mix.

1 or 2 fluid drachms three times a day.

Used in gonorrhœa.

OINTMENT.

45

Calomel.....	20 grains
Vaseline or Prepared Lard.....	1 ounce

Mix.

Vaseline is better than lard as a basis for ointments, as it does not turn rancid.

PASTE.

46

Strongest Sulphuric Acid (Oil of Vitriol).....	} of each a sufficiency
Willow Charcoal.....	

Mix.

This is known as "Ricord's paste." Nordhausen oil of vitriol is the best, if obtainable.

PESSARY.

47

Mercurial Ointment.....	10 grains
Cocoa butter.....	1 drachm

Mix.

Form into a suitable shape for introduction into the vagina.

PILLS.

48

Quinine.....	1 grain
Dried Sulphate of Iron.....	1 grain
Dried Carbonate of Soda.....	2 grains
Extract of Rhubarb.....	1 grain

Mix. Make a pill.

To be taken twice or three times a day.

49

Green Iodide of Mercury..... $\frac{1}{2}$ to 1 grain
 Extract of Henbane..... 2 grains
 Make a pill.

To be taken once or twice a day.

50

Mercury with Chalk..... 2 to 3 grains
 Compound Ipecacuanha Powder..... 2 grains
 Make a pill or a powder.

To be taken once or twice daily.

51

Mercurial Pill..... 1 grain
 Extract of Gentian..... 1 grain
 Make a pill.

To be taken with every meal.

52

Mercurial Pill 5 grains
 Powdered Opium..... $\frac{1}{2}$ to $\frac{1}{4}$ grain
 Make a pill.

To be taken once, twice, or thrice daily.

53

Green Iodide of Mercury..... 1 grain
 Extract of Opium..... $\frac{1}{2}$ grain
 Extract of Logwood..... sufficient
 Make a pill.

To be taken once or twice a day. Useful when No. 49 purges.

54

Calomel..... 1 grain
 Powdered Opium..... $\frac{1}{2}$ grain
 Make a pill.

To be taken once or twice a day.

55

Perchloride of Mercury..... 1 grain
 Sugar of Milk..... a sufficiency
 Make 10 pills. Varnish.

One twice or three times a day.

56

Bicyanide of Mercury..... 1 grain
 Sugar of Milk..... a sufficiency
 Make 10 pills, Varnish.

One twice or three times a day.

57

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

Make a pill.

To be taken at bedtime.

Used for Chordee.

57A

Iodoform..... $1\frac{1}{2}$ grain
 Extract of Gentian..... a sufficiency

Make a pill.

To be taken at first three times daily. Gradually increase the frequency of the dose.

POWDER.

58

Calomel..... } equal parts
 Magnesia..... }

Mix.

SOLUTIONS.

59

Nitrate of Silver..... 20 grains
 Distilled Water..... 1 fluid ounce

Dissolve.

60

Borax..... 60 grains
 Glycerine..... 2 fluid drachms
 Distilled Water..... 10 fluid drachms

Dissolve.

Used for excoriations and aphthous patches.

61

Ragazzoni's Solution for Hypodermic Injection.

Red Iodide of Mercury..... 4 grains
 Distilled Water to..... 256 minims
 Iodide of Sodium..... sufficient to dissolve the
 Iodide of Mercury

Dose—10 minims.

62

Sulphate of Atropine..... 2 grains
 Distilled Water..... 1 fluid ounce

Dissolve.

63

Nitrate of Silver..... 120 grains
 Distilled Water..... 1 fluid ounce

Dissoive.

63A

Iodoform.....	20 grains
Ether.....	2 fluid drachms
Dissolve.	

SUPPOSITORIES.

64

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

65

Morphia	$\frac{1}{2}$ to $\frac{1}{4}$ grain
Cocoa Butter.....	10 grains
Mix.	

To be passed into the rectum at bedtime.
Used for Chordee, etc.









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