

unaccompanied by suppuration or ulceration, in which the osseous substance is found wanting in stellate or foveolated pits which may enlarge in the line of furrows representing the Haversian canals. These parts are surrounded by hyperostosis. These and similar depressions in the osseous substances, when osteoid growth has ceased centrally and is actively progressing at the periphery, may be regarded as syphilitic cicatrices of bone. The meninges, periosteum, and integument may participate in the formation of such cicatrices, resulting finally in the production of a uniform, thin, contracted, whitish or grayish fibrous tissue, unprovided with vessels.

The various bones of the skeleton are in different degrees subject to the several changes described above. The vault of the cranium is particularly liable, in both external and internal tables, to exhibit single or multiple, circumscribed osseous changes, as also are the sternum, the clavicle, the ribs, and particularly the tibiae. The substernal and similar pains, noted so frequently as precocious phenomena in the early periods of the disease, are probably associated with transitory osteoperiosteal hyperemia. In the later periods the nodes that form, whether inflammatory or gummatous in type, are characterized by the same severe nocturnal exaggeration of the pain they excite and by marked localized tenderness. Some of the consequences resulting from the pressure induced by intracranial nodes have been described in the paragraphs devoted to the phenomena of nervous syphilis. Gummata of the frontal and temporal bones, forming firm projecting tumors, are at times so conspicuous as to produce marked deformity. Other bones besides those named, *e.g.*, the radius, ulna, femur, maxillary, and, indeed, any part of the skeleton, may become the seat of these lesions. The treatment is that of syphilis in general, more particularly in its advanced stage. The remarkable effect of the potassic iodide upon many of these lesions is one of the demonstrations, which even the most sceptical are compelled to accept, of the signal efficacy of an ingested drug upon a neoplasm defying local therapy. The dose is to be pushed, to secure marked relief, to any required point precisely as indicated above in the management of nervous symptoms. Indeed, as will be gathered from what has preceded, the same treatment is often urgently demanded in the same patient, at the same moment, for relief of grave nervous complications depending solely upon syphilitic osseous disease. Locally, the mercurial ointments, plasters, and oleates, with occasional use of anodynes, fill an important part.

HEREDITARY SYPHILIS.—This form of the disease, the only one not known to originate by an initial sclerosis, is also termed congenital and infantile syphilis. The syphilis of infants, acquired by accidental or intentional transmission after birth, is practically that of acquired syphilis of adults, the differences being chiefly due to the tender skin of the young patient and its extreme liability to nutritional disorders.

Hereditary syphilis is the disease transmitted by inheritance from one or both progenitors to a second generation. Evidences of such transmission to the third generation are extremely rare. The more active the disease in the progenitors, the greater the chances of infection of the offspring.

In inherited, no less than in acquired, syphilis pathologists have recognized micro-organisms which have been claimed to be effective in the evolution of the disease. Doutrelepon, Kassowitz, Hochsinger, Kalisko, and Chatzen have both detected and failed to detect streptococci in the viscera of children affected with hereditary lues, as also in the skin, mucous surfaces, bones, and liver. In some instances the lymph-channels have been found choked with micro-organisms of this kind, which fact has suggested to Chatzen that the cachexia of some patients in this category was a streptococcal septicæmia.

Relative Influence of the Parents in the Transmission of the Disease.—The father alone, when the victim of active constitutional syphilis, is capable of transmitting

the disease to his child without infection of the mother. It is probable that he does not possess this power because the disease is actively displayed in his own person by constitutional symptoms. It is certain that this power is greatly weakened while he is under the influence of mercury; is weakened and regained during the respective periods of repose and activity so commonly observed in the disease; and is finally extinguished by time. It remains to be admitted that the cases in which the father alone is thus responsible for syphilis in the second generation are far fewer than those in which the mother alone is thus responsible; and that the power of such transmissibility is positively denied to the father by the followers of Cullerier, Oewre, and others.

The mother alone, the father being unaffected, may transmit syphilis to the child, if she be the victim of active constitutional disease. If conception occur later than the twentieth day after the appearance of the earliest syphiloderm, the product of such conception is almost certainly doomed to destruction, abortion of the ovum commonly following from the third to the seventh month. The woman, however, profoundly syphilitic, may abort or miscarry in consequence of the cachectic state to which she is reduced by syphilis, and may thus throw off, as in any cachectic condition, the unaffected germ. Again, the child may escape entirely by the operation of that inscrutable law which ever and again protects the offspring from the vices and errors of the parents. Lastly, in a series of pregnancies, abortions may be followed by miscarriages; the latter by stillbirths at term; then by viable infants exhibiting symptoms of syphilis before the fourth month of life; and, lastly, by the birth of children in whom syphilis can never be recognized, the power of transmission being weakened till it is wholly lost in the process of time.

If the mother be affected after conception, it is possible that she cannot convey her disease to the child. She may abort or miscarry in consequence of the anæmia induced by her own disease, but it is improbable that, either in the first or latter half of pregnancy (both periods have been claimed as those of special danger), the virus can be transmitted through the utero-placental circulation. Cases have been cited in support of both views as to the possibility and impossibility of such transmission, the cases cited in support of the affirmative view being in the main defective, by reason of failure to demonstrate both perfect immunity of the father and positive syphilis of the child.

A healthy mother may bear a syphilitic child. On this point also there has been much division of authority. The larger number of all mothers who bear syphilitic children are themselves unquestionably syphilitic. But the possibility that a syphilitic child may be infected by inheritance from the father alone, the mother remaining sound (precisely as is the case when the child is sound and the mother infected), is demonstrated by numerous records. In this country the facts set forth abroad by Kassowitz and others have been substantiated by reported cases. The well-known law of Colles is urged in support of such transmission. That law formulates a well-known clinical fact, *viz.*, that the mother of a syphilitic child is never infected at the breast by her offspring—the secretions of whose diseased mouth are infective for all healthy persons. A few exceptions are reported to this law, so few and so inconclusive as rather more fully to establish its general applicability. It is probable that the system of the mother, after the bearing of such children, is so modified as to render her incapable of receiving the disease. If the sound child be infected at the moment of birth by direct contact with recently developed, secreting lesions existing upon any part of the external genitals of the mother (an accident reported in a few cases), the result is acquired infantile, and not inherited, syphilis.

The clinical symptoms of hereditary syphilis are first the death of ovum or fetus. These products of conception are then ushered into the world either undistinguishable from the dead products of pregnancies where no

syphilis has interfered; or macerated, the epidermis being readily separable from the corium, which is deeply congested, or, for the reason first named, raised into bullæ, and the viscera in various ways are profoundly altered. In a second list are to be classed still-births, and the birth of children surviving but a brief time. These may be apparently unaffected by disease; or covered, in various degrees, with bullous lesions produced by passive exudation of fluids elevating the loosened epidermis from the corium; or they suffer from visceral changes. In a third category may be named children who survive for various periods to maturity. One-third of all are thought, however, to perish without attaining that development. Many perish before the second month; those who survive commonly exhibit the symptoms of inherited syphilis in the same period, even if no signs are apparent at birth. Hereditary syphilis is rarely deferred in its manifestations after the fourth month. Cases reported as of late inherited syphilis, where the first symptoms of that disease were manifested at the period of puberty, for example, are regarded by most experts with suspicion.

The *placenta* may be the seat of a diffuse or circumscribed gummatous infiltration. The two may concur. In such cases the syphiloma is characterized as usual by the firm, external, fibrous, grayish-tinted layers surrounding a softer, yellowish central mass. Hydramnios is also counted among the possible syphilitic changes of pregnancy.

The *skin* of the victim of inherited syphilis is subject to many changes, resembling, for the most part, those recognized in the acquired form of the disease. It is commonly seen to be either flaccid and wrinkled, or tightly stretched over the bones as if deprived of its panniculus adiposus. In this way the characteristic little-old-man and little-old-woman appearance of the syphilitic infant is produced. The skin has, moreover, a not less constant and characteristic sallow, yellowish, earthy hue. Manifestly the nutrition is profoundly impaired, and the child exhibits a series of symptoms, such as vomiting, diarrhoea, etc., which indicate that not the skin alone but other organs are participating in the disease. As a matter of practical moment, it is well for the practitioner to remember that a healthy-looking, well-nourished child, six months and more of age, without pulmonary or gastro-intestinal disorder and no signs of disease save a suspicious-looking eruption upon the skin, is probably *not* the victim of inherited syphilis.

The macular or erythematous rash (roseola) appears usually over the belly, face, neck, palms, extremities, and other parts, in the form of roundish or oval-shaped macules, from the size of a split pea to that of a finger nail, of characteristic copper-and-reddish shade, soon refusing to yield under pressure, often seen as the earliest cutaneous symptom of the disease. The spots may enlarge by multiplication or coalescence; may, in cases, become elevated or covered with scales; or may undergo fissure.

Papules, mucous plaques, mucous patches (of the skin and mucous membranes), and condylomata lata are all phases of one and the same process of proliferation in hereditary syphilis. The most common of all is the occurrence of flattened papules or patches in the nasal cavity, furnishing a serous discharge which rapidly becomes purulent or hemorrhagic in type, and which by desiccation soon blocks up with crusts the nasal passages. As a consequence a characteristic "snuffles" follows, the child abandoning the nipple to get breath, and even in sleep respiring with a suspicious snore. Specific coryzas of this sort may progress to ulceration or osseous necrosis. Similar roundish or oval-shaped patches, or (after confluence) large sheets of involved mucous surface, may be recognized in the mouth, furnishing a highly contagious secretion. In this way the tongue, lips, gums, and fauces may be involved, and the child may be rendered incapable of seizing the nipple with the mouth. At the angles of the mouth, also, on the muco-cutaneous surface, flat papules, condylomata, or secreting patches may

conceal the natural outlines of the parts, be extensively crust-covered, or even superficially or deeply ulcerated.

Over the general surface of the body, small or large, flat or, more rarely, acuminate papules, copper-colored and reddish in hue, smooth or scaling, symmetrical, and generalized or limited to a single region, may be conspicuous. They may coalesce, furnish a patch of infiltration, and even extensively ulcerate. The most frequent manifestations of this type, next to the nasal lesions accompanied by "snuffles," are the condylomata about the anus, from the size of a pea to that of an egg and larger, flattened, whitish or reddish lesions, secreting, elevated, and distinctly circumscribed.

Vesicles, isolated or confluent, conical or flattened, from the size of a pinhead to that of a split pea, may also spring from macules or papules, rest upon a brownish and reddish base, and be filled with serum or a sero-purulent fluid. They are rare lesions. Pustules, from the size of a pinhead to that of a split pea, are more often seen, with and without a previous or concurrent evolution of vesicles or papules; often as a metamorphosis of the latter. The skin thus affected is commonly infiltrated, purplish, and covered with brownish or greenish crusts. Beneath these may be simply excoriation or ulceration. The genital region, face, scalp, and lower extremities may be involved; rarely the entire surface of the body. The scarring which results is not conspicuous.

Bullæ are grave and unfortunately common symptoms of inherited syphilis. They may, as indicated above, be conspicuous at birth, single or multiple as to number; or develop later as wine-colored, circumscribed patches of integument; first pea-sized, later as large as an egg, an orange, or a cocoanut, filled with serous, lactescent, or hemorrhagic contents. The palms and soles are frequently involved. The areola is violaceous, often infiltrated and raised. The brownish crusts cover ulcers with a foul, hemorrhagic, or diphtheritic floor. Death usually ensues, when the eruption is at all generalized, in the course of a few days. Furuncles beginning as circumscribed cutaneous or subcutaneous and indolent nodules, from the size of a pea to that of a nut, may be in some cases so numerous as to constitute a characteristic and even symmetrical eruption. They may, after a typical suppuration, discharge a core by sloughing, or break down into conical ulcers of crateriform shape.

Tubercles and gummata may observe almost the same cycle. They also begin as roundish or irregularly knobbed, usually subcutaneous nodules, which break down, furnish an irritating, semipurulent, or serous discharge, and finally result in ulcers of the typical aspect already described as of occurrence in the acquired forms of syphilis. These ulcers may also follow the less circumscribed gummatous infiltrations of the skin and subcutaneous tissues.

Many of the grave cases resulting in profound destruction of tissue about the face (eyes, nose, lips, jaws, etc.), illustrated in the works of the best authors on the subject of hereditary syphilis, originate in gummata, the ulcerative processes in or beneath the skin, spreading thence to muscles, fascia, periosteum, and bone.

The *larynx*, *trachea*, and *neighboring parts* may be, in early inherited disease, the seat of ulcerations resulting in the production of stenosis, cicatrization, and bridges stretched between adjacent walls, so as to interfere with the function of the organ implicated. The late forms are described by Fournier as diffuse hyperplastic, circumscribed gummatous, and sclero-gummatous—the last named a combination of other forms. These may be serious in consequence of the results recognized in acquired disease, *viz.*, production of (chiefly laryngeal) dyspnoea, glottic spasm, acute oedema, and sudden death. Sclerosed masses, subsequently exhibiting a central yellowish softening, have been recognized by Lebert and others in the lungs of children dead of inherited syphilis. These are believed to be gummata.

The mucous lining of the *alimentary canal* may be the seat of changes similar to those observed in the exposed

mucous surfaces of the subjects of the disease. Circumscribed hyperemia and even indurated hyperplastic, as well as ulcerative, patches have been recognized about the solitary and agminated glands. The liver may be, after the occurrence of specific changes in the walls of its vessels, hypertrophied, dense, and resisting; or the seat of pedunculated tumors, or of diffuse or circumscribed parenchymatous gummata. These may be miliary or nut-sized, and surrounded by the usual fibroplastic envelope. The spleen is probably always involved in the child affected with inherited syphilis. It may be the seat of a partial or general perisplenitis, capsular or subcapsular in situation; is always greatly increased in size and weight; and may undergo later, under treatment, reduction to its normal size, or, in other cases, lardaceous metamorphosis. The increase in size and weight which has been noticed in the pancreas is different, in that it seems to be accompanied by a sclerosis due to hypertrophy of the interstitial connective tissue.

The *suprarenal capsules* may be involved in a partial or complete pericapsulitis, as also in a parenchymatous deposit of miliary gummata. Fatty, colloid, and gelatiniform degeneration may be observed as a result of these morbid changes in both capsule and substance proper. The *kidney* has been found enlarged and also containing one or many miliary, whitish or yellowish, circumscribed gummata, or diffuse infiltrations. The origin of these lesions has been traced to proliferative changes in the connective-tissue stroma of the organ. Here, too, colloid and fatty degeneration has ensued—in rare cases, ulcerative destruction. More often than is generally taught there is serious involvement of one or both *testes* in male patients, the disorder beginning with an indolent tumefaction of the testis proper (the epididymis being usually spared), smooth, lobulated, and accompanied or not by moderate hydrocele and scrotal engorgement. Fournier calls attention to the discovery, in patients exhibiting tardy symptoms of inherited disease, of small, densely indurated testicles, either arrested in development or the fruit of the gummatous changes wrought in earlier periods of the disease. It is possible that the ovaries may be similarly involved (Panot).

The *hair* and *nails* are affected in hereditary as in acquired syphilis, chiefly after involvement of the tissues on which they depend for nutrition and support. In this way patches of alopecia become visible in the scalp. The nails are surrounded by a ring of purplish infiltration; or papulo-pustules, degenerating into ulcers, undermine the matrix and possibly finish with loss of the nail and formation of a cicatrix. The deformity of the distal phalanx in these cases is strikingly characteristic, presenting as it does a livid club-like enlargement, often both tender and painful, bearing, usually on one side only, a semilunar ulcer with sero-purulent secretion, foul base, and distorted or displaced nail. The nail-substance in these cases may be friable, eroded, "worm-eaten" in appearance, frayed, or laterally ridged and furrowed.

The changes so strikingly characteristic of inherited syphilis in the *eye* (keratitis, etc.), *ear* (remediless deafness of late inherited syphilis), and *teeth* (Hutchinson's changes) have already been described. A group of symptoms less classical and constant are puriform dépotés in the *thymus gland*, supposed to be abscesses (Dubois); glandular abscesses due to the irritation of neighboring cutaneous lesions (e.g., in the neck, when associated with scalp or mouth disease); hæmophilia, or hemorrhagic symptoms appreciable at birth or soon after, in the cutaneous or mucous surfaces, probably due in greater measure to the cachexia of the disease than to specific changes; stenosis of veins and arteries (perhaps associated with gummatous changes in the vascular wall similar to those occurring in the endarteritis obliterans of acquired syphilis); and fusiform swellings of the synovial sheaths over the metacarpal bones.

The affections of the *bones* in hereditary syphilis have been exhaustively studied by Wegner, Waldeyer, Parrot, Taylor, Fournier, and others. They are among the most common of all the symptoms of the disease, being next

in order to the ocular changes. Many of the phenomena long ascribed to rickets are to-day referred to inherited syphilis. Osteochondritis usually affects the diaphyso-epiphyseal extremity of the forearm, leg, arm, or thigh, but all the bones may be involved in the newly born infant, and this as the sole manifestation of the disease, or in conjunction with skin and other lesions. A partial or complete annular swelling, smooth, irregular, or ridged, is then found, of insidious or rapid development, encircling the extremity of the bone (distal extremity of ulna, sternal extremity of clavicle). There may be articular effusions in the contiguous joint. The swelling may disappear under treatment, or degenerate by ulceration as in gummata, resulting in loosening, separation, or destruction of the epiphysis or cartilage; or ultimately result in death by exhaustion. The bone may be shortened as a result, or invested with a thickened periosteum. The pathological changes may be described briefly as due to proliferation of the cartilage cells, with mamelonnation of the epiphyseal surface and calcification of the osteoid processes. Periosteal and perichondrial thickenings follow, conjointly with retarded osteogenesis at some points.

Osteoperiostitis is a later bone-symptom of inherited syphilis, affecting predominantly the tibia, but also the ulna, radius, cranial, and other bones, often more than one bone in one subject of the disease, and then at times symmetrically. The hyperostosis resulting may distort the tibia so as to produce the so-called "sabre-blade" deformity, its voluminous mass forming a curve, with an anterior or lateral convexity, painful, tender, and indolent of development; or it may result in characteristic multiple cranial hyperostoses of the temporal and frontal regions. All these forms may result in necrosis, ulceration of bone, and formation of fistulous tracts through which sequestra may be removed.

In gummatous osteomyelitis the medullary canal, after degeneration of a gummatous infiltration, may be the seat of a cheesy tissue here and there enclosing solid masses, surrounded by layers of newly formed bone.

The syphilitic dactylitis of inherited resembles that of acquired disease, the swellings attacking slowly or rapidly, with or without pain, one or more of the proximal phalanges, or metacarpal or metatarsal bones. In all these bone-lesions the joints may participate secondarily, or the synovial membrane or fibrous capsule may be first to induce a hydrarthrosis or tumefaction, which may go on to degenerative changes involving cartilage and bone, or be averted at any stage by treatment.

The *nervous system*, in inherited syphilis, is chiefly involved after the occurrence of structural changes in the meninges and other neighboring parts. Fibrous and gummatous thickenings and infiltrations, diffuse and circumscribed, may implicate one or more of the meningeal layers, agglutinating them to each other or to the nervous structures they enclose. Periostitis of the surfaces in contact with these membranes, intracerebral scleroses and gummata, and occlusions of the lumen of the cerebral vessels, may here, as in acquired disease, be followed by a long series of nervous symptoms, dilatation of the pupil, facial paralysis, paraplegia, hemiplegia, epileptiform seizures, hydrocephalus, idiocy, and various grades of failure of intellectual development and vigor. Fournier, in describing the late forms of this complication, lays stress upon the occurrence of severe and persistent cephalalgias, similar to those so frequently recognized in acquired syphilis of the nervous system, as also upon the frequency of urinary incontinence. The same author believes that there is an heredito-syphilitic tabes, and possibly also a sclerosis *en plaques*. The paralyses resulting from compression or other changes in the nervous trunk chiefly involve the ocular muscles.

The *treatment* of the mother affected with syphilis, and pregnant or nursing a syphilitic infant, is usually indicated. Mercurial inunction of the infant by smearing its flannel roller with oleates and salves is an efficient means of introducing the metal when it is required. Calomel, or the gray powder, may be given, one grain to one-

twentieth of either (0.066 to 0.0033) rubbed up with sugar of milk, and placed upon the tongue of the infant, three or four times daily. The dose can be nicely adjusted to the requirements of each case. The bichloride may be substituted in combination with syrup of licorice or of ginger. Ten drops may be given of a two-ounce (64.0) solution, containing from one-fourth to one grain (0.0160 to 0.066) of the sublimate to the ounce (32.0). Inunction is, however, preferable for the majority of cases, with the administration of cod-liver oil by the mouth. When mercury and the iodide of potassium are both indicated (more particularly in the management of osseous lesions), the several combinations known as the syrup of Gibert are useful, e.g.:

℞ Hydrarg. biniodid. gr. i. (0.066)
Potass. iodid. ʒ ss. (16.0)
Syr. glycyrrhiz. (vel zingiber.),
Aq. dest. āā ʒ ij. (64.0)
M.

Of this solution the infant under the fourth month can take from five to ten drops in water, the larger dose being gradually reached. Similarly, in all portentous cases, the iodide of potassium may be administered in drop doses of a saturated solution to the point required to produce any desired effect, as already described in the treatment of acquired nervous syphilis. In all cases the diet and hygiene are highly important. The heredito-syphilitic child should be at the breast of the mother (and at the breast of none other), if it can be thus properly nourished. The local management of the mouth, of the ano-genital region, and of all syphilodermata is important, and to be conducted on principles heretofore indicated. Tonics are often useful. The prognosis is grave in all severe cases. In viable children, free from visceral complications, much can be accomplished by treatment.

TREATMENT OF SYPHILIS.—The chief point of importance in syphilis is the non-medicinal management of the patient, without a proper knowledge of which the most skilful use of drugs is ineffective. This introduces to the wide field of diet, hygiene, and occupation of mind and body. The diet should be nutritious, and should exclude alcohol in all forms not specifically directed by the practitioner, with a view to securing its valuable tonic (not stimulating) effects. Tobacco in every form is best discarded, as having an injurious effect upon the nutrition in general, as well as upon the mucous surface of the mouth, which constitutes such a fertile field for the development of mucous patches. The body should be sponged daily with cool or tepid (often with salt) water, and then briskly scrubbed until warm, when the general surface not the seat of syphilodermata permits such a course. The skin should be properly protected by warm underwear. In the case of syphilitic patients sexual indulgence should be prohibited. Most patients are better for regular and systematic attention to their usual occupation, though the latter should not unduly tax the mental or physical powers. The bowels should be evacuated daily. Exercise in the open air and due regulation of the hours of sleep should not be forgotten. In many cases, where the purse of the patient will permit, the recreation of travel, a sojourn at the seashore, or a change from an inhospitable to a mild climate, are valuable steps toward recovery.

In a small percentage of cases the expectant or tonic treatment of syphilis, conducted largely by the measures described above, aided by the use of tonics (ferruginous, bitter, acid), suffices for what seems to be a cure. Indeed, no observer of large experience can deny that cases of exceedingly mild and benignant syphilis are often untreated and exhibit no recurrence.

The immense preponderance of cases, however, is on the other side of this slender border-line of safety; and the danger of an expectant course, for most patients, is sufficiently grave to furnish the basis of serious charges against the practitioner who habitually pursues it.

Mercury is to-day, as for nearly four hundred years past, the most efficient of drugs in the treatment of syphilis. It is given by the mouth in the form of the protiodide, biniodide, bichloride, calomel, gray powder, blue mass, tannate, or other combinations of the metal. The protiodide is deservedly popular with American physicians, and may be given in one-fifth of a grain (1 cgm.) granules, pellets, or discs. It is usual to begin with one after each meal, and to increase gradually till some constitutional effect is produced, such as looseness of the bowels, slightly increased flow of saliva, or moderate abdominal pain, after which the dose is reduced. Keyes suggests at this point a "tonic" dose—one which can be tolerated for months at a time without inconvenience, and reached by the reduction of the dose described above. For speedy effect, calomel is employed in doses of one-tenth of a grain (0.0066) every hour; and for slower effect, less often. It is well administered in powder rubbed up with sugar of milk. The mercurial pill has the advantage of being readily combined with iron, as e.g.:

℞ Pil. hydrarg. ʒ ij. (2.66)
Mass. Vallet (pil. ferri subcarb.) ʒ ss. (0.66)
Nux vom. ext. gr. iv. (0.24)
M. Ft. pil., No. xx. S.: One after meals.

The dried ferric sulphate, quinine, ergotone, and aloes may each, when indicated, be incorporated in these or similar pills.

The bichloride is often best combined with iron in some such acid solution as:

℞ Hydrarg. bichlorid. gr. i.-ij. (0.066-0.133.)
Ferri tinct. mur.,
Acid. mur. dil. āā ʒ ij.-iv. (8.0-16.)
Syr. zingiber. (vel
sarzæ) f ʒ ij. (32.0.)
Aq. dest. ad f ʒ vi. (192.0.)

M. S.: A teaspoonful in a glassful of water after each meal. To this the sulphate of strychnine in medicinal doses may often be advantageously added.

Solutions of the bichloride effected with the aid of alcohol or with an equal quantity of the muriate of ammonium are also useful.

The biniodide is usually administered by decomposing corrosive sublimate with the potassic iodide, and dissolving the precipitate in an excess of the same salt, e.g.:

℞ Hydrarg. bichlorid. gr. i. (0.066.)
Potass. iodid. ʒ ij. (8.0.)
Aq. dest. ʒ iij. (96.0.)
M. S.: A teaspoonful in water after meals.

The Gibert formula, modified variously by almost every author, is nearly as follows:

℞ Hydrarg. biniodid. gr. i. (0.06.)
Potass. iodid. ʒ i. (4.0.)
Aq. dest. ʒ i. (4.0.)
M. Filtra, deinde adde syrup. aurant. cort. ʒ vi. (192.0.)
S.: One to two teaspoonfuls in water after eating.

Combinations of mercury and the potassic iodide are employed chiefly in the so-called "mixed" treatment of syphilis; in lesions that are transitional in type between the graver and milder forms; and also in many precocious or rebellious symptoms in the earlier stages of the malady. Pills of the bichloride and biniodide are usually objectionable on account of their tendency to the production of irritative effects, but are in some cases given with advantage. From one-sixteenth to one fortieth of a grain of either (0.004 to 0.0016) may thus be administered after meals.

Mercury is of great service when applied by vapor in fumigation. This method is generally, in the larger

cities of the country, relegated to the bath-houses, but by the aid of a chair, a blanket, and the Schering (formalin) lamp, it can be employed at the residence of any patient. From one to three drachms (4.0-12.0) of calomel, cinnabar, or the gray oxide, or two or more of them in combination, are used for the production of the vapor when placed on the metallic plate of the lamp. Steam is furnished by water boiling in the chamber designed for that purpose, and the naked and sweating skin of the patient wrapped in the blanket and seated over the lamp, is thus subjected two or three times a week to the fumes of the mercury.

The uncleanly, but very effective, method of introducing mercury by inunction is popular abroad, but used in this country chiefly by experts, in hospitals, and at certain Springs enjoying repute for the relief of this disorder. Equal parts of the twenty-per-cent. mercuric oleate and scented vaseline, or the ordinary mercurial ointment, made with lanolin oil, may be used, one drachm (4.0) or more being rubbed at night before retiring into different portions of the skin (selecting a new region each night), and removed by a bath in the morning.

Hypodermatic injections of mercury in various forms are popular upon the continent of Europe, but are much less frequently employed in England and America. They are rapidly effective when used. They have been the subject of much favorable and adverse criticism, and are both praised and decried by leading syphilographers. They are subject to the disadvantage of requiring a physician for the administration of each dose, and are therefore better suited to hospital than to private practice. The following formulae have been employed: Calomel, gr. iss. to iij. (0.10 to 0.2), rubbed up with about twenty-four minims (1.5) of pure glycerin (Scarenzio); corrosive sublimate, four grains to the ounce (0.266 to 32.0) of distilled water; fifteen minims (1.00) to be injected every two or three days (Lewin). These solutions have been modified by incorporating with them one-tenth of a grain (0.0066) of the acetate or of the sulphate of morphine to relieve pain; and the chloride of sodium, four parts to one of the bichloride, to render the solution less irritating. As these subcutaneous injections are liable to be followed by abscesses, attempts have been made in the direction of securing a soluble albuminate or peptonate of mercury, all of which have proved unsatisfactory. Solutions of the bicyanide, biniodide, nitrate, and formidate of mercury have also been recommended. None of these devices has yet rivalled in popularity the solutions of corrosive sublimate in distilled water.

When mercury produces its happiest effects in syphilis, by any mode of administration, the symptoms diminish or disappear, and the patient actually gains in weight. Even when improperly employed, mercury is not (always) responsible for many of the results popularly ascribed to its influence. These are chiefly syphilitic symptoms of patients misinformed as to the nature of their disorder. The statistics collated by the physicians of the great Russian mercury mines, of disease observed among the workers in the metal, include none of the symptoms popularly ascribed to the influence of this metal in syphilitic patients—mouth-patches, rheumatism, eruptive symptoms, etc. They are all in the direction of salivation, and, in grave cases, of maxillary necrosis. Tenderness of the gums, moderate fetor of the breath, slight increase in the salivary flow, noticeable indentation of the sides of the tongue by the molar teeth, and tumefaction of the mucous membrane—these are the first signs of a toxic effect, which may increase, if the drug be further pushed, to the extreme of complete salivation, with loosening and even falling out of the teeth. In the modern treatment of syphilis no such effects are desired, and are rarely attained. The milder of these manifestations readily disappear under appropriate therapy: tepid gargles of milk, flaxseed tea, or sweetened or demulcent water, containing one drachm (4.0) of potassium chlorate to the pint (500.0) of vehicle; a liquid and nutritious diet; abstinence from iced, alcoholic, spiced, acetous, and hot articles of food and drink; suspension of the mer-

curial; laxatives sufficient to secure complete evacuation of the bowels; and often the ferruginous and other tonics, preferably in solution.

Iodine and its compounds are useful in combination with mercury and without such union. They are more available for gummatous symptoms, but may be often employed with the greatest advantage in the milder symptoms of the disease. The articles of the class most used are iodine, iodipin, iodoform, and the iodides of lithium, sodium, starch, and potassium. No one of these is equal in value to the iodide of potassium; none enjoys to the same degree the confidence of the profession. It may be given alone or with mercury by the mouth; or it may be given by the mouth when mercury is employed by inunction or fumigation; or it may be given in alternation with one or more of the courses named.

It is always best administered in solution, gr. iij. to xx. (0.20 to 1.33), given in distilled water, milk, or any other vehicle preferred, such as cinnamon water, or one of the various syrups employed as vehicles. The method of administering the iodide of potassium in largest dose, gradually reached, from one drachm to an ounce (4.0 to 32.0) in the twenty-four hours, has been fully described in the paragraphs devoted to nervous syphilis. Employed with all due precautions, and administered with large draughts of pure water, it furnishes one of the most brilliantly effective of the measures at hand in the grave emergencies of the disease. When its morbid effects are produced, these may become apparent after the exhibition of the smaller doses. Among them may be named severe coryza, with œdema of the lids, lips, and glottis; salivation; gastrointestinal distress and tenderness; and a series of cutaneous eruptions. In the order of frequency the latter are acneiform papulo-pustules, furuncular lesions, purpura, tubercles, erythematous macules, bullæ, and eczemaform patches.

An enormous number of medicinal articles, beside those named, have been used in the treatment of syphilis. Some are indispensable in the management of most cases; some have a doubtful effect; many are absolutely worthless. In the first class may be named the ferruginous tonics; the mineral acids (only given simultaneously with the mercuric bichloride); cod-liver oil; quinine and the vegetable bitters; alcohol, judiciously administered; and, in particular, the fluid extract of erythroxylin coca, first warmly recommended by Taylor in the management of syphilis, and fully indorsed by the writer, who has employed it with advantage in many cases. In the second class may be named sarsaparilla (probably having no other than a purely "stomachic" value); the "McDade formula" (equal parts of the fluid extracts of smilax, sarsaparilla, stillingia sylvatica, kappa minor, and phyto-lacca decandra, with one-half of one part of the tincture of xanthoxylum carolinianum), and Zittman's decoction (probably efficient chiefly for the mercury it contains). In the last class may be named nitric acid, gold, thuya, cascara, berberis aquifolium, and the mass of proprietary preparations, many of which, though advertised as "purely vegetable" compounds, depend for a short-lived popularity upon the mercury or iodine which they contain. None of the mineral springs, in this country or abroad, which enjoy a reputation in the treatment of syphilis supplies a water which can be demonstrated to possess a therapeutic value outside of the climatic, hygienic, and, indeed, medicinal effects obtained by residence and treatment by physicians in the districts where such springs are found. The waters of the well-known Hot Springs of Arkansas, in this country, have never yet been shown to possess any medicinal virtue; and the number of syphilitic patients who annually resort thither and reap some advantage from such a course are, for the most part, those who have been treated there by physicians with mercury or the iodine compounds. The so-called process of "syphilization" has not survived its brief period of notoriety. It was based upon a confusion respecting the nature of the syphilitic and the non-syphilitic sore, and is now a curiosity in the literature of medicine.

No limit can be set to the length of time which should be assigned for the treatment of the disease. The average patient requires careful observation and treatment for from two to four years. Many require this for a far longer period. Mild cases may require less. No guarantee of future immunity can be given any patient on the conclusion of treatment, though probably seventy-five per cent. of all the infected have no symptoms of returning disease after proper treatment by a competent physician. Two years of immunity from all symptoms should elapse after the conclusion of treatment, before a patient of either sex should be permitted marriage with a non-infected person, though in the case of women who have not reached the menopause and are regularly menstruating, this period may be somewhat shortened. Two years of immunity is required by some of the larger insurance companies before accepting life-risks of the infected. Syphilis, however, is, as a matter of fact, one of the most readily managed and promising of all diseases that affect the human race. As distinguished from them all, its prognosis in general may be pronounced good. It may often disfigure, but it rarely destroys, its victims. As against the frequent fatality in pneumonia, variola, typhoid fever, or erysipelas, its statistics include an overwhelming preponderance of infected subjects in whose later years it figures only among those indelible reminiscences which teach the sternest lessons of life.

James Nevins Hyde.

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SYRINGOMYELIA. See *Spinal-Cord Diseases*; *Syringomyelia*.

TÆNIÆ. See *Cestoda* and *Anthelmintics*.

TALIPES. See *Foot, etc.*

TALLEY'S SPRINGS.—Mecklenburg County, Virginia.

Post-Office.—Palmer's Springs.
Talley's Springs are located seventy-five miles south-east of Petersburg, and within eight miles of the Atlantic and Danville Railroad on the north, and eleven miles of the Seaboard Air-line on the south. The situation is in a beautiful valley, the surface being clothed in a magnificent growth of original oak. The country is moderately hilly in character, and the climate very genial and salubrious. The springs have never been developed, but the waters have been resorted to by residents of the district for many years, and numerous cases are cited which illustrate their beneficial effects. A partial analysis has shown the presence of lithia, sulphur, and iron. A

strong odor of sulphureted hydrogen pervades the neighborhood. The water is said to have a wonderful preservative power. We are informed by Mr. G. W. Davis, the owner, that a small green log which has lain in the spring between thirty and forty years is still perfectly sound. It is stated that the advantages of these strong waters and the many attractive features of the neighborhood will soon be turned to good effect and a desirable summer resort established. Palmer's Springs, which also possess a local reputation, are two miles away.

James K. Crook.

TAMARIND.—(*Tamarindus*, U. S., P., B. P.; *Pulpa Tamarindurum Cruda*, P. G.; *Tamarinier*, Cod. Med.) The preserved pulp of the fruit of *Tamarindus Indica* (fam. *Leguminosæ*). The tamarind is a large, handsome, widely spreading, locust-like tree, with rough, dark-gray

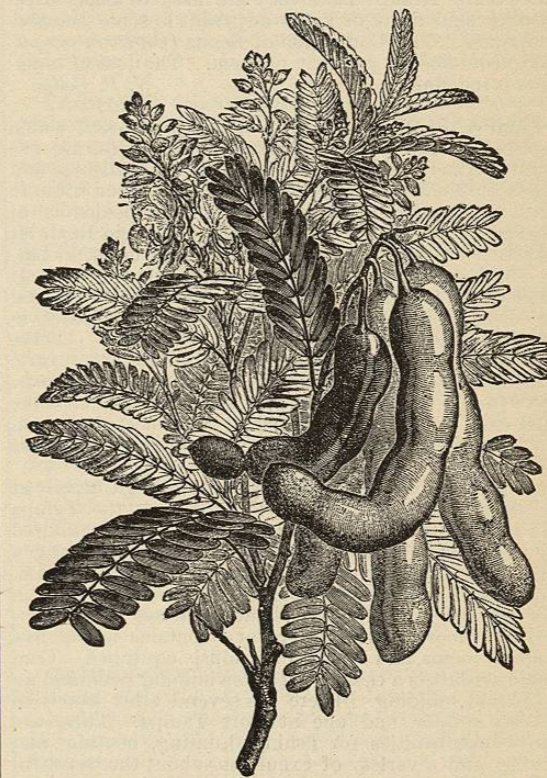


FIG. 4593.—*Tamarindus Indica*. Flowering branch with fruit. (Baillon.)

bark, and rather small, cassia-like, abruptly pinnate leaves. The fruit is a flattened, curved, solid "pod," from three to six or more inches long; smooth, yellowish-brown externally, with a brittle shell, and a firm acid pulp surrounding the seeds. The pulp contains a skeleton of fibrous bundles running lengthwise over the seeds. The tamarind tree grows now in all tropical countries, and is, besides, extensively cultivated. It came originally from the Old World, presumably from Africa, but is equally abundant in India, Australia, and the West Indies. When the fruits are ripe, the outer shell becomes brittle and is broken between the fingers and removed, the entire contents being then packed in kegs and covered with boiling syrup. In this way the West Indian tamarinds, which comprise most of those that reach our market, are prepared. In the East, sugar is often used instead of syrup, or they may be packed dry, without any sweetening, in a hard, semisolid mass.

Preserved tamarinds, as they reach us, are in a moist, reddish-brown, pulpy, stringy mass, with numerous flattish-quadrangular, smooth seeds, and a little thick,