

the parenchymatous tissue. Gradually, in the course of a few weeks or less, the entire cornea presents a characteristic "ground-glass" appearance, in consequence of the multiplication and fusion of these points of opacity, with a pericorneal zone of injection, one or both eyes being attacked, and the two organs simultaneously or successively. The issue is either a gradual clearing up of the opaque condition, which at its fullest evolution practically occludes the entrance of light, or a more or less intense injection and vascularization of the corneal surface. Iritis is rarer in inherited than in acquired disease, but it occurs in one or both eyes and before or after birth, plastic effusions in the worst cases gluing the iris to the capsule of the lens. Choroiditis and retinitis also occur in inherited disease, with the iris and the pupil unchanged, and dust-like particles in the vitreous humor originating in patches of infiltration of the choroid. Retinitis and optic neuritis in children have rarely been observed.

The Ear.—The persistent deafness of many subjects of inherited syphilis arise from changes in the tympanum and the middle ear. The lesions correspond, for the most part, with those heretofore described in connection with acquired syphilis. The deafness is due, in general, to a labyrinthitis characterized by a cellular infiltration of the membranous labyrinth and to a serous effusion into the endolymph, with eventual increase of connective tissue which may later undergo a species of cicatricial contracture. Prominent subjective symptoms are the usual morbid aberrations of audition (roaring, blowing, ringing, singing, and other sensations), more or less rapidly changing to absolute surdity. There may be, as in adults, coincident vertigo, cephalalgia, and febrile phenomena.

TREATMENT OF SYPHILIS.

No treatment of syphilis may be regarded as worth the name that excludes early and persistent attention to the general health of the patient. This hygienic care, as contrasted with the medicinal measures employed, by far outweighs the latter in importance, and practically decides for many cases the question of the gravity of the issue or the reverse. The worst errors committed in the management of syphilis are due to trusting exclusively in the efficacy of drugs for relief of the disease.

Hygienic Considerations.—The patient affected with syphilis should always be given a sufficiently ample dietary, the food to be simple and digestible. For the gouty the food should not be that allowed the cachectic and the anæmic. Allowance being made for these extremes, it may be said in general that the syphilitic patient requires an ample supply of nutritious and digestible food, seeing that, even in the case of the subject of the disease who is at the outset well fed and well nourished, it cannot always be known when the toxins of his malady so change the systemic condition that at a date not far distant the picture may be altered for the worse.

Alcoholic beverages may be used in the treatment of syphilis with wise discretion. In the case of the enfeebled the weaker stimulants, such as white wines, beer, ale, porter, and the malt extracts, may often be employed with great advantage to the patient; while the use of such articles as spirits, champagne, and Burgundy or Port, if drunk freely and in persons of a gouty state,

may be positively injurious, and may actually prolong the period during which the malady requires treatment. Here, as in so many questions arising in medicine, the judgment of the practitioner, instead of a fixed rule, must finally decide.

Bathing is of importance in all cases. The very hot baths largely employed in the various health-resorts and springs of all countries are without question often harmful, and are to be ordered for the average patient only after due consideration. The skin of the body, however, should, when practicable, be sponged daily, exception being made for the menstrual period in women. Persons of a delicate constitution should simply moisten a handful of warmed salt with hot water and rub this over the skin-surface, using afterward a coarse towel or a flesh-brush to ensure a vivid reaction. For stronger patients, especially vigorous young men, daily cold sponging of the entire body, from the neck to the feet, with water to which salt has been added in the strength of one-quarter of a pound to the gallon is of high value. Hot baths and hot applications of all sorts for a skin liable to exhibit a syphilitic exanthem are decidedly objectionable. By keeping the surface well polished and in a high degree of tone the liability to pustular and other syphilodermata is practically set aside.

The use of tobacco, either by smoking, by chewing, or as snuff, is harmful to the mouth and to the nares of syphilitic subjects, inviting as it does the occurrence in these parts of mucous patches and other lesions. It is decidedly the wisest course in every case to interdict absolutely these practices from first to last. In the same connection it is well to remember that male patients deprived of tobacco are apt to hold cigars or a tooth-

pick in the mouth, or even to chew gum for hours at a time, in order to allay the craving for tobacco. Each of these practices is harmful, and has repeatedly produced the most painful and persistent fissures of the commissures of the lips, and even obstinate ulcers.

It is well to bear in mind the measures recognized as efficient in the management of other disorders producing deterioration of the general health. Diversion of the mind, abstraction from the fatigue and anxiety of business and professional work, foreign and domestic travel, the invigorating influences of a sea-voyage or a sojourn in the mountains, out-door living and open-air amusements,—all these have a distinct value in appropriate cases.

The recently infected subjects of syphilis, and often those who have suffered longer, should in general exclude the possibility of a determination of the activities of the disease to any one region of the body by setting aside, so far as practicable, all local sources of irritation. Carious teeth should be removed or their cavities be stopped; projecting edges of teeth in contact with the tongue should be removed by the dentist's file; a weak eye (particularly if employed out of doors with snow on the ground) should be protected; and a ponderous varicocele, a scrotal hernia, or a hemorrhoidal tumor should receive proper attention.

Time for beginning the Systemic Treatment of Syphilis.—It has already been shown that treatment of the chancre, whether by internal or external medication, is not the treatment of the disease which follows. Attempts to abort syphilis at the onset are usually as futile as similar efforts to jugulate the other maladies with which man may be affected. In any case in which,

whether from the local phenomena (initial sclerosis, syphilitic bubo) or from special conditions aside from the local symptoms, it is deemed prudent to begin the treatment of syphilis before the establishment of an absolute certainty respecting its diagnosis, general treatment may properly be instituted, with the distinct understanding that such treatment will neither assuredly abort nor mitigate the symptoms which are to be expected later. The reverse is also true—namely, that delay in instituting systemic treatment of syphilis until the fullest recognition of the disease has been established in no wise jeopardizes the future of the patient nor his amenability to the later management of his malady. It has already been set forth in these pages that in a sound young patient free from signs of other trouble, infected with syphilis and properly treated thereafter, there would probably result but a single exanthem (the macular syphiloderm), upon the disappearance of which, when all the other hygienic and therapeutic conditions were absolutely fulfilled, no other symptom of the disease should follow. However impossible the attainment of such an ideal, its practical realization in selected cases points with clearness to the clinical fact that some expression of the disease, early or late, is in the nature of the affection to be expected. After such complete expression subsequent processes may be in the line of involution rather than of evolution. A very abundant macular syphiloderm not uncommonly disposes of the major part of all symptoms of systemic syphilis, and if this first exanthem be aborted, suppressed, or greatly influenced by energetic treatment (which is certainly in some cases effected), the future of the patient is to a degree clouded. One early vivid and generalized efflo-

rescence is an augury for good in an otherwise healthy subject. No treatment is superior in results to that directed with energy, system, and skill to a disease permitted a first frank evolution.

The question, often formulated, "How long should the treatment of syphilis be continued?" is best answered by stating the length of time during which the disease may persist. For some patients the disease and the treatment, as has already been seen, are alike ended long before other infected subjects have ceased to exhibit symptoms or to be treated for their relief. The treatment of rebellious syphilis in the unfavorable class of patients already described is, indeed, a tedious matter. For the average of subjects of the disease, healthy before infection and managed skilfully, it is not difficult to fix the duration of treatment. Most of such patients after two and one-half or three years have passed are practically well. There are few sound persons thus cared for who may not suspend medication for weeks at a time after the conclusion of the second year.

Systemic Treatment of Syphilis.—Medicinal treatment of syphilis is conducted by the aid of remedies both ingested and externally applied. The former method is usually termed "internal," as distinguished from "external" treatment. Both methods have been employed at different periods of time, either separately or in conjunction, with favorable results. These modes of medicinal treatment have been by some writers made to conform to certain systems; as, for example, the so-called "tonic" method, in accordance with which a dose ascertained to be effective in the case of a single individual is continuously administered for a given length of time—a number of

consecutive months or years. Another system is the "interrupted," in accordance with which the patient is submitted to treatment of the disease by special medicaments for a period of time, followed by a longer or shorter suspension of the remedy. Of the so-called "expectant" method of treating syphilis it is sufficient to say that few modern practitioners would dare to subject themselves to the charge of leaving a patient affected with the disease to such grave possibilities of dangerous and even fatal results. In these pages the effort is made to set forth the treatment of syphilis on a rational basis, and wholly independent of any system whatever. Indeed, the skilful physician will ever free himself from the shackles of conventional rules, and will learn by experience to employ with advantage for his patients the method which in each single case is most clearly indicated and best adapted not merely to relieve for the time being the symptoms of the disease, but also to set aside its possibilities of damage in the remote future.

Mercury.—In the face of vast opposition, and despite the fact that a large number of the lesions of syphilis have been attributed where they do not belong—to the assumed toxic effect of the metal which is of chief value in securing its relief—mercury to-day stands pre-eminent throughout the civilized world among drugs esteemed efficient both for the relief of the symptoms and for the radical cure of the disease. Like most-agents that are both energetic and efficient, it is not a proper use, but an abuse, of its compounds that has brought upon it so much odium.

It has long been regarded as axiomatic that mercury is chiefly valuable in the early, and the preparations of iodine in the later, periods of syphilis. In general this

may be admitted to be true; but the exceptions to the rule are so many that it may often be violated with the greatest possible advantage to the patient.

The preparations of mercury administered by the mouth are, in the order of their value in the management of syphilis, the protoiodide, the bichloride, the biniodide, the tannate, blue pill, calomel, and the gray powder. Among American and French physicians the protoiodide has, and we think justly, a decided preference.

On the supervention of the first symptoms of general syphilis, it is well, when the method of treatment by the mouth with digestion of drugs in the stomach is selected, to begin with a mercurial course by the aid of the protoiodide. This preparation is to be exhibited steadily until all obvious symptoms of the disease are removed, and afterward to an extent hereafter to be discussed. It is well to begin with an average dose of the metallic salt, and to increase or decrease this dose as indications may be furnished by the patient. Whether one or another article be selected for use, that medication only can be regarded as both efficient and desirable which is not intolerable to the system, under the influence of which the patient gains in weight, and which enables him to digest food with appetite and profit as regards nutrition. The following are practicable formulæ for the purposes named:

R̄. Hydrarg. iodid. virid., gr. xij;
 Mas. ferri carb., 3j.—M.
 Ft. pil. No. lx.

Sig. One or two pills after each meal.

From $\frac{1}{10}$ to $\frac{1}{3}$ grain may thus be given after each meal

to a patient of adult years and average weight. The dose may be reduced or increased from day to day as required—diminished especially if there be looseness of the bowels, which to an extent is guarded against by the use of the ferruginous preparation named. For Vallet's mass the citrate of iron and quinine may be substituted in doses of from 1 to 3 grains.

When looseness of the bowels or colic is induced, the dose should be diminished or the habits of the patient with respect to food and drink should be controlled more carefully. The drinking of iced water, the eating of ice-cream, and the free use of fruits and of certain kinds of fish are often responsible for the excessive action of the bowels and for the pain induced by the drug.

Instead of in pills, the combination given may be administered in capsules, the preparations for this purpose lately placed upon the market being readily digested and more soluble even in the fluids of the mouth than a coated pill which has been desiccated by time and by hot weather. The tablet triturates of the same metal are often used, but are open to the disadvantage of disintegrating when carried about in the pocket. The centigram granules of Messrs. Garnier & Lamoureux, which have long been esteemed highly in America and abroad in the management of the disease, are certainly of great value, as the pill is elegantly made and is efficiently preservative of its contents. Upon comparison with pills of the same dose, of American manufacture, made, for the most part, by skilful precipitation of the green iodide, the latter will in general be found to be superior. The French pill, however, has an actual advantage in the greater impurity of its constituents. For therapeutic purposes the dose of the yellow pro-

toiodide in pill form, made by American chemists, should be nearly one-half that prepared by the French in the pill named.

It is very rarely necessary to give an opiate in combination with mercurials in the treatment of syphilis, with a view to the introduction of a larger quantity of the metal into the system, or to relieve the diarrhoea produced by even small doses. This practice is a remnant of crude attempts at treatment instituted before the days of modern refinement in diagnosis and methods. It is to be regarded as a last resort for cases of extreme urgency and of very unusual irritability of the intestinal canal. Not merely may the combination beget the opium-habit in a person thus habituated to the drug (and frequently such habits have been acquired during treatment for syphilis), but harm is wrought by interference with digestion. He who hopes to be brilliantly successful in managing syphilis will ever be jealous of any impairment of the digestive functions of his patient.

"A chronic disease," as a great syphilographer has written, "requires a chronic remedy." Without adhering to any system, if it be found that, by steadily pursuing a mercurial course with the aid of the protoiodide, the symptoms of the disease disappear, and afterward the patient can still take the drug to advantage in doses that enable him to gain in weight or to hold it at nearly the maximum while attending to his or her usual vocation, meantime enjoying every sign of good health, a desirable and satisfactory end has been obtained. Certainly no change, under these circumstances, is specially desired or required. It is well, when this fortunate issue is reached, to have the patient kept under more or less careful observation, the practitioner being at all times

ready to change the treatment, general or local, as may from day to day be suggested by any accidents that arise.

At any time, however, when such a course seems desired, any one of the other preparations of the metal named may be substituted for the protoiodide. These preparations are the bichloride, in doses of from $\frac{1}{80}$ to $\frac{1}{12}$ grain; the biniodide, in doses of from $\frac{1}{80}$ to $\frac{1}{16}$ grain; the tannate, in doses of from $\frac{1}{2}$ to 1 grain; blue pill, in doses of from $\frac{1}{4}$ to 1 grain; calomel, in doses of from $\frac{1}{10}$ to $\frac{1}{4}$ grain; and the gray powder, in doses of from 1 to 5 grains. Of these preparations, the biniodide, the tannate, blue pill, calomel, and hydrargyrum cum creta may be given in pill form; the bichloride and the biniodide preferably in solution; and calomel and the gray powder in the form of either powders or pills. It is to be remembered that in giving mercury it is not so important to discover how large a dose a patient may take with impunity at one time for the relief of his disease as to know how large a dose may be taken for long periods of time with the same end in view. It is rarely necessary to give more than 3 grains of the protoiodide by the mouth daily, nor more than $\frac{1}{2}$ or $\frac{1}{4}$ grain of the sublimate, nor more of the other compounds named than can be regarded as an average rather than as a large dose.

Upon the slightest evidence, however, even when any of these doses is being pushed to a proper maximum, that the disease or its symptoms is not properly yielding, there can be but little question that the proper course is to change the preparation selected. In syphilis the infective cells become later less amenable than at first to the antagonizing remedy, and each group of these cells

may become a focus from which, by the well-known processes of cell-multiplication and the production of toxins, the morbid process may be relighted to activity. Even the most trivial of lesions is to be combated energetically in this early stage; and when resolution is not visibly progressing, not only is the remedy for internal use to be exchanged for another, but the topical treatment of any lesions present, as explained elsewhere, should either be modified or be more energetically and persistently pushed.

The season for the happiest results from the management of syphilis is the first semester of its career. If any treatment may justly be described as "abortive," it is not that which seeks to jugulate the malady in its chancre-stage, but that which vigorously and efficiently obliterates all symptoms in the period of early evolution.

We believe that when all progresses satisfactorily, the patient who secures complete immunity from symptoms of his disease in the first half year does better when no recognized antisiphilitic remedy is administered save mercury. Many of the best treated patients have never swallowed the compounds of iodine except in combination with mercury. Other things being equal, he who has secured complete relief from syphilis without using the iodide of potassium has usually had either a mild or an exceedingly tractable form of the disease.

Iron is administered with decided advantage to the great majority of all patients affected with syphilis, and it is well to order it in all cases where it is not contra-indicated. A convenient method is to prescribe a ferruginous tonic before the first and the last meal of each day, while the mercurial in pill or other form is taken after

each meal. Iron does its best work for most patients when ingested in a fluid form. The following is a convenient formula :

R_y. Ferri et quin. citrat., ℥ss;
 Limon. syrup., f℥ij;
 Aq. destill., ad f℥viiij.—M.

Sig. A teaspoonful in a wineglassful of water before the first and the last meal of the day.

Iron may also be given in pill form or be combined with the bichloride in formulas of which the following may be taken as a sample :

R_y. Hydrarg. chlorid. corros., gr. j-ij;
 Ferri tinct. muriat.,
 Acid muriat. dilut., āā. f℥ij-iv;
 Syr. aurant. flor., f℥ij;
 Aq. dest., ad f℥viiij.—M.

Sig. A teaspoonful in a wineglassful of water after each meal.

When there is constipation, patients often find it of advantage to take some such formula as that given above, in proper doses after the first and the last meal of each day, and one or two pills or tablets of the protiodide after the middle meal of the day.

Inunction of mercury, or its systematic introduction by the skin, is one of the superior methods of treating syphilis. This practice has the excellent recommendation of sparing the stomach, which may then be reserved for food and drink, for tonics, and for whatever else in the way of adjuvant ingesta may at any time be required. The disadvantages of inunction are its relative uncleanness and the need of more or less skill and time in its employment. Few patients of the better class like to resort

to it for more than brief periods of time. There are few, however, who may not reap substantial benefits from smearing mercury even for short periods. It is wise to employ inunction, first, in all grave cases; second, in all cases of emergency; third, whenever the stomach proves intractable to drug-ingestion; and fourth, whenever, even after generally favorable results from medication by the mouth, there are persistent lesions refusing to yield to general and local treatment.

Mercurial ointment of the United States Pharmacopœia, in 50 per cent. strength, still heads the list of mercurial preparations available for inunctions. It cannot be employed with equal advantage in combination with any drug. Mercurial plasters have in some cases a decidedly beneficial result as local applications; and the 5, 10, and 20 per cent. oleates may also at times be used with advantage when there is no special urgency. No such reliance, however, can be placed upon them as upon the officinal blue ointment.

When inunction is to be employed, the dose of the ointment should be varied according to the weight and the general condition of the patient, from 1 to 3 scruples being ordered to be well rubbed in at a single sitting. The smaller may often with advantage in any given case be increased to the larger dose named. The skin should usually have a preliminary cleansing in tepid water with soap, and often also a washing with borated water or with alcohol in order to ensure an aseptic state of the skin. Professional rubbers generally do better service than untrained servants or the subjects of the disease themselves; but often the last named—especially women who are anxious not to betray to others the nature of their malady—learn to practise inunction with