

is under its influence the application of starch to the tongue produces there a blue color, and the nitrate of silver a yellowish tinge, as a consequence of the resulting double decomposition.

The brilliant results which the iodides in selected cases are capable of accomplishing, and the dread of producing ill effects by the action of mercury, have buttressed the great popularity of the former with the general practitioner and with the public. Iodine and its compounds are represented in almost all the proprietary preparations sold in the shops for the relief of syphilis. Iodine is the one remedy earliest and most often resorted to by the ignorant, and it is the one which is last used, and then most effectively, by the expert. Given the patient who has been relieved of syphilis without a resort to iodine, and his case has probably been managed better, and is more secure as to its future, than that of another in which a large use has been made of the iodine salts.

The best known preparations are the iodides of potassium, sodium, lithium, strontium, starch, and rubidium; but the iodide of potassium has long held its own at the head of the list, and it gives promise of doing so for years to come. While given often in combination with other drugs, it is by no means settled that these combinations (save with mercury, as described later, possess any value over the simpler solutions. Of these solutions, none is better than that made by adding an ounce of the iodide of potassium to a fluidounce of distilled water; but as this combination often deposits the salt by precipitation about the cork of the vial after a brief interval, and as it is at times somewhat difficult of digestion, the iodide is often administered in drop doses from a solution made by adding half an ounce of the

potassic salt to an ounce of the essence of pepsin (Fairchild's or another). The first formula has the advantage that it may be given, when that article of food does not disagree with the patient, in milk as well as in water.

The dosage of the iodide depends almost wholly on the emergency presented in any case where it is thought best to employ it. In uncomplicated cases it may be administered in teaspoonful doses of a solution containing 5, 10, or 20 grains to the drachm; but in cases where an emergency has arisen it is customary with experts to order one of the stronger solutions named above, and, beginning with drop doses, to increase gradually either one drop per diem, or one or even two or more drops each dose, until much larger doses are reached than are usually employed in cases where no emergency exists. In these cases large, and even extremely large, doses are slowly reached and for long periods of time steadily maintained. In this way 300, 400, 600 grains, and even more, of the iodide of potassium have been given in twenty-four hours, and with favorable results as respects the object in view. In reaching the larger doses the following rules should be observed: (*a*) The dose should not be increased after the occurrence of any of the serious symptoms of iodism, described later; (*b*) nor if constipation of a marked character occurs; (*c*) nor if any decided indication of trouble occurs in the urine (albuminuria, etc.); (*d*) nor if the immediate effect in view is secured (relief of a dangerous cephalalgia in syphilitic meningitis; relief of torturing pain at night from an osteoperiostitis, etc.).

The articles added to solutions of the iodide of potassium with a view to improve its efficiency or to prevent iodism are yearly accorded less and less favor, though

once held in high esteem. Thus, the chloride of ammonium in doses of 5 grains and the carbonate of ammonium in doses of 10 grains were thought to increase the efficiency of the iodine salt, while arsenic and arsenious acid were added with a view to the prevention of iodic acne.

A great number of remedies, mostly from the vegetable kingdom, have been extolled for years as not merely of themselves sufficient to "cure" the disease, but, failing that, to add to the value of the iodide of potassium by assisting in its assimilation and by giving tone to the stomach. It would be a waste of space to enumerate these remedies, beginning with sarsaparilla, which even at this late day still holds sway over the minds of the credulous, and ending with the "McDade" formula:

R. Smil. sarsaparilla, fl. ext.,
 Stilling. sylvat., fl. ext.,
 Kappæ minor., fl. ext.,
 Phytolacc. decand., fl. ext., $\bar{a}\bar{a}$. f̄ij;
 Xanthoxyl. Carolin., tinct., f̄ij. —M.

Sig. Teaspoonful to tablespoonful doses in water before food.

None of these "vegetable" remedies can be demonstrated to have any curative effect upon syphilis, apart from the metallic salts with which it is usual to compound them. They are never ordered by the writers, for, if merely a tonic and carminative effect be desired, much more valuable remedies are available. Strychnia, quinine, and iron or the mineral acids, the latter often in conjunction with a mild mercurial, are superior from every point of view to all of the "vegetable infusions and decoctions."

The fluid extract of coca, much praised by Taylor, stands on a different footing, since it is not claimed in any sense to be a specific for the disease, but only a valuable agent in exerting a tonic effect upon the nervous, vascular, and lymphatic systems. We have used the coca in many cases with great advantage both in the form of the wine (Mariani, Metcalf) and in that of the fluid extract, as follows:

R. Erythrox. coc., fl. ext., f̄ij;
 Gentian., tinct. co.,
 Cinchon., tinct. co., $\bar{a}\bar{a}$. f̄ij;
 Elix. calisayæ, f̄iv.

Sig. A tablespoonful in water after food.

R. Erythrox. coc., fl. ext., f̄ij;
 Cinchon., tinct. co.,
 Gentian., tinct. co., $\bar{a}\bar{a}$. f̄ij.

Sig. Two teaspoonfuls in water after food.

Toxic Effects of the Iodine Compounds.—Iodism, or the symptoms of toxic effects after the ingestion of the compounds of iodine, is much more frequent than the production of toxic effects by mercury, on account of the rapidity with which iodine affects the system, and also on account of the far larger number of persons susceptible to such effects. In discussing this subject it may for practical purposes be assumed that the iodide of potassium is the remedy selected, seeing that it is the most commonly ingested of all the iodine compounds employed in the treatment of syphilis.

Like all drugs exerting in any degree a toxic effect, the iodide of potassium will often display its mischievous energy after but a small dose has been administered—

even so small as 1 or 2 grains. In other cases the toxic results are declared only when very large doses are reached. It is the popular and semi-professional belief that some persons have a special idiosyncrasy forbidding them ever to make use of the drug, but that in many patients, by care and a skilful adjustment of the dose, there can be established a "toleration" which will enable the vast majority to ingest even the largest quantities. There is truth, probably, on both sides of this question, though its final determination is difficult. With the employment of the graduated dose, with the bowels freed from irritating contents, with the habits of life regulated as carefully as they always should be in the subject of syphilis, the end sought can generally be attained. The toxic symptoms of iodism may be of the very slightest grade (the occurrence of one or two irritable nodules over the face), or they may have grave sequences which may be in the highest degree alarming.

It has been said of the iodide of potassium that it is capable of producing upon the skin a picture resembling that of every cutaneous affection, and this statement is certainly suggestive of an interesting series of facts. The lesions produced in the skin are usually of the acne type, and limited to the face, the shoulders, the neck, and the upper portion of the trunk—the regions chiefly affected by the disease named. Classified, they range between macules and papulo-pustules, tubercles, nodes, bullæ, and phlegmonous, purpuric, and ulcerative lesions.

Other symptoms are the production of a metallic taste in the mouth, salivation, coryza of a persistent type (often with an exceedingly abundant serous discharge from the nares), and several forms of urticaria, verging in extreme cases to the type of angioneurotic œdema, with

spasm of the glottis when the swellings occur in this region, dyspnoea, and involvement of the joints. In other cases all the symptoms of peritonitis are present, with tumefaction of the belly, intense pains, constipation, and fever. Other toxic effects are slower of evolution, and are exhibited in a progressive anorexia, weakness, decolorization of the skin (of anæmic type), and decided loss of sexual desire and vigor. As a rule, the toxic effects of the iodide of potassium speedily disappear when the exhibition of the remedy is suspended and one of the tonic methods of treatment is substituted. When the anæmia from long-continued use of the iodide is added to the cachexia of syphilis, the result is especially unfortunate, and only the clear eye of an experienced physician can precisely discriminate between the two.

Mixed Treatment.—The term "mixed treatment" has been employed to designate the method by which mercury and the iodine salts are employed in combination in the treatment of syphilis. It is obvious that they may be administered simultaneously when mercury is introduced either by inunction, by fumigation, or by hypodermatic injection, and the iodides are at the same time given by the mouth; also when at one time in the day a mercurial and at another an iodide dose is ordered; and, lastly, when mercury and a salt of iodine are administered at the same time in a single dose. It is for the combination last named that the title "mixed treatment" has been especially reserved.

The following are a few of the "mixed" formulæ most often employed toward the end of the first year of syphilitic treatment, or earlier when there is a special indication for the use of the iodides, as when gummy

tous, tubercular, nodular, or threatening lesions persist upon the skin or over the mucous membranes, refusing to yield to mercury alone:

Ry. Hydrarg. biniodid., grs. j-ij;
Potass. iodid., ʒss-ij;
Syr. aurant. cort., fʒij;
Aq. dest., ad fʒvj.—M.

Sig. A teaspoonful in a wineglassful of water after food.

At times the bitter tinctures are added to formulæ of this character, in order to produce a tonic effect; but, as already pointed out, it is in general better in syphilis to administer tonics separately and before meals, seeing that the dose of the tonic remedy is commonly fixed, while it is often of service to administer the mercurial in a dose that can be changed so as to increase or decrease, when required, the amount of the metal ingested.

The decomposition of the mercuric bichloride by the iodide is often practised in compounds of the "mixed" class, but as there is some uncertainty about the result in different solutions, it is better to order the biniodide. Bichloride combinations with iodide of potassium are usually made as follows:

Ry. Hydrarg. bichlorid., gr. j-ij;
Potass. iodid., ʒss-ij;
Glycyrrhiz., syr., fʒij;
Aq. dest., ad fʒvj.—M.

Sig. A teaspoonful in water after food.

The Treatment of Syphilitic Lesions as they are Presented in the several Organs of the Body.—The treatment of *chancre* has been discussed in the pages devoted to that subject (pp. 51-57).

Syphilis of the skin is amenable to the treatment appropriate to the systemic state, but at times, especially when the lesions are localized and asymmetrical, local treatment is of especial value.

The erythematous and papular syphilodermata, when persisting on the exposed surfaces of the body (face, hands, etc.), may be sponged with warm water at night and afterward anointed with—

Ry. Hydrarg. ammon. (vel. chlorid. mit.), gr. v-xx;
Bals. Peruv., ℥x;
Unguent. aq. ros., ʒj.—M.

Sig. External use.

Or, when a lotion is preferred, the parts may be sponged with a solution of the bichloride in rose-water, $\frac{1}{2}$ to 1 grain to the ounce; or the following may be used:

Ry. Hydrarg. chlor. corros., gr. ij;
Vin. rect. sp̄t.,
Benzoin., tinct.,
Tolutan., tinct., āā. fʒj;
Glycerin., fʒj;
Aq. ros., ad fʒvj.—M.

Sig. Shake. External use.

When seborrhœic crusts form about the forehead, nose, lips, ears, etc., the following may be employed with advantage:

Ry. Hydrarg. sulph. rub., gr. j-ij;
Sulph. præcip., ʒj;
Bals. Peruv., ℥x;
Unguent. aq. ros., ʒj.—M.

Sig. External use.

Vaseline should be ordered as a salve-basis when the unguent is to be applied over a hairy region. Resorcin

is useful, in the strength of from a scruple to a drachm of ointment.

For the papular and scaling lesions, which are often obstinate, especially over the palms and the soles, nothing is better than mercurial ointment in full strength, or, in regions where the skin is tender, in the strength of one-half, one-quarter, or less. Lesions of the palms and the soles, when persistent, require preliminary softening with warm water and green soap, the parts being well shampooed, especially at night, before the application of the salve, the latter being kept in contact with the skin during the hours of sleep. The ointment of the nitrate of mercury in the strength of 2 drachms to the ounce may often be added with good effect to the Wilkinson salve¹ or to an unguent compounded by adding to an ounce of lard from $\frac{1}{2}$ to 1 drachm of one of the tars (oleum rusci, oleum cadini, oleum picis) and from 1 to 2 drachms of precipitated chalk, the whole being compounded *secundum artem* by boiling, sifting, and stirring. The articles found useful in non-syphilitic papular and scaling lesions (chrysarobin, salicylic acid, and ichthyol) may here also often be used with profit. The soothing salves (diachylon ointment, oleate of bismuth, and benzoinated zinc ointment freshly prepared)

¹ R. Sulphuris sublimat.,
Ol. rusci, āā. ʒij;
Sapon. virid.,
Adipis, āā. ʒss;
Cretæ præparat., gr. lxxv.—M.
Sig. External use.

The best oleum rusci should be used in preparing this ointment; but if the best cannot be obtained, either the oleum picis or the oleum cadini may be substituted for it. If possible, use the oleum rusci having the peculiar odor of Russian leather.

may also be used, adding, to the latter particularly, the mercurial specially indicated.

Condylomata, secreting papules, warts, vegetations, etc. about the ano-genital parts and over the axillæ, the groins, and elsewhere are readily relieved. They are all foul-smelling, and they require deodorizing solutions of chlorinated soda or of boric acid, after which they are to be dusted thoroughly with equal parts of calomel and starch or with boric acid. The apposed surfaces are to be separated by the interposition of antiseptic lint. For the dusting-powder named may be substituted eucalyptol (which is usually very comforting in its relief of the odor and the pruritic condition), hydronaphthol, or iodol. Where the warty growths are exuberant they may be painted with solutions of the bichloride in flexile collodion, $\frac{1}{2}$ scruple to the ounce, or with a modification of the well-known wart-cure formula:

R. Acid. salicylic., ʒj-ʒj;
Extr. cannabis indic., ʒss-j;
Collodion. flexil., ʒj.—M.

Sig. To be painted over the part.

By thorough treatment with these and similar solutions it will very rarely be necessary to employ severer measures. The actual cautery, the curette, and the several caustics may, indeed, be employed, but in general this course indicates a lack of skill on the part of the physician in his employment of the simpler measures.

Pustular lesions, crusted or ulcerated, especially over the face, require careful attention, since the production of scars in this region may mark the patient for life. It is well to remember, in the management of all such emergencies, that they represent a mixed infection, and that

the staphylococci are to be combated. All crusts should be removed by repeated hot borated washings, after which the surface, if thoroughly cleansed, may first be wiped with alcohol or touched with a solution of the following sort:

R. Hydrarg. chlor. corros., gr. j-ij;
Benzoin., tinct., fʒj.—M.

Sig. For external use only.

One of two courses may then be pursued: The skin-surface may be dusted with calomel, europen, boric acid, or hydronaphthol, and over all there may be applied a delicate film of cotton fastened at the edges to the surface with a light layer of flexible collodion; or face-plaster may be superimposed over the cotton; or a film of collodion may be applied over the powder directly. An alternate course is to apply as a dressing one of the mercurialized pastes: a little practice will suggest from day to day, to both practitioner and patient, which paste best serves the special indications. From 1 to 20 grains of ammoniated mercury or calomel may be added to the Lassar paste (the formula for which has already been given), or 1 or 2 drachms of mercurial ointment, each in place of the salicylic acid usually ordered in the combination named.

When pustular or gummatous lesions of either the skin or the subcutaneous tissue break down to form a syphilitic ulcer, the treatment in each event is the same. All crusts are to be removed thoroughly—if need be, by soaking and washing in hot borated water as described above—all sloughs are to be plucked away or curetted, and the surface is to be made as clean as possible. The floor and the edges of the ulcer are then freely and

deeply cauterized either with the nitrate of silver in stick or in solution or with fuming nitric acid. Delay should be made in the after-dressing until all oozing has ceased, after which one of the powders is to be applied, followed by an antiseptic compress and, when practicable, a bandage. The latter is chiefly valuable over the lower extremities, where support is as imperatively required for most syphilitic ulcers as for those of eczematous-varicose type. The flannel bandage cut on the bias answers well for patients unable to apply skilfully the common roller bandage over leg or arm; and for those able to afford the slightly greater expense the silk elastic stocking is both convenient and in a high degree useful in the way of support. In this event we are in the habit of ordering for use next the skin, by both sexes, a long white cotton stocking such as is usually worn by women, the elastic silk support being drawn over the stocking.

In all indolent ulcerations of the extremities support is readily effected, after dusting with an appropriate powder, by dressing with superimposed strips of rubber or of adhesive plaster encircling two-thirds of the circumference of the limb. Internally the treatment of these ulcers is best conducted by the "mixed" method, the iodide being usually demanded in the fullest doses, and the mercurial at the same time by inunction or by addition to the iodide by the mouth in one of the "mixed" formulæ.

In the early forms of syphilitic alopecia not obviously due to changes in the scalp, it is well to clip or cut the hair short and to shampoo the scalp three or four times in the week with the tincture of green soap flavored with lavender-water or cologne-water. After such shampooing, and also, at times, when none is employed,

the following lotion may be well rubbed into the surface:

Ry. Cantharid., tinct.,	fʒj;
Hydrarg. chlor. corros.,	gr. j-iiij;
Capsici, tinct.,	
Ol. sesami,	āā. fʒss;
Spts. vin. rectific.,	fʒij;
Aq. ros.,	ad fʒviiij.—M.

Sig. External use over the scalp.

When crusts form upon the scalp, they should be removed by the shampoo; a salve may often afterward be employed, such as ammoniated mercury (or calomel), 5 grains to the ounce of vaseline, or precipitated sulphur 1 drachm and cinnabar 1 grain to the ounce of the same salve-basis.

In the management of syphilitic lesions of the mouth it has already been shown that prophylaxis is of prime necessity. The exclusion of tobacco in every form, the stopping of all carious teeth, and the removal of those requiring extraction should be secured at the outset. The chewing of gum, the constant holding in the mouth of a toothpick which is practically chewed, and even the sharp edge of a sound tooth against which the tongue plays, may each be responsible for a deeply extended ulcer. All mucous patches should be touched daily, or twice daily when practicable, with either a 5-, a 10-, or a 20-grain solution of the silver nitrate, or by the solid stick, which can be used freely in the hand of an expert. It is, however, quite unsafe, as a rule, to entrust silver solutions and caustic to patients themselves or to their friends, as the abuse or the misuse of this valuable agent follows in a great percentage of cases.

For individual use the milder washes, lotions, and gargles may be ordered, such as—

Ry. Potass. chlorat.,	ʒj;
Mel. despum.,	
Myrrh., tinct.,	āā. fʒss;
Aq. dest.,	ad fʒvj.—M.

Sig. To be used, diluted with water as required, in the throat.

A teaspoonful of this solution in a third of a tumblerful of pure water will usually be found grateful. For it may be substituted 1 drachm of the potassic chlorate in 6 ounces of peppermint-water, or a few drops of the following modification of Bellamy's iodized phenol:

Ry. Acid. carbolic.,	ʒj;
Iodin., tinct.,	fʒss;
Glycerin.,	
Spts. vin. rect.,	āā. fʒij;
Aq. dest.,	ad fʒj.—M.

Sig. Ten to fifteen drops in large dilution as a mouth-wash and a gargle.

"Listerine," a proprietary preparation, is popular with many patients (it is chiefly a weak distillate of eucalyptus), diluted as required. Mercurial washes are also advised from 1 to 4 grains of the sublimate being added to the half pint of water, with tincture of myrrh and honey in the proportions already given. The objection to these washes is the possibility of the solution being accidentally swallowed, and for that reason other local remedies are to be preferred. The compressed tablets containing 5 grains each of the potassic chlorate may also be used, a half dozen or more, in case of need, being dissolved in the mouth and swallowed daily. In all in-

dolent cases, especially where the drug is indicated internally, we are in the habit of administering quinine, a few grains each day being laid upon the tongue, the local bitter effect of the alkaloid speedily diffusing itself through the mouth. Gummatous lesions require the use of the stronger caustics and call for the iodide of potassium internally in ample doses. In extreme cases only should the galvano-cautery be used. When the soft or the hard palate is involved, the medication of the patient should be prompt, as remediless damage may be inflicted in a single day. The iodide of potassium may be pushed rapidly to the largest tolerated dose, a mercurial is usually employed by inunction, and caustics are used freely in order to stimulate the engorged tissue to a healthier activity. In these cases, as in those of the milder mucous and scaling patches of the mouth, all very hot, very cold, acetous, salted, and highly-seasoned articles of food and drink should sedulously be excluded from the mouth.

Nasal lesions of syphilis require the internal treatment indicated in each particular case, but the local management is of importance. The solutions of nitrate of silver and the application of the crayon itself are in the first rank of local importance, the strength of a solution and the severity of the application being determined by the physician on the basis of the grade of the lesions present. Local fumigations with mercury, as already shown, are of great value in all cases of severity; and unguents of the yellow oxide or of ammoniated mercury, 1 grain to the ounce of cold-cream salve, may be applied after the use of a caustic solution. Douches are required in all cases of ozæna; they are to be prepared with chloride of sodium, 1 drachm to the pint of distilled

water, one or more drops of Bellamy's iodized phenol to a few ounces of the same, or a weak borated wash. The following vapor may advantageously be snuffed into the nostrils in cases of ozæna:

Ry. Acid. carbolic.,	ʒj;
Iodin., tinct.,	fʒss;
Aq. ammon.,	fʒij;
Aq. cologniens.,	ad fʒj.

Place in a two-ounce glass-stoppered vial, half filled with cotton, and designate: "Vapor for snuffing through the nostrils."

All sequestra of bone require removal by accepted surgical measures, care being taken lest forcible removal before the pieces of bone are entirely separated from their connections result in severe shock or, as has happened, in fatal hemorrhage. The snare and the electro-cautery apparatus may be needed in special cases.

Pharyngeal lesions resulting in stenosis or in adhesions are to be treated like similar sequelæ in the larynx—with blunt or cutting dilators, the knife, or the galvano-cautery. Excellent results may be obtained in all mild cases by albolene sprays medicated with menthol (1 to 2 grains to the ounce), with carbolic acid, with pinus Canadensis, or with iodized phenol solution (20 drops to the ounce of albolene). Caustics (nitrate of silver, chromic acid) are required for touching papillomatous and other growths. In syphilis of the larynx and of the trachea much good often results from mercurial inunction of the overlying skin. In general, the iodide of potassium is indicated internally; in mild cases, however, or in those not threatening, the "mixed" treatment answers well.