children—generally only a few weeks old—which yields in many instances to grey powder or calomel, but especially to grey powder. The chief, and to a great extent characteristic, feature of this vomiting is its suddenness and instantaneousness. Immediately the milk is swallowed, it is forcibly expelled, curdled or uncurdled, apparently without any retching or effort on the part of the child. The milk shoots out of both mouth and nose. Diarrhœa may exist, but more generally there is constipation. This affection often proves both obstinate and dangerous, as all the food is rejected, till the child, reduced almost to a skeleton, dies actually of starvation. At the *post-mortem* it often happens, either that nothing is found to account for this untoward result, or the mucous membrane may be much softened, and in consistency and appearance like water arrowroot. This vomiting, which resists all other remedies, is in many instances quickly stayed by one-third of a grain of grey powder, repeated every two or three hours. A twelfth of a grain of calomel every two hours sometimes also succeeds.

The soluble preparations act as purgatives, increasing the secretion from the mucous lining and the contractions of the muscular coat of the intestines. Not all, however, are employed as purgatives; and, when purgation is needed, our choice falls either on calomel or grey powder; either, being tasteless, is a useful preparation for children.

The influence of mercury salts on the pancreatic and biliary secretion is still undecided. Seeing the influence of mercury on the salivary glands, some conceive it probable that it exerts a similar influence on the pancreas, a gland whose structure and secretion are very similar to those of the salivary glands.

Most opposite statements have been made concerning the action of mercury on the secretion of bile. It has been stated, from experiments on animals, that the secretion of bile in health is much diminished by mercury. In his report, as secretary of the Edinburgh Committee appointed to investigate this matter, Dr. Hughes Bennett arrives at somewhat the

same conclusion. This report states: (1.) That neither blue pill, calomel, nor corrosive sublimate, affect the bile unless they purge or impair the health when the quantity of bile is diminished. (2.) That during an attack of dysentery, both the solid and fluid constituents of the bile are diminished. (3.) Purgation from any cause lessens the amount of bile and the proportion of its solid constituents.

Yet the experience of generations strongly supports the general conviction that in some diseases mercury does increase the bile. And it is not difficult to conceive that mercury in disease may set aside some condition hindering the formation of bile, and thus act as a cholagogue; yet in health it may even check this secretion.

When administered to promote the secretion of bile, it is a common practice to give for one or two nights a purgative dose; but if there is no constipation better effects may be obtained by a small dose, say one-sixth to one-half a grain of grey powder twice or three times a day. The method of administering small doses frequently is especially advantageous in those cases where the illness is apt to recur frequently from slight and scarcely preventable causes, and where the frequent employment of purgative doses would favour after constipation—produce depression and possibly salivation. For these reasons it is very common to hear highly practical doctors decry mercurial preparations, whereas, were they to employ the minute doses now recommended they would obtain the desired effect without the bad results they fear. Given in the doses just mentioned mercurial preparations in certain cases which I will indicate are signally useful.

A patient voids pale clayey stools and suffers from acidity, flatulence, or vomiting, occurring sometimes only before breakfast. Half a grain of grey powder given three times a day often restores colour to the stools, when the dyspeptic symptoms cease at once.

Small doses of mercury yield excellent results in a form of diarrhœa common in children. The child's health is bad; the digestion is imperfect, generally with annoying flatulent

distension; and three or four pale, clayey, pasty, stinking motions are passed in the day. Even when this condition has existed some weeks, a single grain of bichloride dissolved in half a pint of water, and a tea-spoonful of this given each hour, or what is better still, one-third of a grain of grey powder every hour or two hours, will in one or two days, restore to the stools their natural biliousness and frequency.

Again, we frequently meet with a case like this:—A patient, generally of nervous temperament, on exposure to cold, or after fatigue, or excitement, or even without any discoverable cause, feels sick, perhaps vomits, has a coated tongue, and in a few hours becomes jaundiced, the discoloration sometimes only affecting the conjunctiva, in other cases dyeing the skin of the whole body yellow. The stools are pale or colourless. The attack lasts three or four days and is accompanied by great depression. The patient may undergo many attacks, and so frequent indeed, that before the discoloration of one has passed away, another has begun. Here one-sixth or one-third of a grain of grey powder taken at the very onset and repeated three or four times a day allays the sickness, cuts short the illness, increases the intervals between the attacks, and after a time cures the patient even though he may have thus suffered for several years. If, however, there is obstinate constipation, then a course of Carlsbad waters is sometimes more efficacious.

The same weak bichloride of mercury solution of a single grain in ten ounces of water in doses of a teaspoonful is very efficient in another serious form of diarrhœa, either acute or chronic, common in children. The characteristics of this form are very slimy stools, especially if mixed with blood, accompanied by pain and straining. The great indication for the bichloride is the slimy character of the motions. Sometimes the slime is very tenacious, and, being coloured with blood is described by the mother as "lumps of flesh." This affection, as we have said, may be acute, or it may be chronic, and last for months; but in either case the bichloride cures with remarkable speed and certainty.

A similar treatment relieves the dysentery, acute or chronic, of adults, provided the stools are slimy and bloody. A hundredth of a grain, given hourly, or every two hours, according to the severity of the case, is generally sufficient, rarely failing to free the stools from blood and slime, although in some cases a diarrhœa of a different character may continue for a short time longer, requiring perhaps other treatment for its removal.

A sixth of a grain of grey powder given hourly is of great service in infantile cholera, characterized by incessant sickness, with profuse and almost continuous diarrhœa, very offensive and copious motions, watery almost colourless, or of a dirty muddy aspect. Under this treatment the vomiting generally soon ceases, and the diarrhœa shortly afterwards. Infantile cholera is an extremely fatal disease, running so rapid a course, that in a very brief space a child is reduced to a deathlike aspect and dangerous condition. It is essential then to check the diarrhœa as speedily as possible. A starch injection, with a minute quantity of laudanum, assists the action of grey powder, and should be employed in urgent cases.

Infants are not unfrequently the subjects of chronic diarrhœa, characterized by watery, very offensive, muddy-looking or green-coloured stools, often to the number of ten or twelve daily. This diarrhœa is generally to be restrained by grey powder, in doses of a sixth of a grain, given at first hourly, and then every two or three hours, according to the frequency of the stools. The occurrence of vomiting is an additional indication for this treatment. Although this medicine may check the diarrhœa and vomiting, yet, if the disease has endured a long time, so serious may be the injury inflicted on the mucous membrane of the stomach, that food can neither be digested nor absorbed, and the child gradually wastes away. The appearance of thrush in the mouth is an unfavourable sign, as it generally indicates profound damage to the mucous membrane of the digestive canal. So also it is a bad sign always in the chronic diarrhæa of children, when

the stools change in character from time to time—now watery then slimy, at another time curdy, and at another green. It is far easier to cure a diarrhœa when the motions are always of a uniform character.

It is important to treat promptly the severe forms of infantile diarrhœa, for being generally inflammatory, the mucous membrane of the large, and even that of the small intestine becomes seriously affected. The mucous membrane of the large intestine is extensively ulcerated or considerably thickened and granular-looking, whilst the mucous membrane of the small intestine, a part of the tube less commonly affected, may be much softened. It will be readily understood that disease so extensive must take some time to cure.

Mercury, as we have seen, proves very serviceable in most of the forms of children's diarrhœa, both acute and chronic. I have endeavoured to point out the circumstances when one mercurial preparation is preferable to another. It may be urged that as both in severe, acute, and chronic diarrhœa the same pathological conditions are found, that the same form of mercury suitable for one case would equally benefit another. But though the pathological state is held to be identical, still some differences there must be which have hitherto escaped observation, for surely it requires a different pathological condition to produce in one case slimy stools, in another watery, and in another green curdy stools. These differences displayed in the symptoms, though at present not discriminated pathologically, require somewhat different treatment. Hence, though in each kind of diarrhœa, all forms of mercury are useful, it is found that in some cases bichloride of mercury is greatly to be preferred, and in other cases grey powder. In the treatment of chronic diarrhœa, mercurial preparations are often required for many days, and it frequently happens that though they alter the character, and lessen the frequency of the motions, yet the diarrhœa may persist and may require for its cure, other remedies, like lime, arsenic, and nux vomica. In the treatment of chronic, as well as in that of acute diarrhœa, too much attention can-

not be paid both to the quality and quantity of the food. Acute diarrhœa is often aggravated, and made chronic, by over-feeding; a short time after each meal, the child is violently purged, and the mother seeing it wasting rapidly, is apt to think, she can check the diarrhœa by giving as much food as possible. But it must be borne in mind, that digestion is greatly impaired, so that but little food is digested; the excess lodging in the intestinal canal, undergoes decomposition and acting as an irritant, increases the disease. Not only should the quantity of food be small, but it should be given frequently in very small portions. It is also important to clothe the child warmly, and to put a flannel roller round the belly, as Dr. Eustace Smith strongly insists.

There is a form of diarrhœa little influenced by mercurial preparations, nor indeed by the other usual remedies for diarrhœa: the child passes large acid offensive curdy stools evidently consisting of decomposing curds. This diarrhœa is best treated by withholding milk entirely and substituting animal food.

The chronic diarrhœa of adults, independently of serious organic change of the intestines, with watery, pale stools, often yields to the hundredth of a grain of corrosive sublimate every two or three hours. The same treatment answers sometimes in the diarrhœa of typhoid fever and phthisis.

A thickly-coated creamy tongue occurring in dyspepsia, in the course of chronic disease, or in early commencement of convalescence from an acute illness, may generally be cleaned with simultaneous improvement of the appetite and digestion and removal of disagreeable taste in the mouth by one-third or a grain of grey powder three or four times a day. If there is constipation then it is better to give half a grain of calomel with three grains of extract of hyoscyamus repeated for three nights. The first pill generally purges twice or thrice, the second less, and the third not at all. Grey powder should be given if there is either diarrhœa or tendency to it, for besides its effect on the tongue and stomach, it will generally control the diarrhœa at the same time

restoring to the motions, if too light or too dark, their natural colour.

With the exception of the sulphide, all mercury compounds enter the blood, and are employed in a variety of diseases on account of their action on distant organs.

The prolonged and undue employment of mercury produces serious mischief. The body wastes, and the blood becomes much impoverished, and "mercurial fever" may be induced, sometimes accompanied by pustular or vesicular eruptions. In mercurial tremors, weakness in the upper extremities is first noticed, and the voluntary movements lack their usual precision. Soon, slight tremors occur, and gradually increase in severity and extent till the whole body becomes affected, the legs being attacked before the trunk. These tremors are easily excited, they cannot be controlled, and persist for some time. In severe cases, almost every part of the body is affected by severe spasmodic movements, so that respiration is spasmodic, and the sufferer may be unable to walk, talk, or masticate. Loss of memory, headache, delirium, and even convulsions, may occur. Salivation is sometimes absent; for the mode of poisoning greatly influences the effect of mercury, inhalation generally producing tremors, inunction producing salivation. Inunction, however, has produced tremors. Complete recovery generally takes place, provided the patient is removed from the influence of mercury before the disease has greatly advanced. The treatment of mercurial poisoning consists in the use of simple or sulphurous baths, and of iodide of potassium. The influence of iodide of potassium on mercury in the system has been spoken of elsewhere. (*Vide* Iodide of Potassium.)

Mercury was formerly indiscriminately administered for the cure of syphilis, in all its forms and stages. Given in enormous quantity, the constitutional effects sought to be produced were very serious. Further experience showed that this severe treatment was by no means necessary; nay, that it did more injury than good. The bad effects undoubtedly resulting from the too free administration of this drug have

led many to discontinue its use in syphilis, and even to attribute to the pernicious influence of mercury many of the more serious diseases, as destruction of the bone, etc., formerly met with in syphilitic patients. It has even been denied that these graver lesions are ever produced by syphilis.

There is much to countenance these views; for it is singular how similar the phenomena produced by mercury are to those which result from syphilis. The author thinks it is fairly shown that the serious secondary and tertiary symptoms laid to the charge of mercury, can be produced undoubtedly both by syphilis and by mercury salts; so that these salts if given too freely, for too long a time, or under improper circumstances, inflict great harm by aggravating the disease they were intended to cure.

An influential school of the present day maintain that over syphilis mercury is powerless, and that its administration is simply harmful; there is, however, a larger and more prevailing school as firmly convinced of the usefulness of mercury when judiciously employed.

The believers in the efficacy of mercury hold generally:

That it is good in both primary and secondary syphilis.

That it is of use in the treatment of the hard chancre only, and does harm in the soft.

That by the aid of mercury the hard chancre is more speedily cured, and the patient is less liable to secondary symptoms which are milder in character.

That most forms of secondary syphilis yield quickly to mercury.

The following propositions are extracted from the admirable lectures by Mr. Jonathan Hutchinson to whom medical science is in so many ways indebted.

"That mercury is probably a true vital antidote against the syphilitic virus and that it is capable of bringing about a real cure.

"That in practice, a good many cases are really cured by mercury; the cure being proved by the restoration to good

health, and in some cases by renewed susceptibility to contagion.

"That the probability of cure depends upon the stage of development, attained by the disease when the remedy is resorted to, and upon the perseverance, with which it is used.

"That in order to secure the antidotal efficacy of mercury against syphilis, it is desirable to introduce a considerable quantity into the system and to protract its use over a very long time.

"That ptyalism and other evidences of the physiological action of mercury, so far from being beneficial, are if possible to be carefully avoided, since they prevent the sufficiently prolonged use of the remedy.

"That in cases in which the patient shows an idiosyncrasy, peculiarly susceptible to mercury, the indication is to reduce the dose, rather than to omit the drug.

"That it is impossible to begin the administration of mercury too soon, and that it should be resorted to without loss of time, in all cases in which a chancre shows a tendency to indurate.

"That many cases of indurated chancre, treated early by mercury, never show any of the characteristic symptoms of the secondary stage.

"That in other cases of mercurial cure of the chancre, in which yet secondary symptoms do occur, they are usually milder, than if allowed to develope without specific treatment.

"That when mercury does not wholly abrogate the secondary stage, it exhibits a remarkable power in delaying it.

"That delayed outbreaks of secondary syphilis, are to be regarded, rather as proof that the administration had not been sufficiently persevering, than that the remedy was not efficient.

"That it is probable that the risk of tertiary symptoms, is in ratio with the severity and prolonged duration of the secondary stage.

"That there are some grounds for believing that the tertiary symptoms of syphilis, are both less frequent and less

severe, in those who have been efficiently treated by mercury, than in others.

"That mercury cautiously given, does not in a great majority of cases do any injury to the general health, and that its local inconveniences may usually be prevented.

"That the doctrine of the real antidotal character of mercury in respect to syphilis, ought to lead to much more prolonged administration of it, with the hope of destroying utterly all lingering germs of the malady.

"That most collected statistics as to the duration of treatment and freedom from relapse, are misleading and worse than useless, because usually the treatment was far too short to be effectual.

"That it has not yet been proved that there are any special forms of syphilitic disease, in which mercury ought to be avoided, although as a rule it is acknowledged that it must be used with more caution in all forms which are attended with ulceration, than in others.

"That iodide of potassium possesses little or no efficacy against either the primary or secondary forms of syphilis.

"That the efficacy of mercury is often most signally proved in cases which have utterly resisted the action of iodide of potassium.

"That it does not much matter whether mercury is given by the mouth, by inunction, or by the vapour bath, provided that whatever method is selected, care is taken to avoid salivation, purging, &c.

"That the doses usually resorted to for internal administration, are for the most part too large, and thus often necessitate a premature discontinuance of the remedy.

"That if one method of administration does not proceed satisfactorily, another should be tried; and that in no case of difficulty should the vapour bath be forgotten."

Congenital syphilis of children in most of its forms, succumbs to mercury with singular rapidity. It is a common practice to give to children small doses, as of a quarter of a grain of grey powder, and to add to it small doses of Dover's

powder to prevent relaxation of the bowels. But the author is convinced, that much larger doses of grey powder, are more beneficial, and remove the disease far more quickly and succeed indeed, where the smaller dose fails. Thus one or even two grains of grey powder, may be given three times a day, unguarded with opium, for it is the rarest thing for even these doses to purge; nay, if any diarrhœa exists, a not uncommon complication, these doses check it. Moreover these large doses may be continued for a considerable time, till every symptom has vanished, without producing any of the toxic effects of the drug. As a rule, however, one grain of grey powder thrice daily is sufficient. Those comparatively rare forms of congenital disease, where the periosteum is affected, usually near the articulation of some of the long bones, yield best to iodide of potassium (see this drug), though as far as my experience goes, it is still necessary in most cases to resort to mercury, to remove the other evidences of syphilis.

While admitting the validity of these views, it is necessary to say that sometimes syphilitic patients are apparently completely cured without mercury, by mere general treatment, tending to improve the health; and further, if the health is kept in good order, the secondary symptoms will be of a mild character. Cases of syphilis occur which are entirely uninfluenced by mercury, and are curable only by diligent attention to those hygienic circumstances which mend the general health.

Mercurial fumigations with steam when other means fail often cure certain obstinate syphilitic rashes.

The firmest believers in the efficacy of mercury in syphilis are unanimously agreed that it is not only undesirable, but pernicious, to give it in quantities sufficient to produce salivation; yet it appears that those preparations which salivate quickest manifest the greatest power over the disease, and hence the metallic and mercurous preparations, as grey powder and calomel, are preferred by some to the mercuric as corrosive sublimate.

It is a common, and often successful practice to take mercurial purges, generally in the form of a blue pill, to prevent or mitigate an attack of sick headache. For further information of the employment of mercury in this troublesome affection, the reader is referred to the section on podophyllum.

It was thought formerly that mercury salts were endowed with the power of controlling inflammation, and to this end they were constantly given even to salivation; now, however, their use under such circumstances is much less general. Bichloride of mercury certainly appears to be of great use in iritis and inflammations of the deep-seated parts of the eye. In other inflammations, especially of the serous membranes, it is probably of service, appearing to check the inflammation, and to promote the absorption of effused products.

According to very high authorities, among whom may be mentioned Dr. Parkes, small doses of calomel may be most beneficially given in typhoid fever. This medicine should be given at the commencement of the disease; some think it useless after the ninth or tenth day. It is considered to lessen the height of the fever, to shorten its course, to make the intestinal derangement much milder, and to check the diarrhœa. Some push the medicine till the gums are slightly touched; but this practice, not only unnecessary, but harmful, should be carefully avoided.

There are some observations, in part made by Dr. Harley, which tend to show that corrosive sublimate is a "heart poison;" for the heart of an animal destroyed by corrosive sublimate soon ceases to contract after death; and the heart of a frog suspended in a solution of this salt ceases to beat much sooner than a heart suspended in pure water.

Mercury remains a long time in the body, and, it is stated, may accumulate in globules in the cancellous structures of bone.

Mercury salts are to some extent eliminated by the urine, but chiefly by the mucous membrane of the intestines, and with the bile.