

An essay on mercury : wherein are presented formulae for some preparations of this metal, including practical remarks on the safest and most effectual methods of administering them, for the cure of liver-complaints, dropsies, syphilis, and other formidable diseases incident to the human frame, being the result of long experience and diligent observation / by David Davies.

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from the Author
AN
ESSAY ON MERCURY; 9

WHEREIN ARE PRESENTED

FORMULÆ

FOR SOME PREPARATIONS OF THIS METAL,

INCLUDING

PRACTICAL REMARKS ON THE SAFEST AND MOST
EFFECTUAL METHODS OF ADMINISTERING THEM,
FOR THE CURE OF LIVER-COMPLAINTS,
DROPSIES, SYPHILIS,

AND OTHER,

FORMIDABLE DISEASES INCIDENT TO THE HUMAN FRAME;

BEING

THE RESULT OF LONG EXPERIENCE AND DILIGENT
OBSERVATION.

By DAVID DAVIES, M. D.

MEMBER OF THE ROYAL COLLEGES OF PHYSICIANS AND SURGEONS,
LONDON; AND SENIOR SURGEON TO ST. PETER'S
HOSPITAL, BRISTOL.

Nam ne agricolam quidem aut gubernatorem disputatione,
sed usu fieri.—*Celsus*.

London:

PRINTED FOR R. HUNTER, ST. PAUL'S CHURCH-YARD;
AND T. J. MANCHEE, BRISTOL.

1820.

TO
THE GOVERNOR,
DEPUTY GOVERNOR, AND GUARDIANS
OF
St. Peter's Hospital, Bristol.

GENTLEMEN,

A desire of offering an additional proof, however inconsiderable, of my earnest wish to lessen the pressure of human suffering, has led me to pen the following Essay on Mercury. A hope that it may be of publick benefit has induced me to publish it; and a grateful sense of the obligations conferred on me has determined me to dedicate it to you, who are successors to a long list of Governors and Guardians, by whose favour I have been allowed for more than thirty years the privilege of tracing, by post mortem examinations, diseases, which terminated fatally at St. Peter's Hospital, from their causes to their effect. In the following pages I shall take occasion to state the safest and most efficacious methods of affecting the system with Mercury, when required for the cure of Liver-complaints,

Dropsies, and Syphilis, or the removal of other formidable diseases. The methods which I have to recommend have been adopted by me for many years, in numerous instances, with great success ; and I am fully persuaded that salivation is often inefficient, and seldom, if ever, requisite for the cure of disease.

St. Peter's Hospital, over which you preside, beside possessing ample means of improvement in Medico-Chirurgical knowledge, being the only asylum for Syphilitick patients in this large and populous City, has afforded me frequent and constant opportunities of administering preparations of Mercury, and appreciating their efficacy in the different stages of disease ; whilst the Lying-In Ward which it contains has furnished me with many instances of mothers and their infants contaminated with Syphilis in melancholy variety. So extensive and so long an experience as I have had in the administration of Mercury has, I believe, fallen to the share of few ; and I feel satisfied that my time has neither been passed unprofitably for the Publick, nor disadvantageously for the suffering Poor.

Claiming the gratification of bearing this publick testimony to the prompt and liberal allowances which you have afforded to the In-Patients during seasons of considerable distress and difficulty, and believing that a continuance of my professional exertions in the cause of humanity may still prove acceptable to yourselves and to my Fellow-Citizens,

I am, Gentlemen,

With all possible consideration,

Your very obedient servant,

DAVID DAVIES.

Park-Street, March 23, 1820.

THE HISTORY OF THE
CITY OF BOSTON
FROM THE FIRST SETTLEMENT
TO THE PRESENT TIME
BY
JOHN DAVENANT
OF THE MIDDLE TEMPLE
IN LINCOLN'S INN
ESQ.
IN TWO VOLUMES.
VOL. I.
LONDON:
Printed by J. DODD, in Pall-mall.
1724.

INTRODUCTION.

ALTHOUGH the indiscriminate administration of the acrid preparations of Mercury cannot be too strongly reprobated; yet, as the human frame is assailed by so many diseases, which generally terminate fatally unless removed or at least mitigated by the judicious administration of this metal, I think that the most fastidious reader will pardon any attempt which is honestly made, and ingenuously imparted, for the purpose of pointing out the safest and most efficacious method of eradicating such diseases by the use of Mercury, of preserving the constitution of the patient from the effects of mis-management, and which may eventually diminish the abuse of this valuable remedy. Many years since I adopted an opinion that Mercury, introduced cautiously into the system by inunction, more certainly removed disease than by the internal exhibition of it; also

that Mercury eradicated disease more certainly and more safely when not allowed to pass off by the salivary glands, than when salivation was produced. Experience and observation have confirmed these opinions to the fullest extent. Much has been said and written by theorists on the cure of Syphilis without the aid of Mercury. I feel it therefore an imperious duty to caution the credulous and uninformed against a reliance on the anti-syphilitick power of any other medicine yet discovered. I do not, however, mean to say that the constitution, impaired by disease or by the improper administration of Mercury, may not occasionally derive benefit from the use of other remedies; among which might be named Iron, Sarsaparilla, Bark, Guaiacum, Nitrick Acids, and other tonicks.

AN
ESSAY ON MERCURY,

&c.

MERCURY, so extensively used in the arts and in medicine, is well known as an article of commerce, by the name of Quicksilver.* From its fluidity and colour, it was named by the Greeks Udrargyros,† and by the chemists of the present day it is called Hydrargyrus.

Writers on mineralogy inform us that in nature it is found in different states.

First. As native Mercury, adhering in small globules to the surface of the ore of cinnabar, or scattered through the crevices or over the surface of different kinds of stone.

Secondly. It is found united to silver, in the ore called amalgam of silver, or native amalgam. This ore exhibits thin plates or grains, and is in colour grey, or of a silvery white: its lustre is

* Argentum vivum.

† υδραργυρος.

considerably metallick. Combined with sulphur, under different circumstances and in different proportions, it constitutes Native Cinnabar, or Sulphuret of Mercury. This is the most common of the mercurial ores. It is frequently found in veins, and sometimes chrystalized in four-sided,* and at other times three-sided, pyramids.

Thirdly and Fourthly. It is found in combination with muriatick or sulphurick acid, and thus forms what is called Horn-Quicksilver.† These ores are in general semi-transparent, of a grey colour or white; sometimes crystallized, but more frequently in grains.

Fifthly. United to oxygen, it constitutes the ore called Native Oxyd of Mercury.

Numerous mines, producing the ores of Mercury, are found in the Venetian States. The East-Indies and Hungary afford great supplies of this metal. In China, Japan, and about Montpellier, in France, it is found in considerable quantities.

The Quicksilver of Commerce is often adulterated with lead or tin, and requires, therefore, for the purpose of medicine, being purified by slow distillation, either with or without filings of iron; in which state of purification only it

* Tetrahædra.

† Corneus Mercurius.

will be hereafter mentioned by the writer, as Mercury forming the basis of its preparations.

Mercury is the heaviest of all known metals, with the exception of platina, gold, and tungsten. Agreeably to the experiments of Muschenbrock, the average specifick gravity of Mercury is 13.674. It retains a state of fluidity in the temperature of our winter, and on this account has not, by some, been considered a metal. It has however been found to congeal at about — 32, in the scale of Reaumur, or about 39 or 40 degrees below Zero, in the scale of Fahrenheit; and then it possesses both ductility and malleability. Mercury, in its fluid state, has a white, resplendent, polished surface; and is without either smell or taste. When taken into the human stomach, it seems inert, and passes through the intestinal canal unchanged in its quality.

But this metal, which is found to be inert in its metallick state, becomes a powerful medicine by trituration, by calcination, and by its combination with mineral and vegetable acids, whence it acquires a greater or less degree of oxydation. If Mercury be long and strongly agitated, in a closed glass vessel, of which the metal may occupy a third part, it is changed into a subtile black powder, which is an Imperfect Oxyd of Mercury, and may by heat be readily

restored to its reguline form. This Imperfect Oxyd may be formed in a variety of ways—by a long agitation of Mercury, in phials, with alcohol and other liquids, and is stated by Fourcroy to be composed of ninety-six parts of Mercury and of four parts of oxygen: though by others it has been considered as Mercury in a state of extreme division. Mercury is brought into the same state by trituration with lard, mucilage of gum acaciæ, honey, manna, vegetable extract, or any other clammy cohesive substance; which, by the oxydization of the metal, becomes of a dark slate-colour. In this manner Mercury is advantageously prepared for medicinal purposes. The expansion of Mercury, by heat, until a considerable distance above the heat of boiling-water, is sufficiently regular; hence its use in the construction of Thermometers. But Mercury, being exposed to a heat of six hundred degrees of Fahrenheit's scale, flies off in vapour.

If this vapour be collected in a proper apparatus and condensed by cold, the Mercury will be found in its reguline form. If Mercury be long exposed to any degree of heat, from four hundred to six hundred degrees of Fahrenheit's scale, air being properly admitted, it forms calcined Mercury,* which is a Perfect Oxyd of

* Hydrargyrum calcinatum.

Mercury. If the heat be now augmented to a red heat, atmospherick air will be first disengaged, which will be succeeded by a pure oxygen gas, and then the Mercury will be forced over in its native form.

Mercury may be combined with any of the acids, and from these combinations the different acrid preparations of Mercury used in medicine are formed. Mercury is dissolved by the nitrick acid, either with or without heat; but, if the solution be carried on without heat, the product will be an imperfect oxyd; if by a strong, long-continued heat, a perfect oxyd will be produced. These two preparations were usually called Nitrate of Mercury. Green properly calls the imperfect oxyd by this name, and the perfect oxyd he calls Nitrated Oxyd of Mercury. As by nitrick acid and strong heat long continued this metal is converted into red precipitate,* which is a perfect oxyd, it is named, by the Royal College of Physicians, Nitric-Oxyd of Mercury.†

Mercury combines with muriatick acid; for, by adding it to a solution of the metal in nitrick acid, the muriatick acid is found to have a greater affinity with, or stronger attraction for, the Mercury thus dissolved, than the nitrick acid has; and it therefore combines with the metal, and

* Hydrargyrus nitratus ruber.

† Hydrargyri nitrico-oxydum.

separates it in the form of a white precipitate.* Mercury may in like manner be combined with sulphurick acid, forming Sub-Sulphate of Mercury, which is precipitated in form of a yellow powder.†

Mercury may also be united to the muriatick acid, by adding a proper proportion of culinary salt‡ to the calx made with the nitrick acid. This mixture being exposed to heat in proper vessels, the Mercury, thus united to the muriatick acid, is sublimed, and forms Corrosive Sublimate. || It is not, however, a perfect oxyd, but Mercury highly oxydized. If Mercury be added to Corrosive Sublimate, in the proportion of nine ounces of the former to twelve ounces of the latter, and the mixture be triturated, it becomes of a blackish grey colour; this, being exposed to a degree of heat sufficient to convert it into vapour, forms a white mass, which being again triturated and sublimed twice or thrice, produces the Submuriate of Mercury.§

The foregoing preparations, with the addition of the Acetate¶ and Phosphate** of Mercury,

* Hydrargyrus precipitatus albus.

† Sub-sulphas hydrargyri flavus.—*Pharmacopœia Edinensis*.

‡ Murias sodæ. || Oxymurias hydrargyri.

§ Hydrargyri submurias. ¶ Hydrargyrus acetatus.

** Hydrargyrus phosphoratus.

are the chief of the combinations with acids of this metal. But as all these preparations are more or less acrid, they ought not to be internally administered without great caution, lest they should produce violent and dangerous effects: for if either of the above preparations be taken into the human stomach, particularly if of the more acrid sort, it occasions an uneasiness at the stomach, nausea, or vomiting; then, passing into the intestines, it produces purging, with griping pains. These considerations have induced Physicians, by the aid of Chemistry, to use their diligence for the purpose of precuring milder and safer preparations of Mercury. However commendable such attempts, it must, I think, be allowed that, for internal use, the less Mercury be changed by fire, and the less it contains of mineral or vegetable acid, provided it be sufficiently oxydated to produce on the patient the general effects hereafter to be related, the better it will be fitted for the valuable purpose of eradicating those formidable diseases against which time and experience have proved its undoubted efficacy.

Under this impression, I shall here offer formulæ for some milder and safer preparations of Mercury than those before noticed; which I shall name Confection, Powder, and Solution of Mercury.

CONFECTIO HYDRARGYRI.

R Hydrargyri purificati,
 Mannæ optimæ,* partes æquales,
 Tere Hydrargyrum cum Mannâ donec globuli visum
 fugerint ut fiat Confectio.

PULVIS HYDRARGYRI.

R Confectionis Hydrargyri,
 Pulvis Glychyrrhizæ, partes æquales,
 Mft. Pulvis signatur Pulvis Hydrargyri.

SOLUTIO HYDRARGYRI.

R Confectionis Hydrargyri, grana triginta duo,
 Mucillaginis gummi acaciæ, fluidunciam,
 Syrupi, fluidrachma sex,
 Aquæ Cinnamomi, fluidrachmas duas.
 Signatur solutio Hydrargyri.

If any of these milder preparations be taken into the human stomach in appropriate doses, little or no inconvenience or disturbance will be caused to the stomach, or to the alimentary canal; but the circulation is increased in frequency as the Mercury is carried by the absorbents into the blood, by which means the perspiration is promoted, the flow of urine is increased, and the excretions generally, from the other

* Molasses or treacle may, I think, be advantageously substituted for the Manna; as the former does not undergo decomposition.

emunctories of the body, are encouraged. At length the Mercury is found to affect the salivary glands, producing a copious flow of saliva; the mouth of the patient being previously affected with a brackish metallick taste, the breath smelling offensively, the gums swelling and becoming elongated and spongy, easily bleeding on being rubbed; the internal part of the mouth then becomes heated, much thirst is present, and a viscid acrid saliva now flows more copiously. This state appears to be the boundary beyond which Mercury should not be administered, particularly to females and children. If, however, the Mercury be still continued in the same proportion, or misused in larger doses, the ptyalism increases, attended with an increased inflammation of the mouth and fauces, which become affected with painful apthous ulcers; the salivary and mucous glands become swelled, the tongue, covered with a thick white pellicle, sometimes swells in such a manner as to be protruded from the mouth; the lips and face are affected with inflamed painful swellings; and, during the whole process, more or less fever is present. These symptoms become more or less violent, of longer or shorter continuance, depending on the quantity of Mercury absorbed, on the habit of the body, on the age of the patient, and on the method of management: for, should a patient

under the influence of Mercury be exposed to a cold moist air, or drink cold liquids, the inflammation of the mouth and fauces may be much and quickly increased, and ptyalism greatly augmented; or the Mercury diffused through the system may be suddenly and copiously deposited on the intestines, exciting there great and dangerous effects. Violent griping, with great anxiety, thin watery stools, frequent and copious, mixed with blood, weaken the patient, until syncope and even death have ensued. Such are the effects of Mercury, when carried into the circulation too rapidly, in too great a quantity, or when any error is committed in clothing, diet, or in the admission of cold damp air.

Some theorists have imputed all these effects to the action of Mercury on the fluids of the body; for, as Mercury is much heavier than the blood, they have not doubted that, being mixed with it, the increased weight which it thus acquires gives a greater impetus to it; and that the Mercury, adhering to the particles of it, divides them in such a manner as to render the whole mass of blood more fluid, consequently more capable of passing off by the different emunctories of the body. An axiom founded on this theory may be seen in Van Swieten's Commentaries on the Venereal Disease, viz.

"Render the blood and lymph more fluid, and
 "you will have destroyed the virus."*

Others have maintained that the blood, impregnated with Mercury, becomes heavier and better fitted for the purpose of opening and entering the smallest vessels; whilst others have undertaken to prove the futility of these conclusions, by the following considerations.

First. Mercury, before it can be taken into the circulation, must be divided into the most minute particles.

Secondly. Half a grain of the Oxymuriate of Mercury has been known to produce salivation. This and other instances, wherein great effect has been produced by very small doses of Mercury, prove, I think satisfactorily, that the effect of it does not depend on any change produced by it on the fluids of the human body. Further, were Mercury fitted by its gravity to dissolve or attenuate the blood, would it not be reasonable to expect the like or even greater effect from the administration of metals that are more ponderous? But no such effect, as far as is known to the writer, has been produced by the exhibition of such metals: little therefore can be expected from the specifick gravity of any metal, as an attenuator of the blood.

* Section 1477.

Oxyd of Gold has been much extolled for the cure of Syphilis, by an eminent Physician of Montpellier, Dr. Chretien. To his book I would refer the curious reader, and on this occasion need only observe that *post mortem* examinations of those who have died whilst under the influence of the oxyd, prove that, so far from breaking down the texture of the blood, evident marks of inflammation on the stomach and intestines have invariably been present.

A grain or less of Cantharides, taken into the human stomach, frequently produces considerable effects on the urinary passages, and has in some instances produced a discharge of blood ; from which it has been thought that this fluid was attenuated or dissolved by Cantharides. Experiments, instituted to ascertain the truth of this supposition, prove that Cantharides have not any such effect on the blood ; nor can it be reasonably supposed that so small a quantity of Cantharides introduced into the blood (which in a middle-sized healthy adult amounts to about thirty-five pounds) can be equal to the production of such a change. It appears that a change in the texture of the blood is not to be expected, either from the weight or quantity of the Mercury used and taken up by the absorbents, because no such change has been detected when the Mercury has been most freely

absorbed : on the contrary, when the blood has been taken from a patient charged with Mercury, it does not alway differ in appearance or weight, when compared with blood taken from a person in apparent good health ; the one having generally the like quantity of coagulum and serum as the other. The only difference that has ever been observed by the writer, between the blood of a person under the influence of Mercury and the blood of a person not under the influence of it, is, that the blood of the former is sometimes covered with a tough buffy pellicle. This further proves that the texture of the blood is not broken down or rendered more fluid by the absorption of Mercury. Conformably to this fact, it has been observed that dropsies, which are attended with a loose texture of the blood, have been happily cured by the use of Mercury, and that patients under the influence of it have been attacked with ague ; which by some is attributed to the viscid state of the arterial blood.

Should it be demanded of the writer, How then does Mercury act?—his reply might be, that it is more easy to say how it does not act, than to give a satisfactory statement of the *modus operandi* of this metal ; and that it is sufficient that the Physician should be acquainted with the effects that are produced by Mercury on the human body, when successfully administered, for

the removal of disease. Why the sulphates of copper and zinc, why tartarized antimony or ipecacuanha, should cause vomiting; why aloes or gamboge, jalap or scammony, should produce evacuations by stool, or why opium constricts the bowels, and induces sleep, has not, as far as is known to me, been satisfactorily accounted for by any one. It does not however appear improbable that Mercury, applied to the human body, and taken up by the absorbents, removes disease by a stimulating effect *sui generis*, first exciting the action of the absorbents, and tending through their means to affect the salivary glands, and all the other excretories of the body on which it acts.

In order that we may be the better enabled to form a consistent opinion of the action of Mercury on the human body, I shall take leave to make a more particular inquiry relative to some of the effects already enumerated, p. 8 and the following pages, said to proceed from the exhibition of Mercury internally. It was there observed that it occasions uneasiness at the stomach, nausea, and vomiting. These effects proceed from the acrimony of the preparations, which is chiefly produced by the combination of acids with the metal; for calcined Mercury, and Mercury slightly oxydized by trituration, taken in a dose sufficiently large,

will produce these effects. Mercury produces on the intestines a cathartick effect. All purgatives are endued more or less with a stimulating property, and by being applied to the open mouths of the excretories, on the whole surface of the intestines, remove not only their contents, but, by stimulating the excretories, produce a copious discharge from the liver and other viscera. It will, I think, be granted, that these effects are similar to the effects of Mercury taken internally; for the intestines are frequently affected by Mercury as if a cathartick had been received into the stomach. But Mercury, carried into the system by the absorbents, either from the exhibition of it internally or by the application of it externally, pretty constantly accelerates the circulation of blood, promotes perspiration, and increases the flow of urine. Sudorificks and diureticks are manifestly stimulants, or chiefly act by their stimulating qualities; and it may be inferred that Mercury acts in like manner.

Mercury more frequently affects the salivary glands.

If the blood were attenuated or dissolved by the use of Mercury, as some contend, would not all the secretions be increased at one time?

To this circumstance I have often paid attention, and have found that this does not happen; but that chiefly an increased discharge from one

set of emunctories, to which the Mercury has been directed, rather than another set, occurs.

Physiologists have endeavoured to explain the reason why the stimulus of Mercury should be carried most frequently to the salivary glands; and they have attempted to account for it by the specifick gravity of Mercury. Some pretend that the particles of the metal, taken up by the absorbents into the circulation, are driven with the blood from the left ventricle of the heart into the aorta, and of necessity, as if by a beaten track, pass by the carotid arteries; whilst the lighter particles of the blood are diverted into the descending aorta. But by others it has been observed that such a theory can only be supported by those ill versed in the science of Anatomy. Why, therefore, Mercury is determined more frequently to the salivary glands, remains to be accounted for in some other manner.

And it has been suggested that, as emeticks and catharticks possess a power of stimulating the stomach and intestines, Mercury may be endued with a power of stimulating the salivary glands. Or as asparagus, cantharides, salines, turpentine, and some other substances, are more readily blended with the aqueous part of the blood, and conveyed to the kidneys, may not Mercury be more readily taken up by the

particles of blood, which are to pass off by the salivary glands?

The gums become charged and elongated, readily bleeding on being rubbed, and the mouth of the patient is affected with a metallick coppery taste, resembling that which is experienced by a person standing over Mercury, whilst it is changed by trituration into a black or grey oxyd; or resembling the taste of which we are sensible if the tongue be touched by the finger after having handled our copper coin. This coppery taste is always present before salivation commences, which clearly proves that Mercury, before it can produce salivation, deposits its acrid, stimulating effects on the salivary glands; for soon afterward the other symptoms of the Mercurial stimulus applied to the mouth are discovered. The breath then emits an offensive putrid smell.

From these symptoms Physicians have been induced to suppose that the blood becomes dissolved during salivation; but it cannot be admitted that these symptoms are attended with a putrid state of the blood: for it is well known, and evinced by daily experience, that a disordered stomach, a carious tooth, or a little animal food suffered to adhere between teeth that are sound, will render the breath offensive, the blood still preserving its healthy state.

That the saliva might be changed by the effect

of Mercury, and converted into a kind of viscid, acrid, or putrescent substance or fluid, I will readily allow ; but that the mass of blood, or any considerable portion of it, should become dissolved or putrid, cannot consistently be maintained ; seeing, as has been before stated, that blood drawn from patients under the influence of Mercury does not exhibit any sign of solution or putrescence, but frequently presents an inflammatory appearance. The inflammation of the mouth and fauces increases, &c.

These, as well as the symptoms said to attend the successful administration of Mercury, prove, I think decidedly, that Mercury produces its effects by first exciting the action of the absorbents, and tending through their means to stimulate the salivary glands and all the other excretories of the body on which it acts ; as all evacuating remedies produce their effect by stimulating the excretory vessels on which they act.

Whether this theory of the action of Mercury on the human body be correct or not, or whether Mercury be still considered as a specifick or as a medicine, the operation of which is not understood, it will in no way impair the validity of the subsequent methods of administering Mercury for the cure of disease, which long and successful experience, both in Hospital and

extensive private practice, enables me to recommend, as safe and effectual methods of affecting the system with Mercury, in all cases wherein its powerful and salutary effects are required to remove or to alleviate those formidable diseases; which generally terminate fatally, unless judiciously opposed by this remedy; which, when employed with proper precaution and strict attention to the effects produced, will very seldom disappoint the expectation formed of its efficacy.

To this I would add my deliberate opinion, that salivation is seldom if ever requisite for the removal of disease; and that a cure is obtained with much more certainty when the symptoms of the Mercury being received into the system are merely kept up during a proper space of time, than when the salivary glands are too much affected.

To treat of the different symptoms and causes of the diseases which destroy the functions of the brain, liver, and other viscera, is foreign to my present purpose.

I shall on this account only observe that, although Mercury * be often found to be the proper remedy, and that an abatement of chronick

* It will be evident from what was said, in p. 3, that wherever Mercury is mentioned as a medicine, some preparation of the metal is intended.

inflammation will be obtained by the use of it, yet, in all visceral diseases, caution should be used to diminish active inflammation and fever, by venæsection and other appropriate remedies, previous to the adoption of that plan to which the patient may confidently look for cure.

The changes produced by Mercury on Syphilis being obvious to our perception, and the method I am desirous to recommend of conveying Mercury into the system being the same, whether it be administered for the cure of Syphilis, Dropsy, diseased Liver, or other diseased viscus, I shall subjoin the methods which I have usually adopted with the most happy result, even where the strength of the patient has previously been so exhausted by disease as to render the possibility of a recovery very doubtful. The writer has occasionally adopted one of the modes about to be related; the choice of which has sometimes been regulated by the convenience of the patient, and other considerations which readily present themselves; and the preparations of Mercury which have proved most efficacious are, for internal use, the Confection, Powder, and Solution, as prescribed in page 8; and, for external use, the Ointment prepared agreeably to the following formula.

UNGUENTUM HYDRARGYRI.

℞ Hydrargyri purificati, uncias sex,
Sevi ovilli præparati, unciam dimidiam,
Adipis suillæ præparatæ uncias quinqua cum semisse,
Tere primum sævum, mortario calefacto et tantillo
adipis suillæ cum Hydrargyro, donec globuli visum
fugerint, dein adde quod reliquum est adipis ut fiat
unguentum.

For the due preparation of the above, it is material that the Mercury be free from adulteration; that the Lard do not contain any salt, and that the mortar be previously made warm; and I think it advantageous to continue the rubbing for at least two hours after the disappearance of the globules.

This Ointment, being divested of the irritating substances which were formerly directed for the oxydization of the Mercury, will be found less liable to produce an eruption on the skin, which was always troublesome, and frequently rendered it impossible to proceed with the use of it. My knowledge of the Ointment I owe to the late Sir William Fordyce, whom, many years since, I had the honour of meeting in consultation on the case of a lady at the Bristol Hotwells, whose skin was much and painfully affected by a single application of the officinal ointment of Mercury then in use. The late editions of the London Pharmacopœia have admitted a formula for an

ointment, containing nearly a like proportion of the metal with the above ointment, which might have served as a proper formula, had I not deemed it just to attribute the merit of it to the late Sir William Fordyce, by whose recommendation I have used it for more than thirty years.

The preparations of Mercury above noticed, in page 8, will generally be found best fitted for the removal of disease with the least possible derangement of the stomach and other chylopoietick viscera ; but, before I proceed to give particular directions relative to the use of these preparations, it does not to me appear improper to notice more at large the Oxymuriate and Submuriate of Mercury, and also the Hydrargyrum cum cretâ and the Blue Pill; each of which has been very generally used.

In some constitutions, a very small quantity of the Oxymuriate of Mercury excites a copious salivation, that continues several days, during which the symptoms of disease are considerably alleviated ; but, soon after the increased flow of saliva has ceased, the symptoms return with as much violence as they had before shown. This medicine is, however, of excellent use in syphilitick sore throats and cutaneous eruptions, used as a gargle and internally administered in such proportions as will produce daily one lax

evacuation ; and it often happens that necessity obliges the prescriber to adopt this method ; which, when it does not act on the salivary glands suddenly, is frequently attended with success.

The Submuriate of Mercury is much milder than the former preparation, and, for this reason, has been very extensively used ; but as the readiness with which it acts on the intestines renders it a most desirable and efficacious remedy to combine with purgatives, it is on this account the less fitted for being carried into the system by aid of the absorbents. Besides a continued use of it, even when joined with opium, and it does not act as a purgative, is well known, in a great majority of instances, to produce very distressing dyspeptick symptoms ; but, from the same reason as above stated, it happens frequently that the treatment of a patient is trusted to the administration of a grain of this preparation, either with or without half a grain of opium, once or twice daily.

Of the Hydrargyrum cum cretâ, and the *Pilulæ Hydrargyri*, I have to add a few words. The former, on the authority of the late Dr. George Fordyce, has fallen into disuse ; but as I have found it an efficacious remedy in syphilis and in many glandular enlargements, I may be allowed to state the fact.

The *Pilulæ Hydrargyri* have also been so much used, that it may be expected that a comparison should be made between them and the Confection which I have ventured to offer to publick notice. The preference will, however, I doubt not, be readily awarded to the Confection ; more particularly as Mr. Abernethy, to whom the publick and the profession are so greatly indebted, states his opinion relative to these Pills in a note, p. 82, of his *Surgical Works*, last edition, after this manner :—“ I have mentioned in the second part of these observations, that the *Pilul. Hydrarg.* are very uncertain in their effects. Some of the students at the Hospital, on examining them and different parcels of the Conserve of Roses, say that the sulphurick acid may be discovered in each. Nor is it improbable that, in making the Conserve for sale, some of this acid may be added to brighten the colour ; and, if so, the *Pilul. Hydrarg.* which are made from it may contain, in varying proportions, some of that highly deleterious compound, the sulphate [sub-sulphate] of quicksilver.”

On the other hand, the Confection, page 8, being less liable to disagree with the stomach, or to pass off by the intestines, than the more acrid preparations, the facility with which the Confection is prepared, the certainty with which the metal is retained in a state of oxydation, and its

aptitude for the formation of pills or powder with purgatives, stomachicks, tonicks, or diureticks, claim for it a preference to every other preparation of Mercury known to the Author, for internal use.

This Confection, formed into a powder with olibanum or resin, I have often used satisfactorily in fumigation (after the same manner as sulphuret of Mercury has been employed) for syphilitick sore throats; but have never used it for affecting the system by fumigating the body generally, in the manner recommended by the Chevalier Lalonette. I am inclined to think that the Calomel, washed in water containing a small quantity of Ammonia, as noticed and used by Mr. Abernethy, differs but little from the powder to which I have alluded, and may be similar in their effects when so used.

It appears proper to mention here that Mr. Donovan* has found that, by placing the officinal ointment of Mercury in a temperature of 212° of Fahrenheit, it will be separated into two layers or strata. The upper stratum was found of a light grey colour, and very active as a medicine; the lower stratum did not possess any activity, but, being triturated with the carbonate of

* Thomson's Annals of Philosophy, for November 1819.

magnesia, it yielded a large proportion of metallick Mercury.

Of the metal thus found in two different states, viz. in a state of oxyd chemically combined, and in a state of metal mechanically combined with the lard, the first only was endued with any medicinal efficacy. Mr. Donovan therefore formed an ointment by direct chemical combination, by agitating briskly for two hours the black oxyd of Mercury with lard, at the temperature of 350° of Fahrenheit's scale, by which process each ounce of the lard had taken up twenty-one grains of the oxyd. The Ointment, therefore, containing something more than two grains and a half of the oxyd in each drachm. appears equal in activity to the officinal ointment, which contains thirty grains of the metal in each drachm, partly chemically and partly mechanically combined. If so, it affords the means of ascertaining the exact quantity of Mercury used in an active state. It is made with much less expense and labour, and the use of it requires less exertion and a shorter space of time; which circumstances are of considerable moment to the invalid: for, instead of twenty or thirty minutes, which I generally direct to be employed in this operation of rubbing-in, from six to ten or fifteen minutes

will be found sufficient. It is also represented to be much more cleanly, as the parts rubbed will be left scarcely coloured. The advantages said to appertain to this preparation are so many, that I shall lose as little time as possible in obtaining a quantity of this Ointment of Oxyd of Mercury, and making a comparative trial of its strength and efficacy, as well as of the permanency of the cures which may be effected by the use of it.

It now remains that I should lay before the reader an outline of the safest and most effectual method of affecting the system with the preparations of Mercury which I am desirous to recommend for the cure of disease. When what is commonly called a course of Mercury is to be undertaken, the conveniency of the patient, the state of the disease, and the length of time which may probably be required for the removal of it, will naturally occupy the attention of the physician. Should the disorder be slight, the internal exhibition of the Confection, in the manner hereafter to be stated, will prove sufficient, and justly deserves a preference. Should, however, the disease be inveterate and of long standing, the course of Mercury will require considerable time, and the application of Mercury in form of an Ointment will remove the disease with more certainty and less hazard of injury to the diges-

tive organs. As all preparations of Mercury, when taken internally for as great a length of time as is required for the cure of a formidable stage of disease, are apt to disagree with the stomach or to pass off suddenly by the intestines, I cannot too forcibly recommend the method of cure by inunction; for the external application of the Ointment of Mercury, when properly prepared, conformably to the formula, p. 39, possesses so many advantages, that the practitioner who might recommend the internal exhibition of the more acrid preparations of Mercury, for the removal of a formidable stage of disease, would deservedly be blamed. But in disorders of the stomach and digestive organs, either with or without a tendency to induration of the liver, from four to eight grains of the Confection, formed into a pill, with powder of liquorice or wheaten flour, taken over night, a mild purgative being taken the following morning and repeated once or twice a week, will seldom disappoint the expectation of the patient or prescriber; particularly when Carbonate of Iron, with Rhubarb or Columba, are taken on the intermediate days, and the open air is enjoyed by exercise on horseback.

In recent and slight cases of Syphilis, reliance may safely be placed on the internal administration of the Confection of Mercury, in doses of

from four to ten grains, repeated twice daily. It will seldom fail to produce the desired effect on the system; which must be continued a shorter or longer time, depending on the amendment produced and on the judgment of the prescriber. The patients, in most instances, may pursue their accustomed avocations, make use of their usual diet, taking care only to preserve their feet warm and dry, and their persons sufficiently defended from cold. But when patients labouring under formidable stages of disease are to avail themselves of the salutary effect of a course of Mercury, it becomes requisite that attention be given to the following remarks.

First. The skin will be brought into a proper state for the reception of the Ointment, by using a tepid bath. The degree of heat should be between 90 and 100 of Fahrenheit's scale, and the time for remaining in the bath from ten to fifteen or twenty minutes.

Secondly. An aperient, combined with three, five, or ten grains of Submuriate of Mercury, should be given.

Thirdly. Flannel dresses, consisting of waistcoats with sleeves, drawers, caps, and stockings are to be procured and constantly worn during the course.

Fourthly. The temperature of the apartment

should be so regulated as not to be less than sixty-four, nor to exceed seventy-eight degrees of Fahrenheit's scale.

Fifthly. The patients should drink freely of some plain diluting liquid, such as barley-water, groats or oatmeal gruel, with or without milk, and should be supported chiefly on a milk-diet; to which might be added, rice, arrow-root, or wheaten flour.

The patients being prepared as above directed, the disease is now to be opposed and removed, by introducing into the system more or less Mercury; and the length of time required for the confinement of the patient must be regulated by the effect produced on the disease and on the state of the patient. But as great and distressing effects are now and then produced by small portions of Mercury, depending on an idiosyncrasy of constitution, not discoverable without trial, it is always proper to begin with a small quantity of the Ointment; particularly as experience has proved that a cautious and slow introduction of the Mercury into the system subdues the disease more certainly, more safely, and more speedily, than when it is introduced more suddenly.

The tepid bath, an aperient, &c. being premised, the writer commences the cure by directing half a drachm of the Ointment of Mercury

above described to be well rubbed for twenty minutes on the interior part of the thigh, from the groin to the knee, before the fire, with the hand of the patient made warm. The same quantity of the Ointment is to be used on the interior side of each thigh alternately, in a similar manner, for twelve successive nights, carefully attending to the effects produced, and suspending the use of the Ointment as soon as any or either of the effects said above to be produced, by the absorption of Mercury into the system, be observed in any considerable degree. In some instances, however, in the absence of the symptoms above enumerated as indicating Mercurial action to have been excited on the system, an amendment in the state of the disease may be discoverable: it will then be proper to persevere in the use of the same quantity of Ointment for eight or twelve nights longer, always preferring a suspension of the application of the remedy, rather than to incur the risk of its passing off by the salivary glands too suddenly. During this time, should the symptoms of amendment remain stationary, and no evident effect be produced on the circulation, breath, gums, perspiration, or any emunctory, the quantity of the Ointment should be increased to one drachm, used in like manner for six or eight nights. After which, should the state of the patient and the disease

still continue the same, it becomes advisable that from six to twelve ounces of blood or more be taken from the arm, and that a tepid bath, in the manner before directed, be used, which frequently renders any further increase of the Ointment unnecessary: the rapid improvement in the state of the disease proving evidently that the system is under the proper influence of the remedy.

Thus situated, the use of the Ointment is to be continued until a cure is effected; but should it appear, after these precautions, that the system is not sufficiently under the influence of Mercury,—strict attention being continued, that no error in diet, clothing, or exposure to damp cold air be committed,—from four to eight or even twelve grains of the Confection are to be taken, once or twice daily, and the Ointment is to be increased gradually, and in such a manner as to accomplish the cure without hazard of passing off too suddenly by the salivary glands: for it will frequently be found that salivation is ineffectual, and that the Mercury may and often does pass off by the salivary glands, leaving the disease unsubdued. No exact quantity of the Ointment or Confection can be specified with certainty, as being the most proper; seeing that some constitutions are greatly and speedily affected, whilst others withstand both the

external application and internal use of Mercury in very considerable quantities. It may, therefore, be requisite at all times to bear in mind the idiosyncrasy of constitution to which I have alluded, and to commence the cure by the use of the smallest doses mentioned.

It is worthy of remark that children bear well much larger doses of the preparations of Mercury than the usual proportions of other remedies. The knowledge of this fact has enabled the author to administer the preparations of Mercury effectually and successfully to children, in cases of Hydrocephalus, Tabes mesenterica, and other dangerous diseases; the Powder and Solution (page 8,) will be found convenient and useful, as well for adults who object to swallowing a pill, as for children; for, by such exhibitions of the Confection, combined to the application of appropriate quantities of the Ointment, with the occasional aid of Digitalis, Carbonate of Iron, Gamboge, or the Compound Powder of Scammony, the writer has happily succeeded in such cases, even under very unpromising circumstances.

In conclusion, an anxiety to serve mankind, and a strong conviction in my mind, deduced from extensive practice, diligent observation, and an experience of forty years, impel me to add that this Confection, combined with Hyos-

cyamus, Myrrh, or Carbonate of Iron, has by me been found a most valuable remedy in Phthisis pulmonalis and Scrophula; united with tonicks, purgatives and diureticks, of excellent use in Dropsies; after local bleeding by Leeches, joined to appropriate remedies, very beneficial in dispersing indurated Tumors in the female breast, the prostrate and other indurated glands. Lastly, combined with Tartarized Antimony, or with Antimonial Powder, it forms one of the best febrifuge remedies, suited to almost every case of Pyrexia.

Thus much I have thought it my duty to state in commendation of the Preparations of Mercury which I have ventured to offer to publick notice; and I trust that I am not too sanguine in my expectation, nor betray too great a share of credulity, in believing that they may obtain trial, and that they may be eminently serviceable in the hands of others, in diseases wherein the use of Mercury may be required, and it may become material that it should not pass off by the alvine secretions, or derange the digestive organs.

A wish to compress the subject of this Essay into as narrow a compass as I am able, has induced me to refrain from the recital of many cases which are in my possession, and might serve to corroborate the statement which has

been made relative to the efficacy of this Confection, and to confirm the superiority of the method of affecting the system with Mercury which I have recommended, and which has in very many instances succeeded in producing a perfect and lasting cure, after the patient had undergone unsuccessfully the hazard and inconveniency of salivation and confinement.

“Si quid novisti rectiùs istis candidus
Imperti ; si non his utere mecum.”—HORAT.

