LIQUOR CUPRI AMMONIATI. *Lond.*
Solution of Ammoniated Copper.

Take of
Ammoniated copper, one drachm;
Distilled water, one pint.
Dissolve the ammoniated copper in the water, and filter through paper.

IN the Dublin preparation, the lime-water decomposes the muriate of ammonia, and forms muriate of lime; while the ammonia disengaged, immediately reacts upon the oxide of copper contained in the verdigris, and renders it soluble. The mode of preparing this solution, now adopted by the London college, has the great merit of simplicity; but, unfortunately, from the large quantity of water employed, one half of the ammoniaret of copper is decomposed, and the oxide is precipitated. Mr Phillips found, that one-fourth of the water used, or even less, was sufficient for the solution of the ammoniaret.

Medical use.—The solution is applied externally for cleaning foul ulcers, and disposing them to heal. It has been recommended also for taking off specks and films from the eyes; but, when used with this intention, it ought to be diluted with some pure water, as in the degree of strength in which it is here ordered, it irritates and inflames the eyes considerably. It is the readiest, and perhaps the most delicate, test of arsenic, by which its blue colour is converted into green.

CHAP. IX.—IRON.

LIMATURA FERRI PURIFICATA. *Ed.*
Purified Filings of Iron.

Place a sieve over the filings, and apply a magnet, so that the filings may be attracted upwards through the sieve.

THIS process does not fulfil the purpose for which it is intended; for the adhesion of a very small particle of iron renders brass and other metals attractable by the magnet. The filings of iron got from the shops of different artificers, which are always mixed with solder, and other metals, cannot be purified in this way, so as to render them fit for internal use; and, indeed, the only way they can be obtained sufficiently pure, is by filing a piece of pure iron with a clean file.

OXIDUM FERRI NIGRUM PURIFICATUM, olim SQUAMÆ FERRI PURIFICATÆ. *Ed.*

Purified Black Oxide of Iron, formerly *Purified Scales of Iron.*

Let the scales of the oxide of iron, which are to be found at the foot of the blacksmith's anvil, be purified by the application of a magnet; for the magnet will attract the smaller and purer scales, and will leave those which are larger and less pure.

OXYDUM FERRI NIGRUM. *Dub.*

Black Oxide of Iron.

Separate the scales of oxide of iron, gathered at a blacksmith's forge, from impurities, by applying the magnet. Then reduce them to powder, of which the finest particles are to be collected in the manner directed for the preparation of chalk.

HERE the application of the magnet is useful, because these scales contain no foreign metal, but are mixed with earthy and other impurities, which could be separated in no other way. The Prussian Dispensatory direct this oxide to be prepared by moistening the carbonate of iron with olive oil, distilling it to dryness in a retort, and heating it almost to redness. The iron, in this process, is reduced from the state of peroxide to that of protoxide.

CARBONAS FERRI PRÆPARATUS, olim FERRI RUBIGO. *Ed.*

Prepared Carbonate of Iron, formerly *Rust of Iron.*

Moisten purified filings of iron frequently with water, that they may be converted into rust, which is to be ground into an impalpable powder.

Dub.

Take of

Iron-wire, any quantity.

Cut it into pieces, which are to be moistened frequently with water, and exposed to the air until they be corroded into rust. Then triturate them in an iron mortar, and by pouring water upon them, wash over the finest part of the powder which is to be dried.

IRON is one of the most easily oxidized of the metals. By exposure at the same time to air and moisture, it is very quickly oxidized, while it also absorbs carbonic acid, and is converted into a reddish-brown pulverulent substance, well

known by the name of rust of iron. For medical use it is prepared as the other substances insoluble in water.

Carbonas ferri præcipitatus. *Ed.*
Carbonas ferri. *Dub.*
Precipitated Carbonate of Iron.

Take of
Sulphate of iron, four ounces;
Carbonate of soda, five ounces;
Water, ten pints.

Dissolve the sulphate in the water, and add the carbonate of soda previously dissolved in a sufficient quantity of water, and mix them thoroughly.

Wash the precipitated carbonate of iron with warm water, and afterwards dry it.

Ferri subcarbonas. *Lond.*
Subcarbonate of Iron.

Take of
Sulphate of iron, eight ounces;
Subcarbonate of soda, six ounces;
Boiling water, a gallon.

Dissolve the sulphate of iron and subcarbonate of soda separately, each in four pints of the water; then mix the solutions, and set aside until the precipitate subside; then having poured off the supernatant liquor, wash the subcarbonate of iron with warm water, and dry it wrapped up in bibulous paper, with a gentle heat.

On mixing the solutions of these salts together, there is an immediate mutual decomposition. Sulphate of soda is formed, which remains in solution, and carbonate of iron, which is precipitated of a green colour. The precipitate, when first formed, is the carbonate of black oxide of iron, or contains the iron in the state of protoxide, the state in which it exists in the green sulphate of iron; but in the process of drying, it absorbs more oxygen, becomes of a red colour, and part of it is converted into red oxide of iron. As the precipitate is extremely light and bulky, it is not easily separated by allowing it to subside, and pouring off the clear liquor; filtration should therefore be employed. The carbonate of soda is used in preference to the carbonate of potass, on account of the greater solubility of sulphate of soda than of sulphate of potass, which renders the subsequent ablution of the salt more easy.

Mr Phillips found very great differences in the results, from very slight differences in conducting the process, as appears from the following table, to which is added the results when subcarbonate of potass was employed instead of subcarbonate of soda.

Precipitated in	Washed in	Dried by	Carb. acid per cent.	Subcarbonate of Soda.	Carb. acid per cent.	Subcarbonate of Potass.
Hot w.	Hot w.	steam	14.5	Chocolate br.	7	Orange br
.....	.....	the air	14.5	Yellowish br.		
.....	Cold w.	steam.	1.5	Orange br.	2	Brick red
Cold w	Hot w.	.....	8.0	Purplish br.		
.....	Cold w.	.....	1.0	Reddish br.		
.....	.....	the air.	none	Ochre yel.		
Water kept near 212° for an hour.		steam.	1.3	Blackish br.	3	Orange br.

These differences indicate the precipitates to be mixtures of peroxide, protoxide, and subcarbonate of protoxide of iron, in various proportions. The peroxide is deep red or yellow, as the oxygen is quickly or slowly absorbed; the protoxide is black, and its carbonate brown. When cold water only is used in this process, carbonate of iron remains in the solution, from which the oxide has been precipitated; when hot water is used, part of the carbonic acid is expelled, the subcarbonate is precipitated mixed with oxide; but when heat is long applied, the subcarbonate itself is decomposed, and the precipitate is chiefly oxide. Mr Phillips concludes, that it is more economical to use hot water in every part of the process, and to use potass instead of soda in the preparation.

Medical use.—The carbonate of iron is an excellent and safe chalybeate. It may be given in doses of from five grains to sixty; but all chalybeates answer better in small doses, frequently repeated, than in large doses.

Sulphas ferri. *Ed.*
Sulphate of Iron.

Take of
Purified filings of iron, six ounces;
Sulphuric acid, eight ounces;
Water, two pounds and a half.

Mix them, and after the effervescence ceases, digest the mixture for some time upon warm sand; then strain the decanted liquor through paper, and, after due evaporation, set it aside to crystallize.

Dub.

Take of
Iron-wire, two ounces;
Sulphuric acid, three ounces and a half, by weight;
Water, one pint.

Mix the acid by degrees with the water, in a glass vessel, and gradually add the iron-wire, cut into pieces: digest the mixture till the metal be dissolved, and strain the liquor through paper. Lastly, set aside the liquor, after due evaporation, to crystallize by slow refrigeration.

Lond.

Take of
Iron,
Sulphuric acid, each eight ounces;
Water, four pints.

Mix the sulphuric acid with the water in a glass vessel, and add the iron; when the effervescence has ceased, strain the solution through paper, and after due evaporation set it aside to crystallize. Pour off the liquid, and dry the crystals on blotting paper.

Sulphate of iron cannot be procured perfectly pure, except by the direct union of sulphuric acid and iron; and as it is of consequence that it should be pure when administered internally, directions for its preparation have been given by all the colleges. The difference which may be observed in the proportions of the materials employed, is of little consequence, as sulphuric acid and iron unite only in one proportion.

Iron scarcely acts upon sulphuric acid, unless assisted by heat. It then becomes oxidized, by abstracting oxygen from a portion of the acid, and converting it into sulphureous acid gas or sulphur, and combines with the remainder of the acid. But it acts with great rapidity on diluted sulphuric acid; in which case it is not oxidized at the expence of the acid itself, but by decomposing the water, and therefore the hydrogen of the water is separated in the form of gas. The action of the acid and iron upon each other often ceases before the acid is nearly saturated, and may be renewed by the addition of a little water. The reason is, that all the water which was not decomposed, is employed to dissolve the sulphate of iron formed.

The properties and uses of sulphate of iron have been already mentioned.

SULPHAS FERRI EXSICCATUS. *Ed.*
Dried Sulphate of Iron.

Take of
Sulphate of iron, any quantity.
Expose it to the action of a moderate heat in an unglazed earthen vessel, until it become white and perfectly dry.

SULPHAS FERRI EXSICCATUM. *Dub.*
Dried Sulphate of Iron.

Take of
Sulphate of iron, any quantity.
Let it whiten by exposing it in an unglazed earthen vessel, to a high temperature (200° to 212° Fahr.)

THE heat applied here must not be so great as to decompose the sulphate of iron, but only to deprive it of its water of crystallization.

OXIDUM FERRI RUBRUM. *Ed.*
Red Oxide of Iron.

Expose dried sulphate of iron to an intense heat, until it is converted into a very red substance.

Dub.

Roast with an intense heat dried sulphate of iron until it become very red. Then wash it, until, according to the test of litmus, the water decanted from it be free of acid; lastly, dry it on blotting paper.

BY the violent heat applied in this preparation, the sulphate of iron is completely decomposed, and copious white fumes are expelled. The iron is converted into the red oxide; part of the sulphuric acid is therefore reduced to the state of sulphureous acid, and the rest of the acid is expelled in a very concentrated state. This process was formerly employed in this country, and still is in Germany, for the preparation of sulphuric acid; which, however, from the presence of the sulphureous acid, is possessed of some peculiar properties, such as emitting fumes and crystallizing.

The residuum is composed of red oxide of iron, combined with a little red sulphate of iron, which renders it deliquescent. To obtain the oxide perfectly pure, the residuum must therefore be washed with water, and dried quickly, to prevent the absorption of carbonic acid.

Tinctura muriatis ferri. *Ed.*
Tincture of Muriate of Iron.

Take of
Purified black oxide of iron in powder, three ounces;
Muriatic acid, about ten ounces, or as much as may be sufficient to dissolve the powder.
Digest by a gentle heat, and after the powder is dissolved, add of alcohol, as much as will make the whole quantity of liquor amount to two pounds and a half.

Dub.

Take of
Carbonate of iron, half a pound;
Muriatic acid, three pounds;
Rectified spirit, three pints.
Pour the muriatic acid on the carbonate of iron in a glass vessel; and shake the mixture occasionally during three days. Then set it by, that the fæces, if any, may subside, and pour off the liquor; evaporate this to one pint slowly, and when cold, add the spirit.

Lond.

Take of
Subcarbonate of iron, half a pound;
Muriatic acid, a pint;
Rectified spirit, three pints.
Pour the acid upon the subcarbonate in a glass vessel, and shake it occasionally for three days. Set it aside, that the dregs, if any, may subside. Pour off the clear liquor, and add to it the spirit.

Tinctura muriatis ferri cum oxydo rubro. *Dub.*
Tincture of Muriate of Iron with the Red Oxide.

Take of
Red oxide of iron, one ounce;
Muriatic acid, four ounces by measure;
Rectified spirit of wine, the requisite quantity.
Digest the oxide with the acid for twenty-four hours, then boil for half an hour. Evaporate the filtered liquor to the thickness of syrup, and when cold, add rectified spirit of wine, with frequent agitation, until the tincture acquire the specific gravity of 1050.

In making this preparation, the colleges use iron in a different state; the Edinburgh, the black oxide; the Dublin,

the red oxide; and the London, the carbonate. Mr Phillips observes, that although the proportions of the London college answer with muriatic acid of specific gravity 1.17, and peroxide of iron, prepared in his method, containing only 3 *per cent.* of carbonic acid, the solution will have acid in excess, when the muriatic acid has only the strength of 1.14, and the carbonate contains 14.5 *per cent.* of carbonic acid, the common state of these substances, as prepared by the directions of the college Muriatic acid is capable of combining either with the black or red oxides of iron, and forms with each, salts, having distinctive properties.

The red muriate of iron is not crystallizable; has a dark orange colour; is deliquescent; forms a brown-red solution, having a very astringent taste; and is soluble in alcohol. The green muriate is crystallizable; has little colour; is very soluble in water, forming a pale green solution; and is insoluble in alcohol. But the aqueous solution of green muriate attracts oxygen so rapidly from the atmosphere, that unless the access of the air be totally excluded, it is always partially converted into red muriate. The solutions of iron, and of its black oxide, are accordingly found always to contain a greater or less proportion of red muriate, and are therefore not uniform or constant in their properties.

"Having prepared this tincture in the proportions of the London Pharmacopœia, with precipitated carbonate of iron, I found," says Dr Perceval," that in some instances, when rectified spirit was mixed with the evaporated muriate, crystals of green muriate of iron deposited, which the spirit did not dissolve. The strength of the tincture was consequently variable. This observation suggested the process of Tinctura muriatis ferri cum oxydo rubro, which is now inserted amongst the præp. extemp. of the Dublin Pharmacopœia. The muriatic solution is of an orange-red, and does not crystallize when spirit is added.

"Instead of evaporating it to a certain weight, which is a troublesome operation, spirit is added so as to bring the liquor to a certain specific gravity, which is the standard of the strength of the medicine."

It is an excellent chalybeate, and may be given in doses of ten or twenty drops twice or thrice a-day, in any proper vehicle.

Murias ammoniæ et ferri. *Ed. Dub.*
Muriate of Ammonia and Iron.

Take of

Red oxide of iron (washed and again dried. *Ed.*)

Muriate of ammonia, equal weights.
Mix them thoroughly, and sublime (with a sudden and sufficiently great degree of heat. *Dub.*)

FERRUM AMMONIATUM. *Lond.*
Ammoniated Iron.

Take of
Subcarbonate of iron;
Muriate of ammonia, of each one pound.
Mix them accurately; and instantly sublime, by the application of a quick fire; lastly, reduce to powder.

ALTHOUGH, at a low temperature, ammonia decomposes the muriate of iron, at a high temperature iron and its oxides decompose muriate of ammonia. But as muriate of ammonia is itself a volatile salt, great part of it escapes undecomposed; so that the product is a mixture of muriate of ammonia with red muriate of iron. According to the formula of all the colleges, the decomposition is effected by simple affinity. As soon as the oxide of iron acts on the muriate of ammonia, the ammonia which is separated comes over: then, as the heat increases, undecomposed muriate of ammonia is sublimed; which, as the process advances, is mixed with an increasing proportion of muriate of iron. In the former process of the London college, the decomposition was more complex; and a considerable quantity of hydrogen gas was produced. But Mr Phillips says, that the carbonate is unfit for the purpose; for in proportion as it contains carbonic acid, carbonate of ammonia is formed, instead of ammoniaret of iron. The colleges employ a much larger quantity of iron than is necessary. According to the German pharmaceutists, if the iron be equal to one-sixteenth of the muriate of ammonia, it is sufficient. The new Prussian Dispensatory directs one ounce of iron to be dissolved in a mixture of two parts of muriatic acid, and one of nitrous acid; this solution of red muriate of iron to be mixed with twelve ounces of muriate of ammonia, and the whole evaporated to dryness; and the dry mass to be sublimed in a wide-necked retort, with a heat increased to redness.

Whatever process be employed, the heat must be applied as quickly as possible; and the sublimed product thoroughly mixed by trituration, and kept in well-stopt glass vessels.—It should have a deep orange colour, and a smell resembling saffron, and should deliquesce in the air.

Medical use.—This preparation is supposed to be highly aperient and attenuating; though no otherwise so than the rest of the chalybeates, or at most only by virtue of the saline

matter joined to the iron. It has been found of service in hysterical and hypochondriacal cases, and in distempers proceeding from a laxity and weakness of the solids, as the rickets. From two or three grains to ten may be conveniently taken in the form of a bolus.

Tinctura ferri ammoniati. *Lond.*
Tincture of Ammoniated Iron.

Take of
Ammoniated iron, four ounces;
Proof-spirit, one pint.
Macerate and strain

This is merely a spiritous solution of the preceding article, and is a much less elegant medicine than the simple tincture of muriate of iron.

Ferrum tartarizatum. *Lond.*
Tartarized Iron.

Take of
Iron, one pound;
Supertartrate of potass, in powder, two pounds;
Water, one pint.
Triturate them together, and expose to the action of the air for eight days in a wide glass vessel; then grind the matter, after being dried in a sand bath, to a very minute powder. Add another pint of water to this powder, and set it aside for eight days; then dry the mass, and powder it again.

Tartarum ferri. *Dub.*
Tartar of Iron.

Take of
Carbonate of iron, half an ounce;
Crystals of tartar, in very fine powder, one ounce;
Distilled water, a pint.
Boil them together in a glass vessel over a slow fire for an hour, and filter the liquor through paper. When cool, and filtered a second time, evaporate it until a pellicle appear on the surface. In cooling, it will form a saline mass, which is to be powdered, and kept in close vessels.

This is in fact a triple tartrate of iron and potass, the excess of acid in the supertartrate of potass being saturated by oxide of iron. In the Dublin process the combination is direct; in that of the London college, the iron is oxidized du-

ring the process, in which it is moistened and exposed to the action of the air.

Mr Phillips has examined this preparation attentively. He says, that as usually prepared it has a light green colour, and is readily attracted by the magnet, unalterable by exposure to the air, and with difficulty soluble in water, and that one-fifth of the iron-filings employed remain unaltered, so that it must be considered as merely a mixture of metallic iron with supertartrate of potass, coloured by oxide of iron.

Dr Perceval of Dublin says, that when prepared according to the directions of the Irish college, and the precipitated carbonate was found to answer best, it forms a mass of concreted spicular crystals of an olive colour, which attracts humidity from the air. In solution it destroys the colour of litmus, and its taste is rather sweetish than sour.

To prepare a real tartarized iron, Mr Phillips digests 32 parts of filings of soft iron in 64 parts of tartar, adding water occasionally to the mass during the action of the tartar upon the iron, until it appear by the test of litmus paper that the acid is perfectly saturated. During this process, 15 parts of the iron are dissolved, being converted into nearly 22 parts of peroxide. To this he adds seven times its weight of water, (532 parts), which easily dissolves the tartarized iron by trituration, forming a solution which readily passes through the filter, and contains one-eighth part of its weight of tartarized iron, or nearly 16 grains of oxide in the fluidounce. This solution is of a deep greenish-brown colour, remains for a great length of time without undergoing any change, (except at first the deposition of the tartrate of lime of the tartar.) It is precipitated by alcohol, and decomposed by lime-water, by solutions of potass and soda and their subcarbonates, when heated, but not when cold; nor by ammonia or its subcarbonate, hot or cold. It is not crystallizable, but when dried, is of a dark greenish-brown colour, and attracts moisture from the atmosphere, but does not deliquesce, is exceedingly tenacious, resembling gum, and can scarcely be made to form a perfect solution.

It is evident, that when properly prepared, tartarized iron cannot be exhibited in powder as commonly directed, and the advantage of exhibiting this preparation in solution is, that when the acid is perfectly saturated, the taste of the iron is scarcely perceptible; and hence it can be exhibited with success to persons to whom the common solutions of iron are nauseous. It deserves notice, that when there is acid in excess, the taste of the iron is much more easily detected.

Vinum ferri. *Lond.*
Wine of Iron.

Take of
Iron-filings, two ounces;
Spanish white wine, two pints.
Mix and set aside for a month, often shaking the vessel, and then filter through paper.

Dub.

Take of
Iron wire, cut in pieces, four ounces;
White Rhenish wine, four pints.
Sprinkle the iron with a bottle of the wine, and expose it to the air until it be covered with rust; then add the rest of the wine; digest for seven days, with occasional agitation, and filter.

This is merely a solution of the preceding article in wine; for the iron is only dissolved in the wine by means of the supertartrate of potass it contains. The Rhenish wine directed by the Dublin college will, therefore, dissolve a larger quantity of iron than the Spanish white wine of the London college. A pint of sherry will dissolve only about two grains of carbonate of iron; but if soft iron be used, about twenty-two grains of peroxide according to Mr Phillips. But a solution of a known proportion of the preceding article in wine, will give a medicine of more equal powers, may be made extemporaneously, and is also remarkably permanent.

The dose is from a drachm to half an ounce, repeated twice or thrice a-day in chlorotic cases.

Acetas ferri. *Dub.*
Acetate of Iron.

Take of
Carbonate of iron, half an ounce;
Acetic acid, three ounces by measure.
Digest for three days, and strain.

Dr Perceval found, that in experiments made to determine the comparative solubility of iron in its different states in acetic acid, that two drachms of the acid acquired a light amber tinge from ten grains of scales of iron, and left a residuum of $9\frac{1}{2}$; a reddish amber colour from iron-filings, residuum $6\frac{1}{4}$; a light red from the red oxide, residuum $8\frac{3}{4}$; and from the precipitated carbonate a deep claret colour, and the whole was dissolved. Hence the last was preferred for making directly an acetate of iron.

Tinctura acetatis ferri. *Dub.*
Tincture of Acetate of Iron.

Take of
Acetate of kali, two ounces;
Sulphate of iron, one ounce;
Rectified spirit of wine, two pints.

Rub the acetate of kali and sulphate of iron in an earthenware mortar, until they unite into a soft mass; then dry it with a moderate heat, and triturate it, when dried, with the spirit. Digest the mixture in a well-corked phial for seven days, shaking it occasionally. Lastly, after the fæces have subsided, pour off the limpid liquor.

The acetic acid is capable of combining with both oxides of iron; and as the iron in the sulphate is in the state of black oxide, which has a strong attraction for oxygen, it is probable that the acetate prepared in the way directed is a mixed acetate.

It has an extremely styptic taste, and is given in doses of thirty or forty drops.

Tinctura acetatis ferri cum alcohol. *Dub.*
Tincture of Acetate of Iron with Alcohol.

Take of
Acetate of kali, one ounce;
Sulphate of iron, one ounce;
Alcohol, one pint.

Rub the acetate of kali and sulphate of iron in an earthenware mortar until they unite into a soft mass; dry this with a moderate heat, and triturate it when dried with the alcohol. Digest the mixture in a well-corked phial for twenty-four hours, shaking it occasionally. Lastly, after the fæces have subsided, pour off the limpid liquor.

Alcohol is incapable of dissolving the green salts of iron, but dissolves the red salts readily. This tincture contains a very pure acetate of iron, more perfectly neutralized than most metallic salts. Its extract is of a beautiful crimson colour, which does not crystallize, but first assumes the consistence of wax, and then dries transparent, an ounce measure affording ten grains. A drachm measure gave gr. $\frac{3}{10}$ of prussiate of iron, by precipitation. Dr Perceval has commented upon this preparation at considerable length. In the London Pharmacopœia 1746, a *Tinctura Saturnina* was extracted from a mixture of acetate of lead and sulphate of iron. This was, in fact, a tincture of acetate of iron contaminated with a little lead. Dr Perceval substituted in his practice a preparation of

Glauber's, by using equal weights of acetate of potass and sulphate of iron. This tincture, if made with rectified spirit, grows turbid by keeping, and deposites an oxide of iron, which does not happen when alcohol, sp. gr. 0.815, is employed. But Mr Watts discovered, that by using two parts of acetate of potass to one of sulphate of iron, a permanent tincture may be extracted by rectified spirit. Both modes of preparation are inserted in the Dublin Pharmacopœia. That with rectified spirit contains acetate of potass as well as of iron, for its extract is whitish, from a predominance of the former. A drachm measure gave gr. $\frac{16}{20}$ of prussiate of iron, by precipitation. Dr R. Perceval says it is an elegant, agreeable, and useful chalybeate preparation, of which a tea-spoonful or two may be conveniently taken in asses milk.

Liquor ferri alkalini. *Lond.*
Solution of Alkaline Iron.

Take of
- Iron, two drachms and a half;
- Nitric acid, two fluidounces;
- Distilled water, six fluidounces;
- Solution of subcarbonate of potass, six fluidounces.

Mix the water and acid, and pour them upon the iron. As soon as the effervescence has ceased, pour off the acid solution; add this gradually, and at intervals, to the solution of subcarbonate of potass, shaking it occasionally. until after having become of a dark red colour, no more effervescence be excited. Lastly, let it stand for six hours, and pour off the solution.

This preparation of iron is so entirely different from all others in its nature, that we think the London college right in introducing it into their Pharmacopœia. The chemical nature of the composition has not been accurately ascertained, and the preparation is attended with considerable difficulty and uncertainty. Dr Powell says, that the solution of the iron should be made slowly, and that it ought not to be nearly saturated, but have an excess of acid; that it ought to be clear, and slightly greenish, and if, by excess of iron, it have a reddish-yellow colour, a little acid is to be added, which will bring it to the proper state; that the acid solution should be added gradually to the alkaline, although it will succeed the other way; and that although the proportions are pretty nearly given, they require to be checked by occasional examination, especially by the taste, which should be slightly alkalescent. He also adds, that after standing, nitrate of potass generally crystallizes, from which the clear deep red solution is to be poured off. Mr Phillips, in his

remarks upon this preparation, says, that there is no danger of iron being dissolved in excess, as the acid is capable of dissolving more than twice the quantity of iron ordered; and the solution thus obtained, though so nearly saturated as to excite little effervescence when added to the solution of carbonate of potass, answers perfectly well for making this preparation; but even when the proportions of the college are adopted, the quantity of alkali is too small, and it is necessary to use about one-twelfth more than is directed, in order to dissolve the oxide of iron, although more than requisite to saturate the acid, and to give a decided alkaline taste. Mr Phillips considers it as a solution of peroxide of iron in subcarbonate of potass. Hagen says, that the preparation does not succeed with caustic potass; and that the more the alkali is carbonated, the better.

Mr Phillips remarks, that if five parts of water be added to one of this preparation, in a few minutes the oxide of iron is almost entirely precipitated, frustrating the probable intentions of the preparation, that of exhibiting iron in solution with an alkali; which, however, may be effected by means of the solution of tartarized iron, which is not decomposed by subcarbonate of potass. Dr Powell, on the contrary, praises this preparation much. He considers it as affording a combination of iron distinct from any other, and often applicable to practice; and adds, "If I was to speak individually of its powers, I should consider them as more considerable than those of any other preparation of the metal in many cases attended with debility of stomach, and it has been also prepared in some large shops, and not unfrequently employed."

Chap. X.—MERCURY.

Hydrargyrum purificatum. *Dub.*
Purified Quicksilver.

Take of
Quicksilver, six pounds.
Draw off four pounds by slow distillation.

Lond.

Take of
Quicksilver, six pounds;
Iron filings, one pound.
Rub them together, and distil the quicksilver from an iron retort.