

Medicinal employment.

A patient with convulsive cough was considerably relieved by taking six drops of prussic ether, combined in a mucilaginous vehicle; nor did he complain of the penetrating and disagreeable odour of the ether. But with several others at the Hôtel Dieu the result was different: for though the benefit obtained was equal to that procured by prussic acid, I was under the necessity of abandoning its employment in consequence of the insurmountable disgust of the patients for the smell of the mixture.

The circumstances in which hydrocyanic ether is applicable are the same as those for the exhibition of prussic acid.

IODINE.

This is a simple substance, discovered in 1813 by M. Courtois in the mother-waters of the soda of seaweed; but the major part of its properties were elucidated by Gay-Lussac. It is met with in the greater number of fuci growing on the sea-coasts, and also, according to Fife, (*Ann. de Chim. et de Phys.* t. 12,) in sponges. M. Gaultier de Claubry, (*Ann. de Chim. et de Phys.* t. 93,) has ascertained that it exists in the shape of hydriodate of potass, in the mother-waters alluded to. Several mineral waters appear to owe their properties to it. M. Laur. Angelini, of Voghera, has discovered its presence, by means of starch, in the saline waters of that place. He also ascertained the existence of iodine in the waters of Salles, in the Vogherese, which waters are considered efficacious in goitre and lymphatic congestions. Dr. Cantu, professor of chemistry in Turin, astonished at the effects of the sulphureous waters of Castel-Nuovo d'Asti, in the same diseases, at first was unsuccessful in his

search for iodine in them; but subsequently, encouraged by the researches of M. Angelini, he succeeded in detecting the iodine, (*Memorie della reale Acad. delle Scien. di Torino*, t. 29.) Dr. Cantu is inclined to think that iodine exists in all sulphureous waters containing chlorurets. Various mineral waters, not of a sulphureous nature, and particularly those of Echailon, in Savoy, which yield one-twelfth their weight of sea-salt, and the great efficacy of which in goitre is well known, afford no trace whatever of iodine.

By a modification in the mode of employing starch as a test of iodine, M. Balard, of Montpellier, (*Ann. de Chim. et de Phys.* 1825,) succeeded in certifying the existence of iodine in divers marine mollusca, both naked and testaceous, as the *doris*, *venus*, oysters, &c. in several polypi and marine vegetables, the *gorgonia*, *zostera marina*, and eminently in the mother-waters of the saline products afforded by the Mediterranean.* He was unable to detect in what state iodine exists in the sea-water, on account of the minute quantity, but suspects it is in the form of hydriodate. In this form it has also been detected in the waters of Pandour and Raggiozzi.

Shortly before his death, Vauquelin found iodine in combination with silver, in a mineral which came from a mine in the neighbourhood of Mexico.

Physical and Chemical Properties of Iodine.

The name has been derived from the Greek word

* M. Balard's process is as follows. After mixing the liquor containing the iodine with starch and sulphuric acid, a small quantity of aqueous solution of chlorine is gently poured into it. As this solution is lighter than the preceding, it does not mix with it, but at the point of contact a blue zone appears, and cannot be mistaken, however feeble the hue. By slightly shaking the vessel so as to mix a portion of the lower liquid with the supernatant chlorine fluid, the blue colour is developed in the parts where the chlorine is in contact. But if strong agitation be used, and the two liquors be completely mixed, the blue colour altogether disappears, should the chlorine have been in excess.

ιωδης, violet-coloured, on account of the colour it has when in vapour. At the ordinary temperature, iodine is solid and in the shape of small greyish lamellæ, of slight tenacity, and resembling plumbago. It fuses at a heat of 170° C., and volatilizes at 175° , giving off a beautiful violet vapour, which, if passed into a receiver, condenses anew into crystalline lamellæ.

Iodine is soluble in ether and spirits of wine, which dissolves more or less of it according to its point of rectification. At 35° , and a temperature of 13° C, it takes up 1-9th of its weight; at 40° , and the same temperature, it dissolves a sixth. Water only dissolves 1-700th of its weight of iodine.

Iodine has the property of forming one acid with hydrogen, and another with oxygen. It does not however combine with oxygen in the gaseous form, but only in the nascent aeriform condition, forming thereby iodic acid. It has a strong affinity for hydrogen, which it abstracts from a great number of bodies, while it absorbs it in the form of gas, if the temperature be elevated. With it (hydrogen,) it forms hydriodic acid, composed only of iodine and hydrogen. This acid is known as a colourless gas, with a pungent taste and irritating odour: it reddens deeply the tincture of turnsol, and extinguishes burning bodies. It is rapidly absorbed by water, which dissolves a great quantity of it, and hence it forms white vapours in the atmosphere by uniting with its moisture.

Hydriodic acid may be obtained by adding water to the ioduret of phosphorus made from eight parts of iodine, and one of phosphorus, and distilling. The first part which passes is little else than water: the last, if separately collected, is concentrated hydriodic acid, and gives out thick white fumes. The phosphoric acid, which is also formed during the process, remains in the retort, and may be obtained by a process which need not detain us in this place.

Hydriodic acid will unite with a great number of bases, with some of which it forms neutral salts: of these the most commonly used is the hydriodate of

potass; hydriodate of soda has been also occasionally employed, and with apparently equal success.

Preparation of Iodine.

It is extracted, as before-mentioned, from the mother-waters of sea-soda, in which it exists in the state of hydriodate of potass. These waters are obtained by burning the different fuci that grow on the coast of Normandy, passing water through the ashes, and concentrating the fluid.

To obtain the iodine an excess of concentrated sulphuric acid is poured into these waters, and the liquid gradually raised to ebullition in a glass retort furnished with a receiver. The sulphuric acid unites with the base of the hydriodate, and with the hydrogen of the hydriodic acid, so that the whole products are sulphate of potass, water, sulphurous acid and iodine, which last rises in violet vapours, passes into the receiver in company with a small quantity of acid, in that state, and condenses there. In order to purify it, it should be washed, mixed with water containing a little potass, and again distilled.

Preparation of the Hydriodates of Potass, simple and ioduretted.

On pouring a solution of soda or potass, on metallic iodine, an iodate and hydriodate are formed, which may be separated from each other by means of alcohol, which only dissolves the latter of these salts, and the pure hydriodate may be obtained by evaporation. By strong calcination the iodate may be changed into ioduret.

The hydriodates of soda and potass may also be obtained in the same manner as the other neutral hydriodates, that is by the direct combination of the acid and the oxide.

These salts are deliquescent and consequently exceedingly soluble in water. Their solution is capable

of dissolving still more iodine, and in this manner an ioduretted hydriodate is formed.

M. Baup of Vevay, (Naturwiss. Anzeiger, 1821,) and M. Caillot of Paris, (Journal de Pharmacie, 1822,) each describe the following process for obtaining hydriodate of potass, by means of the hydriodate of iron. One part of iodine and three or four parts of water are introduced into a matrass: gradually an excess of iron filings—say half a part—is added. Great heat is developed, the iodine disappears, and the liquid turns a deep red. During this action an ioduretted hydriodate is formed, which by a gentle heat and slight agitation while yet warm, is converted into simple hydriodate of iron. The termination of the operation is recognised by the almost entire decoloration of the fluid. The liquor is then filtered, diluted with several parts of water, and submitted to a sand bath, in a capsule or matrass, until near to the boiling point: the iron is then precipitated by carbonate or subcarbonate of potass. This part of the process requires some attention, lest an excess of potass be added, which however might be separated by repeated crystallizations, or saturation with iodic acid. After filtering, in order to separate the ferruginous deposit, and washing, the liquor is evaporated, commencing with the waters used in the washing. The salt may be crystallized by cooling or evaporation; in the latter case, the concentrated solution of hydriodate of potass should not be placed in a stove, because the salt would rise on the sides of the vessel, and eventually withdraw all the fluid, but on a gentle fire where the edges of the vessel, not being so hot as the bottom, would in some degree condense the vapour, and prevent the ascent of the salt. Crystals are gradually deposited, and when they fill almost the whole space which the fluid occupies, they are allowed to cool: the mother-waters are drawn off and evaporated, in order to form more of the salt; finally the crystals are dried in a stove, or on the fire, where they undergo a slight decrepitation.

To obtain this salt in a perfectly pure state, re-

peated crystallizations should be practised, particularly if potass has been added in excess. Should the iron employed have been at all coppered, a few bubbles of sulphuretted hydrogen should be passed into the mother-waters, and these should be filtered before proceeding to further crystallizations.

The hydriodate of potass (ioduret of potassium) generally crystallizes in cubes; and by management it may be obtained in pyramids, more or less pointed. The crystals are almost always opaque, or milky white. By slowly cooling a solution not very concentrated, M. Baup has obtained it in crystallized long quadrangular prisms, as also in short prisms terminated by a four-sided pyramid.

The solution of ioduret of potassium at 18° C., according to Gay-Lussac, contains 143 parts of the ioduret in 100 of water. M. Baup finds that the same quantity of water at 12°.5, dissolves 136 parts, and at 16° of the same thermometer 141 parts.

Five and a half parts of alcohol of the specific gravity = 0.85 and at 12°.5, and from 39 to 40 parts of rectified alcohol at the same temperature are required to dissolve one of ioduret of potassium: in both cases it is much more soluble in hot than in cold fluid.

Ioduretted Hydriodate of Potass.

M. Baup has ascertained that the ioduretted hydriodates are combinations, with fixed proportions; so that the solution of hydriodate of soda or potass, that is known to be capable of dissolving a further proportion of iodine, can, under all circumstances, combine with a quantity of iodine equal to that which it already contains, that is, nearly three fourths of its weight, or :: 76.5 : 100.

The ioduretted hydriodate of potass, commonly in solution in water, is the only preparation hitherto employed in medicine: I prefer, however, the simple hydriodate.

Action of Iodine on Man and lower Animals.

A short time subsequent to the publication of his learned work on iodine, M. Gay-Lussac sent me a quantity of it, that I might ascertain its effects on animals. I immediately instituted some experiments, in which I introduced the tincture of iodine into the veins, in the dose of a gros, without any appreciable effects. I also gave it to several dogs to swallow, but beyond vomiting, it produced no marked effects.

Perceiving this inertness, I myself took a coffee spoonful, (80 minims,) of the tincture: nothing ensued upon it, except a disagreeable taste in the mouth, which continued for several hours. I have seen a child four years of age, who, in mistake, had taken the same quantity of the tincture prepared by M. Pelletier: the lips and tongue were stained yellow, but no ill consequences followed.

One of the most remarkable properties of iodine is, that when it has been continued for a long time a diminution in the size of the breasts and testicles takes place. I have never seen this effect, but I have been confidently assured that such frequently is the case in Switzerland.

Cases for the Employment of the Preparations of Iodine.

Dr. Coindet, of Geneva, was the first who employed iodine as a medicinal agent; he used it in the treatment of goitre with marked success. It has since been prescribed in the same cases both in France and Switzerland, by a great number of practitioners; and it appears from their observations that iodine is an efficacious remedy in a disease sometimes so remarkably intractable.

Though incipient goitres occurring in young persons are the most likely to be dispersed by the remedy in question, instances nevertheless are recorded in which old, hard, and large goitres have been oblite-

rated by it. But as in such cases a long course of iodine is necessary, which may act injuriously on the stomach, another mode of introduction, namely, by friction, has been resorted to. Cases are related by Mr. Rickwood, (*London Med. and Phys. Journal*, 1823,) of the cure of goitre by this substance after only temporary relief had been obtained from the use of burnt sponge. In one instance he succeeded in reducing the tumour in a woman seventy years old.

Iodine has been also successfully employed in the treatment of scrofula, as numerous authorities testify. M. Baup has cured long standing scrofulous ulcers: and I have myself succeeded in dispersing very large glandular swellings with it.

Besides many cases of goitre cured by the tincture of iodine and the hydriodate of potass, MM. Hufeland and Osann mention that they have obtained some beneficial results from the same preparations in schirrhous, and carcinoma of the womb. (See Report of the Polyclinical Institution of Berlin, 1820-21 and 22.) Dr. Wagner says he was equally successful with it in a tumour of the lower jaw, which bore a cancerous appearance. Dr. Hennemann has also recorded a case, (*Journal der practischen Heilkunde*,) in which iodine exerted a remarkable influence on the last stage of the cancer of the womb. A cure was certainly not effected, for a communication between the vagina and the sac of the peritoneum existed: but the condition of the patient was considerably ameliorated.

M. Zinck, of Lausanne, relates two cases of white-swellings, which were cured by the preparations of iodine.

In Dr. Gairdner's monograph on iodine, a similar case of cure, communicated by Dr. Maunoir of Geneva, may be found. In this instance the patient, a child, could not walk without crutches:—blisters, leeches, and deobstruents of all kinds had been used in vain; the tumour was then rubbed night and morning with the size of a hazel-nut of iodine ointment, whilst

small doses of tincture of iodine were administered. In the course of a few weeks the cure was completed.

M. Zinck has published two memoirs, (*Journal Complémentaire*, 1824,) on the abuses of iodine internally administered. In them he shows that the long-continued use of iodine tends to induce gastric inflammation; but he says this is mainly attributable to the patients, who, in impatience of a cure or prevention, swallow immense doses of the medicine. He afterwards makes mention of the rage for iodine which prevailed in Geneva—a rage that could only have been caused by its extraordinary efficacy in the several diseases in which it was employed. It was taken by the inhabitants without any medical superintendence. One apothecary of the city procured and sold as much as ten pounds of iodine in a single year.

In Dr. Gairdner's memoir, previously alluded to, some interesting records of the advantages to be derived from iodine in goitre, scrofula, and tubercular affections of the chest and abdomen, may be found. The serious consequences of the use of iodine, mentioned by Dr. Gairdner, are however exceedingly rare; it is only the most flagrant abuse of the remedy that could induce such results.

Dr. Bacon appears to have administered iodine with some success in the treatment of scrofulous phthisis and some other tubercular affections. Further inquiries are still requisite to establish its efficacy in these cases, and when phthisis is as yet incipient.

M. Deferron found the effects of the following mixture most satisfactory in a young phthisical female: the dose he prescribed was 80 minims every hour.

Lettuce water.....	4 ounces
Solution of hydriodate of potass	15 drops.
Medicinal prussic acid	10 to 12 drops.
Syrup of marsh mallows.....	1 ounce.

He sometimes substituted an ounce of cyanic syrup for the prussic acid and marsh-mallow syrup.

Dr. Bacon, in his *Treatise on Tuberculous Diseases*,

relates a case of encysted ovarian dropsy, in which the employment of iodine was followed with the most rapid and marked success. Dr. Gairdner quotes this case, and has commended it in similar ones; in several cases of ascites however he found the medicine to fail.

Coindet lauds iodine as a powerful emmenagogue, and this property has been confirmed by the observations of Professor Brera (*Saggio Clinico sull' Iodio. Padua. 1822*) and several others. My own experience also testifies to the fact: when using it in a suppression of the menses of a young lady, whose virtue I had no reason to suspect, an abortion took place at the end of three weeks!

Professor Brera has prescribed iodine in many more diseases than Dr. Coindet mentions. Besides goitres and menstrual suppressions which have been cured by it, he relates cases of glandular indurations, mesenteric disease, chronic dysentery, hæmoptysis consequent on suppressed menses, phthisis laryngea, leucorrhœa, and syphilitic congestions, as having been cured by it. Perhaps M. Brera too frequently associates other medicines with the iodine to render the efficacy of the former beyond doubt in the fore-mentioned cases; hence some caution in its administration in similar cases becomes requisite. Moreover M. Brera is not the only one who has given iodine in mesenteric disease, Mr. Callaway having derived the best effects from it in scrofulous enlargement of the mesenteric glands.

Latterly iodine has been employed in the treatment of syphilitic buboes and gonorrhœa. M. Richon (*Archiv. Générales, 1824*) has found it advantageous in such cases at the military hospital of Strasburg. He generally gives 15 drops of the tincture on the morning of the first day, 20 to 25 the second day, and 30 the third day. He then begins to give in addition 15 drops in the evening, which he increases in like manner to 30. If no gastric irritation ensues, the patient has a burning sensation in the gullet, which however soon passes off. Occasionally there is some colicky pain, headache, dryness and redness of the tongue, in which

case the remedy must be suspended and again afterwards recommenced. M. Richon finds 30 drops morning and evening the most appropriate dose. His patients were all robust and non-excitabile soldiers.

MM. Gimelle (*Revue Médicale*, t. 7) and Sablairrolles (*Journ. Univers. des Sc. Méd.* 1825, and *Bulletin des Sc. Méd.* 1824) relate instances in confirmation of the efficacy of iodine in leucorrhœa, advanced by Coindet and Brera. The former has cured herpes with it, and I have treated some obstinate cases of the same kind with speedy and perfect success. M. Eusèbe de Salle has found the benefit derivable from hydriodate of potass in friction and iodine in pills, in the chronic liver complaints of those who have resided for a long time in tropical climates.

A veterinary surgeon, M. Roupp, attached to the depôt of stallions at Abbeville, has used hydriodate of potass in the treatment of glanders. (*Journ. Gén. de Médecine*, 1824.) During a whole month he gave from 9 to 14 grains of it to a horse, and also used friction with the ointment of the same salt. This treatment did not however succeed; on the contrary, the fever seemed to be thereby increased. Perhaps the doses were too small, or the disorganization too far advanced to leave a hope of cure.

At the end of the year 1822, the confidence of the Genevese and Swiss practitioners in the virtues of iodine considerably diminished. They then began to find that serious consequences followed its employment, such as chronic inflammations of the stomach, rapid and great emaciation of the whole body, and particularly of the mammæ, &c. I have never seen such consequences, even after doses that might be esteemed extraordinary.

Perhaps the difference in weights of different countries may account for some of these consequences. Thus, in Geneva and France 48 grains of iodine are used to the ounce of alcohol in forming the tincture. But these grains are of the marco weight, whereas in other parts of Switzerland and in Germany the Nu-

remberg medicinal weights are used, and in England the troy weight. In both the latter the scruple contains 20 grains, whilst in the marco it contains 24 grains; making a difference of one-fifth of iodine in the ounce of tincture. (See Journal de Pharmacie, 1823.)

MODE OF ADMINISTERING IODINE.

Tincture of Iodine.

Alcohol at 35° 1 ounce.
Iodine 48 grains.

This tincture should not be prepared at any great distance of time previous to its use, for crystals of iodine are soon deposited, and the iodine moreover is apt to engage some of the hydrogen of the alcohol, and be thus converted into an ioduretted hydriodic acid.

Tincture of iodine has been employed in the treatment of goitre with success, also in that of scrofula, but not so frequently as the two preparations which follow. It may be given to adults in the dose of 4 to 10 drops three times a day in half a glass of sugared water: this may be gradually increased to 20 drops, which contain about a grain of iodine.* I have, however, seen much larger doses given without inconvenience.†

Iodated Waters.

M. Lugol prepares these waters with the proportions

* A drop of tincture of iodine only weighs two-thirds of a grain, whereas a drop of the solution of the hydriodate of potass weighs more than a grain, or even two grains if the hydriodate be ioduretted. These differences should be calculated in prescribing doses in drops.

† I have given as much as 3 drachms of the tincture per diem for many successive days; the effects were actually *nil.*—*Tr.*

of one-half, two-thirds, and one grain of iodine to a half bottle or a *livre* of salt water, represented in the following formulæ :*

	Sea Salt. Grammes.	Tincture of Iodine. Grammes.	Water. Livres.
No. 1. $\frac{1}{2}$ grain in a livre.....	66.....	50.....	100
No. 2. $\frac{2}{3}$ of a grain.....	65.....	75.....	100
No. 3. 18 min.....	66.....	100.....	100

I have long used the iodated and ioduretted waters, but do not add the salt: one of my forms of use is this;

Ioduretted Water.

Ioduret of Potassium.....	6 grains.
Iodine.....	1 grain.
Water.....	2 livres.

This water may be the common beverage at meals.

Ioduretted Sulphuric Ether.

Sulphuric ether.....	1 gros.
Pure iodine.....	6 grains.

Thirty drops contain a grain of iodine. Patients can scarcely bear more than ten drops at one time.

Solution of Ioduret of Potassium.

Ioduret of potassium.....	36 grains.
Distilled water.....	1 once.

This solution is capable of dissolving more iodine, and thus forming an ioduretted hydriodate of potass.

If Coindet's solution is to be used, we have only to add 10 grains of pure iodine to the above solution.

These two preparations, which may be administered in the same manner as the tincture, are both used in goitre and scrofula; in the latter case some tonic is usually added. For some time I have been making chemical experiments in the hospitals and in private

* These waters are of a beautiful orange colour, transparent, and will keep. Children readily take them, particularly if they be sugared; but the sugar should not be added long before drinking them, as a decomposition would take place.—*Tr.*

practice, with ioduretted solution of potass, and I have found that the dose of it may be augmented to two, three, or even four ounces per diem, without inconvenience. Debilitated, emaciated, and very nervous females, have taken this quantity for several weeks, without any appreciable derangement of the health. On the contrary, they have become stout in a most extraordinary manner; and the mammæ of some young girls have been rapidly developed during its employment.

In this dose I have seen two cancers in the incurable wards of the Salpêtrière Infirmary cured, as if by magic, in the course of a fortnight. The patients had been affected with this horrible disease for several years, and had been admitted as incurable; one of them is still there, and it is now five years since she was cured: her health remains good.

In the same hospital is a woman who had long had ulcerations of the tongue, and who is completely cured by the hydriodate of potass.

I have reduced in a few days scorbutic swellings of the gums, with half a drachm of the solution daily, in which case it probably acted as it does in goitre, that is, by contracting the extreme capillaries.*

With similar views, I have employed large doses of the solution in hypertrophy of the ventricles of the heart.

The Infirmary of the Salpêtrière generally contains a great number of cases of hypertrophied ventricles, and upon them I have made numerous experiments of the efficacy of iodine, but without successful results in the first instance, probably owing to the obstacles of ossified arteries and valves. I have however learned something from them concerning the doses of the iodurets and ioduretted hydriodates. At first I gave them by drops, now I give them by *gros*, and I have

* It may be questioned whether this is not *always* the action of iodine. It goes by the name of a powerful absorbent; but many physiological arguments go to show that what are called absorbents are nothing more than agents that restrain deposition.—*Tr.*

frequently exceeded 2 ounces in 20 hours, or a *gros* of hydriodate of potass, and this without any unpleasant consequences.

In young subjects of cardiac hypertrophy, I have been eminently successful with large doses of ioduret of potassium, the symptoms generally disappearing in less than a month. The formulæ I have generally used are as follows :

Atrophic Solution.

Distilled lettuce water	8 ounces.
----- peppermint	2 gros.
Ioduret of potassium	4 gros.
Syrup of marshmallow	1 once.

Five *gros* increased, if necessary, to 10, morning and evening.

If the hypertrophy be accompanied with a strong impulse, heavy sound and accumulated movement of the heart, I add from 1 to 2 gros of tincture of digitalis to the above mixture, and then give half an ounce of it morning and evening.

Ointment of the Hydriodate of Potass.

Hydriodate of potass	1 gros
Lard	1½ once

Frictions may be made with this ointment night and morning on goitre or enlarged scrofulous glands, in the quantity of half a gros each time, increased, if necessary, at the end of a week, to a gros or upwards, according to the age of the patient, and the extent of the tumour.

By these means the resolution of tumours which the saline solutions had failed to effect, is obtained. This ointment has been successfully employed in various cases of engorged testicle, that had resisted other remedies. Sometimes it only palliates, and at other times it is necessary to combine the internal use of iodine with it. In scrofula, for the most part, more benefit is derived from the use of the saline solutions.

When frictions are practised in the treatment of goitre, the action of the iodine is sometimes assisted by fomentations and bleeding with leeches. It sometimes happens that after the first frictions, the goitre, instead of becoming softer, is harder and somewhat painful; this local irritation is soon subdued by a few leeches, and the iodine then produces well-marked effects.

The activity of this ointment is augmented by adding 10 or 12 grains of pure iodine to it: it then forms what is called "ointment of the ioduretted hydriodate of potass."

M. Lugol is in the habit of using the following

Ioduretted Hydriodate Ointments.

	Ioduret of potassium. Grains.	Iodine. Grains.	Lard. Grains.
No. 1	64	8	1000
No. 2	160	22.4	1000
No. 3	160	25.6	1000

M. Lugol has employed for several years the ioduretted ointments, and iodated waters in scrofulous disorders, tubercles, ophthalmiæ, ozena, ulcers, dysentery, gonorrhœa, white swellings, &c. with the utmost success.

I have commenced a series of experiments on the employment of ioduretted ioduret of potassium even in epilepsy, and with some advantageous results: the dose required is from half a gros to a gros daily. I commonly prescribe as follows:

Antiepileptic Solution.

Ioduret of potassium	4 gros.
Iodine	2 grains.
Peppermint and orange-flower water, of each	3 ounces.

Dose, 5 gros, three times a day.

Ioduret of Potassium in chronic rheumatisms and long-standing rheumatic affections.

I have for some years used ioduret of potassium, either alone or in solution, with iodine in decoctions of sarsaparilla and dogs'-grass, in the proportions of half a gros to two gros of the former, to a pint of the decoctions and one grain of iodine. They are called at the Hôtel Dieu, *ioduretted dog's grass and ioduretted sarsaparilla*. These are the formulæ :

Ioduretted Sarsaparilla.

Decoction of sarsaparilla	2 livres
Ioduret of potassium	1 gros.
Syrup of orange-peel	2 ounces.

The whole may be taken in twenty-four hours.

Ioduretted Dog's-grass.

Decoction of dog's grass	2 livres.
Ioduret of potassium.....	$\frac{1}{2}$ gros.
Peppermint syrup.....	2 ounces.

To be taken as the last.

Iodine in Scrofulous Ophthalmiæ.

I have seldom seen these complaints, even when complicated with ulceration of the conjunctiva and the cornea, resist the wash following more than a month, if constitutional treatment be also attended to. I sometimes add morphia to the solution.

Ioduretted Collyrium.

Rose-water	6 ounces.
Ioduret of potassium	24 grains.
Iodine	1 or 2 grains.

To be used four times a day.

[The therapeutical effects of iodine having been most universally acknowledged in the treatment of the varied forms of scrofulous disease, it may not be out of place to give a brief account of the practice and success of some who have paid particular attention to its use. In the first part of M. Lugol's admirable work, a list of twelve cases is given, which were treated with iodine; three relate to ulcerated tubercles, which were cured in three, seven, and twelve months: two of ophthalmia, one of which yielded to a treatment of forty-eight days, while the other was prolonged to the ninth month; one case of fistulous abscess, deeply situated in the cellular tissue, required nearly a year's care; four cases of that horrid form of scrofula denominated by the French "dartre rongeante," but which M. Lugol calls *esthemenic* (corrosive) scrofula; and one case of scrofulous caries—a form he has generally found most intractable, and a single cure of which he is not able to advance. From the whole of M. Lugol's first memoir it appears that he treated with iodine alone, in seventeen months, at the Hôpital St. Louis, one hundred and nine scrofulous patients, of which sixty-one were males and forty-eight females. That at the close of 1830, thirty-nine, (twenty-nine females and ten males,) were under treatment; that thirty, (seventeen males and thirteen females,) had quitted the hospital with marked improvement; that in four cases, (two males and two females,) the treatment was ineffectual; and finally, that thirty-six cases, (thirteen males and twenty-three females,) were discharged, completely cured.

M. Baudelocque (*Etudes sur la Maladie Scrophuleuse*, 1834,) states, that of sixty-seven scrofulous children treated by iodine alone, fifteen were cured, and fourteen had so far improved as to place ultimate recovery out of doubt, and twenty on whom it had no influence at all. The scrofulous lesions in these sixty-seven amounted to one hundred and twelve, of which forty-three were entirely cured; and of the sixty-nine others many were evidently improved. He re-

marks, however, that his success is far from being equal to that vaunted by M. Lugol, and though he says, that "no remedy with which he is acquainted has effected an equal number of cures in six months," he nevertheless differs altogether from those "who suppose that iodine is a specific in scrofula, and will be in that disease what quinia is in intermittents and mercury in syphilis."—(Loc. cit. p. 462, et seq.)

The first practitioner in this country who experimented on iodine, was Dr. Copland; this was in 1819. Since that time he has tried its efficacy in a variety of disorders. Besides the more ordinary forms of scrofula, he has found the best results from it in that of hip-disease. Generally speaking, he has seen it efficacious in secondary syphilis, but it is not always to be trusted to: for in two cases, where the bones and joints had become affected, it failed altogether, though the iodine ointment applied to the nodes relieved the pain, and diminished their volume: in these cases he was subsequently under the necessity of having recourse to the corrosive sublimate. On the whole, he thinks, that in syphilis the place iodine should hold, is that of an adjuvant to the ordinary mercurial remedies. The formula in the text which comprehends the decoction of sarsaparilla, and the ioduret of potassium, offers a very elegant manner of employing it in that character; the ioduret, however, may be increased much above the dose therein stated.

The same gentleman has been successful in the employment of iodine and several of its combinations, in chronic and subacute hydrocephalus in the stage of effusion. In two cases of ovarian dropsy, its effect was such as to produce what may be esteemed a radical cure; ten years having now elapsed since the subjects of the disease were so treated, without any renewed accumulation of water.

Nor is this power which iodine possesses of inducing absorption confined to the fluid deposits of the body. The absorption of the mammæ and testicles has been hinted at in the text, and though M. Ma-

gendie mentions it briefly, and as if sceptical of the fact, it stands on too many and too good authorities, to be controverted. The disappearance of bronchocele, under iodine treatment is still more strongly certified. Dr. Seymour in his "Illustrations of Diseased Ovaria, &c." states that he found the preparations of iodine most powerful in effecting a diminution of the morbid growth of that organ.

In the fifth volume of the Medical Gazette, Mr. Lyon strongly recommends the application of iodine washes to the ulcers of venereal buboes, the treatment being accompanied with the internal use of the remedy.

Lastly, Sir Charles Scudamore in his work on the "Inhalation of Iodine and Conium in Pulmonary Disorders," affirms that he has cured cases of established phthisis by that mode of treatment. Any body, however, who will take the trouble to read his cases will find that not one of pulmonary consumption is to be found among them. *Pour surcroît de malheur*, Dr. James Murray of Dublin, has very recently wrested from Sir C. Scudamore the claim of priority in this mode of using iodine. (See Lancet, March 1835, No. 604.)

In prescribing iodine, the effects on the condition of the cerebral circulation should be carefully looked to, as it is apt to induce fulness of the head if the doses be large and continued for a long time together. Many are inclined to think that M. Magendie's doses are too powerful: but on the other hand much larger quantities are frequently given without unpleasant consequences. The waters of M. Lugol form one of the best modes of ensuring its gradual, effectual, and innocuous action on the system.

In using the various ointments containing iodine, care should be had not to continue them, or render them so powerful as to irritate the skin, in which case their beneficial influence is marred.

The supersaturation of the system with iodine which most practitioners have observed, but in which our author does not appear to believe, may be known by

more or fewer of the following symptoms. Rapid pulse, palpitations, a dry and frequent cough, sleeplessness, rapid emaciation, cardialgia, loss of strength, tremors, swelling of the legs, swelling and ulcerations of the tongue, gums, and inside of the cheeks, and fulness of the head.

There is one mode of administering iodine externally, of which M. Magendie appears to take no notice: I allude to iodine baths. The credit of their first employment M. Lugol takes to himself; and he grounds their utility both on their successful effects (of which he gives instances) and on their proving a substitute in cases where internal inflammations, idiosyncracies, or other circumstances, forbid its internal administration. After much experimenting, he was induced to give the following formulæ, as the strength of baths for different ages.

Baths for Children.

Age.	Quarts of water.	Troy grains iodine.	Troy grains hydriod. of potass.
4 to 7.....	36	30 to 36	50 to 72
7 to 11	75	48, 60, 72.....	96, 120, 144
11 to 14.....	125	72 to 96	144, 192

Baths for Adults.

Degree.	Quarts of water.	Troy drachms iodine.	Troy drachms hydriodate of potass.
No. 1	200	2 to 2½	4 to 5
— 2	243	2, 2½, 3	4, 5, 6
— 3	300	3, 3½	6, 7.

Iodine is the active principle of these baths, for even three ounces of the hydriodate to each bath has no action whatever. On the other hand, simple iodine is not less soluble in a bath; and if previously diluted in alcohol, does not continue in a state of solution, when diluted with the bath. The most certain way, therefore, is previously to dissolve the iodine in the

hydriodate of potass. The baths sometimes smart and and redden the skin especially over diseased parts. The surprising efficacy of so small a quantity of iodine is probably attributable to the heat and moisture promoting the absorption of the iodine.—*Tr.*]

IODURETS OF BARIUM AND ARSENIC.

Ioduret of Barium.—Heat hydriodate of iron with an excess of carbonate of baryta, evaporate to dryness, and after re-dissolving in water, the ioduret is procured in silky or prismatic needles.

M. Biett has used it in a few cases of scrofulous congestions.

Ointment of Ioduret of Barium.

Ioduret of barium..... 4 grains.
Lard 1 ounce.

Ioduret of Arsenic has also been employed by M. Biett at the Hôpital St. Louis. It is obtained either by heating in a glass retort a mixture of 16 parts of arsenic and 100 of iodine and subliming, by which the ioduret is formed, and may easily be decomposed by adding water in great quantity. Or by boiling 30 grammes of powdered arsenic and 100 of iodine in 1000 grammes of water, filtering when the liquor is colourless, and evaporating to dryness: it may be subsequently sublimed, if desired.

Ointment of Ioduret of Arsenic.

Ioduret of arsenic 3 grains.
Lard..... 1 ounce.

M. Biett has used this several times in cases of tubercular ulcers.