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CANADIAN

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Original and Selected Papers.

A SUGGESTED IMPROVEMENT IN THE PREPARATIONS KNOWN AS "SYRUPS OF PHOSPHATES."*

BY JOHN MORRIS BROAD, JUN.

It occurred to me some time since that an improvement might be made in those most unsatisfactory preparations, the "Syrups of the Phosphates," though the condition of the dispensing chemists was greatly improved by the boon conferred on them by that well-known and appreciated paper by Mr. Carteighe, published in the *Pharmaceutical Journal* of March 25, 1871. I am indebted to him for his most valuable formulæ.

My idea is to substitute glycerine and water, equal parts by measure, for syrup, which I find will help to keep the phosphates in a better condition with less phosphoric acid: the taste is far preferable to the syrups, and, in a therapeutical point of view, it may be beneficial. Being half water, it is thinner, and a nicer form. The cost of preparing is about the same. I find it answers equally well with iodide and bromide of iron. The following are, I think, the best formulæ :—

Glycerine of Phosphate of Iron.

Phosphate of Iron	16 grs.
Phosphoric Acid (Syrupy), sp. gr. 1·5	1 fl. drm.
Glycerine and Water, eq. pt. ad	fl. ℥ij.

*From the *Pharmaceutical Journal and Transactions.*

Rub the phosphate of iron down with a little water and glycerine, add the acid, and filter into the rest of the glycerine and water.

Glycerine of Phosphate of Manganese.

Phosphate of Manganese	16 grs.
Syrupy Phosphoric Acid, sp. gr. 1·5	fl. ʒj.
Glycerine and Water, eq. pt. ad	fl. ℥ij.

Rub the phosphate of manganese down with a little glycerine and water, add the acid, and filter into the rest of the glycerine and water.

Glycerine of Phosphates of Iron and Manganese.

Phosphate of Iron..	12 grs.
" " Manganese	8 grs.
Syrupy Phosphoric Acid, sp. gr. 1·5	fl. ʒj.
Glycerine and Water, eq. pt. ad	fl. ℥ij.

Rub the phosphates of iron and maganese with a little glycerine and water, add the acid, and filter into the rest of the glycerine and water.

Glycerine of Phosphates of Iron and Lime.

Phosphate of Iron	grs. 16.
" " Lime	grs. 32.
Syrupy Phosphoric Acid, sp. gr. 1·5..............	fl. ʒj.
Glycerine and Water, eq. pt. ad	fl. ℥ij.

Rub down the phosphates of iron and lime with a little glycerine and water, add the acid, and filter into the rest of the glycerine and water.

Glycerine of Phosphate of Zinc.

Phosphate of Zinc	grs. 32.
Syrupy Phosphoric Acid, sp. gr. 1·5	m. 50.
Glycerine and Water, eq. pt. ad	fl. ℥ij.

Rub down the phosphate of zinc with a little glycerine and water, add the acid, and filter into the rest of the glycerine and water.

Glycerine of Phosphate of Quinine.

Phosphate of Quinine	grs. 16.
Syrupy Phosphoric Acid, sp. gr. 1·5	m. 20.
Glycerine and Water, eq. pt. ad	fl ℥ij.

Rub down the phosphate of quinine with a little glycerine and water, add the acid, and filter into the rest of the glycerine and water.

Glycerine of Phosphates of Iron and Qninine.

Phosphate of Iron	grs. 32.
" " Quinine	grs. 16.
Syrupy Phosphoric Acid, sp. gr. 1·5	m. 70.
Glycerine and Water, eq. pt. ad	fl. ℥ij.

Rub down the phosphates of iron and quinine with a little glycerine and water, add the acid, and filter into the rest of the glycerine and water.

Glycerine of Phosphates of Quinine, Iron, and Strychnine.

Phosphate of Iron	grs. 32.
" " Quinine	grs. 16.
Strychnia (in crystals)	gr. ½.
Syrupy Phosphoric Acid, sp. gr. 1·5	m. 70.
Glycerine and Water, eq. pt. ad	fl. ℨij.

Rub down the phosphates of iron and quinine, with the strychnia, with a little glycerine and water, add the acid, and filter into the rest of the glycerine and water.

Glycerine of Phosphates of Iron and Strychnine.

Phosphate of Iron	grs. 32.
Strychnia (in crystals)	gr. ½.
Syrupy Phosphoric Acid, sp. gr. 1·5	m. 70.
Glycerine and Water, eq. pt. ad	fl. ℨij.

Rub down the phosphate of iron and the strychnia with a little glycerine and water, add the acid, and filter into the rest of the glycerine and water.

A preparation which I made according to one of these formulæ more than two months ago remains unchanged.

Rise House, Hornsey Rise, N.

PROTECTION OF HYPODERMIC SOLUTIONS FROM CHANGE BY KEEPING.*

BY EDWARD H. SQUIBB, OF BROOKLYN.

It is supposed to be established by the investigations of Dr. Bourdon, M. Delpech, M. Gubler, and M. C. Paul, that the growth of confervæ is the only cause of the changes which commonly occur in solutions of the organic alkaloids and their salts; and that these confervæ decompose the alkaloids and consume a portion of their constituents, so that the solutions become weaker as the growths increase. Various methods have been proposed and used to prevent these growths, but thus far none seem more simple or more effectual than the addition of one or other of the phenols; and the crystallized carbolic acid is perhaps the most convenient if not the best of these. This carbolic acid being an irritant in proportion to quantity, and it being very important that solutions for hypoder-

*From the Proceedings of the American Pharmaceutical Association.

mic use should be as unirritating as possible, it becomes of some consequence to know how little of the protecting agent can be used with average success. The experience of several years in this laboratory has shown that one volume of a five per cent. solution of crystallized carbolic acid, in sixty-four volumes of a solution of sulphate of atropia of the strength of two grains in each fluid ounce, will generally, but not always, protect it from change. The carbolic acid here bears the proportion of about one-thirteenth of one per cent., and this proportion proves quite unobjectionable for the delicate purposes of eye surgery. But once or twice in an experience of about six years it has proved ineffectual for protection.

In the endeavor to answer this query with accuracy, the first result reached was, that accidental circumstances from unknown causes sometimes prevent the growth of these confervæ in solutions not protected at all; and also admit of their presence in and absence from different bottles of the same solution, without discoverable relation to the proportion of the protecting agency. A series of solutions prepared with care in August, 1872, some unprotected, and others with various proportions of carbolic acid, stood until May, 1873, many of them remaining without growths of any kind, while those which produced confervæ did so without discoverable relation to the protecting agency. Supposing that the atmosphere of a laboratory might be the cause of these confusing results, fresh solutions of acetate of morphia and sulphate of atropia were made, the former salt having proved to be the most easily attacked and the most rapidly changed. The bottles containing these solutions were placed for one week, with stoppers out, in a hospital where such solutions were very liable to change. The solutions were then distributed into small vials, some without protection, and others with various proportions of carbolic acid. These vials were observed every week during the months of May, June, and July, until they ceased to show any farther changes. One vial of the solution of sulphate of atropia which was entirely unprotected failed, from first to last, to show any signs of change. Two vials of sulphate of atropia solution, and one vial of a pair of acetate of morphia solution, all protected with small quantities of carbolic acid, also failed to show distinct evidence of confervæ. But, with these exceptions, the entire number of twelve pairs exhibited a diminution of confervoid growths, in proportion to the quantity of carbolic acid added, until the proportion of carbolic acid reached, in the solution of sulphate of atropia, about one-eighth of one per cent., and in the solution of acetate of morphia about one-seventh of one per cent., all with larger proportions remaining clear and unchanged. Hence it appears that solutions of some salts, though of the same strength, require more carbolic acid for protection; but the proportion which under ordinary circumstances will protect the most difficult ones of those tried, does not exceed about one-seventh of one per cent.

But these solutions were all made with distilled water, and with more than ordinary care, and were all filtered. When similar solutions were made with ordinary undistilled water, nearly double the quantity of carbolic acid was required to afford a doubtful protection. Hence these solutions should, under all circumstances, be made with distilled water, and be carefully filtered.

The query may then be answered as follows:—When such solutions are properly made, the smallest proportion of carbolic acid which will protect them from change is about one-seventh of one per cent.; but that a proportion of one-sixth of one per cent. is practically better and safer in ordinary practice; and that this latter proportion is unobjectionable in all known respects. To make these solutions with this proportion, the following formulas are suggested. First, to make a five per cent solution of carbolic acid, which is useful for this and many other purposes:—

Take of crystallized carbolic acid 10 parts, or 10 grammes, or 154 grains; distilled water 200 parts, or 200 grammes, or 3,086 grains. Weigh the distilled water in a glass-stoppered bottle, capable of holding one-fourth more than the sum of the quantities. Melt the crystallized carbolic acid in the stock-bottle by setting this in water warmed to about 50° C. = 122° F., and weigh the quantity by pouring it carefully into the bottle containing the water, as it sits upon the scale. Then shake the whole together until the carbolic acid is dissolved, and filter the solution through paper. Label it, "Solution of Carbolic Acid, five per cent."

Of this solution about fifteen minims in each fluid ounce gives a proportion of one-sixth of one per cent.

For solution of sulphate of morphia, of the strength called "Magendie's Solution:"*

Take of sulphate of morphia, solution of carbolic acid, 5 per cent., of each 2 parts, or 2 grammes, or 31 grains; distilled water, a sufficient quantity. Dissolve the sulphate of morphia in about 50 parts, or 50 grammes, or 775 grains of distilled water; add the solution of carbolic acid, filter through paper, and pass distilled water through the filter, until the filtrate weighs 57 parts, or 57 grammes, or 883 grains. Label, "Solution of Sulphate of Morphia; Magendie's; about 3.51 per cent., or 16 grains in the fluid ounce."

*The original "Magendie's Solution," as given in "L'Officine de Dorvault," p. 242, is, 1 part acetate of morphia in 40 parts water, or about 16 grains in 640 grains of water. As used in the United States, however, it is made from either acetate, muriate, or sulphate of morphia, and in the proportion of 1 part in about 28½ parts water, or 16 grains in a fluid ounce (of 455 grains) of water.

PHARMACY IN LONDON DURING THE SEVENTEENTH CENTURY.

The following interesting extract is taken from the report of a lecture on "Pharmacy, Past, Present, and Prospective," delivered by Professor Redwood, at a meeting of a Provincial Pharmaceutical Association. After describing the rise and progress of pharmacy from the earliest period down to the time when the labors of the alchemists had resulted in the introduction of many new mineral remedies, the lecturer goes on to say :—

"It was but very slowly that these medicines were adopted, but still they were gradually increasing, and it became necessary to provide for their production. The drug-grocers were quite unequal to this duty, which was performed by a distinct class, who called themselves chemists, and who, in the 17th century, as far as we can judge, were strongly tinctured with the spirit and doctrines of the Hermetic or secret art of alchemy. An advertisement or prospectus of a chemical establishment in London, in 1686, runs as follows :—

"'GAZA CHYMICA.

"'A magazine or storehouse of choice chymical medicines, faithfully prepared in my laboratory, at the sign of Hermes Trismegistus, in Watlin Street, London, by me, GEORGE WILSON, Phylo-Chym.'

"It was the common practice, about the period we are referring to, for establishments of this kind to have special signs over the door, as public houses have now. The sign of George Wilson's establishment was *Hermes Trismegistus*, the celebrated oracle of the alchemists, whose effigy we have here, as found in the Temple of Pseleis. The chemical art, as practised by the alchemists, was often called the *Hermetic*, or *secret art*, profound secrecy having been enjoined upon those engaged in the search after the philosopher's stone. Important products were often sealed with the seal of Hermes, as it was called, which was supposed to render the secret of their production inviolable; and hence superstitious value was attached to substances bearing this seal—a value often required to compensate for intrinsic worthlessness. We retain some vestiges of this practice in the *Terra Lemnia* and *Terra Sigillata*, or *sealed earth*, which is still ordered in the Paris Codex, and we continue to use the term *Hermetically sealed* to represent the most complete cutting off of communication with the outer world that we can effect, as by the fusion of the open end of a glass tube.

"An establishment somewhat similar to that of the Gaza Chymica of George Wilson existed at an early period in the Poultry, with the sign of *Bell and the Dragon* over the door. The late Mr. Richard Phillips, whose name is so intimately associated with the London Pharmacopœia, was, I believe, originally connected with this house.

"But perhaps the most celebrated of the houses of this class was that which was established in Southampton Street, Covent Garden, in 1680, by Ambrose Godfrey Hanckwitz, the German assistant of the Hon. Robert Boyle, an eminent philosopher and chemist of the 17th century. Mr. Boyle's laboratory was situated at the back of Southampton Street, and here the first practically successful processes for the manufacture, on a commercial scale, of ether and phosphorus were conducted by Godfrey Hanckwitz, who shortly afterwards opened a shop, with the sign of *The Phœnix*, in an adjoining house in Southampton Street, which became celebrated as that of Godfrey and Cooke, the name of Hanckwitz having been dropped and that of Godfrey used."

An original advertisement of this house serves to throw light upon the state of pharmacy at the latter end of the 17th and beginning the 18th century. It runs thus—

"Ambrose Godfrey Hanckwitz, Chemist in London, Southampton Street, Covent Garden, continues faithfully to prepare all sorts of remedies, chemical and galenic. He hopes that his friends will continue their favors. Good cordials can be procured at his establishment, as well as Roval English drops, and other articles, such as Powders of Kent, Zell, and Contrajerva, Cordial red powder, Gaskoins powder, with and without bezoar, English smelling salts, true Glaubers salt, Epsom salt, and volatile salt of ammonia, stronger than the former. Human skull and hartshorn, essence of Ambergris, volatile essence of lavender, musk and citron, essence of viper, essence for the hair, vulnerary balsam, commendeur, balsam for apoplexy, red spirit of purgative cochliaria, spirit of white cochliaria, and other. Honey water, lavender water of two kinds, Queen of Hungary water, orange-flower water, and arqubusade.

"For the information of the curious, he is the only one in London who makes the inflammable phosphorus which can be preserved in water. Phosphorus of Bolognian stone, flowers of phosphorus, black phosphorus, and that made with acid oil, and other varieties. All unadulterated. Every description of good drugs he sells, wholesale and retail.

"Solid phosphorus wholesale, 50/- an ounce, and retail £3, sterling, the ounce."

Now, these are the earliest records we have of the existence of establishments of this kind in England, and observe that in neither of these cases is there any reference made to the dispensing of physicians' prescriptions. The chemists as well as the druggists were mere dealers in medicines and certain articles of perfumery, both simple and compound. The dispensing of medicines from prescriptions was as yet confined to the apothecaries, whose special duty it was, or ought to have been; to the dispensaries, which had been established and were still supported by the physicians, and those physicians who continued to send out their own medicines.

It is interesting to trace the first appearance of a class of men professing to deal in chemical medicines—men who, like Mr. Godfrey, had laboratories with chemical furnaces, and the means of conducting all sorts of chemical processes. Few men, in those days, were so favourably circumstanced in this respect as Mr Godfrey, who had the advantage of commencing his career in the service of a distinguished and wealthy philosopher, by whom he was supplied with anything required for carrying out the scientific objects which he and his patron had in view. The interesting account published some years ago by Mr. Joseph Ince, explains the circumstances under which Godfrey commenced the building of furnaces and setting up of stills in Maiden lane, a narrow turning out of Southampton Street, Covent Garden; where English smelling salts as well as phosphorus and ether were practically produced, and where Mr. Boyle received his scientific friends to witness the "marvellous lumen" as the newly discovered phosphorus was called. Here Godfrey and his successors continued to make smelling salts, for which they were celebrated, until, aristocratic London having migrated westward, they were fain to follow in the train; and Robert Boyle's laboratory, with its furnaces, after passing through an ignominous transformation into a potato warehouse, at length wholly disappeared, and is now, *Phœnix-like*, in the act of rising from its ashes as a *Catholic chapel.*

The Gaza Chymica in Watlin street, the chemical laboratory and shop in Southampton street, and the physicians' dispensaries in Warwick lane, at the back of Newgate, in St. Peter's Alley, Cornhill, and in St. Martin's lane, Westminster, appear to have started nearly at the same time, or at any rate they were all simultaneously in existence at the end of the 17th and beginning of the 18th century. I have no knowledge of the exact time at which the physicians gave up their dispensaries; but it has been suggested that their doing so in the 18th century, caused the assistants who had been previously employed in those establishments to commence business as chemists and druggists, and to engage as such in the dispensing of medicines, an occupation to which they had been thoroughly trained.

———

MISTURA ASSAFŒTIDÆ.*

BY DAVID ACKERMAN, JR., G. P.

Condensed from an Inaugural Essay.

In the earlier part of the hot summer months a mixture was prepared by selecting 240 grains of fine tears of assafœtida. These were rubbed to a unformly fine mass, then triturated with a fluidounce of glycerin to a thick paste, a fluidounce of water added, and the whole incorporated thoroughly by being well triturated. The dissolved portion was decanted, and the residue treated in like manner with the same quantity of glycerin and water, and mixed with the previous portion.

A portion of this was diluted to the officinal standard, which, after standing exposed to heat and light for a few days, assumed a faint reddish tint, which gradually deepened, on standing a week, to a deep red color.

A similar quantity of officinal mixture was prepared, of similar quality of assafœtida, and at the same time as the foregoing. This, also, assumed a faint reddish tint, but remained sweet for several weeks.

The concentrated mixture also became oxidized, and assumed the red color of the former, after standing about the same length of time.

Another lot was prepared, using one-half the quantity of glycerin employed in the former, and adding instead another part of water, using the same mode of preparation as before.

About the same time some selected tears were reduced to powder by the process recommended by Mr. S. B. Proctor, namely, by softening the gum resin in a vessel, by means of a water-bath, and incorporating with it, by stirring, six per cent. of magnesia, and reducing it to powder. This, when mixed with water, gradually changed from white to green, the color continuing to deepen and change, until, at the end of ten or twelve hours, it was a blue black. The idea of this preparation was to obtain a powder of pure assafœtida, with which the mixture could be made by shaking in a bottle, without needing to resort to the mortar, and, as the powder prepared in this manner was recommended not to agglutinate in the manner of the ordinary powder, could be kept on hand as wanted, and a mixture formed with very little inconvenience; but my experience with it cannot recommend it.

Finding the last mixture with glycerin tending to spoil, I mixed with it a small portion of diluted acetic acid. This appeared to

*From the *American Journal of Pharmacy.*

immediately arrest oxidation, and the mixture remained in a comparatively good condition for some time. This suggested the idea of using the following formula, which, so far as my researches and present knowledge go, has proved successful :—

R.	Assafœtida (finest tears)	240 grs.
	Sacchari Albi	90 grs.
	Acidi Acetici Diluti..................................	f℥i.
	Aquæ Fluv.	f℥iij.

The assafœtida, after having been rubbed uniformly fine, was mixed with the sugar, and the tw› well rubbed together. Sufficient water was added to bring it to a paste, and the remainder of the water added in successive portions, until the soluble matter was all taken up, each portion being carefully decanted. To this was added the diluted acetic acid, the whole well shaken together, and kept protected from the action of the light, the heat being the same as in the previous experiments.

This at the end of three months was found to have retained all the characters of the fresh mixture, the deposit being easily mixed by a little shaking, the color being nearly white with a very faint tinge of pink, and the odor of the volatile oil being well developed and natural; altogether the general appearance indicating that the mixture had remained unchanged.

This mixture, properly diluted, has been dispensed with the sanction of the prescribing physician, and gave entire satisfaction, it containing nothing in any way detrimental to its therapeutic value. The author believes that the concentrated mixture as prepared above may be kept from year to year, and by diluting with three times its bulk of water will readily yield an assafœtida mixture equal in quality with the officinal. The selection of the finest assafœtida, the use of pure water, thorough trituration, exclusion of light, and protection from heat, are considered requisites for the successful preparation and keeping of the proposed mixture.

For the cleaning of mortars in which assafœtida has been used, the author recommends potassa solution, to be followed by a paste of bitter almonds, peach kernels, or cherry laurel leaves, and afterwards by soap and water.

THE CAUSE OF THE LUMINOSITY OF FLAME.

In the June number of the *Journal of Applied Chemistry* there appears a paper by W. Stein, in which the author reviews the various theories relating to the luminosity of flame. The theory advanced by Frankland—that luminosity is due to hydrocarbon vapors, and not to incandescent molecules of carbon—is thus reviewed and illustrated:

1. "That the soot which is deposited on a cold body placed in the flame consists not only of carbon, but contains also hydrogen, and probably is nothing more than a conglomeration of the densest illuminating hydrocarbons, whose vapors are condensed on the cold body."

In reply to this, it may be said that experiment shows that not only all heavy hydrocarbons, but even marsh gas, are decomposed by high temperatures, in the absence of air, into hydrogen and carbon. Since then, these hydrocarbons, whose vapors are to render the flame luminous, are here subjected to these conditions before they reach the oxygen of the air, so there is no doubt that, in the luminous portion of the flame, they must suffer decomposition into carbon and hydrogen. Whether the carbon, which separates, is chemically pure, or whether it is still mixed with a body containing hydrogen, is of little consequence, for the principal question to be decided is whether the "soot" is present in the flame as vapor or as a solid. If it where a conglomeration of the most dense illuminating hydrocarbons, whose vapors condensed on a cold body, then it would again assume the gaseous form if heated sufficiently without access of air. This it does not do, as any one will find on trying the experiment.

Its chemical composition is no more favorable to Frankland's theory. It is presumable that it will vary according to the material burned, and also according to the portion of the flame from which it is taken. We know that the temperature of a flame varies in different parts of that flame; the experiments of Magnus showed that the heavy hydrocarbons, at more moderate temperatures, yield, beside carbon, also a tarry product which contains hydrogen. The soot taken for the analyses given below was from the gas flame of a bat-wing burner, and was collected by placing a small silver kettle, full of water, two or three millimeters into the flame. Benzin extracted from it traces of a solid yellow body, of which the quantity was too small to permit of further investigation. Alcohol, alcoholic solution of potash, and dilute sulphuric acid, took up nothing from it. After being long and carefully washed with boiling water, and dried at 130° C., 0.206 gram of it yielded 0.06985 gram of carbonic acid, 0.0195 water, and 0.002 ash. This gave, as the percentage composition:

	With ash.	Without ash.
Carbon	96.446	97.390
Hydrogen	1.051	1.061
Ash	0.970	
Oxygen	1.533	1.549

I believe the oxygen to have been present in water which was tenaciously held even at 130°. Deducting this, we have in the substance, when free from water and ash, carbon 99.095 and hydrogen 0.905. These analyses confirm to that extent the previous opinion as to the chemical property of soot as deduced from the known action of the hydrocarbons at high temperatures

2. "How could a luminous flame be so transparent as it is, if it were filled with solid particles of carbon?" asks Frankland.

It must be acknowledged that it is possible to read print through the flame of a bat-wing burner, but it is easily noticed that the flame is more transparent in the lower and non-luminous than in the luminous portion. It is more difficult to read through a gas flame of greater thickness, and impossible to read through the flame of a candle or of a petroleum lamp. If, as we have just seen, the transparency of flame is only very limited, on the other hand we can read the same print through media which we know to a certainty are filled with solid particles, as, for example, a strip of opal glass, oiled paper and oiled linen. The transparency of a flame cannot possibly prove the absence of solid particles of carbon.

3. Frankland asks "how it could make no difference in photometric measurements whether the broad side of a flame or the narrow edge be taken, if it were solid particles of carbon which give the light?" To understand this query it is necessary to recall Arago's observation which gave rise to it. The Parisians desired to know in what position the street lights should be placed to give the most illumination both to the sidewalks and the roadway. Arago made some photometric experiments, from which he learned that as much light was given out from the narrow edge of the flame as from its broad side. This result caused general astonishment, because it was supposed before that a flame only emitted light from its surface while the light from a layer of carbon particles behind those in front would be held back or absorbed by the strata of particles in front of them. It is not difficult to see that such a supposition can arise only from a misunderstanding of the process. One body can weaken or retain the light falling upon it from some other body only when the former gives no light or is less luminous than the latter. If both are equally luminous we obtain the sum of their effects. Two molecules of carbon, lying one behind the other, and giving forth an equal amount of light, cannot possibly weaken each other's light; their vibrations, on the contrary, must act like two waves of equal amplitude and velocity, which either follow directly after one another

or coincide so that the elevations and depressions are doubled. The amount of light given off from the narrow side of a flame must be just as great as that from the wide side, because in both positions the number of vibrating luminous particles of carbon is equal. To the eye the light from the edge of the flame appears denser than on the side, because it is produced by a greater number of vibrating molecules one behind the other.

4. In order to prove that his theory is not without precedent, Frankland instances the production of light when arsenic, phosphorus and bisulphide of carbon are burned in oxygen gas under ordinary pressure, and when hydrogen and carbonic acid are burned under increased pressure, since in these cases there were no solid particles to take part in the phenomenon. However valuable and interesting all this may be from a scientific point of view, it does not at all prove that the operation taking place in our illuminating flames must be analogous, since the established fact, that solid bodies are better adapted to produce rays of light, is not altered, and, as yet a solid body alone has been proven to be present there to which luminosity could be ascribed.

On weighing all the evidence adduced, no other conclusion can be reached than that the light of our illuminating flames proceeds from candescent particles of carbon, and hence we must still adhere to the previously entertained theory.

JABORANDI, A NEW DRUG FROM BRAZIL.*

Dr. Coutinho, of Pernambuco, has recently brought under the notice of the French faculty a substance called by the Brazilians "jarborandi," which he describes as an energetic diaphoretic and sialagogue. It consists of the leaves and small branches of a shrub that grows in the interior of some of the northern provinces of Brazil. The leaves resemble those of the bay; they have no smell until gently bruised, when they exhale a slightly aromatic odor. The taste is rather acrid, without being bitter, and does not recall that of any other plant used in medicine and known to the author.

Dr. Coutinho forwarded some specimens to Professor Gubler, who, besides verifying their therapeutic effect, sought to ascertain their botanical origin. The names of "jaborandi," "iaborandi," and "jamborandi" appear to be generic terms popularly used in Brazil to designate plants that are stimulants, sudorifics, sialagogues, and consequently alexipharmic and alexiterics. According to Mérat and Delens the first word is applied solely to a species of *Gratiola*, *G. monneria*, which has become the type of the genus *Monneria* of Brown, whilst the "iaborandi" include all the species

* From the *Repertoire de Pharmacie*, vol. ii., p. 171, in Phar. Jour. and Trans.

of peppers, a group remarkable for their excitant properties. The principal of the latter is the *Piper nodosum*, Mart., the acrid and sialagogue root of which, bruised, is applied to poisoned wounds and bad ulcers. The roots of the *Piper citrifolium*, *P. recticulatum*, and of a fourth species, which also bears the name of "iaborandi," are used for the same purposes, and are reputed stimulants, sternutatories and sialagogues. These properties appear to resemble those of the plant sent by Dr. Coutinho, but there the analogy ceases; in its botanical characters it is entirely different.

The specimens of "jaborandi" sent by Dr. Coutinho consist principally of leaves, with a small quantity of slender branchlets. The leaves are impari-pinnate, and are sometimes more than three decimetres long. Upon many of them there are as many as eight or ten leaflets, ten to twelve centimetres long by three to four centimetres at their broadest part. The leaflets are nearly opposite, oval elongated, or ellipsoid, obtuse and even retuse at the apex, slightly unequal at the base, and sometimes incurved latterly. They are glabrous, shining, ordinarily thick, particularly brittle in the dry state, shortly petiolate or even nearly sessile. The petiolules are cylindrical, scarcely thickened at the point of insertion upon the common petiole. The rachis itself is enlarged at its base, straight, rounded beneath, slightly channelled above. Altogether, these characters were sufficient to show that the plant was not one to which the name "jaborandi" has hitherto been applied by authors; but, in the absense of the floral organs and fruit, it appeared difficult to determine the genus to which it belonged. Fortunately, by comparing it with the Brazilian plants in his herbarium, Professor Baillou was able to identify it with a Rutaceous species, *Pilocarpus pinnatus*, Lem., received from the province of St. Paul in Brazil.

The method of employing this drug, as described by Dr. Coutinho, is very simple. The leaves and small branchlets are bruised, and four to six grammes are infused in a cup of hot water. Upon drinking this quantity the effects are remarkable. The patient has to retire promptly to bed and cover himself well, and ten minutes afterwards he is seized by sweatings that continue four or five hours to such an extent that it is necessary frequently to change the linen during that time. There is also an abundant salivary and bronchial secretion, so that the patient can hardly speak without his mouth being filled with the liquid. The quantity excreted is stated to equal a litre or more.

In their descriptions of sudorifics therapeutists have stated that the action attributed to those substances is due to heat. But the action of the jaborandi, although assisted by, is not dependent upon heat, and it is a powerful sudorific even when taken cold.

Dr. Gubler has administered this drug a great number of times in the Beaujon hospital, and fully supports all that has been said of it by Dr. Coutinho as an incomparable diaphoretic and sialagogue. In one or two cases the profuse secretion was accompanied by diarrhœa. He considers that it will be used with advantage in a great number of morbid states, differing much among themselves in nature and gravity, but presenting the common necessity for stimulating the secretory action of the skin and salivary glands; since probably the leaves contain one or more principles capable of stimulating them more directly during elimination. Dr. Gubler thinks that the Brazilian plant forwarded by Dr. Coutinho will be the first indisputable example of a diaphcretic truly worthy of the name; that is to say, a medicine having the power of provoking directly by an elective action the secretion of perspiration.

ON THE MODE OF ACTION OF IODINE AND ITS PREPARATIONS.

BY PROFESSOR SÉE.

Chemistry has taught us nothing touching the action of iodine on the blood; it is neither plastifying nor liquefying; moreover, the blood is not the medium in which the principal phenomena take place. This liquid, according to Claude Bernard, is merely a medium in which the organs live. The corpuscles constitute all that is alive in the blood; and in designating the latter "liquid flesh" certain *savants* have given a definition more poetic than scientific. The interchanges of the gases introduced and expelled by respiration are entirely physical phenomena, which do not in any way prove that the blood is a living substance, excepting, of course, its corpuscular element. From this Professor Sée concludes the iodine does not act on the blood, or, if it does, its effects are difficult to be demonstrated—at least clinically.

Action on the Circulation.—The circulation is manifestly modified by the administration of iodine. The beats of the heart are accelerated, particularly if the pulse be calm; and this effect is produced, whatever be the dose employed. If the pulse is already frequent, it will not be accelerated to a remarkable degree. These facts have been brought to light by the regretted M. Kuss, Strasburg, by whose death science has sustained a great loss; but in asserting that in giving the iodine in considerable quantity no untoward effect was produced, he did not explain the cause of this singularity. The explanation is found in the rapid elimination of the drug whilst the circulation of the blood is accelerated. M. Sée therefore concludes, with Puche, that in certain individuals enormous doses must be administered to produce the desired effect, instead of the small doses that are so timidly prescribed. In varying the dose of the iodide of potassium according to individual cases, we shall soon find out that the small dose of one gramme (about sixteen grains) a day produces as much an effect as that of three grammes. Here not only is the general circulation accelerated, but hyperæmia of all the organs takes place,—the skin is covered with papules, erythema, acneform pimples; sometimes the skin and subjacent cellular tissue are congested and become the seat of a sort of œdema, which is principally visible in the eyelids; the conjunctiva is injected, which may be followed by ophthalmia; the mucous membrane of the throat is also affected; the pharynx and tongue are swollen, as also are the mucous membrane of the larynx and probably that of the bronchi, followed in some cases by dyspnœa and catarrh; even the expectoration may be sanguinolent; the mucous membrane of the stomach is excited; the functions of the uterus are modified, or rather exagerated, resulting in monorrhœa, —hence the utility of iodine in amenorrhœa and dysmenorrhœa. These divers phenomena of congestion have been described as the commencement of iodism; but M. Sée looks upon them as the physiological effects of the drug, and that they are not particularly due to large doses, in proof of which he states that, after having swallowed two grains of the iodide of potassium, and even less, all the symptoms of iodism may be observed; and this dose is certainly not toxic. The phenomena of iodism under these circumstances are temporary, but the patient should always be warned of their possible occurrence. If, on the other hand, large doses are at once administered, we shall not have iodism, but poisoning by iodine. Such cases are not numerous, but some are known to have occurred, and among others the death of a young German lady, who was treated and killed by her countryman Dr. Rose This practitioner injected iodine into an ovarian cyst of which the patient was the subject; this was followed by serious consequences. He described minutely, and by the hour, the tragic scene that was taking place. As soon as the injection was practised a convulsive spasm of the arteries followed; the pulse, hardly perceptible, was very frequent; the heart beat violently; the patient became cyanosed, and felt a sensation of intense local cold The spasm lasted sixty hours, after which the patient became red, the arteries were relaxed, the heart beat feebly, and death occurred on the fourth day. There was no increase of temperature, from which it may be inferred that that there was no iodic fever, as affirmed by Dr. Rose. Such are the symptoms of poisoning by iodine, which, it may be seen, do not resemble those previous described.

Action on Innervation.—Whatsoever the dose of iodine absorbed the patient experiences frontal headache, and even well-marked neuralgia of the trifacial nerve The cephalalgia is due to coryza, the neuralgia of the trifacial nerve to congestion of the sinuses.

But besides these nervous phenomena there are others which are known under the name of iodic intoxication, characterized by giddiness, hallucinations, trembling; these are disturbances of the circulation. During the giddiness there is contraction of the arteries.

Elimination of Iodine.—Iodine is easily eliminated, and appears in the urine, the saliva, and that soon after it has been ingested; but the traces of the drug are still found in these secretions several weeks after the patient had discontinued it. In its elimination iodine modifies the textures of the organs through which it passes—kidneys, skin, mucous membranes. But its action is complex, and it is very possible that the local hyperæmiæ it determines are only due to the passage of the iodine; and, in fact, these congestions are almost distinct from the modifications of the general circulation. A patient, for instance, takes a dose of iodide of potassium at ten o'clock; at eleven his conjunctivæ are congested, and the lachrymal secretion is increased. It may be that this congestion is the effect of the passage of the iodine, which is deposited on the mucous surface, and there produces irritation caused by its direct application; we have therefore to consider the direct action of iodine on mucous membranes, and another action, more general and more powerful, which sometimes produces deep inflammation. This can be shown for the mucous membrane of the stomach. If two individuals take iodide of potassium, one may feel none the worse, whereas the other losses his appetite, has a metallic taste in his mouth, and falls off in flesh. Why should there be this difference? The simple contact of the iodine causes an increased secretion of the gastric juice. The iodine is absorbed, then eliminated by the stomach; and according as the latter is more or less deeply attacked, the appetite will be more or less affected. Unfortunately, one cannot foresee how it will act, but we should not forget that in small doses iodine is often appetitive, because it increases the secretion of the gastric juice. We should, however, remember that the elimination in the stomach takes place through the peptic glands, and that in its passage the iodine destroys a certain number of these latter. This action of elimination may produce evil consequences, and the greatest circumspection is therefore necessary in the employment of this heroic but dangerous remedy.

The iodide of potassium has been prescribed to stop the vomiting of pregnant women, but for this it is not equal to alcohol nor to the bromide of potassium.

The iodide of potassium has a certain action on the kidneys; it may produce nephritis, destroy the tubuli uriniferi, and produce albumen in the urine; but all metals do this, so we cannot make a special complaint against iodine in this respect.

It is employed to eliminate all the poisons which may impregnate the economy—syphilis, mercury; it has also been employed as an eliminative in gilders' and lead poisoning, and in arsenicophage.

The mucous and serous membranes are modified by iodine, and it is given in asthma, albuminuria, ascites, pleurisy, etc. It is employed as a "dissolvent" in glandular swellings, and it produces excellent effects in goitre; but it also exercises a certain influence on the breasts and testicles, which it atrophies. It is useful in a great number of chronic affections by dissolving certain products which it eliminates; thus it is employed in diabetes, scrofula, syphilis, etc.

In fine, iodine is a most useful drug, but it is a two-edged instrument, difficult to deal with. It is a local "atrophiant;" it has no ill effects on the general health; it is a "*revivificateur*," like oxygen.—*Drug Circular.*

CORTEX RHAMNI FRANGULÆ.*

BY H. C. BAILDON.

When, in August, 1871, at the Pharmaceutical Conference held in Edinburgh, I brought under the notice of its members this bark, as likely to prove a valuable addition to our Materia Medica, I could only give as my authority for its virtues the Dutch gentleman who first introduced it to my notice. Since then I have been applied to by various pharmacists throughout the country for supplies of it. Among the first of those to obtain it was Mr. Richard W. Giles, of Clifton: indeed, I think he has had three different quantities; and, being anxious to ascertain whether his experience of the action of the bark corresponded with my own, which was in all respects very favorable, I wrote to him in March last, and I now quote from his reply, having obtained his permission to do so.

"I have had less experience of the *Rhamnus frangula* under my own observation than you have happily met with in the case of your relative.

"I think that I once took it experimentally, and found that it produced precisely the action attributed to it in your paper, read to the Conference in Edinburgh, viz., a natural movement of the bowels without drastic action. I have recommended it very steadily when occasion has offered, and the consequence appears to be that the few cases who require habitual laxatives and make a trial of the *Rhamnus* stick to it pertinaciously. Some surgeons who have tried it tell me that it has answered in counteracting habitual constipation in a marvellous manner, when everything else seemed to lose its power.

* From the Pharmaceutical Jour. & Trans.

"It appears to have tonic and aromatic qualities which stimulate the muscular action of the bowels, as distinguished from the cathartic effects produced by irritating purgatives through the influx of serum into the bowels, which latter action must necessarily be attended with debilitating effects. I feel that the *Rhamnus* fills up all that was wanted in purgatives in our Materia Medica, which is now copous in that class of medicines, including aloes, colocynth (extract) and senna (syrup if well made). I entirely agree with your opinion, that it should be included in the Pharmacopœia, and will willingly support your suggestion to that effect; but with you the honor of its introduction should rest."

The case alluded to by me in my letter to Mr. Giles was one of long standing indigestion accompanied with severe headaches, both of which yielded to the action of the bark.

As my stock of the bark was nearly exhausted, I wrote to Mr. Baruchson, the gentleman referred to, for a further quantity. In his reply he says, "I am glad you have taken pains to make this valuable medicine known. I have often reproached myself for not having made long ago an effort, and to benefit thereby suffering humanity. I wrote about eighteen months ago to the *Lancet* (I think it was that periodical), but received no reply. I do not think that I should now be living if I had not got this substitute for the drastic purgatives, and even the milder ones I used to take. The bark has the same effect on me now as it had twenty years ago."

I brought the *Rhamnus frangula* under the notice of Professor Redwood, but unfortunately too late for its introduction into the additions to the British Pharmacopœia recently published. In his reply the Professor says, "You certainly seem to have made a stong claim on behalf of the *Rhamnus frangula*. I have made a note of it for further consideration."

I believe it is admitted into several, if not all, the European Pharmacopœias. I have the Pharmacopœa Germanica now before me, where it is thus described :—"A quilled bark, about one millimetre in thickness, grey or brownish-grey externally, with small white warty protuberances, which are generally lengthened transversely. . . . The bark of the younger trunks and the larger branches of the indigenous shrub are gathered in the spring."

This kind should only be used, as the bark taken from the thick part of the trunk is altogether different, and the decoction made from the quill bark is singularly pleasant, with a slight almond or prussic acid flavor—no small advantage to those for whom it may be prescribed.

I hope this communication will have the effect of calling the notice of the fcaulty and of pharmacists generally to this valuable medicine; possessing, as it does, properties peculiar to itself, and which are not found in senna and other drastic purgatives, which it ought to supersede, at least to a considerable extent.

SCHEME FOR THE EXAMINATION OF THE URINE.*

I. Observe the color of the urine, its appearance, if clear, smoky, turbid, &c.

II. Ascertain the specific gravity.

III. Examine the reaction, whether acid, neutral, or alkaline, by means of litmus or turmeric paper.

IV. Test the urine for albumen. If albuminous, examine microscopically for—Renal Casts; Pus Corpuscles; Red blood Corpusles.

V. Test the urine for sugar.

VI. If there be no albumen or sugar present, and no deposit, the urine need not be further examined, unless some special indication exist.

VII. But if any sediment be observed, the urine must be examined microscopically; the following enumeration of the more common deposits will assist the student:

Pink or reddish deposit, dissolved on heating test-tube—urate of soda.

White crystalline deposit, soluble in acetic acid—phosphates.

White amorphous flocculent deposit, rendered ropy by alkalies —pus.

Brownish-red crystalline deposit—uric acid.

Red amorphous deposit—blood.

PHYSICAL EXAMINATION.

The physical examination of the urine is the application of the senses to its investiñation without the employment of chemical or microscopical aids. The color, translucency, odor, and consistence are the only characters which can be ascertained by this simple method of observation.

Color.—Urine is ordinarily of a reddish yellow color; but it may be as colorless as water, or dark brown black like porter; a smoky tint is absolutely diagonistic of the presence of blood; a brownish green suggests the presence of the coloring matter of the bile. Many drugs, as rhubarb and saffron, give a peculiar color to the urine.

Translucency —In health, the urine deposits, after remaining at rest for a short time, a slight cloud of mucus, derived from the bladder and urinary passages; but, in all other respects, healthy urine is perfectly clear. On cooling, however, it may sometimes become turbid from the presence of urates, which are distinguished from other deposits by their appearing after the cooling of urine which was perfectly clear when passed. In disease the urine is often turbid when first voided; and pus is the most frequent cause of this condition.

* Published in the *Medical Record.*

Odour.—It is not yet ascertained to what substance the peculiar odour of the urine is due, nor is it of much importance to the clinical student. When the urine loses its natural odour and becomes fœtid and ammoniacal, the change is due to the decomposition of urea into carbonate ammonia, and the formation of sulphur compounds; in cases of cystitis and paraplegia the alteration begins very rapidly after emission. Various drugs, as cubebs, and articles of diet, as asparagus, give a characteristic odour to the urine; turpentine gives the odour of violets to the secretion; it is stated that in organic disease of the kidney, and in gout, these substances cannot be recognised in the urine by their smell, after they have been given by the mouth; observations, contradictory to this statement, have, however, been recorded.

Consis ence.—The urine is a limpid fluid, flowing freely from one vessel to another. But in catarrh of the bladder, and in retention of urine, ammoniacal products of the decomposition of the urea render the pus present thick and viscid, thus causing the secretion to be ropy, and poured with difficulty from one vessel to another.

The froth on normal urine readily disappears; but if the froth be permanent, the presence of albumen, or one of the constituents of the bile, may be suspected.

Before passing to the mechanical and chemical examination of the urine, it may be well to state the apparatus and reagents which are necessary for bedside investigation by the student. They are

Cylindrical Urine Glasses, containing about 6 fluid-ounces.

A Urinometer, the stem of which is graduted from 1,000 to 1,060.

Blue and Red Litmus, and Turmeric Paper.

Test Tubes.

A Spirit Lamp, or Bunsen's Gas-burner.

Nitric Acid.

Acetic Acid.

Liquor Potassæ or Liquor Sodæ.

Solution of Sulphate of Copper, 10 grains to the fluid-ounce.

Fehling's Test Solution for Sugar.

Glass Funnel and Filtering Paper.

With this apparatus, the student will be able to perform all the most important reactions described below.

SPECIFIC GRAVITY.

The specific gravity of the urine varies in health between 1015 and 1020; the simplest way of estimating it is by means of the urinometer.

In order to use this instrument, a quantity of the urine to be examined is poured into a cylindrical glass, and care is taken to remove all the froth which may form, either by blotting paper, or by overfilling the vessel. The urinometer must then be introduced, and allowed to float freely in the urine, without touching either the sides or bottom of the vessel. Since the fluid accumulates around the stem of the urinometer from the physical force of attraction, the specific gravity appears to be higher than it really is, when it is read off while the eye is above the surface of the fluid; to obtain a correct reading, therefore, the eye must be lowered to the level of the surface of the fluid, and the number on the stem read off by looking at it through the urine; having noted this, the urinometer should be depressed in the urine, and again allowed to come to rest, when the number may be again read off; this second estimation is made to correct any mistake that may have occurred in the first reading. The specific gravity thus ascertained should be noted down at once.

The knowledge of the specific gravity of a few ounces of urine is a matter of little value. To render the observation in any way serviceable, the whole quantity passed in the 23 hours must be collected and mixed, and the specific gravity of a small amount of this taken. A rough estimation of the solid matters passed may be made from the specific gravity in the following way; the two last figures are multiplied by 2 (in diabetes by 2.33) which gives the amount of solid matters in 1,000 parts of urine; if, for example, the specific gravity of the urine be 1,020 1,000 grains of urine will contain 2 × 20 *i.e.* 40 grains of solids.

Clinical Import.—Sugar in the urine is the most common cause of a high specific gravity; if this substance be not present, excess of urea will be the probable cause.

A low specific gravity, below 1,010 occurs after fluid has been ingested in quantity. A low specific gravity is also noticed frequently in chronic Bright's disease, in hysteria, immediately after the paroxysm, in anæmic conditions, and in diuresis from any cause, such as mental emotion, or exposure to cold.

A high specific gravity with a pale color, and a low specific gravity with a deep tint, are equally signs of disease.

A new urinometer should be carefully tested since those sold by the instrument makers give results, varying as much as 10 or 12 degrees. The urinometers in common use in Hospitals are very rarely correct.

REACTION.

The urine is almost always secreted acid, though it may become alkaline, as in paraplegia and cystitis, the alkalinity is really due to decomposition after being passed. If the urine, then, be found to be alkaline, a fresh specimen should be tested immediately after it has been voided. In cases of retention, the urine sometimes becomes alkaline in the bladder; and, in health, can be made alkaline, by the administration of drugs.

The urine is rarely neutral to test paper; so that many observers have denied its occurrence. Occasionally the urine has an equivocal reaction, reddening to reddened litmus paper.

The cause of the acid reaction of the urine is the presence of the acid phosphate of soda; and according to some observers, of free lactic and hippuric acids. Very shortly after emission, the acidity increases, and lasts, in health, for days, free uric acid being often deposited.

Sooner or later however, the alkaline fermentation sets in, and the urine becomes ammoniacal and fœtid from the conversion of urea into carbonate of ammonia, and the formation of sulphide of ammonium, while the phosphates and the urate of ammonia are deposited as a white sediment.

Clinical Import.—The acidity of the urine is decreased during digestion, and increased by fasting or respiration. A very acid, high-colored urine is associated with the "uric acid diathesis."

Alkalinity of the urine is nearly always due to decomposition of the urea into carbonate of ammonia. It is frequently present in some diseases of the spinal cord, and in chronic affections of the bladder and urinary organs, as a few drops of urine, which has undergone the alkaline fermentation, will rapidly produce the same change in perfectly fresh urine.

When alkalinity is due to ammonia, the brown color of the turmeric disappears when the paper is exposed for some time to the air, or gently heated; but the change from yellow to brown is permanent, if the alkalinity be owing to either potash, or soda.

(*To be continued.*)

NOTE ON SULPHURIC ACID, U. S. P.*

BY W. H. PILE, M.D.

This acid, according to the present and previous Pharmacopœias, should be of specific gravity 1.843. As remarked by Dr. Squibb several years ago and repeated at the late meeting of the American Pharmaceutical Association, it is impossible to procure sulphuric acid of this density. Upon actual trial with recently made acid, none was found to be over 1.835 at 60° F. The question has arisen, why give the officinal gravity to an acid, which druggists cannot make for themselves, at a higher density than the manufacturing chemists can furnish?

I suggest as a reason for this, that the manufacturers of sulphuric acid always advertise and sell their acid as being of a standard density of 66° B., and the framers of the Pharmacopœia, know-

*From the American Journal of Pharmacy.

ing this to be so, gave the corresponding specific gavity at 1.843, that being the usual number given the many chemical works as equivalent to 66° B. At any rate I am quite certain that if the specific gravity of the acid, so-called 66°, had been experimentally taken it would have proved to be only 1.835. It is just here that a source of trouble arises. Any one, upon examination of the tables appended to various chemical works, will be struck with the discrepancy which occurs in giving the specific gravity of Baumé's hydrometer—England, France, Germany, each have a different scale. In this state of uncertainty one of our fellow-members, Wm. H. Pemberton, in 1851, selected a scale on this very account, namely, that the strongest sulphuric acid which manufacturers could readily make had a gravity of not over 1.835; calling this gravity 66° B., all the remaining degrees were readily calculated. From this scale, which will be found in the U. S. Dispensatory, I have always graduated my hydrometers, and have for 23 years and over supplied nearly all the acid works of our country, thus fixing the density of sulphuric acid at 66° B., equal to 1.835 specifie gravity, and which density should certainly be that of the officinal.

Utilization of Sewage.—The following facts with regard to the utilization of the sewage of the city of Paris are taken from the official returns. At Clichy, a bend of the Seine forms a sandy, level peninsula of some 5,000 acres. The barrenness of this peninsula is proverbial, and hence it was on this land that a portion of the city sewage was first directed, with a view to put the utility of this kind of fertilization to the severest possible test. The preliminary works were begun in 1868, and completed in May, 1869. From that time between 5,000 and 6,000 cubic yards of the sewage have been raised daily by engines of forty-horse power and centrifugal pumps, and of this two-thirds were received into tanks for chemical manipulation, the remainder being applied to a piece of land twelve or fifteen acres in extent. At the end of several months, the result of this experiment upon a naturally poor soil were such that the neighboring farmers asked to be included in the benefits derived from the sewage. Owing to the extreme permeability of the soil, 20,000 cubic yards of sewage could be annually absorbed per acre, and the farmers obtained crops of 70,000 pounds of cabbages, 60,000 pounds of carrots, and 150,000 pounds of turnips. All land suitable for irrigation rose in value. No evil effects on the health of the inhabitants could be detected, and a village sprang up round the works. A Parisian perfumer established his manufactory on the outskirts of the irrigated land, and obtained a supply of the sewage-water for his gardens of aromatic herbs, more especially of peppermint. It is worthy of note, in this place, that the finest mignonette of Covent-Garden Market, London, has long been grown from sewage-irrigated soil.—*Popular Science Monthly, in Phila. Med. Times.*

Editorial.

VOLUME VIII.

In commencing our eighth volume we feel a degree of satisfaction—which is, we trust shared by our readers—that the undertaking in which we are engaged has, so far, met with success. It is to be hoped that the labor of years has not been in vain, and that the efforts of the *Journal* in cultivating an interest in pharmaceutical science have not been altogether fruitless. It is not, however, for us to call attention to these matters, or do more than express pleasure at the signs of progress which are, from time to time, apparent. To our friends who have assisted by contributions we return thanks the most sincere, and while asking a continuance of these favors, we would also express a hope that the number of contributors may be largely augmented. We have so often alluded to this subject, and urged upon members of the College the necessity of maintaining the pharmaceutical credit of the association with which they are connected, as well as the country of which they are citizens, that we would now merely repeat the request for assistance, and hope that it will meet with a more ready response than it has been favored with in the past.

THE SALE OF PARIS GREEN.

The trade in Paris green has during the past month been characterized by unusual activity. The demand has been great to an unprecedented degree—so much so that our druggists and dealers have found it a difficult matter to supply their customers. Sanguine and far-seeing merchants, who had laid in what was considered an ample supply of the pigment, now find their anticipations more than realized, for, of original stocks, little or any remains. Some have been enterprising or lucky enough to obtain a relay, and these fortunate ones are not slow in announcing the fact. "A new stock of Paris green," blazoned forth on doors and windows, quickly brings its instalment of attendant customers, anxious to purchase, at almost any price, the precious remedy. We have reason to fear that much of the pigment at present in the market has had its quality materially effected by the exigence of the circumstances. In some cases the diluting effect of plaster of Paris is shockingly apparent; while other samples, though received direct from the English makers, are evidently of a quality far from the best. The bright and lively appearance characteristic of Scheele's pigment has woefully deteriorated, the nearest approach to a decided color being what artists would describe as a "tint."

Doryphora decem-lineata, the irrepressible potato bug, and the sole cause of the Paris green excitement, is evidently contemplating a residence in Canada. The van guard of the army of colonization arrived some three seasons ago in our midst, and since then has been actively employed in establishing a base, accumulating forces, and otherwise preparing for the active campaign which is now so actively being carried on. According to what we know of the habits of this voracious insect it has, so far, pursued a steady march eastward, staying only to devastate the fields along its course. It has now reached the confines of this continent, and like a certain ancient warrior, is doubtless longing for other worlds to conquer. Whether, like the same individual it will return because it can go no further; or, more ambitious, will dare to cross the broad Atlantic, is altogether matter for conjecture. We can only hope that like the hosts of Pharoah it may share a similar fate. In the meantime, however, we shall return to our more prosaic subject of Paris green.

Many communications relating to this subject have reached us; amongst others, the following, which will serve as a type of the whole:

"Should not the indiscriminate sale of Paris green, by nearly "all classes of traders—and particularly by the hardware trade—be "noticed? Should not so virulent a poison be sold under all the "restrictions, and only under the protection of the Pharmacy Act. "Its general and extensive use for the purpose of poisoning the pota-"to bug, will, in all probability, lead to serious results, and there-"fore too much caution cannot be exercised in regard to its sale."

Our correspondent is quite correct in supposing, that the sale of Paris green is legally restricted to registered pharmaceutical chemists. In the schedule attached to the Act, in which such poisons are enumerated, we find "arsenic and the compounds thereof" which certainly embraces the article in question. It also appears that every sale of such can only be made under the same conditions as those regulating the disposal of strychnia—that proper entries, with the purchasers signature, be made in the Sale of Poisons Book.

This is the law of the land, but whether it would be in the interest of the public, or in the interest of the safety of the Act, to enforce such a regulation, under existing circumstances, is a matter which we should prefer to leave to the Council to decide. This body will meet in a very short time and the subject can then be thoroughly discussed.

ACTION OF DECOMPOSED SOLUTIONS OF CITRIC AND TARTARIC ACIDS AND THEIR SALTS.

In a recent number of the *Pharmacist*, the editor calls attention to several instances in which injurious effects appear to have followed the use of certain solutions of citrates, notably, that of quinia and iron. The circumstances were as follows:

"An eight-ounce aqueous solution of citrate of iron and quinia having been dispensed, was returned to us after a lapse of about three weeks, with the remark that there must be something wrong with (what was left of) the mixture, as each dose administered produced alarming symptoms of gastric and intestinal irritation, occasioning intense griping of the bowels with diarrhœa. The remnant of the mixture presented nothing unusual in appearance, excepting that of a slight turbidness. Not being able to explain the cause of this unusual action of the remedy, we prepared the mixture again, and requested the patient to inform us should these symptoms again occur. We at once subjected the returned portion of the mixture to a microscopical examination, which at once satisfied us that it was undergoing decomposition and fermentation. We have since experimented with aqueous solutions of Citrate of Iron, Citrate of Iron and Ammonia, Citrate of Iron and Potassa, Citrate of Iron and Strychnia, Citrate of Bismuth, Citrate of Potassa, also with similar salts of tartaric acid, and have found that all undergo this spontaneous decomposition, and when taken into the stomach in this state, have produced at different times and on different individuals, the above mentioned symptom, only varying in the degree of severity. The patient for whom we prepared the mentioned prescription, informed us a few days after its repetition, that it had no unpleasant effects, and was in all respects like that dispensed at first. We have since been informed by the person, that the same symptoms appeared when taking the last of the mixture, but with less severity than in the former instance. These observations lead us to believe that this class of remedies, when administered in an aqueous menstruum, are liable to produce deleterious results, and ought to be watched with care. Further experiments and observations may help to a more correct and technical understanding of the subject, and for this reason it may be referred to again."

The supposition that the effects described may be attributed either directly or indirectly to the growth of vegetable organisms is not altogether unlikely, and we agree with the editor of the *Pharmacist* in thinking the matter deserving of further investigation. We are more inclined to this belief inasmuch as we have experienced and observed similar effects to follow the use of the preparation specified. In the cases to which we refer, the salt employed was that of a reliable manufacturer, and the intestinal disturbances produced were not confined to one individual, but were noticed in several patients.

We are not prepared to designate the particular growth which forms in citrate of iron solutions, but think it probable that it is identical with that common to solutions of tartaric acid and the tartrates. This is an algaceous plant, termed by Kutzing *Sirocrocis stibica*, or *tartarica*. Under the microscope it is found to consist of "articulated filiments, with branches, which, at the apex, support a series of spermatia."

We have observed a similar growth in liquor bismuthi, especially when that preparation has not answered to the pharmacopœial requirement of slight alkalinity, but we are not aware of such liquor having produced any injurious effect on the animal economy.

Lime juice and lemon juice, both of which are very prone to decomposition, do not appear to have any deleterious effects, although very large quantities are consumed. This fact is opposed to the hypothesis advanced by the *Pharmacist*, but it may be that the vegetable growth common to these solutions of citric acid is not identical with that of the citrate of iron and quinia. In any case, the matter demands investigation, and would form a very interesting field for some of our younger members who are fond of microscopical research. To such we would say that they will find much interesting matter connected with the investigations of Kutzing, in an early number of the *Pharmaceutical Journal and Transactions*, Vol. vii, pp. 343, 370.

THE REGISTER.

In comparing the state of the Register of the College with that of former years it is gratifying to notice the large number of new members whose names have been added to the roll. The fact that the number of renewals up to the present time, is greater than on any other similar occasion, may also be taken as an evidence of progress. In other respects we believe the College to be in a state of prosperity never before experienced. The finances are in a flourishing condition, and the working and and carrying out of the Act is every day rendered easier. Much of this is attributed to the indefatigable exertions of the Registrar, who has spared no pains in performing the duties relating to his office, and in bringing into systematic order and harmony the details connected with the administrative department.

We have been given to understand that a number of members have not yet complied with the law regarding renewals, although due notification has been given to all. It is to be hoped that this matter will prompt attention, so that the Register may be completed without delay.

Editorial Summary.

Poisoning by Vanilla-ice.—During the last six or seven years numerous cases of poisoning by vanilla-ice have been reported in the medical journals. The particulars of some of these have already been laid before our readers. It is noticeable that most of the cases which we can call to mind have occurred in Europe, and more especially in France and Prussia. At Berlin, during the latter part of last year, it was remarked that a large number of persons who had eaten vanilla-ice at a certain cafe were seized with symptoms of poisoning. These were characterized by excessive vomiting and purging, violent cramps in the calves of the legs, and coldness of the extremities. In these instances the persons recovered, but the circumstance was made the subject of official inquiry, and various experiments and chemical investigations were instituted by Dr. L. Rosenthal. The result of these was embodied in a paper read before the Berlin Medical Society, and published in the *Berliner Klinische Wochenschrift*, from which it was reproduced in the *London Medical Record.* Dr. Rosenthal has collected the details of many cases of vanilla poisoning occurring under his own observation, as well as that of others, but candidly confesses that he is unable to state the precise source of the poison, other than to say that certain effects resulted from eating vanilla-ice. Whether these effects were produced by the partaking of a frozen mixture; by the materials constituting the frozen substances; or by injurious substances accidentally introduced, forms matter for discussion. That supposition that such serious symptoms should have been produced by cold is not at all tenable, as fruit ices, of similar temperature, do not produce these effects. In regard to accidental impurities, it was found that traces of lead, tin, and iron were present. The former of these was in such minute quantity that serious injury could not result, while the salts of the latter metals are not deemed poisonous. As nothing could be laid to the charge of the milk or eggs, the charge of poisoning was evidently to be placed to the account of the vanilla. This substance, as we know, is not ordinarily injurious, but Schroff, who thoroughly investigated the subject, says that vanilla pods are sometimes greased with cashew nut oil, derived from the seeds of the *Anacardium occidentale.* The juice of this fruit is of an acrid and poisonous nature, and it is possible that the oil might be contaminated with it. Again, Schroff puts forth the hypothesis that the sharp, acicular crystals contained in vanilla may act as mechanical irritants, but this supposition is not regarded with much favor. The author advances the idea that the unripe or imperfectly dried pods may be poisonous, while those most matured by the process of drying and heating are not so. As a summing up of the whole, we may conclude that vanilla poisoning is as much a problem as ever, and that the true source of injury is yet undiscovered.

Artificial Vanilla.—The Berlin correspondent of the *Chemist and Druggist* announces the discovery in the laboratory of Professor Hoffman, of a method for the artificial production of vanillin, the odorous principle of vanilla beans. This substance is said to have been obtained from the cambium juices of certain coniferous trees. In the last number of the American *Journal of Pharmacy* we notice a paragraph, obtained from a foreign source, (*Pharm. Zeitung*, 1874, No. 41, from *Ber. d. d. Gesellschaft*), referring to the same subject, and in which the mode of preparation, as pursued by Messrs. Tiemann and Harmann, is given. An aqueous solution of coniferin is heated with a mixture of bichromate of potassium and sulphuric acid. After cooling, a little resin is separated by filtration and the liquid is agitated with ether. On evaporation, a yellow oil is left, which in a few days crystallizes. By treatment with animal charcoal and recrystallization from water, the new product may be obtained in colorless crystals. These have the odor and taste of vanilla, are sparingly soluble in cold water, more readily soluble in hot water, dissolve readily in alcohol or ether, and fuse at about 176° F. By the application of a higher temperature the crystals sublime without decomposition. The formula assigned to this substance is $C_8 H_8 O_3$, and it is described as having a strong acid reaction, and forming well characterized salts.

PREPARATION OF PURE HONEY.—In these times it is exceedingly difficult to procure strained honey of a reliable character. The only certain way of procuring a good article is that of purchasing the honey in the comb. The process of rendering described by Mr. G. F. Ebert (*Pharmacist and Chem. Rec.*) may be advantageously resorted to:—Take of honey in the comb any convenient quantity, place this in a suitable vessel, and by means of a wooden ladle or pestle, reduce to a pulpy mass, then transfer it into a glass or well tinned percolator, of suitable capacity, (the diaphragm covered with a moistened piece of muslin) and allow the percolation to proceed at its leisure. When the honey has ceased to drop, remove the receiving vessel, and pour upon the waxy residue in the percolator, sufficient water to wash out the remaining adhering honey, concentrated by evaporation, it can be utilized in making the preparations of the Pharmacopœia wherever honey is indicated, or if the preparation of honey and borax is in demand, the honey can be used for this purpose by dissolving in it, by the aid of heat, two ounces of borax to each pint of the honey.

LIQUID FOR PRESERVING ANATOMICAL SPECIMENS.—In the journal referred to in the preceding paragraph, we notice a paper by Dr. G. Mehu, in which the following pickle is recommended as having been used with the most satisfactory results:—

Arsenious acid	20 parts.
Phenic acid, cryst	10 parts.
Alcohol	300 "
Distilled water	700 "

In regard to the necessary manipulations the author says: "I place the arsenious acid in a glass capsule, add the larger part of the alcohol, and about a third of the water; place the capsule over a bath of boiling water, (any iron pot over an ordinary stove) when the contents of the capsule soon begin to boil. The greater part of the arsenious acid disappears promptly, only the more coarsely pulverised pieces remaining. I decant and filter the liquid, which I dilute immediately with boiling water to prevent the deposit of the arsenious acid, which would take place on cooling. The small quantity of arsenious acid remaining undissolved is added to the alcohol and water and subjected to another ebullition. To 100 parts of this arsenical liquor I add 1 part of crystallized phenic acid, previously liquified by gentle heat; I agitate the whole, in order that the solution may become homogenous. It is advantageous to employ the arsenious acid finely pulverized, in order that the process may proceed more rapidly.

SUBSTITUTION OF CUDBEAR FOR COCHINEAL AS A COLORING FOR TINCTURES, ELIXIRS. &c.—At a recent meeting held in connection with the Philadelphia College of Pharmacy, Mr. Wilder sent in a communication advocating the substitution of cudbear for cochineal for the purposes above stated. The former is much cheaper than the latter, and it is also stated in favor of the change that the coloring matter of cudbear does not react with iron salts. The colors produced by various salts were described by Mr. Wilder, and may be thus stated:—Ammonia, a violet shade; acid, a reddening effect, dilute acids brighten the color; chloride of ammonium, nitrate of potassium, sulphate of magnesium, and the bicarbonates of potassium and sodium, a bluish violet shade; alum, a brighter red; tincture of iron, a brownish brick red; protosulphate of iron, iodide and bromide of potassium, no change; Donovan's solution, tincture of iodine, and bromine water, brick red; acetate of lead, dirty violet.

COD LIVER OIL EMULSION.—We have from time to time published numerous formulæ for this preparation, and now add another, devised by Dr. G. M. Beard, (*Boston Med. & Surg. Jour.*), which promises well. The emulsion may be further medicated by appropriate preparations of arsenic, strychnia, &c.; if desirable. It may be especially noted that in order to produce a satisfactory article, considerable time and labor must be expended on the necessary manipulations. The ingredients are as follows:—Glyconin, nine drachms; Ol. morrhuæ, four ounces; Spts. ammon. arom., one drachm; Vini xerici., two ounces; Acid. phos. dil., half an ounce; Ol. amygdal. amar., two drops; dissolved in alcohol, two drachms. Put the glyconin first in the mortar, then add the oil by drops, stirring briskly all the time. When this process is completed, you will have a mass looking like and having the consistency of soft butter. Then add the other ingredients in the order mentioned; add them slowly, stirring all the time. The glyconin is made by beating yolks of eggs with a spatula until they are well broken, then adding an equal measure of glycerin. It requires one or two hours to make it.

INEXHAUSTIBLE SMELLING SALTS.—In reply to the enquiry of a correspondent, the *Pharmaceutical Journal of London* furnishes a formula which was originally suggested by Mr. Allchin. Forty ounces of sesqui-carbonate of ammonium are broken into small pieces, placed in an air-tight jar, and 20 fluid ounces of liquor ammonia, s. g. 880, previously perfumed to taste, are poured thereon. The jar is covered, and stirred daily during the course of a week, after which the mixture should be allowed to stand one or two weeks longer. It will then be fit for bottling.

INCOMPATIBILITY OF FOWLER'S SOLUTION AND MAGENDIE'S SOLUTION.—A paper, by Mr. J. Vanderbeugle, was read before a meeting of the Alumni Association of the New York College of Pharmacy, in which the author answered several queries relating to the nature, occurrence, and prevention of the precipitate which forms when liquor arsenicalis and Magendie's solution of morphia are mixed together. It was found that the precipitate consisted of morphia, without a trace of arsenic; that its formation is due to the alkalinity of the arsenical solution; and that it may be easily prevented by acidulating the mixture (?) with sulphuric acid.

AMERICAN PHARMACEUTICAL ASSOCIATION.

We have received from Mr. J. F. Hancock, President of the American Pharmaceutical Association, the following notice relating to the approaching meeting:—

The twenty-second Annual Meeting of the American Pharmaceutical Association will convene in the City of Louisville, Kentucky, on the second Tuesday, 8th of September, 1874. The first session will open at 3 p.m.

Those desiring information concerning the meeting or on business pertaining thereto should address the Permanent Secretary, Prof John M. Maisch, 145 North Street, Philadelphia, Pa.

The Local Secretary, Mr. Emil Schaffer of Louisville, will render the necessary assistance in connection with the exhibition or other local arrangements. The officers of the Association will as far as possible provide every convenience for those desiring to participate in the deliberations, also those who exhibit articles of pharmaceutical interest. In order that the meeting may be a success, I would urge each member to give all possible assistance in furthering the objects of the Association.

It is unnecessary at this time to explain its objects, or the good already achieved; these are facts well known to all who are practically or scientifically interested in the promotion of pharmacy. Those who are not so informed I would refer to its constitution and annual proceedings. From a bright star of the Pharmaceutical firmament in 1852 the association has grown to an effulgent sun of intellectual light, its divulging rays with increasing splendor permeating every part of this vast country. The various standing committees, representing every phase of interest connected with the trade and profession of pharmacy will bring forward a valuable store of well digested information, whilst the exhibition department, so attractive in the past, promises to be unusually large and interesting this year. The many advantages accruing to members, especially those who attend the annual gatherings, the proceedings of which are published in book form, being faithfully recorded facts in the progress of pharmacy and its allied sciences are essential to every well-regulated pharmaceutical library, and in money value being more than equal to the annual dues, should induce every pharmacist and druggist who feeels a pride in his vocation to apply for membership. Copies of the Constitution, By laws, and blank applications for membership will be furnished by Professor Maisch to those who apply for them.

The experiment of electing when the annual meetings shall be held, regardless of invitations from local organizations, to judge by the results of the last two meetings, is a success, and promises greater usefulness to the Association in the future, by relieving local members from any obligation to give unnecessary attention to visiting members, The good influence of last year's meeting in the South; the large increase of Southern members; the very hospitable manner in which the Association was received and entertained by the pharmacists, druggists, and municipal authorities of Richmond, the subsequent organization of the Richmond Pharmaceutical Association, which, doubtless, to some extent, was influenced by this Association, are pleasant remembrances to those who were fortunate enough to be present.

I sincerely hope that equally good results may attend the meeting this year in the South-west.

All who are interested in the advancement of pharmacy are hereby invited to attend and to place on exhibition any articles of interest relating to the objects of the meeting. In short, the meetings are pleasant and profitable to the overworked pharmacists; socially and intellectually, while they promote the general health and extend professional and business enterprise.

Students' Department.

BOTANICAL TALKS AND RAMBLES WITH CANADIAN STUDENTS.

Presuming our students have procured the books suggested, and applied themselves to the study of the portion advised in our paper of two months ago, namely, the first twelve lessons of Gray's Botany, it will be our object in the present article to take up in review the first few of these lessons, and leave for next month a commencement with inflorescence, into which we will go somewhat minutely; and as nature will then afford us an almost endless number of beautiful specimens, we feel confident the study will prove both interesting and pleasant. At present we will confine ourselves to a mere cursory glance at only the most essential points in the lessons we touch, and allow many feature of interest to pass unnoticed.

In the examination of seeds, we find them all to contain a rudimentary plantlet, the *embryo*, which only requires the assistance of earth and moisture to develop it into a perfect plant. The embryo consists of a stem called the *radicle*, and a seed leaf called the *cotyledon*. This can be nicely illustrated by placing some seeds in water and leaving about twenty-four hours, when, on taking out and opening, these parts can be easily distinguished. In wheat or corn we find the radicle and but one cotyledon, hence *mono-cotyledonous*; in beech, morning glory or pumpkin we find the radicle with *two cotyledons*, hence *di-cotyledonons;* this constituting much the most numerous class; and in the pine family we find the radicle with a circle or whorl of several cotyledons, hence *polv-cotyledonous.*

In many cases we find the embryo takes up but a small portion of the seed, the remainder consisting of nourishment, albumen or starchy matter, laid up for the support of the plantlet until the roots have started out and struck into the soil: examples, wheat, corn, rice, &c. While, in others, we find the large, strong embryo taking up the whole seed, leaving no space for albumen, as examples: pumpkin, almond, beech, horsechesnut. Here the nourishment is deposited in the stem and seed leaves, principally the latter, these becoming in conseqence large and thick and frequently quite unable to perform their office of first leaves. The growth from the seed is about as follows: the stem commences to lengthen towards the light until it appears at the surface of the earth, and unfolds the first leaves, forming what is called the *ascending axis*, it then proceeds to add joint after joint to the stem each with their leaves. At the same time the stem commences to extend downward forming the root or *descending axis*, which is generally not complete until the second or third joint of the stem is formed. This then constitutes the perfect plant. In simples-temmed vegetation we see nothing more, as shown in Indian corn, and we find the full grown tree formed only of a multiplication of these parts. The repetitions of the main stem are called branches or white undeveloped buds. The buds principally appear on the upper angle formed by the leaf with the stem, called the *axil*; these are called *axillary buds*. There are other situations where we find buds, of which the most important is the *terminal*, situated, as the name implies, upon the end of the stem. The growth of the terminal bud adds to the height of the plant, or length of the branch, while growth of axillary buds form the branches. We, therefore, find the arrangement of branches the same as the leaves. The growth from buds is not difficult of obs.rvation, and a most interesting study when the buds are shooting forth in spring. We cannot extend our present article sufficiently to enter into the morphology of roots, stems, branches and leaves, but earnestly recommend our students to carefully study these, getting from the fields and gardens specimens of all the indigenous plants mentioned in these lessons, as it will be impossible to retain in memory the various forms here laid down without assistance afforded by having specimens from nature. This will also assist us in study or review of this at some future time.

For our next month's instruction we shall make an excursion among the flowers common to our gardens, taking them up as we come upon the different varieties.

July 25, 1874.

Practical Formulæ

Transparent Paper.—A patent has been granted in Germany for a kind of paper with the following advantages:—It is transparent, can be written on quite readily either with ink or pencil, and the design or writing can afterwards be washed off without injuring the paper.

To prepare it, ordinary writing paper is first saturated with benzine, then, before the benzine has had time to evaporate, it is dipped into a drying varnish composed as stated below, or the varnish is applied with a brush or a sponge.

This is the formula for the varnish:—

Linseed Oil (boiled and decolourised)	20 parts by weight.
Lead Filings	1 " "
Oxide of Zinc	5 " "
Venice Turpentine	½ " "

Mix and boil for 8 hours; afterwards, when cool, shake and add:—

White Copal Resin	5 parts.
Sandarac	½ "

The paper, when finished, is said to be useful to young students in learning to form their letters, and for many other purposes. —*Chemist and Druggist.*

Remedy for Toothache.—Carbolic acid, saturated solution; hydrate of chloral, saturated solution; camphorated tinct. of opium; fluid extract of aconite, of each an ounce; oil of peppermint, ½ oz. Mix. Apply by saturating a pledget of cotton (or preferably a small piece of sponge), and pack closely into the cavity of the decayed tooth.—*Pacific Medical and Surgical Journal.*

Varieties.

Discovery of Bismuth.—The Paris correspondent of the London *Chemist and Druggist* states that M. Carnot, a mining engineer, reports the discovery of a bed of bismuth in the mountainous region which separates the departments of Bresse [sic: Correze ?] and Dordogne. This had been observed by him since 1867, but only recently has he found that it could be profitably worked. It is found in combination with lead, antimony, iron, and calcium. M. Carnot has also devised a better process for the extraction of the bismuth in a state of perfect purity. Already some two hundred and fifty kilogrammes have been supplied to the Pharmacie Centrale, Paris. This discovery is very fortunate. The high price of bismuth is consequent partly on the increased appreciation of its value as a medicine, and partly on the fact that an important source of its supply—namely, the deposit of Saxony—is nearly exhausted. At present the Bolivian mines almost exclusively supply commercial requirements, but no country will grudge France a happy turn in this or in any other respect.—*Boston Journal of Chemistry.*

Registrar's Notices.

Vanfelson, C. A., Jun., in list last month, should be Vanfelson, C., Exeter.
Cullingham, Jno., Cobourg, should read Cullingford, John, Cobourg.

List of Chemists who have renewed their Registration since the list was published last month :

Barbour, John, Southampton.
Beeton, J. E., St. Catharines.
Bond, J. R., Schomberg.
Bower, A., Lakefield.
Brook, J. W., St. Catharines.
Cattle, Geo., Goderich.
Chandler, E., Strathroy.
Clark, A. A., Prince Arthur's Land'g.
Clark, W. J., Prince Arthur's Land'g.
Cooke, F., Orillia.
Corbett, W. J., Shelbourne.
Davy, N. W., Packenham.
Fitzgerald, J. W., Fenelon Falls.
Greaves, J., Collingwood.
Hickson, E., Seaforth.
Hooper, C. E., Toronto.
Lander, J. C., Yorkville.
Law, R. E., Richmond Hill.
Lawrason, J. P., St. George.
Lewis, J. T., Toronto.
Martyn, Dr. Dewitt, Kincardine.
Meldrum, H., Hillsburg.
Morris, Edwin, Bowmanville.
McCallum, C., London.
McCollum, W. A., Tilsonburg.
McKee, J., Hamilton.
Powell, G. A., Wroxeter.
Rock, Thos., Hamilton.
Saunders, Wm., London.
Simpson, C. H., Newmarket.
Smith, S. H., St. Catharines.
Stickney, L. P., Uxbridge.
Templeton, P., Belleville.
Wright, J., Toronto.
Yeomans, L. H., Mount Forest.
York, J. E., Otterville.
Zoellner, Chas., Tavistock.
Zoellner, Paul, Tavistock.

NEW REGISTRATIONS.

Clark, Dr. D., Princeton.
Coulter, C. L., Philadelphia.

ASSOCIATE.

Blackader, D. R., Brantford.

The following journals are required to complete fyles. If any member has them to spare they will please let me know by Post Card. 25c. each will be paid for them: May, 1868, old series; August, 1871; April, June, and July, 1873.

GEORGE HODGETTS, Registrar.

Drugs, Medicines, &c.	$ c.	$ c.
Acid, Acetic, fort	0 14 @	0 15
Benzoic, pure	0 22	0 2,
Citric	1 40	1 50
Muriatic	0 05	0 06
Nitric	0 11½	0 15
Oxalic	0 22	0 23
Sulphuric	0 03¾	0 07
Tartaric, pulv	0 50	0 50
Ammon, carb. casks	0 23	0 24
" jars	0 23	0 24
Liquor, 880	0 25	0 28
Muriate	0 14	0 15
Nitrate	0 45	0 60
Æther, Acetic	0 45	0 50
Nitrous	0 40	0 42
Sulphuric	0 50	0 50
Antim. Crude, pulv	0 15	0 17
Tart "	0 55	0 65
Alcohol, 95 per ct. Cash	1 91	2 05
Arrowroot, Jamaica	0 18	0 22
Bermuda	0 50	0 65
Alum	0 02¾	0 03½
Balsam, Canada	0 50	0 50
Copaiba	0 95	1 00
Peru	3 40	3 75
Tolu	1 15	1 20
Bark, Bayberry, pulv	0 20	0 22
Canella	0 17	0 20
Peruvian, yel. pulv	0 42	0 50
" red "	2 10	2 20
Slippery Elm, g. b.	0 15	0 20
" flour, packets	0 28	0 32
Sassafras	0 15	0 8
Berries, Cubebs, ground	0 20	0 25
Juniper	0 06	0 10
Beans, Tonquin	0 62	1 10
Vanilla	30 00	30 00
Bismuth, Alb	2 90	3 00
Carb.	3 10	3 25
Camphor, Crude	0 38	0 4
Refined	0 45	0 50
Cantharides	2 20	2 30
Powdered	2 30	2 40
Charcoal, Animal	0 04	0 06
Wood, powdered	0 10	0 15
Chiretta	0 23	0 30
Chloroform	1 00	1 65
Cochineal, S. G.	0 65	0 70
Black	85	90
Colocynth, pulv.	0 60	0 65
Collodion	0 70	0 80
Elaterium oz	3 20	4 00
Ergot	0 32	0 45
Extract Belladonna	1 50	1 60
Colocynth, Co	1 25	1 75
Gentian	0 50	0 60
Hemlock, Ang	0 60	0 95
Henbane, "	1 50	1 60
Jalap	5 00	5 50
Mandrake	1 75	2 00
Nux Vomic oz	0 40	0 50
Opium oz	1 50	
Rhubarb	5 00	5 50
Sarsap. Hon. Co	1 00	1 20
" Jam. Co	3 50	4 00
Taraxacum, Ang	0 70	0 80
Flowers, Arnica	0 17	0 25
Chamomile	0 32	0 40
Gum, Aloes, Barb. extra	0 70	0 80
" " good	0 40	0 50
" Cape	0 16	0 20
" " powdered	0 20	0 30
Socot	0 50	1 35
" " pulv	1 00	0 00
Arabic, White	0 70	0 75
" powdered	0 60	0 75
" sorts	0 24	0 30
" " powdered	0 42	0 50
" com. Gedda	0 13	0 16
Assafœtida	0 40	0 42
British or Dextrine	0 13	0 15
Benzoin	0 35	0 75
Catechu	0 12	0 15
" powdered	0 25	0 30
Euphorb, pulv	0 35	0 40
Gamboge	1 40	1 50
Guaiacum	0 50	1 00
Myrrh	0 50	0 85

Drugs, Medicines, &c.—*Contd.*	$ c.	$ c.
Sang Dracon	0 60	0 70
Scammony, powdered	6 00	6 50
" Virg. "	14 50	—
Shellac, Orange	0 80	0 85
Gum, Shellac, liver	0 70	0 75
Storax	0 40	0 45
Tragacanth, flake	1 10	1 75
" common	0 53	0 65
Galls	0 22	0 30
Gelatine, Cox's 6d	1 15	1 20
Glycerine, common	0 25	0 30
Vienna	0 9	0 30
Prices	0 60	0 75
Honey, Canada, best	0 15	0 16
Lower Canada	0 14	0 16
Iron, Carb. Precip	0 20	0 25
" Sacchar	0 40	0 55
Citrate Ammon	1 75	1 80
" & Quinine, oz	0 55	0 58
" & Strychine	0 20	0 25
Sulphate, pure	0 08	0 10
Iodine, good	6 00	6 50
Resublimed	7 00	7 25
Jalapin	1 25	1 50
Kreosote	2 40	2 50
Leaves, Buchu	0 22	0 32
Foxglove	0 25	0 30
Henbane	0 35	0 40
Senna, Alex	0 27	0 60
" E. I.	0 14	0 20
" Tinnevilly	0 20	0 30
Uva Ursi	0 15	0 17
Lime, Carbolate brl	5 50	—
Chloride	0 05	0 06
Sulphate	0 08	0 12
Lead, Acetate	0 15	0 16½
Leptandrin oz.	0 60	—
Liq. Bismuth	0 50	0 75
Lye, Concentrated	1 75	2 00
Liquorice, Solazzi	0 50	0 55
Cassano	0 23	0 40
Other brands	0 14	0 25
Liquorice, Refined	0 35	0 45
Magnesia, Carb. 1 oz.	0 20	0 25
" 4 oz.	0 17	0 20
Calcined	0 65	0 75
Citrate gran.	0 63	0 75
Mercury	1 85	1 90
Bichlor	1 70	1 75
Chloride	2 00	2 10
C. Chalk	0 75	80
Nit. Oxyd	2 10	2 15
Morphia Acet	5 60	5 65
Mur.	5 60	5 65
Sulph	5 70	5 75
Musk, pure grain oz	25 00	—
Canton	0 60	1 20
Oil, Amonds, sweet	0 40	0 45
" bitter	14 00	15 00
Aniseed	4 00	4 25
Bergamot, super	7 25	7 50
Caraway	3 20	3 50
Cassia	2 25	2 50
Castor, E. I	0 16	0 18
Crystal	0 22	0 25
Italian	0 26	0 28
Citronella	1 15	1 25
Cloves, Ang	3 00	3 00
Cod Liver	1 05	1 50
Croton	1 75	2 00
Juniper Wood	0 80	1 00
Berries	2 75	3 00
Lavand, Ang. oz.	0 60	1 00
Exotic	1 25	1 50
Lemon, super	4 40	4 50
ord.	3 20	3 40
Orange	3 00	3 25
Origanum	0 65	0 75
Peppermint Ang	15 00	16 00
" Amer.	5 00	5 50
Rose, Virgin	8 50	8 75
" good	6 80	7 00
Sassafras	0 75	1 90
Wintergreen	6 00	6 50
Wormwood, pure	4 00	6 00
Ointment, blue	1 50	1 50
Opium, Turkey	10 00	10 50
pulv	[illegible]	12 00

Drugs, Medicines, &c.—*Cont'd*	$ c.	$ c
Orange Peel, opt.	0 30	0 36
" good	0 12½	0 20
Pill, Blue, Mass	1 30	1 40
Potash, Bi-chrom	0 18	0 20
Bi-tart	0 33	0 35
Carbonate	0 14	0 20
Chlorate	0 45	0 50
Nitrate	8 00	9 00
Potassium, Bromide	95	1 00
Cyanide	0 60	0 5
Iodide	4 50	5 00
Sulphuret	0 25	0 35
Pepsin, Boudault's ... oz	1 40	—
Houghton's ... doz.	8 00	9 00
Morson's ... oz.	0 85	1 10
Phosphorous	0 95	1 00
Podophyllin	0 50	0 60
Quinine, Pelletier's	—	2 45
Howard's	2 50	—
" 100 oz. case.	2 55	—
" 25 oz. tin..	2 53	—
Root, Colombo	0 13	0 20
Curcuma, grd	0 12½	0 17
Dandelion	0 17	0 20
Elecampane	0 16	0 17
Gentian	0 08	0 10
" pulv	0 15	0 20
Hellebore, pulv	0 17	0 20
Ipecac, "	1 50	1 60
Jalap, Vera Cruz	90	1 15
" Tampico	0 70	1 00
Liquorice, select	0 12	0 13
" powdered	0 15	0 20
Mandrake "	0 20	0 25
Orris, "	0 20	0 25
Rhubarb, Turkey	2 50	2 75
" E. I.	0 75	0 90
" " pulv	1 60	1 10
" " 2nd	0 60	0 70
" French	0 75	—
Sarsap., Hond	0 50	0 52
" Jam	0 88	0 90
Squills	0 10	0 15½
Senega	0 90	1 00
Spigelia	0 25	0 30
Salt, Epsom	2 25	3 00
Rochelle	0 32	0 35
Soda	0 02½	0 03
Seed Anise	0 13	0 16
, Canary	0 05	0 06
Cardamon	2 25	2 50
Fenugreek, g'd	0 08	0 09
Hemp	0 06½	—
Mustard, white	0 14	0 16
Saffron, American	0 75	0 85
Spanish	12 00	13 00
Santonine	7 50	8 00
Sago	0 08	0 09
Silver, Nitrate ... Cash	14 85	16 50
Soap Castile, mottled	0 11	0 14
Soda Ash	0 03¾	0 05
Bicarb. Newcastle	6 20	6 50
" Howard's	0 14	0 16
Caustic.	0 05½	0 05¾
Spirits Ammon., arom	0 35	0 35
Strychnine, Crystals	2 25	2 50
Sulphur. Precip	0 10	0 12½
Sublimed	0 03½	0 05
Roll	0 03	0 04½
Vinegar, Wine, pure	0 55	0 60
Verdigris	0 35	0 40
Wax, White, pure	0 75	0 80
Zinc. Chloride ... oz	0 10	0 15
Sulphate, pure	0 10	0 15
" common	0 06	0 10
Dyestuffs.		
Annatto	0 35 @	0 60
Aniline, Magenta, cryst	2 50	2 80
" liquid	2 00	—
Argols, ground	0 15	0 25
Blue Vitrol, pure	0 09½	0 10
Camwood	0 06	0 09
Copperas, Green	0 01½	0 02½
Cudbear	0 16	0 25
Fustic, Cuban	0 02½	0 04
Indigo, Bengal	2 40	2 50
Madras	0 85	0 90
Extract	0 26	0 30

Dyestuffs—*Continued.*		
Japonica	0 07¾	0 08
Lacdye, powdered	0 33	0 38
Logwood	0 02½	0 03
Logwood, Camp	0 02½	0 3½
Extract	0 9⅜	0 12
" 1 lb. bxs	0 13	—
" ½ lb. "	0 14	—
Madder, best Dutch	0 11	0 12
2nd quality	0 10	0 11
Quercitron	0 03	0 05
Sumac	0 06	0 08
Tin, Muriate	0 10½	0 12½
Redwood	0 05	0 06
Spices.		
Allspice	0 11½ @	0 12
Cassia	0 35	0 38
Cloves	0 46	0 48
Cayenne	0 28	0 30
Ginger, E. I.	0 19	0 20
Jam	0 29	0 30
Mace	1 65	1 75
Mustard, com	0 20	0 25
Nutmegs	1 15	1 20
Pepper, Black	0 22½	0 23
White	0 31	0 32
Paints, Dry.		
Black, Lamp, com	0 07 @	0 08
" refined	0 25	0 30
Blue, Celestial	0 08	0 12
Prussian	0 65	0 75
Brown, Vandyke	0 10	0 12½
Chalk, White	0 01	0 01½
Green, Brunswick	0 07	0 10
Chrome	0 16	0 25
Paris	0 30	0 35
Magnesia	0 20	0 25
Litharge	0 07	0 09
Pink, Rose	0 12½	0 15
Red Lead	0 07½	0 08
Venetian	0 02½	0 03½
Sienna, B. & G	0 07	0 08
Umber	0 07	0 10
Vermillion, English	1 85	1 90
American	0 25	0 35
Whiting	0 85	0 90
White Lead, dry, gen	0 08½	0 09
" " No. 1	0 07	0 08
" " No. 2	0 05	0 07
Yellow Chrome	0 12½	0 35
" Ochre	0 02½	0 03½
Zinc White, Star	0 10	0 12
Colors, in Oil.		
Blue Paint	0 12 @	0 15
Fire Proof Paint	0 06	0 08
Green, Paris	0 30	0 37½
Red, Venetian	0 07	0 10
Patent Dryers, 1 lb tins	0 11	0 12
Putty	0 03¾	0 04½
Yellow Ochre	0 08	0 12
White Lead, gen. 25 lb. tins	2 50	—
" No. 1	2 25	—
" No, 2	2 00	—
" No. 3	1 75	—
" com	1 30	—
White Zinc, Snow	2 75	3 25
Naval Stores.		
Black Pitch	4 25 @	4 50
Rosin, Strained	4 25	—
Clear, pale	5 75	7 25
Spirits Turpentine	0 52	0 55
Tar Wood	4 00	4 50
Oils.		
Cod	0 63 @	0 70
Lard, extra	0 90	0 95
No. 1	0 85	0 87
No. 2	0 80	0 85
Linseed, Raw	0 72½	0 75
Boiled	0 77½	0 80
Olive, Common	1 05	1 10
Salad	1 80	2 30
" Pints, cases	4 20	4 40
" Quarts	3 25	3 50
Seal Oil, Pale	0 75	0 75
Straw	0 68	0 70
Sesame Salad	1 30	1 35
Sperm, genuine	2 35	2 40
Whale refined	70 0	0 75