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CANADIAN
PHARMACEUTICAL JOURNAL

VOL. VI, No. 8. TORONTO, MARCH, 1873. WHOLE No. LVIX

Original and Selected Papers.

ONTARIO COLLEGE OF PHARMACY.

COUNCIL MEETING.

The regular semi-annual Council Meeting was held on Wednesday, 5th Feb., 1873, at the rooms of the college. The President, Mr. Lyman, took the chair at 2 o'clock, the following members being present:—Messrs. Bickle, Brendon, Chandler, Dunspaugh, Elliot, Hodgetts, Miller, Parker, Saunders, and Prof. Shuttleworth.

The minutes of last meeting were read and approved.

Mr. Saunders, as one of the delegates to the meeting of the American Pharmaceutical Association, held in Cleveland, in September last, reported verbally as to the cordial reception given to the delegates, and the interesting nature of the meeting, hoping that other members of the council would be able to attend future meetings so as to encourage friendly feeling between societies having similar objects in view.

A letter from Mr. Ormond was read and discussed.

Prof. Shuttleworth moved,

Mr. Saunders seconded,

“That the certificates of proficiency or diplomas of the Pharmaceutical Society of Great Britain, the Pharmaceutical Association

of Quebec, and the Philadelphia College of Pharmacy, be recognized by this College, provided that the holders of such diploma has been four years in business, and the production of such diploma shall be considered by the Board of Examiners as sufficient evidence of the qualifications of the holder thereof; provided such resolution is in harmony with the Pharmacy Act."—Carried.

Prof. Shuttleworth moved,

Mr. Miller seconded,

"That Chemists, Pharmaceutists and other persons eminent for their scientific attainments may, on receiving a vote representing a majority of the Council, be elected Honorary Members of the College. Such members shall not, however, have the privilege of holding office, or having a vote at any election or meeting, or enjoy any of the legal privileges enjoyed by ordinary members of the College."—Carried.

The Registrar's report was read, as follows:—

"TORONTO, February 4th, 1873.

"To the Council Ontario College of Pharmacy:

"GENTLEMEN,—Your Registrar begs to report that since the last meeting of the Council, there have been eighty-nine additional renewal fees paid for the current year ending May 1st, 1873, making the total renewals 473 for that period. Twenty-seven new names have been added to the register in the same period (12 examined, 15 others.)

"The circular authorized by your Council at the last meeting, of which a copy is appended, having been successful in bringing explanatory notes and renewal fees from so many, indicates that the delay in remitting has arisen in the great majority of instances more from oversight than otherwise; still, there are some who seem determined to oppose the steps taken by your Council, and a list is appended of those in business at the present time who have failed to comply with the requirements of the Act.

"The discontinuance of the JOURNAL in July last to those who had not renewed their registration fees, has been a source of trouble in some cases. Back numbers were supplied as long as possible, until the stock is reduced to some eight or nine copies of some numbers, which I have kept in the event of a demand for complete files for new subscribers, and for the past few weeks I have not been able to supply them to parties paying renewal fees.

"Referring to the financial management of the JOURNAL, which your Council has placed in my hands, I have to report with regret that there has been no improvement to note. A distribution of two hundred circulars by mail to probable advertisers, together with a great many personal and written applications, has failed to secure any material increase of advertisements. One cause, which it is in

the power of the Council to remedy, is the high terms which are placed on the advertising columns. A monthly journal, published in Toronto, having a circulation of 1,500 copies, I myself advertise in for \$30 per page annually, while in the JOURNAL, which circulates say 600, the terms are \$60. Another cause is to be found in the smaller advantages presented to advertisers in a journal where the advertisements are all together at the end of a magazine in book form.

"I have employed two canvassers in Toronto, but without success; and still I cannot but think that the revenue to the College from this source should be much greater than it is, and if your Council can find some one with more practical experience in the management of such matters, it would be advisable to make a reduction in the Registrar's remuneration so as to secure such services.

"Respectfully submitted.

"HENRY J. ROSE, Registrar."

Mr. Elliot, from the Committee on the Alteration in the Election of Councillors, said that he doubted whether the Council had power to alter the mode of election so as to divide the Province into electoral divisions; the most that could be done was to make a strong representation to the electors at the approaching election.

Mr. Saunders moved,

Mr. Elliot seconded,

Resolved,—That in view of the approaching election of a new Council in June next the present board would urge upon the electors the advisability of nominating members in some localities at present unrepresented, so that there may be a more equitable representation of the different sections of the Province.

Resolved,—That in view of the importance of the above resolution a copy of it be published in the JOURNAL separately from the other proceedings of the present session of the Council, and special attention directed to it, and that a list of the present Council be appended with the localities they represent.

Mr. Elliot said that the alteration in the mode of conducting the election, which was adopted at the last meeting should be well understood by the members.

The By-law, as altered, having been read,

Mr. Elliot moved,

Mr. Bickle seconded,

"That the alterations made in the By-laws be published in the JOURNAL at least two months before the next election. And that they also be embodied in the notices given of the next elections."—
Carried.

Mr. Bickle moved,

Mr. Elliot seconded,

"That the Examiners and Auditors at present appointed continue

their duty as such for examination and Audit in August next."—
Carried.

Mr. Saunders read the report of the Examiners, as follows:—

"To the Council of the Ontario College of Pharmacy:

"GENTLEMEN,—The Board of Examiners beg to report as follows: That, in accordance with the Act, we have met and carefully conducted the examination of the applicants, numbering thirteen in all, ten of whom have, by their answers, gained the requisite number of marks to entitle them to a certificate of registration. We note with pleasure an advance in the readiness and fullness of the answers given, indicating a gratifying measure of progress, which is attributable in a large degree to the stimulus given by the working of the Pharmacy Act. The action of the Board at its last meeting, in reference to the introduction of practical pharmacy in the examinations, as well as the expression of opinion in regard to the relative value of botany, have both been carefully considered, and acted on in a manner which we trust will meet with your approval. It was not deemed desirable to increase the number of marks over one hundred, and we thought that the dispensing of three prescriptions would be a sufficient test of neatness, readiness and accuracy. It was considered best to reduce the number of marks given in botany to fifteen, and apply the remaining five to practical pharmacy. We were much pleased with the promptness and neatness shown in dispensing, and think it would be wise to perpetuate this important branch of the examinations. Below are the results of the examination in the order of merit. Out of a possible 100 marks, there were scored by

A. Campbell, London.....	90 $\frac{1}{4}$
D. Secord, Brantford	85 $\frac{1}{2}$
John A. Clarke, Guelph.....	83 $\frac{3}{8}$
J. Kennedy, Cobourg.....	79 $\frac{3}{4}$
Wm. H. Grandy, Omemees	79 $\frac{3}{8}$
J. M. Eakins, Princeton	78 $\frac{1}{2}$
J. McKee, Welland.....	77 $\frac{7}{8}$
H. H. Curtis, Simcoe	72 $\frac{1}{4}$
A. J. Johnson, Peterboro	71 $\frac{1}{4}$
W. W. Ansley, Port Dover	70

"Mr. A. Campbell, of London, having secured the highest number of marks, is entitled to the first prize given by the Council, and D. Secord, of Brantford, who ranks next, to the second prize. Attention is called to the fact that seven out of the ten successful candidates have scored over seventy-five marks each, this being the

largest proportion of applicants who have exceeded that number in any examination yet conducted.

"All of which is respectfully submitted.

"WM. SAUNDERS.
"F. BRENDON.
"R. W. ELLIOT.

"Toronto, February 5th, 1873."

The Treasurer read his report, as follows :

George Hodgetts, Treas., in account with the Ont. Col. of Pharmacy.

RECEIPTS.

1872.	August 1,	To Balance in Canadian Bank of Commerce.....	\$1,939 61
	" 7,	" Cash from Registrar	77 00
	" 31,	" " "	75 50
	Oct. 19,	" " "	84 00
	" 19,	" " "	63 65
	Dec. 31,	" Interest on account in Bank	36 12
1873.	Jany. 8,	" Cash from Registrar	145 35
	" 8,	" " "	137 50
	" 30,	" " "	131 00
			\$2,689 73

DISBURSEMENTS.

1872.	August 7,	By Cash paid Members attending Council meeting.....	\$58 64
	" 7,	" " Examiners	45 00
	" 8,	" " Brown Bros., Prizes	14 10
	" 8,	" " "Globe" Printing Co., advertisement.....	8 80
	" 12,	" " Treasurer's Salary, 7 months 28 days	65 80
	Sept. 11,	" " "Monetary Times".....	107 00
	" 18,	" " Postage, Registrar	1 00
	Oct. 11,	" " Copp, Clark & Co., printing receipts, &c.....	17 75
	" 18,	" " "Monetary Times"	52 75
	" 19,	" " Postage, Registrar	1 75
	" 19,	" " Hunter, Rose & Co., advertising	3 00
	" 19,	" " J. Edwards, stationery	1 75
	Dec. 2,	" " Postage, "Journal"	5 50
	" 3,	" " "Monetary Times".....	107 50
1873.	Jan. 8,	" " Printing Bill Heads.....	2 00
	" 8,	" " H. J. Rose, travelling expenses to Philadelphia to rep. proc. Am. Ph. Ass.....	24 00
	" 8,	" " Postage, Registrar	6 00
	" 8,	" " Postage, account "Journal".....	5 50
	" 8,	" " Mowatt, MacLennan & Downey.....	10 00
	" 9,	" " Postage, Registrar	1 50
	" 30,	" " W. F. Sexton, glass cases and fittings in College rooms.....	167 20
	" 30,	" " Postage, "Journal"	6 00
	" 30,	" " E. B. Shuttleworth, 8 months salary	333 33
	" 30,	" " " " Postage \$5.50, stat'ny \$2.70	8 20
	" 30,	" " Hunter, Rose & Co., advertising	2 82

Ontario College of Pharmacy.

Jan. 30,	By Cash paid in hand	136 14
" 30,	" " " Balance in Canadian Bank of Commerce	1,496 70
		<u>\$2,689 73</u>

GEORGE HODGETTS, Treas.

We, the undersigned, appointed by the Ontario College of Pharmacy, have examined the above statement, and compared it with vouchers, and find them all correct.

WM. H. DUNSPAUGH, }
HUGH MILLER, } Auditors.

Pharmaceutical Journal in Account with Geo. Hodgetts, Treasurer.

RECEIPTS.

1872.			
Aug. 7.	To cash from Registrar	\$19 35	
Oct. 19.	" " Messrs. Elliot & Co.	\$61 90	
	" " Advertisement	0 50	
	" " Back numbers	1 25	
			<u>63 65</u>
1873.			
Jan. 8.	To cash from Registrar—		
	Advertisements—Lyman Bros. & Co.	\$131 50	
	Subscription	6 00	
			<u>137 50</u>
	To balance	429 28	
			<u>\$649 78</u>
	To balance	\$429 28	
	Due for printing "Journal Nos. 6 and 7, say	107 50	
			<u>\$536 78</u>

DISBURSEMENTS.

1872.			
Sept. 11.	By cash paid "Monetary Times," printing Nos. 1 and 2	\$107 00	
18.	" " " " " No. 3	52 75	
Dec. 2.	" " Postage on "Journal"	5 50	
3.	" " "Monetary Times," printing Nos. 4 and 5	107 50	
1873.			
Jan. 8.	" Registrar, travelling expenses to Philadelphia to report proceedings of Am. Pharmaceutical Ass'n	24 00	
8.	" Postage on "Journal"	5 59	
30.	" Editor's salary, eight months	333 33	
30.	" Postage	5 50	
30.	" " Stationery	2 70	
30.	" Postage on "Journal"	6 00	
			<u>\$649 78</u>

GEORGE HODGETTS, Treasurer.

We, the undersigned, appointed by the Ontario College of Pharmacy, have examined the above statement, and compared it with vouchers, and find them all correct.

W. H. DUNSPAUGH, }
HUGH MILLER, } Auditors.

The Registrar's report was discussed, and

Mr. Saunders moved,

Mr. Dunspaugh seconded,

"That a vote of thanks be tendered to Mr. Rose for his efficient services as Business Editor of the JOURNAL, and that he be requested to continue in office for the remainder of the term."—Carried.

The resolution introduced at the last meeting to add chloral to the list of articles in Part I of Schedule was discussed, and the Secretary authorized to have it brought before the proper authorities.

The question of infringements of the Act was discussed, and

Mr. Hodgetts moved,

Mr. Miller seconded,

"That inasmuch as a number of persons have either through inadvertance or neglect omitted to renew their registration fee for the present year, and that the Council are unwilling to take severe steps to enforce this duty without giving due warning of the consequences of such neglect, the Registrar be instructed to notify such parties that unless such fee be paid within 14 days from the date of receipt of letter, proceedings will be taken in accordance with the 25th clause of the Act, and that the Registrar be instructed to carry out this Resolutor

"That in the opinion of this Council Mr. Galloway, of Ingersoll, in advertising himself as chemist and druggist, is acting in direct opposition to the wording and meaning of the Pharmacy Act, seeing he is unqualified; and while this Council feel very unwilling to use any measures which may appear harsh, they feel that it is their duty to see that no one infringe on the provisions of the Act with impunity, and hereby authorize the Registrar to institute legal proceedings in this case."—Carried.

A letter from Bothwell was read, and the Secretary instructed to write for particulars so as to enable the Council to take action in the matter.

Prof. Shuttleworth moved,

Mr. Saunders seconded,

"That Prof. Redwood and Prof. Atfield, of Great Britain, and H. B. Brady and Prof. J. M. Maisch, of Philadelphia, and Dr. E. R. Squibb, of Brooklyn, be Honorary Members of this College."—Carried.

A vote of thanks to the retiring officers was carried, on motion, and the meeting adjourned.

HENRY J. ROSE,

Secretary.

SYRUP OF PHOSPHATE OF IRON, QUINIA AND STRYCHNIA, WITH PHOSPHATE OF AMMONIA.*

BY CHARLES D. POLK, M. D.

℞.

Ferri Sulphatis	grs. 2625
Sodæ phosphatis	ʒix
Acidi phosph. glacial.....	ʒviii
Acidi nitric. C. P.....	ʒvi
Quinæ sulphatis	grs. 336
Acidi sulphurici dil.	q. s.
Aquæ ammoniæ concent.....	q. s.
Strychnia	grs. xii ss.
Syrupi, q. s. ad.....	ʒxlvi.

Dissolve the sulphate of iron in seven ounces of boiling water, and the sulphate of soda in twelve ounces of boiling water; mix them in a precipitating jar and carefully wash the precipitated phosphate of iron; add the phosphoric acid to ʒxx of distilled water, apply gentle heat on a sand-bath until dissolved, then introduce the nitric acid, and continue the application of heat until the solution is reduced to the measure of seventeen ounces, or until the fumes of nitric acid cease to be evolved; dissolve the quina by aid of the dilute sulphuric acid in four ounces of water, and precipitate the alkaloid by aqua ammonæ slowly added, and carefully wash; dissolve the phosphate of iron, the quinia and also the strychnia in 10 fluid-ounces of the acid by the aid of heat on the sand-bath, the alkaloids being withheld until the iron is dissolved; saturate the remaining seven fluid-ounces of the phosphoric acid with the concentrated liq. ammoniæ, and lastly mix the two solutions in sufficient dense syrup to measure forty-two ounces.

This formula, which is based on the same principle as the ammonio-citrate, ammonia-tartrate, and other salts of iron combining a neutral salt with an alkali base, produces a ferric syrup which is scarcely inferior to iron by hydrogen in therapeutical power, and surpasses all other syrups in permanency. I have never known it to precipitate the iron salt or undergo decomposition. It is too expensive and difficult to prepare to supersede Easton's formula, and although very superior to it in chlorosis, neuralgia, and some types of anæmia, its use is more circumscribed, and must yield the palm to that preparation as a general tonic. In diseases attended with derangement of the nervous system, I have derived very satisfactory results from this combination, even after I have failed to derive advantage from the syrup of Easton. In broken down cases of

*From the American Journal of Pharmacy, Feb., 1873.

gout, rheumatism, scrofula, general cachexia, syphilis, and uterine diseases attended with chronic engorgement and relaxation of uterus and appendages; I have often found it to exceed in efficacy my fondest expectations. In 1866, while surgeon in charge of the U. S. Quarantine Hospital, Charleston, S. C., I wished to make this preparation, but could not obtain the phosphoric acid, and was by necessity led to devise a formula by which iron, quinia and strychnia could be formed into a syrup without the aid of free phosphoric acid.

The liquor ferri citratis suggested to me a combination of the same strength in syrup form, independent of the pyrophosphate, in which the phosphate of iron would be held in solution by the acid of citrate of potassa. My first experiments with officinal freshly precipitated phosphate of iron did not give satisfactory results. I next precipitated the phosphate of iron from Monsel's solution by using twelve ounces of the crystals of phosphate of soda to sixteen fluid-ounces of the iron solution, and obtained not a very satisfactory syrup, but some of it, concentrated and dried between plates like the pyrophosphates, furnished very perfect scales of an olive green color, and even more soluble than the pyrophosphate scales. By increasing the amount to seventeen ounces and six drachms of the phosphate of soda, I obtained a magma which, with about half the amount of potassa citrate required in the phosphate of the ammonia-citrate, without difficulty, by the assistance of gentle heat, formed a very perfect and permanent syrup of the strength of the liq. ferri citratis, or one hundred and twenty grains of the iron salt to the ounce.

Mr. Rother follows nearly the same process that I have been accustomed to follow, excepting he uses the ammonia citrate, while I have heretofore used the citrate of potassa; he uses the tersulphate, while I have used the subsulphate of iron. I now obtain a mixed syrup of proto- and sesqui salt of iron, while his is a sesquisalt. I believe mine to be a better medicine—his a better pharmaceutical product, and applicable to a more general use in forming ferrated syrups and elixirs, and supplying a real desideratum.

Mr. Rother manipulates thus:

℞ Sol. ferric sulph.....	..... 1 pint.
Sodium phosphate.....	17½ oz.
Sol. of ammonium citrate.....	q. s.
Sugar.....	24 oz.
Water sufficient.	

Dissolve the sodium phosphate in 2½ pints of water with the aid of heat, and pour into it the solution of the ferric sulphate with constant stirring. After a short repose transfer the magma to several capacious filters, and wash it with water, stirring it up occasionally until the washings are nearly tasteless; now place the washed

magma in a suitable evaporating dish, add six fluid-ounces of solution of ammonium citrate (prepared so that each ounce of the solution shall represent half an ounce of citric acid, the acid being slightly in excess), and apply heat. If the precipitate does not completely dissolve, add a little more solution of ammonio-citrate until the solution becomes perfectly clear by the continuance of a moderate heat, then evaporate it over a sand-bath until reduced to 20 fluid-ounces, add the sugar, and when this is dissolved, strain the syrup through muslin while hot. The product must measure two pints. It will then be identical in iron strength with the officinal solution of ferric citrate; and four minims of it will represent about one grain of dry ferric orthophosphate.*

With the syrup proposed by Mr. Rother, reliable ferrated elixirs of calisaya, gentian or pepsin can be extemporaneously formed.

I regard the following to be superior to any elixir of the same now in market.

Elixir Phosphate of Iron, Quinia and Strychnia.

R. Syr. phosh. of iron with ammonium citrate.....	ʒxvii.
Sulphate of quinia.....	grs. lxiv.
Strychnia	grs. ii.
Curacoa cordial (white).....	q.s. ʒxvss.
Essential tinct. orange.....	ʒiii.
Dilute phosphoric acid.....	ʒi.

Dissolve the quinia and strychnia in the Curacoa cordial by aid of the phosphoric acid, add the syrup of the phosphate of iron and lastly the essential tincture of orange. This forms a more reliable elixir than any found in the market; any druggist, with the syrup of the phosphate of iron, could extemporaneously form it as ordered, and thus avoid the cinchonia frauds so extensively practiced with this preparation by some manufacturing chemists; or, if economy be desired, the physician could easily order the cinchonia and the druggist dispense it.

I think Mr. Rother has really made a valuable contribution to pharmacy in this syrup, and believe it worthy of officinal recognition. It is not the iron tonic that the proto-phosphate, in point of energy, falls much below the phosphate with phosphate of ammonia in diseases attended with nervous prostrations, yet the difficulty in procuring these of a reliable character is a great offset to their general use. As found in the shops they are mostly unworthy of confidence, while their inestimable value when properly prepared will always maintain a demand for them, although the miserably prepared syrup usually dispensed for Easton's differs as far from the learned

* Pharmacist, p. 147 (1872).

Professor's preparation as the attenuated solution of hyponitrous ether as found in the shops differs from the spirit of nitrous ether of the Pharmacopœia.

The syrup of iron with ammonium citrate presents no inducement for fraud, and really resembles in appearance nought else but the syrup of the pyrophosphate, which is an apple green, while the syrup proposed by Mr. Rother is an olive green. As the pyrophosphate is more expensive and even more difficult to prepare, we would have nothing to fear from that direction. It could be prepared by the manufacturing chemists and obtained by the pharmacists of a reliable quality, from which all other ferrated syrups and elixirs containing phosphate of iron could be extemporaneously formed.

In thus recommending Mr. Rother's preparation over mine, I am led by a firm conviction that it is not only better, but fills a purpose heretofore unfilled as a reliable base for other preparations. I refer to my syr. phosph. iron and potash citrate, which is prepared on precisely the same principle as Mr. Rother's, yet scarcely equals it in merit.

By using phosphate of ammonia in a saturated solution, I have succeeded very well in dissolving the magma thrown down from the sesqui-salts of iron by phosphate of soda, the liq. tersulphate perhaps giving the best result; but the subsulphate is very eligible. Any of the alkali salts will dissolve the sesqui-salts of iron if the acid be somewhat in excess, but ammonia possesses greater solvent power than any other, the citrate of ammonia being the best preparation for this purpose. By using the exact chemical equivalent of the phosphate of soda necessary to precipitate one pint of liq. tersulphate of iron (which is about ten ounces), as fine scales as those obtained of the pyrophosphate can be as easily made, and which are really more soluble. The olive green color heretofore alluded to contrasts in a marked degree with the apple green of the pyrophosphate.

The chemical character of the phosphate of iron with ammonio-citrate ($\text{Fe}_2\text{O}_3, \text{PO}_5 + 10\text{HO}$), indicates that it contains a larger amount of iron and a smaller amount of phosphoric acid than the pyrophosphate ($2 \text{Fe}_2\text{O}_3, 3\text{PO}_5 + 9\text{HO}$). This salt of iron is worthy of further investigation.

THE CHINESE MATERIA MEDICA.

The following interesting particulars are taken from a notice, which appeared in the *Pharmaceutical Journal*, of London, relating to a manuscript work entitled *Etudes sur la Matière Medicale des Chinois*, by M. Dabry de Theirsant, French Consul in China, and Dr. Soubeiran.

A belief in the specific action of drugs seems to have strongly influenced medical practice in China, as it did but lately that of Europe. Besides, the Chinese believe, as Europeans did in the middle ages, that the appearance of a substance will give a clue to the services it may render to man, *i. e.*, the doctrine of signatures. Thus the lucicle is recommended for affections of the visual organs; a madder (*Rubia mungista*), having a red root, is given for amenorrhœa; *Polygonum tinctorium*, which yields indigo, is reputed efficacious for eruptive fevers; the reniform fruit of the *Kadsura chinensis* is said to possess aphrodisiac properties; while ginseng, with its bifurcated root resembling the legs of a man, is looked upon as restoring virile powers to the sick and aged. Considerations of the same kind are, doubtless, the foundation of the reputation of the *Cordiceps sinensis* as exciting the genital organs; that of the *Bidens parviflora* as infallible in making the nails grow; of the *Vitex incisa* in making the beard grow; and of the *Apocynum juventus* as a rejuvenescent. These are strange illusions, but they merit indulgence from those whose ancestors administered the lungwort to cure phthisis, the gromwell to cure the gravel, and the carrot for the jaundice.

In other points the Chinese show more scientific tendencies. For instance, the astringent substances of the materia medica, whether vegetable (oak galls and Chinese galls, etc.) or mineral (alum, acetate and sulphate of iron, salts of lead, silver, etc.), are used like the bitters as tonics and febrifuges (*Salix babylonica*, *Populus tremula*, *Dichroa febrifuga*,) to arrest perspiration, for atonic diarrhœa and spermatorrhœa. The aromatics, essential oils, and balsams, obtained from the Labiatae, Umbelliferae, Compositae, Myristicaceae and Styracaceae, garlic, santal, *Daphnidiuim cubeba*, etc., are used as diffusible stimulants, febrifuges, antispasmodics, and remedies for catarrhs; wormwood and saffron are considered emmenagogues, and the abortive power of the ergots of rice and maize is well known. Mercurial preparations have been employed from time immemorial in Chinese medicine for syphilis; arsenic for strumous and herpetic affections and certain intermittent fevers; iron as a blood restorer. Borax is prescribed for aphthae; nitrate of soda as a diuretic; carbonate of lime as an absorbent, and an oleo-calcareous liniment for burns. Ancient writers recommended the ashes of sea-weed in cases of goitre. Other substances used by

them as by Europeans are sulphur, acetate of copper, castor oil, gamboge, aloes, rhubarb, aconite, veratrum, colchicum, camphor, musk and opium. They have sternutatories, sialagogues and anthelmintics analogous to ours. Further, they pretend to possess a number of substances capable of preventing drunkenness (*Betonica officinalis*, *Hovenia dulcis*, *Chrysanthemum album*, nutmeg and borax), and others exercising an influence upon the lactic secretion, either by suspending it (sprouted barley) or increasing it (*Silene?* *Alisma plantago*).

One thing is very remarkable, that surgical anæsthesia, general and local, has long been used in China. The great surgeon, Houa-To, who advocated hydropathy, used a species of *Atropa* described in the 'Pun-Tsaou,' which produced an insensibility sufficient to permit him to perform important operations upon the abdomen. The *Datura alba* has similar properties. Besides these, the *Azalea procumbens*, which they often associate with andromeda and henbane as a narcotic, produces, when mixed with powdered aconite root, a local anæsthesia which is utilized for small operations.

Chinese medical men have recognized that there is an antagonism between certain substances; that they are incompatible in the same formula, and that they may be used reciprocally as antidotes. Thus, it is recommended to avoid the association of ta-ky (a species of *Carduus*) with *Glycyrrhiza*, *Chamædaphne* and *Helminthocorton*; wasp stings, and the bites of scorpions, and even of venomous serpents, are recommended to be treated by the *Bidens parviflora*; *Nelumbo* is to be administered to those poisoned by crabs, and the toxic effects of fungi averted by alum or the root of *Cichorium*, and those of aconite by *Libanotis*. An efficacious antidote to arsenic is said to exist in the *Phaseolus angulatus*, which would lead to the supposition that this species, belonging to a harmless genus, possesses exceptionally a pharmaco-dynamic activity comparable to that of the Calabar bean, and superior to that of another Leguminous plant, the *Cytisus Laburnum*, the toxic properties of which are perhaps analogous to those of the exotic *Phaseolus*.

Some of the observations of the Chinese show considerable sagacity, such as the favorable effects of sprouted barley in digestive disorders, the dispersive action exercised by nitre and sal ammoniac upon opacities of the cornea; the immunity from goitre enjoyed by persons drinking water preserved in leaden vessels, a circumstance which appears to point to the preparations of lead as preventitive of that disease. Moreover, some of the substances vaunted as remedies in the East probably deserve testing by experiment and clinical observation. Such are the *Anemarrhena asphodeloides* employed for the same purposes as squills; the *Pardanthus chinensis*, to which is attributed various and remarkable properties; the *Pupalia geniculata*, the acrid root of which is a sialagogue, and employed in

cases of rheumatism, etc.; the *Passerina Chamædaphne*, a tincture of which is employed as a cordial, tonic and febrifuge; the *Rehmania chinensis*, useful in general debility; the *Dimorphanthus edulis*, frequently prescribed for loss of blood, heart disease, etc.; the *Gynocardia odorata*, the seeds of which are extolled for skin disease and syphilis; and the febrifuges, the *Tournefortia argusina*, the *Trichosanthes dioica*, and especially the *Dichroa febrifuga*, the reputation of which is great in Cochin China, and which doubtless has more claims than the others to be looked upon as a substitute for cinchona.

BALSAM OF COPAIBA.*

BY DR. A. FUMOUCHE, OF PARIS.

As copaiba is composed of an essential oil, holding in solution a certain proportion of resin, which is itself composed of copaivic acid, and of a minute portion of soft resin, it only remains to ascertain which are the channels of elimination of its constituent principles. According to the rule laid down by Gubler,† substances which are foreign to the economy are eliminated by the enunctories of the normal elements which they resemble. Thus, volatile substances, such as the essential oil of copaiba, are exhaled by the sudoriparous glands and the respiration; its neutral salts and salifiable substances, for instance, the resins, are principally eliminated with the urine. If this theory were absolutely correct, it would suffice to administer separately the resin of copaiba in affections of the urinary organs, and the essence in those of the respiratory organs and skin.

But Bernatzick‡ has demonstrated by his experiments that this process is not quite so simple. This observer has just shown that the essence of copaiba is not entirely eliminated by the respiratory organs and the sudoriparous glands; but that a noticeable quantity of this essence, from 4 to 5 per cent., becomes oxidized in the organism, and is eliminated with the urine in the form of resin. A small portion is also passed unaltered in the urine, and gives to it the odor "sui generis" which it is found to possess after the administration of copaiba.

According to him, the resin of copaiba passes through the urine in the proportion of from 10 to 13 per cent. of the amount of resin

* From the *American Journal of Syphilography*.

† Gubler: *Commentaires therap.*, preface, p. xiii. Paris, 1858.

‡ Bernatzick; *Pharmac. Studien uber den Copavia Bals.* Prag. Vjhschr., C. (xxv, 4), p. 239., 1868.

administered. The elimination of this substance by the kidneys considerably increases the urinary secretion, and does not communicate any odor to it.

Having ascertained these facts, Bernatzick desired to test the separate curative action of the balsam, also of its essence and its resin, on gonorrhœa.

Admitting that the therapeutical effect of balsam copaiba on the vesical and urethral mucous membranes is due to the contact of the urine charged with its medicinal principle, it might be believed that the resin of copaiba would be the sovereign remedy against those diseases, since the active principles of the balsam are eliminated in a resinous form by the urine. But such is not the case. Bernatzick always obtained better results with the copaiba itself than with the resin, for the following reasons. After a few days the resin is not easily tolerated by the intestines, and its absorption by the digestive organs is diminished; consequently, the proportion of the resinous principle eliminated by the urine is considerably reduced; it even becomes frequently necessary to suspend the treatment. With the balsam this disadvantage is much lessened, the remedy is more readily tolerated by the intestines, and the proportion of resin eliminated by the urine is about the same during the whole course of the treatment.

As to the essence of copaiba administered separately, it has an evident action on urethral catarrh, but insufficient to induce resolution.

Bernatzick's experiments demonstrate the important fact that *the active principle of a medicinal substance*, such as the resin of copaiba in relation to gonorrhœa, *may be practically inferior to the substance itself, as it is less readily absorbed by the organs of digestion.*

Indeed, it is not sufficient to isolate the active principle of a medicinal agent, but an *excipient* must be found for the principle thus isolated, and frequently the best excipient, as in the copaiba, is furnished by nature itself. Here the essence is not only an excipient but it is also an adjuvant. Whilst it lessens the irritating effects of the resin on the intestines, it also contributes to the curative action, by the proportion of the resin formed at its expense.

Finally, notwithstanding the opinion of a few physicians, neither the essence nor the resin could replace the balsam, in the treatment of gonorrhœa. In reference to which the pharmacologist Jeannel* says: "It is difficult to oblige one to accept the artificial improvement for that which is naturally good (copaiba.)"

For other affections besides vesical and urethral catarrh, the isolated use of the essence, which has especial action on the respiratory organs and the skin, is unnecessary, as the balsam generally contains a sufficient proportion of the essential oil to be employed in its natural condition against these affections.

*Jeannel: Article Copahu, Nouveau Dict. de Med. et de Chir. pract., publiée par Jaccoud, Paris.

TESTED COPAIBA.—Copaiba has been frequently found fault with on account of the uncertainty of its effects. However, most frequently it is not the copaiba which is to blame, but it is the carelessness with which (like many other remedies) it is selected. For there is no substance more variable in its composition than copaiba. Thus there are some copaibas containing but 30 per cent. of the essence, whilst others contain as high as 80 per cent.; besides which all the intermediate degrees may be met with. It may be easily conceived that copaibas rich in the essence would be excellent for the treatment of diseases of the respiratory organs and skin, as these two are the principal emunctories of the essence; but such copaiba cannot be relied on in the treatment of gonorrhœa.

It is thus indispensable and important to make use only of *Tested Copaiba*. Unfortunately pharmacologists have paid but little attention to this question; the pharmacist, also, indifferently admits into his pharmacy all kinds of copaiba, without taking note of the proportion of the resin and essential oil contained in each, which should be in the proportion of about 55 per cent. of the former, and of about 45 per cent. of the latter. This proportion appears to be the best, as it is sufficient for all the cases in which the balsam is made use of. Would not our statement, in reference to copaiba be equally applicable to nearly all the natural medicinal substances? Is not *testing* the most pressing reform necessary to introduce into our pharmaceutical code (?) that which should precede the most radical reforms, which consist in substituting the isolated chemical agents for the natural substances which contain them.

There are in fact two points to overcome before arriving at a complete realization of the positive tendencies of the science of medicine of the present day. As long as the chemical properties and the physiological effects of natural substances or of their components are but imperfectly known, it will be necessary to limit one's self in practice to the testing of those substances. Such should be the first step of rational therapeutics, which is that of the future. But this first stage will be of a much longer duration than many leading spirits imagine. Medicine, indeed, does not require revolutions engendered by exclusive systems, but only reforms resting on the solid basis of experimentation. Therefore it is only after having acquired a thorough knowledge of medicinal substances that it will be possible to substitute for each one of them the principle, or the immediate principles, which represent it in its useful effects. All our efforts should therefore tend towards this second point, already passed by a small number of medicinal agents. But above all let us not seek to forestall it by preconceived ideas.

ON THE AMOUNT OF ALKALOIDS CONTAINED IN SOME COMMERCIAL ELIXIRS.*

BY OTTMAR EBERBACH.

QUERY 38.—What proportion of alkaloids, claimed by the several manufacturers, are contained in the different elixirs ?

The unceasing accumulation of literature agitating the elixir question, instead of leading to a systematic uniformity, is steadily increasing the complexity, with the mass of supposed information ; and the style of these medicines is so attractive that nearly the whole *Materia Medica* is drawn into the current of the elixir swindle.

The intended object of elixirs is to make certain medicines agreeable to the taste and acceptable to the stomach. The substances constituting these preparations are invariable: alcohol, sugar, aromatics, and the active principles.

As we find the elixirs in market, the proportion of alcohol is comparatively large, and the dose of active ingredients necessarily small, instead of being so adjusted that the former would be but a minimum in comparison with the dose of active ingredients administered. This circumstance makes these elixirs appear as serving more the purpose of an intoxicating stimulant than that of a medicine.

The most popular of these elixirs, are those of calisaya, cinchona with iron, cinchona with iron and strychnia, ferrated elixir of gentian, and elixir of valerianate of ammonia.

In order to satisfactorily answer the query, as to the quantity of alkaloids contained in the elixirs of the drug market, samples were obtained from various sources, and submitted to careful examination. The results are herewith given.

No. 1. "*Ferrated Elixir of Cinchona*." Prepared by John Wyeth & Brother, Philadelphia."

This preparation has a wine-red color, and slightly acid reaction.

Sulphuric, muriatic, and nitric acid added to portions of the elixir, produced white precipitates soluble in an excess of the acids.

Caustic soda added to a portion, produced a white precipitate ; heat being applied ammonia was evolved, and the liquid turned to a dark reddish-brown, with flakes floating in the same.

To a portion caustic ammonia was added, producing a white precipitate, partly soluble in an excess of reagent.

Ferrocyanide of potassium turned to a bluish-green.

These reactions indicate the presence of iron in the form of pyrophosphate.

* Read at the Annual Meeting of the American Pharmaceutical Association, held at Cleveland, September, 1872, and published in the Proceedings.

Four fluid ounces were treated with caustic soda, heated on a water-bath until the alcohol and liberated ammonia were expelled, the precipitate collected on a filter, washed with cold water, dissolved in strong alcohol, filtered, evaporated to dryness in a porcelain crucible and contents allowed to cool under a bell-glass over sulphuric acid, and then weighed, giving 3.2 grains alkaloids.

These alkaloids were dissolved in dilute sulphuric acid in slight excess, treated with a solution of bicarbonate of soda sufficient to neutralize, let stand for an hour, the precipitate collected on a filter washed with cold water. The filtrate marked A was set aside for further examination. The precipitate dissolved in dilute sulphuric acid was treated with caustic ammonia and ether; a precipitate remained indicating the presence of cinchonia. This was collected on a filter washed with ether, dried on a water-bath; a portion put into a dry test-tube, heated carefully, it fused, then sublimed in the form of white fumes, and deposited in the colder parts of the tube in the shape of bulky white sublimate, proving the presence of cinchonin. The ethereal filtrate was evaporated to dryness; the residue washed with cold water, dissolved in dilute sulphuric acid, and treated with chlorine water and ammonia, giving an intense green color, proving the presence of quinia.

The filtrate A was evaporated to dryness, the residue treated with absolute alcohol in which it partly dissolved, filtered, and the filtrate treated with chlorine water and ammonia producing a green color; proving the presence of quinia.

“No. 2. *“Elixir Calisaya Bark, Iron, and Strychnia.* Each teaspoonful containing one-sixtieth of a grain of strychnia. Prepared by John Wyeth & Brother, Philadelphia.”

This preparation has a wine-red color, and slightly acid reaction. Reactions same as in No. 1, indicating the presence of pyrophosphate of iron.

Four fluid ounces gave 3.5 grains alkaloids.

These submitted to a qualitative analysis were found to be a mixture of quinia, cinchonia, and strychnia. To prove the presence of strychnia the filtrate A obtained after treating the solution of the alkaloids in dilute sulphuric acid, with bicarbonate of soda, was evaporated to dryness, treated with absolute alcohol, filtered, the residue washed with cold water, dried, and a portion dissolved in concentrated sulphuric acid, then a crystal of chromate of potassa added, producing the characteristic violet blue color of strychnia.

No. 3. *“Caswell, Hazard & Co.'s Ferrophosphated Elixir of Calisaya Bark.”*

An agreeable, slightly bitter-tasting preparation, of an apple-green color, slightly acid.

Caustic soda turns to a deep yellow, producing a white precipitate, and evolves ammonia.

Caustic ammonia produces slight turbidity, which disappears by adding an excess.

Ferrocyanide turns to a blue color.

Acids produce voluminous white precipitates soluble in an excess. These reactions indicate the presence of pyrophosphate of iron.

Four ounces gave 0.75 grains alkaloids.

This was found to be pure quinia.

No. 4. "Caswell, Hazard & Co.'s *Ferrophosphorated Elixir of Calisaya Bark with Strychnia.*"

Properties same as No. 3.

Four fluid ounces gave 1.2 grains alkaloids, consisting of quinia and strychnia.

No. 5. "Caswell, Hazard & Co.'s *Elixir Phosphate of Iron, Quinine, and Strychnia.* Each teaspoonful containing one grain of phosphate of iron, one grain phosphate of quinia, and $\frac{1}{32}$ of a grain of strychnia."

This sample was of a wine-red color, quite bitter, with a heavy deposit in the bottom of the bottle.

Iron present in the form of pyrophosphate.

Four fluid ounces of the filtered elixir gave 10.63 grains alkaloids, consisting of quinia and strychnia.

The deposit was collected on a tared filter, washed with strong alcohol, dried and weighed, giving 58.7 grains deposit. This was dissolved in dilute sulphuric acid with the aid of a gentle heat, filtered, and the filtrate precipitated with caustic soda, heated until the liberated ammonia was expelled, the precipitate collected on a filter, washed with cold water, dissolved in strong alcohol, filtered, the solution evaporated to dryness, and weighed, giving 3.6 grains of alkaloids.

These were found to be a mixture of quinia and strychnia.

The alcoholic washings obtained by washing the deposit after the elixir had been filtered off, were evaporated to dryness, the residue dissolved in dilute sulphuric acid, precipitated with caustic soda, collected on a filter, washed with cold water, dried and weighed, giving 8.3 grains alkaloids consisting of quinia and strychnia.

The results summed up give 54.42 grains alkaloids contained in one pint of the elixir.

No. 6. "*Elixir Calisaya, Iron, and Strychnia.* Each fluid drachm contains five grains Calisaya bark, one grain of iron, and $\frac{1}{100}$ grain of strychnia. Prepared by Tilden & Co., New Lebanon, N.Y."

This sample was of a dark orange color, and slightly acid reaction.

Caustic soda added to a portion, produced a white precipitate and evolved ammonia.

Caustic ammonia gave white precipitate partly soluble in excess.

Ferrocyanide of potassium turned to a pale green color. Acids produce no change.

To a portion treated with caustic soda, and filtered, chloride of calcium was added; no change was produced; on applying heat an abundant white gelatinous precipitate was obtained, which on cooling, re-dissolved; this behaviour proves the presence of tartaric acid.

Four fluid ounces gave 2.3 grains alkaloids, consisting of quinia, cinchonia, and strychnia.

No. 7. "*Elixir Calisaya and Pyrophosphate of Iron.* Each fluid ounce contains thirty grains of Calisaya bark and twelve grains of iron. Prepared by Tilden & Co., New Lebanon, New York."

This preparation has an orange color. Reactions same as No. 1.

Four fluid ounces gave 1.73 grains alkaloids, composed of quinia and cinchonia.

No. 8. "*Elixir Quinine, Iron, and Strychnia.* Each fluid ounce contains one grain quinine, eight grains of iron, and $\frac{8}{100}$ of a grain of strychnine. Prepared by Tilden & Co., New Lebanon, New York."

Color light orange. Reactions same as No. 1.

Four fluid ounces gave 3.6 grains alkaloid, which were found to consist of quinia and strychnia.

No. 9. "*Elixir Cinchona, Iron, and Strychnia.* Each teaspoonful contains $\frac{1}{64}$ of a grain of strychnine. Prepared by J. R. Nichols & Co., Boston."

This preparation has a wine-red color. Turns darker with caustic ammonia.

Caustic soda produces a white precipitate in a reddish-brown fluid; this filtered, and to the filtrate calcium chloride being added, no change was produced. On applying heat an abundant gelatinous precipitate was obtained, which on cooling redissolved; this behavior proves the presence of tartaric acid.

Ferrocyanide of potassium produced a green color.

Four fluid ounces gave 1.9 grains alkaloids, consisting of quinia and strychnia.

No. 10. "*Elixir of Calisaya, Iron, and Strychnia.* Each fluid ounce contains sixty grains Calisaya bark, ten grains pyrophosphate of iron, and $\frac{8}{100}$ of a grain of citrate of strychnine. Prepared by Park Davis & Co., Detroit."

Color apple-green. Reactions same as No. 1.

Four fluid ounces gave 6.3 grains alkaloids. These were a mixture of quinia, cinchonia, and strychnia.

No. 11. "*Elixir Iron, Quinine, and Strychnia.* Each tablespoonful contains two grains pyrophosphate of iron, one grain quinine, and one-sixtieth of a grain of strychnia. Prepared by Park, Davis & Co., Detroit.

Color apple-green. Reactions same as No. 3.

Four fluid ounces gave 4.9 grains alkaloids, consisting of quinia and strychnia.

The writer devoted much time to the examination of the above samples, having made more than forty assays for estimating the amount of alkaloids they contained; the results given are in every case the mean result of not less than three assays. To facilitate comparison the results are tabulated as follows:

NAMES OF MANUFACTURERS.	Amount of Bark	Amount of Alka-	*Amount of Al-	Amount of Alka-	Amount of Alka-	Amount of Alka-
	claimed in 1 pint.	loid claimed in 1 pint.	kaloid calculated in 1 pint.	loid found in 1 pint.	loid falling short of claim.	loid exceeding claim.
	Grains	Grains	Grains	Grains	Grains	Grains
John Weyth & Brother, Ferrated Elixir of Cinchona.....	640	.....	12.8	12.8	.....	.....
John Weyth & Brother, Elixir Calisaya Bark, Iron, and Strychnine	640	2.56	15.36	14.	1.36	.....
Caswell, Hazard & Co., Ferrophosphorated Elixir of Calisaya Bark....	480	.....	9.6	3.	6.6	.....
Caswell, Hazard & Co., Ferrophosphorated Elixir of Calisaya Bark, with Strychnia	480	1.	10.6	4.8	5.8	.....
Tilden & Co., Elixir Calisaya Bark, Iron, and Strychnia	640	1.28	14.08	9.2	4.88	.....
Tilden & Co., Elixir Calisaya Bark and Pyrophosphate of Iron	480	.....	9.6	6.9	2.7	.....
Tilden & Co., Elixir of Quinine, Iron, and Strychnia .....	.....	17.28	.....	14.4	2.88	.....
J. R. Nichols & Co., Elixir of Cinchonia, Iron, and Strychnia .....	.....	.....	.....	7.6	.....	.....
Park, Davis & Co., Elixir Calisaya, Iron, and Strychnia	960	1.28	20.48	25.2	.....	4.74
Park, Davis & Co., Elixir Iron, Quinine, and Strychnia.....	.....	32.5	.....	19.6	12.9	.....

The true view of the elixir question conveys the evidence that the so-styled elixirs of the present time are very unscientific preparations; but to comply with demands, a practical formula for these preparations, and a simple, uniform, and expressive nomenclature, are very much needed. The imposition with these preparations will not cease to flourish until such are universally adopted.

(To be continued.)

* Bark estimated at two per cent. of Alkaloid, lowest standard of Pharmacopœia. Tablespoonful estimated at four fluid drachms; dessertspoonful at two fluid drachms; teaspoonful at one fluid drachm.

THERAPEUTICAL VALUE OF APOMORPHIN.*

As the histories show, the subcutaneous introduction of apomorphin, both in the dog and cat, has always given a positive result, and in every one of the therapeutic experiments the emetic action has been observed with great certainty.

First of all, as regards the *dose* administered in man, it varied between .003 and .011 grms. In four cases it was 3 mgrms.; in three, it was 4 mgrms.; in three, it was 5 mgrms.; in one it was 7 mgrms.; and one, 11 mgrms. But it must be observed that in all these cases the effect was the same; that in none of them, beyond the emetic effect, and the variations of pulse and temperature accompanying the act of vomiting, did further concomitant effects of consequence appear even with the largest doses. As we have convinced ourselves, through frequent repetition of the experiment with different large doses in the same individual, the administration of twice or thrice the quantity of the dose from which an effect has been already proved to follow produces no more result than that from the smallest efficient dose. It must certainly, therefore, be reckoned not the least important property of apomorphin that its administration has great scope, and that even large doses may be used with safety, a property which certainly does not belong, in the same degree, to our most approved emetics, such as antimony, ipecacuanha, and copper.

As a second, though, perhaps, less important element, we must mention the smallness of the active dose of our drug, which, for subcutaneous employment, is of moment.

As a third and most important peculiarity of our drug must be mentioned the possibility of its employment subcutaneously. We may specially remark that we never observed, either in man or animals, any local irritation at the point of injection; neither has the act of injection been accompanied by special pain, apart from the mere manipulation of the needle. We may add that we have experimented with different strengths of our preparation, but neither with one per cent., nor with five or ten per cent. solutions, has irritation been produced. The part of the body selected is of no importance as regards the ultimate result. It must appear superfluous to contrast, with any further detail, the advantages which the employment of an emetic, by introducing it subcutaneously, possesses; and it may suffice to mention that all previous attempts at this mode of using an emetic have failed. We refer specially to the experiments of Eulenburg, Husemann, Ellinger, and Schuchardt. The advantage of the administration of emetics thus must be very apparent in the treatment of children, and not unfrequently even in adults, in cases of poisoning, and where there is coma or loss of consciousness, and in many other cases.

A fourth, and certainly not unimportant, property of our drug is, to produce its specific action comparatively soon after introduction, and after very short preliminary symptoms, and sometimes even without any. For the better illustration of this point we may be permitted to quote here the results which Ackermann obtained in his investigations into the physiological effects of the most powerful emetics with reference to the commencement of emesis. Ackermann says, with reference to the three most powerful emetics, antimony, ipecacuanha, and sulphate of copper, "by the repeated administration (from five to 8 in the evening) every 15 minutes till the occurrence of vomiting, of half grain of tartar emetic, emesis began after about $1\frac{1}{4}$ hours. By similar repeated doses of 10 grains of ipecacuanha, emesis set in after about $\frac{3}{4}$ hour, and after 5 grains sulphate of copper, given every 15 minutes, in about one hour." Let us compare with these results the time of the first occurrence of emesis after the administration of apomorphin; and it appears from our experiments on man that the shortest interval between its introduction and its action was 4 minutes, the longest 16 minutes. The difference in this respect, in comparison with the other emetics, requires no comment. We may here record an observation which we made both on the English preparation and on Merck's, viz: that while apomorphin, preserved in the form of powder, seems not to lose its activity in the least, as is evident from the circumstance that after more than a year our English preparation showed striking results, still, once dissolved, it seems very soon to decompose and lose its strength. We were able to demonstrate in the solution a daily diminution of activity, though it still, in comparison with other emetics, continued prompt. Further observations will test the accuracy of our remark.

We must lastly point out a fifth agreeable property of this substance, that, as may be partly explained by the rapidity with which it acts, comparatively very trivial and transient collateral effects occur, especially never unpleasant after effects such as accompany tartar emetic. In many cases vomiting took place quite rapidly without any previous symptoms, and after one or more acts of emesis the patient felt perfectly well. At most, a few general symptoms for a short time preceded and succeeded the act of vomiting, and the duration of these symptoms was always much shorter than attends any hitherto known emetics. Generally, several minutes passed after the introduction of the apomorphin, during which there was no objective or subjective change. Soon there set in headache, giddiness, especially a frequently expressed inclination to yawn, and a variable degree of faintness. In not a few cases, vomiting was preceded by the outbreak of perspiration, more or less copious, sometimes over the whole body, at other times confined to the face. Along with this there was frequently drowsiness and a certain amount of apathy. As soon as emesis was over, the symptoms above

mentioned always began to disappear. The actual vomiting was preceded, though not in all cases, and only for a short time, with eructations and retching. In a few cases vomiting came on so suddenly and unexpectedly that, without any previous warning, at one bout, all the contents of the stomach were expelled. In these cases, generally, the symptoms also following the act were so slight that the patient had scarcely any discomfort immediately after. But always (and this is of much importance in contrast with other emetics), in all cases the patient was perfectly well again very shortly after vomiting, and only in the latter observations, in which a less active preparation was used, were the after effects somewhat prolonged, though, even then, in comparison with other emetics, they were both much shorter and much less severe.

HYDRASTIS CANADENSIS, OR GOLDEN SEAL, AND ITS ALKALOIDS.*

Dr. Van der Espt has recently presented to the Royal Society of Medical and Natural Sciences at Brussels an interesting memoir upon the *Hydrastis Canadensis*. This plant, known also under the name of Golden Seal, is as its name indicates, a native of Canada, and belongs to the order Ranunculaceæ. It is the rhizome, which is yellow, lactescent when freshly fractured, tortuous, and composed of nodose, fleshy tubercles, furnished with numerous long fibres, that is employed in medicine. Two alkaloids have been found in it: one yellow, berberine; the other white, hydrastine.

Berberine, which is also found in the barberry, calumba root and elsewhere, appears in the form of small concentrically grouped prisms, or clear yellow silky needles. It is inodorous, but possesses a persistent bitter taste; it is slightly soluble in cold alcohol or distilled water, and perfectly insoluble in ether. With hydrochloric acid it forms a salt which crystallizes in slender yellow needles.

Hydrastine crystallizes in white shining four-sided prisms, which lose their transparence upon desiccation. It is very bitter and pungent, and provokes in the mouth a feeling of numbness which causes it to be employed in America as a local anæsthetic. Nearly insoluble in water, it is freely soluble in alcohol, ether, chloroform and benzine. As the last three do not dissolve berberine, the hydrastine may be easily extracted by treating the powdered root in a displacement apparatus with either of those solvents. The proportion so obtained is about $1\frac{1}{2}$ per cent.

In America neither berberine nor hydrastine is prescribed, but

* 'L'Union Pharmaceutique,' vol. xiii., p. 321, from 'L'Union Medicale.' Published in the Pharm. Journal and Trans.

a crystalline substance known under the name of hydrastin, which is said to be a mixture of hydrochlorate of berberine and hydrastine. The purity of this product depends upon its mode of extraction. Among the processes indicated, that of Professor Wayne is the most simple. It consists in the maceration of the powdered root of the golden seal and displacement by cold water. The product is treated with hydrochloric acid, the precipitate separated by filtration, and washed, treated with alcohol and left to crystallize.

The hydrastin appears under the form of yellow acicular crystals, without acid or alkaline reaction, and yielding upon trituration a clear yellow powder. It is soluble in boiling alcohol, insoluble in cold alcohol, ether, chloroform, spirit of turpentine and distilled water; but these various liquids acquire a yellow tint and contain hydrastine.

The rhizome of the golden seal is a bitter tonic analogous to calumba. It is administered in the form of powder, it doses from half a gram to a gram and a half. The hydrastin is prescribed in doses of from five to fifty centigrams. In larger doses these substances act as laxatives, similarly to rhubarb. This latter effect, in the absence of any cathartic or irritant principle, M. Van der Corput thinks would be due to a kind of indigestion, or the stimulation of the mechanical action of the digestive organs under the influence of large doses of the drug. The affections for which it is stated hydrastin may be beneficially employed are those connected closely with atony and increased secretion of the mucous surfaces. A decoction for external use is prepared by boiling thirty parts of the bruised root in five hundred parts of water.

ACTION OF BORAX ON FERMENTS OF THE DIASTASE GROUP.*

In a note recently presented to the French Academy, M. Dumas communicated the following interesting information relative to the action of borax upon the ferments of the diastase group:—

Solution of borax coagulates beer-yeast, and the supernatant liquor does not invert cane-sugar as yeast-water does. It dissolves albuminoid membranes; those, for example, which separate from white of egg when suspended in water.

Solution of borax neutralizes the action of yeast-water upon cane-sugar. If solutions of sugar and yeast be placed together in one tube, and solutions of sugar, yeast, and borax in another, the first will quickly give signs of inversion; the second will not.

* *Comptes Rendus*, vol. lxxiv. in *Pharm. Journal and Trans.* Jan. 1872.

Borax also neutralizes the action of synaptase. It is known that the bitter almond contains amygdalin, and the sweet almond the synaptase, which, mixed with the amygdalin, produces the essence of bitter almonds, accompanied by prussic acid. It suffices to suspend the meal of sweet almonds in the one instance in pure water, and in the other in a solution of borax, and to add amygdalin to both liquids, to demonstrate this influence. With pure water, the odour of essence of bitter almonds becomes increasingly manifest, and the presence of prussic acid becomes more and more evident by the formation of prussian blue. With the solution of borax, neither is the odour of essence of bitter almonds perceptible nor the formation of prussian blue.

Borax neutralizes the action of diastase. If four tubes containing water and potato starch be kept at 70° C., the first without addition, the second with the addition of borax, the third with the addition of diastase, the fourth with the addition of both diastase and borax, it will be found that after several hours there will be no glucose present in the first and second; after the first quarter of an hour there will be a considerable and increasing quantity in the third; in the fourth, where the borax and diastase are both present, the conversion of the starch into glucose does not take place.

Malt suspended in water quickly yields an abundance of glucose if heated to 70° C., but the addition of borax arrests this action. With malt, water and borax, traces only of glucose are observed, which are probably due to its pre-existence in the malt.

Borax interferes also with the action of myrosin. Flour of black mustard suspended in water, exhales almost immediately the odour of essence of mustard, which increases in strength. Suspended in solution of borax, the odour characteristic of mustard meal is perceptible, which is due to the presence of a trace of the essence already formed; but this does not augment, and there is nothing that recalls the known effects of water upon mustard, and the plentiful production of irritating vapours to which it gives rise.

So that borax, by a property as remarkable as unsuspected, neutralizes the action of yeast, synaptase, diastase and myrosin. M. Dumas promises to make known its effects upon pepsin, and the bearings these curious re-actions have upon the theory of ferments.

Editorial.

THE SEMI-ANNUAL EXAMINATION.

The examination held last month was quite an improvement on that which preceded it. This was particularly true in regard to the arrangements which had been made for the convenience of the students. The room in which the examinations were held was admirably adapted to the purpose, being the apartment in the College of Technology which is devoted to the study of practical chemistry. It was fitted up with separate work-tables, and all ordinary apparatus; and to these were added such articles as were necessary for the manipulations of practical dispensing.

The number of candidates was thirteen, of whom, ten succeeded in passing. From the report of the examiners we learn, that the general proficiency shown was in advance of that of former examinations, but that none of the candidates had shown such a thorough knowledge of the various subjects as had been evinced by the answers of the gentleman who headed the list at the preceding examination.

It will be seen that, in obedience to the wish of the Council, as expressed at the August meeting, Practical Dispensing was introduced as one of the subjects of trial, and students were required to give an evidence of their skill, by actual manipulations at the dispensing counter. The proficiency shown in this department is stated to have been very creditable, and it is recommended that this branch be continued.

The questions given at the examination are printed below, so that our young friends may have an idea of the general direction of their studies.

CHEMISTRY.

1. For what purposes are hydrometers and thermometers employed?
2. Define the terms, hydrous, anhydrous, hydrate and anhydride.
3. What are the properties of oxygen? Give a process for its preparation, and name some of the important compounds into which it enters.

4. Give the symbol for absolute alcohol, name some of the materials from which commercial alcohol is made, give an epitome of the process, with the means of determining the strength of the product.

5. Name the ingredients used in the preparation of Binioidide of Mercury, and state what chemical changes occur during its preparation.

6. Give the chemical composition in symbols of the following substances : Sulphuric acid, Nitric acid, Hydrochloric acid, Carbonic acid, Epsom salts and Cream of Tartar.

7. Describe in chemical symbols the changes which take place when a solution of Sulphate of zinc is mixed with one of Acetate of lead.

8. What is the difference in the composition of sulphates, sulphites, and sulphides ?

9. How is Chlorine prepared ? What are its properties ? Name some important substances of which it forms a component part.

10. What is meant by Chemical action or affinity ? Give some familiar examples of the exhibition of this force.

PHARMACY.

1. State the mode of preparation, doses and properties of Syr. Ferri Iod.

2. Name the ingredients contained in Lin. Camph. Co.

3. Name the principal preparations of Opium, and give their doses.

4. Why is it necessary to use distilled water in preparing a solution of Nitrate of Silver ?

5. Describe the mode of preparing Aromatic Sulphuric Acid, and name its properties and doses.

6. What antidotes would you seek to give in cases of poisoning by Oxalic acid, Corrosive sublimate, or Arsenic.

7. Give forms for the preparation of the following tinctures, giving their properties and doses.

Tinct. Aconiti Rad	Tinct. Belladonnæ.
“ Digitalis	“ Ergotæ
“ Hyoscyami	“ Iodi.

8. Give mode of preparation and proportion of ingredients in Ung. Hydrarg, Pil. Hydrarg, and Hydrarg cum Creta.

9. What conditions are essential to successful percolation, and what are the advantages claimed for that process.

The student was also required to give the names of six preparations which were placed before him.

MATERIA MEDICA.

1. What is Benzoin, where and how is it obtained, what are its properties and uses, and into what preparations does it enter ?

2. Name the sources and give the properties of the Balsams of Copaiba, Tolu and Peru.

3. What are Cantharides, where and how obtained, and into what preparations do they enter?

4. Describe Radix Jalapa, name the source, properties, and doses.

5. What are the properties of Hydrate of Chloral, and in what doses is it usually given.

6. Give the composition of Borax, its source, process of manufacture and uses.

7. What is Camphor, how obtained, and how purified? What are its properties?

8. What are the sources of Colocynth and Buchu, name the preparations into which they enter, and give their properties and doses.

9. How would you detect the presence of Turpentine, Castor oil, or Alcohol in essential oils.

Samples of Valerian, Senega, Serpentaria, Sanguinaria, P. Acid. Tart. & P. Potas Bitart., were placed before the student for recognition.

READING PRESCRIPTIONS.

The following prescriptions were given for translation, and for the correction of any error relating to dose, or direction.

1 ℞

Balsam Copaiba ʒi
 Ovum unum.
 Misce bene et adde.
 Tinct. Opii. ʒi
 Spts. Eth. Nit. ʒi
 Aq. Pluvialis ad. ʒviii

ft. mistura quarum sumanter duo cochlearia ampla quarta quaque hora vel pro re nata.

2. ℞

Tincture opii drachmam dimidiam
 Syrupus croci drachmas quatuor.
 Tinctura cardamomi unciam dimidiam.
 Aqua. cinnamomi unciam sex.

Misce, capiat cochlearia duo maxima post singulas vomitiones vel sedes liquidas.

3. ℞

Ant. Pot. Tart. gr. ii.
 Liq. Ammon. Acet. ʒi.
 Aq. Camph. ad ʒviii.
 M ft Mist s. ʒss ter in die.

4. ℞
 Pulv. Rhei. Scr. i.
 Hyd. Subchlor Scr. iv.
 Syr. Althææ q. s. ut fiat bolus.
 hora somni sumend et alt noctibus repetend.
5. ℞
 Tinct. Hyoscyami ℥iiss
 Pot. Acet. ℥iv
 Syr. Aurantii. ℥ij
 Aq. Ment. Pip. ℥vss

Fiat. mist. cujus sumat cochl. ii. vel. iij. min. bis. ter in die, vel. ut. opus sit.

6. Write out No. 5 in full Latin words.

7. Translate the following:

Continuentur remedia.
 Aq. pluv.
 More dicto utendum.
 Cras mane sumend.
 Omn. quadr. hor.
 Abs. febr.

8. Write a prescription in usual form for a six ounce mixture, to contain in each dose of one tablespoonful. Laudanum 5 drops, Syrup of orange 10 drops, Tincture of Cardamoms 15 drops, Cinnamon water, to make up the quantity. To be given as required.

9. ℞
 Zinci Sulph. gr. x.
 Pulv. Ipecac. gr. xv.
 fiat pulv emet. Statim sumendus.

10. ℞
 Ung Zinci Oxyd. ℥i
 " Cetacei ℥i
 Morphia mur. gr. v.
 Misce bene ut fiat ung, nocte manequē utend.

BOTANY.

1. What purpose is served by the supply of starch found in all seeds?
2. When are leaves said to be sessile?
3. Describe the structure of leaves, and state what purposes they serve in the vegetable economy.
4. Name and describe some of the different forms of inflorescence.
5. Give the common names for *Cimicifuga racemosa*, *Coptis trifolia*, *Podophyllum peltatum*, *Sarracenia purpurea*, *Linum usitat.*

issimum, Physostigmata faba, Baptisia tinctoria, Lappa major, Carum carui, Cypridium pubescens.

6. Give the officinal names for White Canella, Arnica, Aconite, Poison Hemlock, Henbane, Peppermint, Yellow Dock, Foxglove, Squills, Cubebs.

7. Name some of the different forms of roots, giving examples.

8. What is the difference between an herb and a tree?

9. What difference is there in the structure of the leaves of dicotyledonous and monocotyledonous plants?

10. Define the calyx, stamens and pistils.

PRACTICAL DISPENSING.

The candidate was required to dispense the following prescriptions:

No. 4521.

1. R	Tinct. Aloes.	3ij.
	Ext. Sennæ Fluid.	3ij.
	Magnes Sulph.	3iv.
	Aquæ Menth Pip. q. s. ad.	3ij.

M. ft. mist. cujus cap. coch. duo mag. ter in die si op. sit.

Mr. Smith, 330 Yonge St.

No. 4522.

2. R	Ext. Colocynth.	3ss.
	Pulv. Scammon	scr. i.
	Hyd. Subchlor.	gr. xij.

M. ft. Pil. xij quarum cap. i omni alt. nocte.

Mr. Jones, Parliament St.

No. 4523.

3. R	Pulv. Rhei.	3ss.
	Hyd. Subchlor.	gr. xij.

M. et divid. in pulv. vi. quarum cap. unam omni nocte.

Mr. Robinson, King St.

THE U. S. PHARMACOPŒIA OF 1870.

The first Pharmacopœia of the United States was issued in 1820, and has since been subjected to five revisions, corresponding to intervals of ten years each. The last of these editions—that of 1870—has just made its appearance, and though considerably behind time, is so creditable a production, and, in other respects, so thoroughly realizes all reasonable expectations, that any little delay in regard to its issue will be readily excused.

The increase of pharmaceutical organizations; the elevation of

the standard of education; and the large number of earnest and scientific workers, who, during the last ten years, have entered the field, have had the effect of rendering the progress of pharmacy unprecedentedly rapid. In regard to the introduction of new remedies and improvements in the manner of preparation of those which were officinal, the advancement made has been very marked, and as a result, the additions to the Pharmacopœia are numerous and important. We shall detail, as concisely as possible, the principal features by which the edition of 1870, is distinguished from its predecessors.

The first improvement which meets the eye relates to the nomenclature of definite chemical compounds. It will be remembered that, in 1871, Professor Atfield, of Great Britain, read a paper before the Pharmaceutical Society, in which he advocated the alteration of the names of chemical compounds so as to accord with the more modern views held by the majority of chemists of the present day. A list of the necessary changes was given and this has formed the basis upon which the compilers of the Pharmacopœia have founded the nomenclature which has been adopted. The old notions regarding the constitution of salts are now well-nigh exploded, and even were this not the case, the old names lack uniformity. Many a tyro in chemistry has puzzled his brains to find out the reason why substances of similar composition should be designated by names having different significations: for instance, why sulphate of soda should be the sulphate of an oxide, and sulphate of iron, which is of similar composition, should be termed the sulphate of a metal. These difficulties will no longer recur under the present system. Thus, nitrate of ammonia becomes nitrate of ammonium; bicarbonate of soda, bicarbonate of sodium, &c. The termination of the Latin name undergoes a corresponding change, as *sodii* instead of *sodæ*.

The systems of weights and measurement remain as they were, and though it would have been desirable that the metrical system, or even the plan of proportional weights, had been adopted, the committee of revision, found that the amount of time at their disposal would not allow of their making changes of such magnitude.

The division of articles of materia medica into *primary* and *secondary* lists is still retained, as also that of the *preparations*. From the *primary* list one article—*Ol. Bubulum*—has been dismissed, while *Gelsemium*, *Hydrastis*; and *Ruta*; have been transferred to it from the *secondary* list; as also *Acid. Valerianic* and *Zinci Valerianas*, from the former *preparations*. In addition to these, twenty-four new articles have been admitted, these are:

Acidum Carbolicum; *Acid. Carbol. Impurum*; *Acidum Oxalicum*; *Ammonii Nitras*; *Calcii Hypophosphis*; *Cannabis Americana*; *Cannabis Indica*; *Cerii Oxalas*; *Chloral*; *Cinchona*; *Conii Fructus*; *Cuprum*; *Ferri Hypophosphis*; *Gossypii Radicis Cortex*; *Iodoformum*; *Origanum*; *Physostigma*; *Potassii Hypophosphis*; *Potassii*

Sulphis; Sodii Bicarb. Venalis; Sodii Hypophosphis; Sodii Hypo-
sulphis; Sodii Nitras; Zinci Oxidum Venale.

From the *secondary* list four articles—Aletris, Angelica, Arum, and Gossypii Radix—have been dismissed, and three articles have been added, viz: Asclepias Incarnata, Asclepias Syriaca, and Castanea.

Turning to the *preparations* we find that seven articles have been omitted; these are Acet. Colchici; Acid. Hydriodic Dilut; Ext. Cannabis Purificat; Ext. Conii Fluid; Ext. Stramonii; Sodæ Valerianas; and Tinct. Aconiti Fol.

A number of the older preparations have been modified in various ways, some of them so as to be almost unrecognizable, while eighty-four new compounds have been added. These may be noticed under the following classification.

Chemical Compounds.—Four salts of Ammonium have been added—the Benzoate; Bromide; purified Chloride and Iodide. Digitalin has also been officinally recognized, as also, Citrate of Iron and Strychnia; Oxalate of Iron; Yellow Oxide of Mercury; Citrate of Lithium; Pyroxylon; Soda and Arseniate of Soda.

Aceta.—Colchici dismissed, Opii modified by the omission of the saffron.

Aquæ—Acidi Carbolici (two fluid drachms to the pint) and Anisi have been added.

Chartæ—A new class, containing Cantharides paper, and Charta Sinapis, a substitute for the old fashioned mustard plaster. While speaking of vesicants Cantharidal Collodion may be noticed. This is rendered more flexile, and, at the same time, more powerful and speedy in action, by the addition of Castor oil and Canada balsam. The same substances are also added to Collodion for the purpose of rendering it "Flexile."

Emplastra.—To these is added a plaster made of alcoholic extract of Aconite root incorporated with Emp. Resinæ.

Extracta.—The extract of stramonium, a preparation which has so often proved of an unreliable character, has been dismissed, as also the *purified* extract of Cannabis. Extracta Cannabis American. Cannabis Indicæ, Pysostigmatis and Stramonii seminis, have been added.

The term *Alcoholicum* as applied to extracts has been discontinued except in those cases where there are two extracts of the same substance, as with belladonna, conium and hyoscyamus.

Extracta Fluida.—Of this class, only one preparation—that of conium—has been dismissed, while the additions have been quite numerous, showing the increased favor with which this convenient form of medicine is regarded. The mode of preparation has also been materially changed, and the use of glycerin substituted for that of sugar, formerly added as a preservative. As far as the experience of the writer goes, this is a step in the right direction, and

we believe will, generally, be so regarded. The strength of the fluid extracts has been arranged so that sixteen fluid ounces shall equal sixteen ounces of the crude drug—a rule to which there were, formerly some exceptions. Any deviation from this rule, on the part of manufacturers, should be strongly discountenanced by pharmacists, and the pharmacopœial requirements zealously guarded. An artful evasion has lately come under the observation of the writer, in which the strength of particular preparations is made dependant on the amount of active ingredient represented by an *infusion* of the crude drug. This is a tacit admission of the uncertain and variable strength of the preparation, and may be held to mean almost anything the manufacturer pleases, as there is no pharmacopœial or official statement of the amount of active matter contained in infusions. In very few instances would the strength of such extracts correspond with more than seventy-five per cent of the crude ingredient; and, in some cases; for example, *pareira brava*, it is probable that simple infusion of that drug would not represent twenty-five per cent of its real strength.

The additions to this class are *Extracta Belladonna Rad; Calumbæ; Chimaphilæ; Conii fructus; Corni Floridæ; Cubebæ; Digitalis; Erigerontis Canad; Gelsemii; Geranii; Glycyrrhizæ; Gossypii; Hydrastis; Krameria; Matico; Mezerei; Pareiræ; Rubi; Sabinæ; Scillæ; Senegæ; and Stillingiæ.*

Glycerita.—This is a new class in which the solvent is, of course, glycerin, and in which the proportion of active ingredient is, generally, one troy ounce to four fluid ounces. The class embraces *Glycerita Acidi Carbolici; Acidi Gallici; Acidi Tannici; Picis Liquidæ* and *Sodii Boratis.*

Linimenta.—*Aconiti* and *Plumbi Subacetatis* are the only additions.

Liquores.—The new solutions are *Arsenici Chloridi; Sodii Arseniatis; Potassii Permanganas; Zinci Chloridi; and Ferri Chloridi.* The last is almost identical with the British preparation of similar name, and, we presume is introduced for the purpose of furnishing an extemporaneous method of making the tincture. *Liquor Ammonii Acet.* may also be made extemporaneously, and solutions of the requisite strength are provided for the purpose.

Spiritus.—That of *Juniper* is the only addition, *Sp. Chloroformi* is slightly modified and *Sp. Ætheris Nit.* is materially changed in its manner of preparation.

Succi.—Two preparations—*Conii* and *Taraxaci*—similar to those of the British Pharmacopœia are introduced.

Suppositoria.—Convenient formulæ, with *ol. theobroma* as a vehicle, are introduced. The additions are *Acid, Carbolici; Tannici; Aloes; Assafoetidæ; Belladonnæ; Morphicæ; Opii; Plumbi, and Plumbi et Opii.*

Tincturæ.—The tincture of *Aconite* leaves has been dismissed,

and those of Orange Peel and Benzoin admitted. Some of the tinctures have been materially altered in strength, and some much modified as to the ingredients. Thus, coloring substances, have been, generally, omitted, as the saffron in Tinct. Aloes et Myrrhæ, and Rhei et Sennæ. As we have before remarked, tincture of iron may be made at once by mixing the liquor with the requisite quantity of spirit.

Unguenta.—The new ointments comprise those of Carbolic acid, Cantharides, Red Iodide of Mercury, Yellow Oxide of Mercury, Mezerion and Iodide of Lead. Simple ointment is now directed to be made with yellow wax which will materially change the color of other ointments, of which it forms the basis. As neatsfoot oil has been dismissed, Citrine ointment is made altogether of lard.

There are some other alterations and additions, but as we have alluded to those which are most important, we must bring this somewhat extended article to a close.

HORSFORD'S BAKING POWDER.—This article has been made the subject of a long and well-contested law-suit, brought by the owners of the patent—the Rumford Chemical Works—against various manufacturers of self-raising flour, and baking powder. A legal decision has at length been obtained in favor of the proprietors of the patent, and for the time, the question may be considered as settled. The particular claim of the company lies in the right to use a combination of acid phosphate of lime, and bicarbonate of soda, for the purpose indicated.

The quantity of glycerine manufactured, annually, in the United States, is said to amount to 2,000,000 pounds. Of this, about one-half is made by a Cincinnati firm.

Editorial Summary.

EXAMINATION OF CINCHONA LEAVES FOR ALKALOIDS.—Mr. John Eliot Howard has been engaged in an examination of the leaves of *Cinchona Succirubra*, the result of which is given in the *Pharmaceutical Journal and Transactions*. Mr. Howard, whose thorough knowledge of the subject is well known, enjoyed the assistance of

the chemical skill of his nephew, Mr. David Howard, and as a sufficient quantity of the dried leaves—about 20 pounds—were operated upon, the conclusion arrived at may be regarded as perfectly satisfactory. The result may be stated as virtually negative, for though a few grains of precipitated alkaloid were obtained, which, upon further treatment, yielded a minute quantity of cinchonidine, it is probable that this product originated in some fragments of the bark of small branches accidentally mixed with the leaves. Mr. Howard thinks that if even the footstalks yielded alkaloid, the quantity obtained would have been larger.

YIELD OF MUSK.—From an examination of four lots of musk bags, representing seventy-three pods, Mr. T. J. Covell (*Am. Jour. Pharm.*) states the average weight of the pod to be 392.5 grains, and the yield of musk from such 123.6 grains.

EFFECT OF MANURES ON THE ALKALOIDAL YIELD OF CINCHONAS.—Mr. Broughton, Government Quinologist in India, has for some time been carrying on a series of experiments on the effect of manure on various species of cinchona, the results of which are given in the *Pharmaceutical Journal and Transactions*. The manures employed were guano, sulphate of ammonia, and stable manure, and it was in the application of these to the *cinchona officinalis* that the most marked results were obtained. A number of trees were selected, as near as possible under similar circumstances, with regard to age, &c., and these were severally treated with one pound of guano. The effect on the growth, or appearance, was not perceptible, but an analysis of the bark, when compared with that of unmanured trees, gave the following percentage results:—

	Manured.	Unmanured.
Total alkaloids.....	6.51	3.98
Pure quinine	4.41	2.40
Cinchonidine and cinchonine	2.10	1.58

Thus, by this treatment, showing a gain of 2.53, of which increase 2.01 was quinine. With other trees of the same species, treated with $\frac{3}{4}$ lb. ammoniac sulphate, the results were as follows:—

	Manured.	Unmanured.
Total alkaloids	5.76	4.54
Pure quinine.....	3.11	2.54
Cinchonidine and cinchonine.....	2.65	2.00

Thus showing an increase of 1.22, of which 0.57 was quinine. During the period between 1867 and 1872, trees of *C. officinalis* were treated with about four barrow-loads of farmyard manure each. In February, 1872, bark from trees so manured was analyzed—

	Manured.	Unmanured.
Total alkaloids	7.49	4.68
Pure quinine.....	7.15	2.40
Cinchonidine and cinchonine.....	0.34	2.28

This analysis gives in favor of manuring 2.81 of total alkaloids; but the most remarkable fact is that it has favored the production of quinine over cinchonidine and cinchonine, the total increase of quinine being no less than 4.75. On these results Mr. Broughton remarks that stable or farmyard manure has somewhat of an advantage over the more artificial manures. The effect of these manures is only seen in analysis, as, during growth, no greater luxuriance is noticed in manured trees than in trees not so treated. These results appear to bear out Mr. Broughton's hypothesis, "that the alkaloids in the bark of the trees are not specially active constituents in the processes connected with the life and growth of the plant; and this supposition is supported by the circumstance that the increased amount of alkaloid produced by the manure caused no change in the appearance and rate of growth of the tree."

UNG. HYDRARG. OXIDI RUBRI.—Mr. J. Kalish (*Am. Jour. Pharm.*) recommends the following formula as producing a permanent preparation :—

Ol. Ricini	six drachms.
Cera alba	two drachms.
Hydrarg. oxid. rubrum	one drachm.

The ointment is said to be of good consistency, and a sample six months old exhibited no signs of change. The preparation is, however, liable to objection on account of the disagreeable odor of the castor oil, and also from being more irritating from the presence of this substance. In regard to this the writer says:—"To obviate

this I substituted olive oil for the castor oil, but not with satisfactory results. Still I am not able to state positively that olive oil, entirely free from rancidity, will deoxidize the mercury, as I have some doubts about the oil I used. I then tried sweet oil of almonds; with this I have an ointment, made ten weeks ago, which has as yet shown no signs of change. I had previously tried lard, purified by different methods, also adding a few drops liq. potassæ, as remarked in the U. S. Dispensatory; but in each case there was a reduction of the oxide.

SWEET CASTOR OIL.—We have been favored with a letter from Mr. Copland, proprietor of a patent for preparing this compound, in which it is stated that the formula, published in last month's Journal, does not bear any resemblance to that detailed in the patent. To those desirous of obtaining information on this point the patentee will willingly give an opportunity for ample satisfaction.

THE EUCALYPTUS OF AUSTRALIA.—Mr. Hoffman, of the Geological Survey, read a very interesting paper on the "Eucalyptus of Australia," before the Montreal College of Pharmacy, at its last meeting. This paper is to be printed, and we hope to give it in full in our next number, or such portions as we consider interesting to our readers.

We must decline any further communications in regard to the Ursina-Bearine question. Both parties have had an opportunity of making their respective statements, and we think sufficient has been said to enable the readers of the journal to form a correct conclusion.

WHOLESALE PRICES CURRENT—MARCH, 1873

	\$ c.	\$ c.
DRUGS, MEDICINES, &c.		
Acid, Acetic, fort.	0 12	@ 0 14
Benzoic, pure.	0 25	0 35
Citric.	1 50	1 50
Muriatic	0 05	0 06
Nitric	0 11½	0 15
Oxalic	0 32	0 35
Sulphuric	0 03½	0 07
Tartaric, pulv.	0 50	0 50
Ammon, carb. casks.	0 23	0 24
jars	0 23	0 24
Liquor, 860.	0 25	0 28
Muriate	0 12½	0 15
Nitrate	0 45	0 60
Æther, Acetic	0 45	0 50
Nitrous	-0 35	0 37
Sulphuric	0 50	0 50
Antim. Crude, pulv.	0 13	0 17
Tart	0 65	0 70
Alcohol, 95 per ct.	Cash	1 60
Arrowroot, Jamaica	0 16	0 22
Bermuda	0 45	0 65
Alum	0 02½	0 03½
Balsam, Canada	0 45	0 50
Copaiba	0 80	0 85
Peru	3 80	4 00
Tolu	0 50	1 00
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 20	0 25
Berries, Cubebs, ground.	0 20	0 25
Juniper	0 06	0 10
Beans, Tonquin	0 62	1 10
Vanilla	28 00	28 00
Bismuth, Alb	3 60	4 00
Carb.	3 65	4 00
Camphor, Crude	0 38	0 40
Refined	0 50	0 55
Cantharides	2 80	3 00
Powdered	2 85	3 10
Charcoal, Animal	0 04	0 06
Wood, powdered.	0 10	0 15
Chiretta	0 20	0 30
Chloroform	1 25	1 65
Cochineal, S. G.	0 80	0 95
Black	1 10	1 20
Colocynth, pulv.	0 50	0 60
Clodion	0 70	0 75
Elatarium	oz	5 80
Ergot	0 65	0 75
Extract Belladonna	2 00	2 25
Colocynth, Co.	1 25	1 75
Gentian	0 50	0 60
Hemlock, Ang	0 85	0 95
Henbane, "	2 10	2 40
Jalap	5 00	5 50
Mandrake	1 75	2 00
Nux Vomica	oz	0 40
Opium		1 50
Rhubarb	5 00	5 50
Sarsap. Hon. Co.	1 00	1 20
" Jam. Co.	4 00	4 50
Taraxicum, Ang.	0 70	0 80
Flowers, Arnica	0 25	0 35
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	1 05	1 35
pulv	1 00	0 00
Arabic, White	0 70	0 75
" powdered.	0 60	0 75
" sorts	0 28	0 30
" powdered.	0 22	0 50
" com. Gedda	0 13	0 16
Assafoetida	0 40	0 42
British or Dextrine	0 13	0 15
Benzoic	0 35	0 75
Catechu	0 12	0 15
" powdered.	0 25	0 30
Euphorb, pulv.	0 35	0 40
Gamboge	1 30	1 35
Guaiaicum	0 55	1 00
Myrrh	0 50	0 70

	\$ c.	\$ c.
DRUGS, MEDICINES, &c.—Contd.		
Sang Dracon	0 60	0 70
Scammony, powdered	6 50	6 75
" Virg.	14 50	—
Shellac, Orange	0 50	0 55
Gum, Shellac, liver	0 45	0 50
Storax	0 40	0 45
Tragacanth, flake.	1 10	1 40
" common	0 53	0 65
Galls	0 28	0 32
Gelatine, Cox's 6d.	1 15	1 20
Glycerine, common	0 30	0 35
Vienna	0 32	0 40
Prices	0 60	0 75
Honey, Canada, best.	0 15	0 17
Lower Canada	0 14	0 16
Iron, Carb. Precip.	0 17	0 20
" Sacchar	0 40	0 55
Citrate Ammon	1 50	1 50
" & Quinine, oz	0 55	0 60
" & Strychine "	0 17	0 25
Sulphate, pure	0 08	0 10
Iodine, good	10 50	11 00
Resublimed	15 00	—
Jalapin	1 25	1 50
Kreosote	2 40	2 50
Leaves, Buchu	0 22	0 30
Foxglove	0 25	0 50
Henbane	0 35	0 40
Senna, Alex	0 27	0 60
" E. I.	0 14	0 20
" Tinneville	0 20	0 30
Uva Ursi	0 15	0 17
Lime, Carbolate	5 50	—
Chloride	0 06	0 07
Sulphate	0 08	0 12½
Lead, Acetate	0 14	0 15
Leptandrin	oz.	0 60
Liq. Bismuth	0 50	0 75
Lyc, Concentrated	1 75	2 00
Liquorice, Solazzi	0 50	0 55
Cassano	0 33	0 40
Other brands	0 14	0 25
Liquorice, Refined	0 35	0 45
Magnesia, Carb.	1 oz.	0 20
" 4 oz.	0 37	0 20
Calcined	0 65	0 75
Citrate	oz.	0 45
Mercury	1 50	1 35
Bichlor	1 15	1 0
Chloride	1 35	—
C. Chalk	0 65	—
Nit. Oxid	1 50	—
Morphia Acet	4 45	4 60
Mur.	4 45	4 60
Sulph.	4 60	4 75
Musk, pure grain.	oz	23 00
Canton	0 90	1 20
Oil, Almonds, sweet.	0 42	0 50
" bitter.	14 00	15 00
Aniseed	1 25	4 50
Bergamot, super	6 00	6 80
Carraway	4 00	4 20
Cassia	2 40	2 50
Castor, E. I	0 15	0 15
Crystal	0 22	0 25
Italian	0 26	0 28
Citronella	1 35	1 50
Cloves, Ang.	1 75	2 00
Cod Liver	1 25	1 50
Croton	1 75	2 00
Juniper Wood	0 80	1 00
Berries	6 00	7 00
Lavand, Ang.	oz.	0 30
Exotic.	1 40	1 60
Lemon, super.	5 00	5 50
ord.	3 20	3 40
Orange	5 25	5 50
Origanum	0 65	0 75
Peppermint Ang.	13 00	14 40
" Amer.	3 25	3 50
Rose, Virgin	8 00	8 25
" good	5 75	6 00
Sassafras	1 00	1 20
Wintergreen	6 00	6 50
Wormwood, pure	4 00	6 50
Ointment, blue.	0 90	1 00
Opium, Turkey.	8 50	8 75
pulv.	10 25	10 50

DRUGS, MEDICINES, &c.—Cont'd

Orange Peel, opt.	\$ 30	\$ c 0 36
" good	0 12½	0 20
Pill, Blue, Mass.	1 00	1 00
Potash, Bichrom	0 23	0 27
Bi-tart	0 30	0 32
Carbonate	0 14	0 20
Chlorate	0 65	0 70
Nitrate	10 50	11 00
Potassium, Bromide	1 25	1 40
Cyanide	0 75	0 80
Iodide	5 50	6 00
Sulphuret	0 25	0 35
Pepsin, Boudault's	oz 1 50	
Houghton's	doz 8 00	9 00
Morson's	oz 0 85	1 10
Phosphorus	0 75	0 85
Podophyllin	0 50	0 60
Quinine, Pelletier's	—	2 45
Howard's	2 42½	—
" 100 oz. case	2 40	—
" 25 oz. tin	2 35	—
Root, Colombo	0 13	0 20
Curcuma, grd	0 12½	0 17
Dandelion	0 17	0 20
Elecampane	0 16	0 17
Gentian	0 10	0 12½
" pulv.	0 15	0 20
Hellebore, pulv.	0 17	0 20
Ipecac	2 20	2 30
Jalap, Vera Cruz	1 00	1 25
" 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.	1 10	1 20
" pulv	1 20	1 30
" 2nd	0 90	1 00
" French	0 75	—
Sarsap, Hond	0 40	0 45
" Jam	0 88	0 90
Squills	0 10	0 15½
Senega	1 35	1 50
Spigelia	0 40	0 45
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 85	2 95
Fenugreek, g'd	0 09	0 10
Hemp	0 05½	—
Mustard, white	0 14	0 16
Saffron, American	1 15	1 50
Spanish	15 00	17 00
Santonine	8 25	9 00
Sago	0 03	0 09
Silver, Nitrate	Cash 14 85	16 50
Soap Castile, mottled	0 11	0 14
Soda Ash	0 04	0 05
Bicarb. Newcastle	6 25	6 50
" Howard's	0 14	0 16
Caustic	0 06½	0 06½
Spirits Ammon, arom	0 25	0 35
Strychnine, Crystals	2 20	2 50
Sulphur, Precip	0 70	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.	3 00	4 00
" liquid	2 00	—
Argols, ground	0 15	0 25
Blue Vitrol, pure	0 70	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 05	1 10
Extract	0 30	0 35

DYESTUFFS—Continued.

Japonica	0 06½	0 06½
Lacdye, powdered	0 33	0 38
Logwood	0 02	0 03
Logwood, Camp	0 02	0 3½
Extract	0 10	0 14
" 1 lb. bxs	0 14	—
" ½ lb. "	0 15	—
Madder, best Dutch	0 16	0 17
2nd quality	0 14	0 16
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 39	0 40
Cloves	0 21	0 22
Cayenne	0 25	0 28
Ginger, E. I.	0 12	0 14
Jam	0 20	0 30
Mace	1 75	1 75
Mustard, com	0 20	0 25
Nutmegs	1 15	1 20
Pepper, Black	0 22½	0 23
White	0 48	0 50
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 25
Magnesia	0 20	0 25
Litharge	0 07	0 09
Pink, Rose	0 12½	0 15
Red Lead	0 07	0 08
Venetian	0 02½	0 03½
Sienna, B. & G.	0 10	0 15
Umber	0 07	0 10
Vermillion, English	1 30	1 35
" American	0 25	0 35
Whiting	0 85	0 90
White Lead, dry, gen.	0 08	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 03½	0 04½
Yellow Ochre	0 08	0 12
White Lead, gen. 25 lb. tins.	2 25	—
" No. 1	2 05	—
" No. 2	1 85	—
" No. 3	1 65	—
" com	1 30	—
White Zinc, Snow	2 75	3 25
NAVAL STORES.		
Black Pitch	5 00 @	5 25
Rosin, Strained	5 50	—
Clear, pale	7 80	—
Spirits Turpentine	0 57½	0 90
Tar Wood	5 00	5 25
OILS.		
Cod	0 63 @	0 65
Lard, extra	0 60	—
No. 1	0 80	0 85
No. 2	0 75	0 80
Linseed, Raw	0 77½	0 80
Boiled	0 82½	0 85
Olive, Common	1 15	1 35
Salad	1 80	2 30
" Pints, cases	4 20	4 40
" Quarts	5 25	5 50
Seal Oil, Pale	0 80	0 80
Straw	0 70	0 75
Sesame Salad	1 30	1 35
Sperm, genuine	2 15	2 40
Whale refined	0 90	0 95