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CANADIAN

PHARMACEUTICAL JOURNAL

VOL. X, No. 8. TORONTO, MARCH, 1877. WHOLE No. CV.

Ontario College of Pharmacy.

MINUTES OF THE SEMI-ANNUAL MEETING OF THE COUNCIL.

The regular semi-annual meeting of the Council was held on Wednesday and Thursday, 7th and 8th February, 1877. The following members were present:

Mr. B. Lyman, President; Mr. N. C. Love, Vice-President; Messrs. C. Brent, E. Gregory, W. W. Greenwood, F. Jordan, Hugh Miller, E. H. Parker, J. Roberts, S. Tapscott, W. Walsh, and L. W. Yeomans.

The meeting was called to order at 3 p.m. on Wednesday, but the examination of candidates not being completed, it was moved by Mr. Gregory, seconded by Mr. Brent, That the meeting do now adjourn till 10 a.m. to-morrow, to receive the report of the Board of Examiners and transact general business.

THURSDAY, 8TH FEBRUARY.

The Council was called to order at 10.30 a.m.

The minutes of the meeting held 2nd August were read, and on motion were adopted.

Business arising out of the minutes was then disposed of, Mr. Carr's renewed application for registration being the first taken up. Certificate of registration as a member of the Pharmaceutical Society of Great Britain, was submitted to the Council, with other papers. After some discussion as to the Act giving the privilege to persons to carry on business as Chemist and Druggist in this Province, who had been engaged as such in other countries, it was moved by Mr. Gregory, seconded by Mr. Brent, That the Council have not the power at the present time to grant registration. Carried.

Application for registration from Mr. F. Holliday, Carleton Place, was submitted, and the proof being satisfactory, registration was granted.

Mr. Bernard Reed, of Montreal, applied for registration, and papers were submitted as proof of qualification, he having served his apprenticeship in this Province. The Registrar was ordered to grant certificate on his forwarding his own declaration as to the facts.

The report of the Board of Examiners was read as follows:

REPORT OF THE BOARD OF EXAMINERS.

The Twelfth Semi-annual Examination just concluded has been more numerously attended than any held heretofore under the auspices of the College. The number of entries was fifty-five, but only fifty-three candidates were present. The following thirty-four gentlemen obtained the requisite number of marks to entitle them to Diplomas:

			No. of Marks.
1.	J. Taylor	Harriston	93·5
2.	J. Parker	Owen Sound	92·2
3.	C. A. McBride	Toronto	91·5
4.	W. McDonald	Hamilton	89·7
5.	C. V. Green	Port Hope	85·2
6.	J. J. Cameron	St. Catharines	85·1
7.	J. H. Hugel	Guelph	81.6
8.	H. A. de Lom	London	80·2
9.	A. E. Luke	Oshawa	79·8
10.	G. A. McCann	Milton	79·7
11.	G. McFarlane	Durham	79·4
12.	W. W. Stephen	Meaford	79·3
13.	H. Urquhart	Chatham	79·0
14.	G. H. Graydon	St. Catharines	78 6
15.	W. A. Lovell	Kingston	77·3
16.	R. Taylor	Caledonia	77·1
17.	R. E. Scott	Sarnia	76·5
18.	J. McIntosh	Almonte	66·4
19.	G. F. Taylor	Kingston	75·5
20.	Walter W. Scott	Picton	75·3
21.	C. Haight	Toronto	73·6
22.	W. J. Wilson	Kingston	73·5
23.	G. Burwell	Montreal	73·5
24.	G. G. Eakins	Belleville	73·5
25.	F. E. Maclean	St. Marys	71·9
26.	M. E. Neads	Bowmanville	71·7
27.	A. A. Green	London	71·0
28.	J. Thompson Kilgour	Toronto	70·7
29.	S. W. Johnston	Windsor	70·0

30,	H. W. Hobson.....	Welland	70·0
31.	R. H. Revell	Toronto	66·6
32.	F. C. Bond	Goderich	66·4
33.	G. Steward	Toronto	66·4
34.	J. H. Norton	Toronto	66·3

The first prize has been awarded to Mr. J. Taylor, of Harriston; the second prize to Mr. J. Parker, Owen Sound.

Your examiners would suggest that a suitable room be provided for the Examinations, as the Music Hall in which they have previously been held is now devoted to other purposes, and the present rooms of the College are much too small. A Dispensing Counter capable of accommodating twelve students has been provided, and was used at this Examination, and found to be of much service in enabling us to estimate the work in this branch with greater facility and accuracy.

We have to note the fact that one of the candidates present came from Montreal with the express intention of attending and returning to that city, and, if successful, of using his Diploma in order that he might carry on business in the Eastern Province. Under the present law in Quebec a preliminary term of service is required, so that by passing here the requirements of the Quebec Act may be evaded. We note this fact as urging the necessity of passing the amendments to the Pharmacy Act now before the Ontario Legislature.

We also suggest the advisability of discontinuing the publication of the questions asked at the examinations, as we find that many of the students have taken advantage of them in order to prepare for examination, and there is a possibility that knowledge so acquired may be of a very superficial character.

All of which is respectfully submitted.

E. B. SHUTTLEWORTH,
L. W. YEOMANS,
EDM. GREGORY.

Moved by Mr. Greenwood, seconded by Mr. Jordan, That the report of the Board of Examiners be received and adopted. Carried.

The advisability of securing rooms in which to conduct the examinations and hold the meetings of the Council, was advocated by several members, but nothing definite decided on.

The Treasurer's report was then read, and on motion of Mr. Love, seconded by Mr. Greenwood, was received and adopted.

TREASURER'S SEMI-ANNUAL REPORT, TORONTO, FEBRUARY 7TH, 1877.

Ontario College of Pharmacy in account with Kenneth Miller.

DR.

Aug. 3	1876,	To Balance in Bank.....	$1,324 08
		" Balance in hand.....	7 10

Sept.	20		To Cash from Registrar	100 00
Nov.	20		" " "	154 35
Dec.	4		" " "	15 00
Dec.	11		" " "	99 25
Dec.	29		" Interest on Bank account	15 85
Jan.	15	1877,	" Dividend on thirty shares Bank of Commerce Stock, at the rate of 4 p.c. for half year	60 00
Jan.	15		" Cash from Registrar.....	185 75
Jan.	30		" " "	169 00
Jan.	31		" " "	2 75
				$2,133 33

	Cr.				
Aug.	1	1876,	By	Paid account for Postage, &c.....	6 00
	3		"	Expenses of Semi-Annual Examination and Meeting	242 90
	16		"	Registrar	200 00
	16		"	Monetary Times account.....	67 00
	16		"	Globe account	10 00
	16		"	Mail account.....	10 00
	16		"	Treasurer	50 00
Sept.	18		"	Monetary Times account.....	60 00
	18		"	Elliot & Co's. account.....	6 34
	20		"	Elliot & Co's. account.....	3 26
	20		"	Stationery account	3 30
	20		"	Revell account	2 00
	20		"	Lockington account.....	2 00
	25		"	Postage account	20 00
	26		"	Rolph Smith & Co	7 10
Oct.	19		"	Brown Bros	40
	24		"	Monetary Times	60 00
	26		"	E. B. Shuttleworth	175 00
	26		"	Journal Expenses.....	9 47
	26		"	Prize appropriation.....	16 25
Nov.	20		"	Geo. Hodgetts	125 00
	20		"	Monetary Times	61 25
	22		"	J. Severs.....	12 24
Dec.	27		"	Monetary Times	60 00
Jan.	8	1877,	"	Hunter Rose & Co	3 25
	8		"	Post Box Rent	1 50
	31		"	Postage	2 75
				Balance	916 32
					$2,133 33

Bank of Commerce Stock held by Ontario College of Pharmacy, equal to $1,800 at 20 per cent. premium this date.

KENNETH A. MILLER, *Treasurer.*

The Registrar's report was next read.

REGISTRAR'S REPORT,
OFFICE OF THE REGISTRAR,
Toronto, Feb. 7th, 1877.

To the Council of the Ontario College of Pharmacy.

GENTLEMEN,—Your Registrar begs to report, that, since the meeting of Council in August, there have been eleven applications for registration as Chemists and Druggists under the Pharmacy Act of 1871. Of these nine have received certificates, and the papers in connection therewith are submitted for your inspection. Of the remaining two, one was refused registration by the Council in August, since which time he has furnished other proof of qualification, which, with the papers in the other case, are laid before the Council for their decision.

The number of renewals issued during the past six months is as follows: six for 1875, and 103 for 1876. There are forty-four members who have not paid the fee for the current year. In accordance with instructions from the Council I have taken legal proceedings against a number of members who are two years in arrears for fees.

I beg to submit the following detailed statement of cash received during the past six months.

6 Renewal Fees, 1875	$ 24 00
103 " " 1876	412 90
16 Associate "	32 00
11 Registration Fees	44 00
41 Examination "	164 00
Sale of Poison Books	14 55
New Diplomas	5 00
Account costs of Suit	2 00
Apprentice	1 00
	$698 55

The receipts on account of the PHARMACEUTICAL JOURNAL are as follows:

Dr.	
To Subscriptions for JOURNAL	10 98
" Advertising Situations wanted	75
" Advertising	39 00
	$50 37
Cr.	
By Cash paid Treasurer	46 74
" Cash on hand	3 98
	$50 73

The outstanding accounts amount to $631 00.

All of which is respectfully submitted.

GEO. HODGETTS, *Registrar.*

Moved by Mr. Walsh, seconded by Mr. Miller, That the Registrar's report be received and adopted.—Carried.

The Auditors' report was read and adopted.

To the Council of the Ontario College of Pharmacy.

GENTLEMEN,—Your Auditors beg to report that they have examined all the books of the Registrar and Treasurer for the past six months, ending 31st January, 1877, and found them all correct.

JOHN ROBERTS, } Auditors.
WM. WALSH. }

Toronto, 7th February, 1877.

Considerable discussion took place as to the desirability of reducing the expense of getting up the PHARMACEUTICAL JOURNAL, when the following committee were appointed to report at the afternoon session of the Council, viz:—Messrs. Miller, Yeomans, Greenwood, Jordan and Gregory.

An application for the appointment of public prosecutor, under the Statute, was read from Mr. J. G. Moore, of Kingston, the Council refused to make the appointment.

Mr. Saunders, of London, the chairman of the Reception Committee appointed at last meeting, asked leave to address the meeting on the subject of the proposed visit of the American Pharmaceutical Association. Permission to speak having been granted, he gave a verbal report of the doings of the Committee, and of their resolution recommending the Council to vote the sum of three hundred dollars towards defraying the expenses of entertainment.

Several members spoke on the subject and advised unanimity of action, and advised the getting up of a guarantee fund towards defraying the expenses incurred in entertaining the Association. The following committee was then appointed to make the necessary arrangements:

Moved by Mr. Roberts, seconded by Mr. Walsh, that the President, Vice-President, and Messrs. Shuttleworth, Tapscott, Hodgetts, Miller, Greenwood, Yeomans, Gregory, Walsh and Jordan be a committee to make preparations to receive the American Pharmaceutical Association next September in Toronto. Carried.

Moved by Mr. Roberts, seconded by Mr. Yeomans, that this college empower the committee appointed to receive the American Pharmaceutical Association; to engage hall, furnish papers and stationery, necessary for the meeting of said Association, and that the President see they are provided with funds from our treasurer. Carried.

The Council adjourned at 1 o'clock on the invitation of the President to the rooms of Messrs. Jewell & Dennis to dinner.

On resuming business the committee appointed to consider the

best means of reducing the expenses in connection with the JOURNAL presented the following report:—

Your committee beg leave to report, that in our opinion it would be advisable to ultimately merge the duties of Editor, Registrar and Teacher of preparatory classes in one office; and that the Council will confer with Mr. Shuttleworth as to some means of reducing the present cost of the JOURNAL, either by reducing in size or trying to have same got up at less cost, and report proceedings at the next regular meeting of the Pharmaceutical Council.

HUGH MILLER,
L. W. YEOMANS,
F. JORDAN,
ED. GREGORY,
W. W. GREENWOOD.

Moved by Mr. Love, seconded by Mr. Parker, that the report of the committee be received. Carried.

Considerable discussion took place as to the advisability of merging all the offices in one, viz., that of Editor, Registrar and Tutor, but the matter was left for future consideration.

Several students presented claims for the grant of $1 per week towards their board whilst attending the course of lectures of the School of Practical Science during the past sixteen weeks.

The Registrar was directed to see if the applicants had complied with the resolution making the grant, and, if so, payment to be granted.

Moved by Mr. Love, seconded by Mr. Walsh, that the resolution of August, 1872, granting assistance to young men, associates of this college, who may attend the lectures of the School of Technology, be hereby rescinded. Carried.

Mrs. Woolverton, of Hamilton, dealer in homœopathic medicines, claimed registration under section 17 of the Pharmacy Act, and produced certificates from Dr. Adams that she had kept a Homœopathic Pharmacy in Hamilton for the last fifteen years.

The Council considered the law did not apply to dealers in homœopathic medicines, and refused to grant registration as chemist and druggist.

The amended Bill now before the Legislature was next taken up and its several clauses gone over and compared with the Act of 1871. A few alterations and additions were suggested and the desirability of its being pushed through this session strongly advocated.

Moved by Mr. Yeomans, seconded by Mr. Love, that the suit be continued against Mr. William Kennedy, Kingsville. Carried.

Mr. Jordan suggested that if the subscription for the JOURNAL were remitted it might be advisable to drop the suit.

Mr. Gregory gave notice of motion, that the Registrar shall compile a complete alphabetical list of all persons registered from the first formation of the college, which may be put in book form,

together with the Consolidated Act of 1871 and the amendments thereto.

This being the last meeting of the present Council Mr. Lyman thanked the members for the kindness and courtesy extended to him during the time he has been President, and expressed himself willing to do what he could to forward the interests of the college.

Moved by Mr. Love, seconded by Mr. Roberts, that the thanks of this Council be tendered to Mr. Lyman for his kind hospitality and courtesy in entertaining and presiding over us. Carried.

Mr. Lyman in a few words expressed his appreciation at the good wishes of the members of the Council.

The Council adjourned at 5 p. m.

GEORGE HODGETTS,
Sec. and Registrar.

Original and Selected Papers.

A METHOD OF DETECTING AND ESTIMATING CASTOR AND OTHER FIXED OILS IN BALSAM COPAIBA.*

BY DR. MUTER.

This oleo-resin, commonly but wrongly termed a balsam, has been said in books for many years back to be subject to admixture with fixed oils, especially castor oil. The British Pharmacopœia furnishes a qualitative method of examination, but the tests are in practice totally insufficient, as the exact degree of rectification of the benzole (an important point) is not stated, and the difference between a pure balsam stain and that with a small percentage of oil is very slight, unless the two are observed side by side. The other methods which have been proposed may be summarized as follows:

1. Pure balsam gives a translucent, and not an opaque emulsion, with strong solution of ammonia.

2 Pure balsam, if boiled with water for some hours, leaves a tenacious resin.

3. The specific gravity.

The latter test is entirely fallacious, owing to the great variation in commercial samples; and the others, though possibly characteristic with large admixtures, fail with anything under 20 per cent.

Observing the close affinity between copaivic and pinic acids, it struck me, that advantage might be taken of the difference of

*From the Analyist.

the solubility of the sodium soaps in certain menstrua. A very good solvent for sodium pinate has been discovered by M. Barfoëd to be a mixture of five parts by volume of absolute ether and one part absolute alcohol, which, moreover, only dissolves sodium oleate to an exact extent corresponding to 1 in 1,000. I will not occupy space by detailing at length the numerous experiments on a number of samples of balsam, varying in age and color, from every known commercial source; but the whole thing ended in the certain conclusion that besides the essential oil (which is dissipated in the process of analysis), good commercial balsam contains only copaivic acid, which forms a sodium salt, instantly soluble in ether-alcohol mixture, and a little altered resin not so readily saponifiable, forming a salt only slowly soluble.

The amount of this second resin I have found to vary slightly, and, in old samples, especially Maranham balsam, it may sometimes amount to five per cent., although usually really less.

Going upon the principle that, in performing any official analysis, the lowest commercial standard should be taken, I have adopted six per cent, as the highest possible quantity of second resin ever existing in any sample of balsam still having a trace of odor remaining. This wide standard may sometimes lead to an under-estimation of the oil by two or three per cent., but renders any over-estimation impossible.

The actual process I employ is as follows: 3 to 4 grammes of the sample are weighed out into a clean, dry flask, and saponified on the water-bath with 50 c. c. of alcohol and lumps of caustic soda weighing not less than 5 grammes. When all is dissolved, water is added, and the whole washed into a half-pint basin so as to nearly fill it, and evaporated to 100 c.c. over a low gas flame. Dilute sulphuric acid is added till the whole just becomes permanently turbid, and then solution of canstic soda is dropped in till it *just clears* again. By this means a solution is obtained with least possible excess of alkali, and with a good amount of sodium sulphate. The whole is now evaporated to *perfect* dryness* on the water-bath, stirring towards the end, so that the sulphate may mix with the soaps and produce an easily pulverulent residue. The residue is removed from the basin into a small wide-mouth stoppered bottle, and treated with 70 c.c. of ether alcohol and well shaken up.

As soon as it is fairly settled, the fluid is filtered off through a *quick* filter, and this is repeated with two successive quantities of 70 c.c., making 210 c.c. in all of the solvent used. The residue in the bottle and on the filter now consists of sodium oleate and sulphate if the balsam be impure, and of the latter only if pure, with a little trace of the insoluble resin-soap already referred to. The contents

* The best way to insure *absolute dryness* is to moisten the apparently dry residue with a few drops of absolute alcohol, and again to dry.

of the bottle and filter dissolved in warm water, and after heating till all smell of ether is gone, the whole is boiled, freely acidulated with hydrochloric acid, and set to cool. If, when cold, nothing but a few specks of brown resin should rise to the surface, the balsam is pure; but if an oily layer is formed it is adulterated, and the smell of the separated oleic acid will at once determine whether it is actually castor-oil or not. In the case of the presence of oil, two grammes of pure and dry white wax are added, and the whole heated till the wax melts with the oleic ocid. On cooling, a solid cake is formed, which is detached from the side of the beaker, and the fluid below passed through a filter. The cake is once more melted in water, cooled, detached, dried by gentle pressure in blotting paper, put into the water oven in a weighed platinum dish till dry, and then weighed, and the weight of the wax used deducted. The beaker, filter and rod etc., used are, if at all dirty, dried, extracted with ether, and the residue left after evaporation weighed and added to the total.

The calculation is performed as follows: To the weight in grammes found, add 0.20 for loss of oleic acid in solvent and then says:

$$95 : 100 = \text{total oleic acid} : x.*$$

and from the total found deduct six per cent. for possible altered resin in the balsam.

In conclusion, I may say that the process is in practice very simple, and for all ordinary purposes, if the beaker be well scraped out, the weight of the main cake may be taken as sufficient to give results true within three per cent., *below* the real amount, which is accurate enough for public purposes, and saves time and expense of extra ether. Unless oil actually *floats, and remains, on cooling, in drops*, after adding the hydrochloric acid, the sample may be passed as good.

PREPARATION OF MEDICINAL PEARLS.†

The mass for forming the capsules consists of gelatin, gum Arabic, sugar and honey. This is rolled out into sheets of suitable thickness. One of these sheets is placed on top of an iron plate having a thickness of 0.6 centimetre, into which holes of a diameter

* In the original this proportion is not clearly stated, but it is evident that the author meant it as given above. The Dutch journal "*De Pharmaceut*," in its number of Dec. 20, comments upon this method and calculation by declaring it rather liable to uncertainty, although Dr. Muter's proof-analyses would show its great reliability; besides, the general addition of 0.2 in every case, and the assumption of 95 per cent., oleic acid in any oil, may lead to errors.

†In Am. Jour. Pharm. Translated from Hager's "Hand-book of Pharmaceutical Practice," 1876.

of 1 centimetre have been bored. The geletinous mass, while still pliant, sinks into these holes, by its own gravity, forming a hollow hemisphere in each concavity. The ether or other medical preparation is then introduced, and the orifices are closed by another sheet of the gelatinous compound.

A second iron plate, furnished with holes corresponding exactly to those of the first, is now applied and securely fastened by suitable screws. The whole apparatus is now reversed in such a manner that the superior plate assumes the inferior position. Concavities will thus be formed in the second sheet of gelatin in the same manner as they previously were in the first. In order finally to separate the pearls, the entire arrangement is subjected to strong compression between iron plates in a powerful press.

REACTIONS OF SALICYLIC ACID.*

BY R. GODEFFROY.

1. Salicylic acid, heated above its melting point, splits into *carbon dioxide* and *phenol :*

$$C^7H^6O^3 = CO^2 + C^6H^6O.$$

2. On distilling salicylic acid with excess of lime, *calcium carbonate* is formed and *phenol* distils over :

$$C^7H^6O^3 + CaO = CaCO^3 + C^6H^6O.$$

3. If salicylic acid is heated with *amylic alcohol* (fusel-oil) under pressure at 250° C., it splits likewise into *carbon dioxide* and *phenol.*

4. *Sodium-amalgam,* acting upon the acidulated solution of salicylic acid, which must be constantly kept acid, transforms it into *salicylous* acid :

$$C^7H^6O^3 + H^2 = C^7H^6O^2 + H^2O.\dagger$$

5. Sulphuric acid dissolves salicylic acid without color, and forms from it two isomeric *sulpho-salicylic* acids.‡

6. On heating salicylic acid with dilute sulphuric acid and manganic oxide, *formic acid* is produced, which may be distilled off.

7. Dilute sulphuric acid and potassium chromate likewise convert salicylic acid into *formic* and *carbonic acids* (Kraut).

*Zeitsch. des Oester, Apoth. Vereins in New Remedies.

† Sodium-amalgam in contact with water takes oxygen from the latter to oxidize the sodium, and hydrogen is given off ; the latter being in a nascent condition, *reduces* by salicylic acid by taking from it a portion of its oxygen to form water.

‡Ira remsen, *Still. Journ.*, 6.

8. On heating a mixture of sulphuric acid, wood-spirit (methyl alcohol), and salicylic acid, an agreeably aromatic liquid distills over, which is *methylic salicylate.*

9. Concentrated nitric acid converts salicylic acid already at the common temperature into *nitrosalicylic acid*, $C^7H^5(NO^2)O^3$; dilute nitric acid produces the same result by heating.

10. Fuming nitric, or a mixture of concentrated nitric and sulphuric acids, converts salicylic acid, under violent reaction, into *picric acid*, $C^6H^3(NO^2)^3O$, and *carbonic acid.*

11. Chlorine and bromine produce *substitution-products.*

12. Iodine acts upon a watery solution of the acid only when heated; if melted with dry salicylic acid, it produces *iodized-substitution-products* and a red amorphous body.

13. Warm hydrochloric acid dissolves considerable quantities of salicylic acid; on cooling or on dilution with water it separates again in brilliant white, fine needles (Godeffroy).

14. Potassium chlorate and hydrochloric acid convert it into *chloranil* (tetrachlorchinon), $C^6Cl^4O^2$.

15. On heating salicylic with aqueous hydriodic acid to 280° C., *phenylic ether* and *carbonic acid* are formed.

16. On distilling it with phosphorus penta-chloride, *chlorosalicylchloride*, $C^7H^4Cl^2O$ is formed.

17. If phosphorus trichloride be added to a mixture of salicylic acid and anilin, *salicylanilide* $C^6H^5NH(C^7H^5O^2)$ is produced.

18. Iodine and mercuric oxide acting on salicylic acid produce *iodized substitution-products.**

19. On mixing salicylic acid (3 mol.) with glucose (1 mol.), pouring over them a large excess of concentrated sulphuric acid, and gently warming, a fine blood-red color is produced; this colour disappears after a while, and the mass turns brown and finally black.†

20. Caustic potassa solution dissolves salicylic acid readily; the solution soon turns brown in the air.

21. Watery solution of salicylic acid and its salts is coloured intensely violet by ferric salts. This reaction is so delicate that Aug. Vogel ‡ has proposed it as a substitute for alkaline sulphocyanides as reagent for ferric compounds. In strongly acid solutions, however, this reduction does not take place. H. Weiske employs it as an indictator in alkalimetry.§

On evaporating the intensely violent solution containing salicylic acid and a ferric salt to dryness, the colour disappears entirely; but the least quantity of water restores it (Godeffroy).

22. Salicylic acid mixed with cupric sulphate and caustic soda

* P. Weselsky, *Wien. Ber.*, 69, ii., 832.
† T. L. Phipson *Ch. News*, 28, 13.
‡ *Pharm. Zeit. f. Russl*, 1876, 398, *fr. Neu. Rep. f. Pharm.*
§ W. Weith, *Ber. d. Deutsch. Chem. Ges.*, 1866, 342. See New Rem., v., 137.

solution produces a solution of an intensely bluish green colour, from which even a large excess of alkali fails to precipitate any cupric oxide.*

23. Solution of sodium salicylates forms a grass-green liquid with cupric sulphate solution.†

24. Silver nitrate produces a white precipitate in solutions of alkaline salicylates ; but no precipitate in solution of salicylic acid.

25. Lead acetate behaves like the preceding.

26 On mixing a hot saccharated solution of simple calcium salicylate, $Ca(C^7H^5O^3)^2$, obtained from calcium carbonate and aqueous solution of the acid, with a boiling solution of caustic lime in saccharine water, a heavy crystalline paecipitate of so-called *neutral calcium salicylate*, $CaC^7H^4O^3$, almost insoluble in water, is produced.‡

27. If a solution of salicylic acid is boiled with a solution of potassium ferrocyanide, *hydrocyanic acid* is produced, and the liquid becomes turbid. The reaction is very delicate, and permits the detection of very small quantities of salicylic by means of the reagents for hydrocyanic acid (Godeffroy).

28. On boiling a solution of salicylic acid with a solution of potassium permanganate, the characteristic colour of the latter is immediately destroyed, and *carbonic acid*, *phenol*, and *brown hydrated manganic axide* are produced.

LABORATORY NOTES.§

BY T. A. EDISON.

1. Hard rubber or vulcanite, placed for several weeks in nitrobenzol, becomes soft and pliable like leather, and easily broken.

2. The vapour of chloral hydrate is a solvent of cellulose. I have found the corks of bottles containing the crystals eaten away to the depth of a quarter of an inch, the cork being resolved into a black semi-liquid, Certain kinds of tissue paper are partially dissolved in time, if thrown in a bottle containing the crystals.

3. A very difficult substance to dissolve is gum copal. I have found that anilin oil dissolves it with great facility.

4. Hyposulphite of soda is apparently soluble to a considerable extent in spirit of turpentine. Large crystals of "hypo" melt down to a liquid after several weeks, and if the bottle be shaken, partially disappear. The turpentine smell nearly disappears.

*New Rem., v., 298, fr. *Zeit f. Anal. Chem.*
†Hager, *Pharm. Centralh.*
‡Limpricht, *Organ. Chem.*, 1862 904.
§American Chemist.

5, The vapours of iodine, in the course of several months, will penetrate deeply into lumps of beeswax.

6. If to a solution of bisulphide of carbon there be added twice its bulk of potassic hydrate in sticks, and the bottle be well sealed, the whole will, in two months, become an intense reddish, syrupy liquid, with searcely any free bisulphide of carbon.

7. Some substances in solution form crystals or deposits on the sides of the bottles containing them, generally above the water line. Among such solution in 100 cc. of rain water may be mentioned a 14-gram solution of acetate of uranium, 8-gram do. of proto-acetate of copper, 5-gram do. of acetate of morphia, 10-gram do. of formate of copper, 20-gram do. of tannate of iron. These deposits invariably take place on that part of the bottle most *exposed to light*. This phenomenon may be due to heat, but deposits or films occur in some solutions *within the liquid* as well as above it—especially noticeable with tannate of iron, the film of which adheres strongly to glass.

NOTE ON OLIVE CULTURE AND OLIVE OIL IN GREECE.*

BY PROF. XAV. LANDERER. ATHENS. GREECE,

The quantity of the annual production of olive-oil in Turkey and Greece cannot be exactly stated, as no statistics are available, and no sort of care, either by manuring or by irrigation, is bestowed upon this valuable tree ; besides, for many centuries there has existed a popular notion that the olive-tree like some other wild-fruit-trees (as for instance, *Quercus Aegilops*, Willd., which furnishes the so-called balandia or volonias), produces abundant crops only in every alternate year, and does not require special cultivation. In prosperous seasons, Greecc, together with the Ionian Islands, especially Corfu, can produce from 12 to 15 millions of okes† of which about 10 millions are exported. Turkey in Europe and Asia Minor, with the rich islands, Mitylene, Chios, and Crete, produce annually about 50 mill. okes, of which some 30 mill. are exported.‡ Regarding the quantity of this oil, as produced in Greece or Turkey (where it is called Zaitoun Yāghi, vulg, Yaitoun-yāgh), it must be

*From New Remedies.

†1 oke = 2¾ lbs. avoird.

‡We find the following note on olive-oil production in the *Pharmac. Geschastsbl.* : While France produces annually only 260,000 hektolitres of olive-oil (and together with Algiers 400,000 hektolitres), Austria produces 263,000 h. l. annually, that is about one-third of the yield of Portugal. Spain produces 1,135,000 h. l. yearly, Greece to the value of about 5,000,000 francs, and Turkey about as much more. But all these countries are surpassed by Italy, which is the richest olive-territory in Europe. According ro Prof. Landerer, the Levant appears to produce a good deal more of olive-oil than has been supposed.—ED. N. R.

acknowledged that it cannot replace the best French or Italian olive oil for table use, but, nevertheless, millions of people use this oil for culinary purposes, chiefly as a substitute for butter, which is very dear, costing 4 to 5 drachmas per pound, while the oil can be purchased for 1 dr. and 20 leptas.* If the Greek oil were prepared by cold expression and filtered, it would be not only quite equal to Provence or Lucca oil, but would probably be preferred to the latter as being purer and a more natural product. Therefore, I desire to appeal to all those who are specially interested in the production or sale of olive-oil, to cause factories to be established in Greece or Turkey for the manufacture and export of pure olive-oil, which could not fail to yield handsome profits.

Millions of pounds of inferior oil are used in the manufacture of soap and for other industrial purposes. Such soaps are generally marked with a Turkish monogram, as, for instance, the Cretan soap, *Kreticon Sapouni*,† which has an excellent reputation in all parts of the Levant, as well as in Europe. Large quantities of so-called "Pyrinclaron," an oil, which is obtained by exhausting the olive-kernels with carbon disulphide, have also been made use of, of late years, in the manufacture of soap. Formerly, these kernels and other residues, which yet contained from 3 to 5 per cent., of oil, were thrown away as useless, or used as fuel for heating the water in the oil-mill. The recovery from the waste product of the residuary oil has been of great importance for Greek industry.

THE SPICES OF COMMERCE; THEIR EARLY HISTORY ‡

Under the collective name of "Spices" are included all those articles of vegetable origin which are pleasant to the smell an pungent to the taste. Most of these come into the hands of the grocer for sale, but a few are restricted to the druggist and perfumer. The former comprise pepper, pimento, ginger, nutmegs, cloves, cinnamon, chillies and cayenne pepper, mustard, carraway and coriander seeds, tumeric, etc. These are for the most part used as odorous or aromatic compounds for condiments or adjuncts to food. The term "spices" is almost the same, at least but little varied, in the principal European languages; thus in French it is *épiceries:* in Italian *spezierie;* Spanish and Portuguese, *especerias;* German, *spezereien;* Dutch, *specerijen;* Danish and Swedish, *speceri.* Condiments have an important influence upon the processes of digestion and nutrition. Professor Voit of Munich, than whom there is no higher authority on such a subject, considers that their importance has not been

* drachma= 100 lepta = 0.18 3–5 cents gold.
† Κρητικὸν Σαπούνι
‡ Journal of Applied Science.

sufficiently recognised. It is not enough that food should contain alimentary principles in proper quantity; to render it really nutritious, there must also be a supply of condiments. These have been compared to oil in a machine, which neither makes good the waste of material nor supplies motive power, yet causes it to work better; they render essential service in the processes of nutrition, though they are not of themselves able to prevent the waste of any part of the body. "A dietary deprived of condiments, a mere admixture of alimentary principles without taste or smell, is unendurable, and causes nausea and vomiting." It is not until condiments are added to aliment that it really becomes food. True, the addition of spices to food may be carried too far, but this is a question of domestic economy and culinary arrangement with which we have nothing to do. Our special object is to collect together such historical and statistical details, and commercial information as to production and consumption of some of these old-established and important products as may prove valuable and useful for reference.

Spices have always been highly esteemed, and not only were they a principal article of merchandise in olden times, but acceptable presents even to a king. Thus the Queen of Sheba presented spices in great abundance, and it is written—"Neither was there any such spice as the Queen of Sheba gave King Solomon." So important were they considered as flavourers, even in this cold climate, that in our early history the spicery was a special department of the court, and had its proper officers. The late Dr. Edward Smith, in his work "On Food," remarks that spices were necessarily rare and costly in the fourteenth century, since they were imported from the Levant, and were not then in general use. Chaucer and Wickliffe mention cinnamon, or canella, mace (or, as then called, macys), cloves (or clou), galyngal, pepper, ginger, cubebs, grains of paradise, nutmegs, carraway and spykenard de Spain, are specially noted in the old recipes. Certain compounds of spices, as our allspice, were then used as *poudre douce and poudre forte*. Groceries in early times consisted chiefly of spices, particularly pepper, then a scarce and dear article, as may be seen in the early history of the Grocers' Company, which was originally instituted as the Pepperers' Guild. They are mentioned by Lydgate to have had standings as retail spice dealers in Chepe. An old historian of the Grocers' Company, quoted by Herbert in his "Livery Companies of London," claims for them a high rank among the merchants of the metropolis, for he observes—"They have been the most universal merchants that traded abroad, and what they brought home, many artists among them found out ways afterwards to change and alter the spices by mixture, confection and composition c single ingredients, by which means many and various ways of dealing and trading passed under the name of "groceries," and indeed, this city and nation do, in a great measure, owe the improvement of navigation

to merchants originally exercising their mystery as traders into all foreign parts, from whence we have named either spices, drugs, fruits, gums, or other such aromatic commodities." The Grocers' Company was incorporated 1345, by a charter granted by Edward III., under the title of "The Wardens and Commonalty of the Mystery (a corruption of the old French term *méstieré—métier*—for trade or craft), of Grocers of the City of London," and had the oversight and control of the trade of spices, drugs, etc. The grocers—dealers *en gros*—were originally styled Pepperers (when first mentioned as *Gilda de Piparorum*, among the amerced guilds of Henry II., 1154—1189), from the chief articles of their trade, and the latter remained a distinct body so late as 1559, when they purchased from the queen a cargo of pepper captured in a Spanish vessel, and on the grocers underselling them, petitioned her majesty to forbid the importation of pepper, to enable them to keep their pecuniary engagements with her—promising not to raise the price above three shillings in the pound. In English, they were called Pepperers, in French *Poivriers* or *Pebriers*. From Major Drury's "Useful Plants of India," and Fluckiger and Hanbury's learned "History of Drugs," we are enabled to glean much curious ancient lore as to the early trade, importance and value of some of the principal spices.

Pepper was one of the spices earliest used by mankind. In the fourth century B.C., Theophratus noticed the existence of two kinds of pepper, probably the black and the long pepper of modern times. Dioscorides stated pepper to be a production of India, and was acquainted with white pepper. Pliny's information on the same subject is curious. He tells us that in his time a pound of long pepper was worth fifteen, of white seven, and of black pepper, four denarii, which may be averaged at about four shillings and ninepence per pound, and expresses his astonishment that mankind should so highly esteem pepper, which has neither a sweet taste nor attractive appearance, or any desirable quality, besides a certain pungency. So highly was it esteemed by the masters of the ancient world, that the poet Persius, applied to it the epithet sacred. In Arrian's "Periplus of the Erythrean Sea," written about A.D. 64, it is stated that pepper is exported from Baraké, the shipping place of Nelkunda, in which region, and there only, it grows in great quantity. These have been identified in Vincent's "Commerce and Navigation of the Ancients" with places on the Malabar coast, between Manalore and Calicut. Long pepper and black pepper, according to the same author, were among the Indian spices on which the Romans levied duty at Alexandria, about A.D. 176. In Europe, pepper, during the middle ages, was the most esteemed and important of all spices, and the very symbol of the spice trade to which Genoa, Venice, and the commercial cities of Central Europe were indebted for a large part of their wealth, and its importance as a means of promoting commercial activity during the middle ages, and the civilising intercourse

of nation with nation, can scarcely be overrated. Tributes were levied on pepper, some examples of which are given in the "Histoire de la Vie Privée des Francais, par Le Grand d'Aussy," and donations were made of this spice, which was afterwards used as a medium of exchange when money was scarce. During the siege of Rome by Alaric, King of the Goths, A.D. 408, the ransoms demanded from the city included, among other things, 3,000 pounds of pepper (*Zosimus Historia*). Facts of this nature, of which a great number might be enumerated, sufficiently illustrate, observes the late Mr. D. Hanbury, the part played by this spice in mediæval times. The general prevalence during the middle ages of "pepper rents," which consisted in an obligation imposed upon a tenant to supply his lord with a certain quantity of pepper, generally a pound, at stated times, shows how acceptable was this favourite condiment, and how great the desire of the wealthier classes to secure a supply of it when the market was not always certain – (Rogers' "Agriculture and Prices in England.") The term "peppercorn rent," which has survived to our times, now only signifies a nominal payment.

The earliest reference to a trade in pepper in England would seem to be in the statutes of Ethelred, A. D. 978—1016, where it is enacted that the Easterlings coming with their ships to Billingsgate should pay at Christmas and Easter, for the privilege of trading with London, among other articles of tribute, ten pounds of pepper. It has been generally believed that neither the nutmeg nor the mace was known to the ancients. Von Martius (*Flora Brasiliensis*) however maintains that mace was alluded to in the "Comedies of Plautus," written about two centuries before the Christian era. But the words macer, etc., to which he alludes, quoted in Dioscorides, Galen and Pliny, seem to refer to the odoriferous bark of a tree growing in Malabar. Nutmegs and mace were imported from India at an early date by the Arabians, and thus passed into western countries. Masudi, who appears to have visited India between 916 and 920, pointed out that nutmeg, like cloves, was a product of the eastern islands of the Indian Archipelago. The Arabian geographer, Edrisi, who wrote in the middle of the twelfth century, mentions both nutmegs and mace as articles of import from Aden, and again, "Nois mouscades" are among the spices on which duty was levied at Acre, in Palestine, about the year 1180. A century later another Arabian author, Kagwini, expressly named the Moluccas as the native country of the spices under notice. One of the earliest references to the use of nutmegs in Europe, occurs in a poem, written about 1194, by Petrus d'Ebrelo, describing the entry into Rome of the Emperor Henry VI., prior to his coronation in April, 1191. On this occasion, the streets were fumigated with aromatics, which are enumerated in the following line—

"Balsama, thus, aloes, myristica, cynnama, nardus."

By the end of the twelfth century both nutmegs and mace were

found in Northern Europe, even in Denmark, as may be inferred from the allusion to them in the writings of Harpestreng. In England, mace, though well known, was a very costly spice, its value between A.D. 1284 and 1377, being about four shillings and sevenpence per pound. It was also dear in France, for in the *compte de l'execution* of the will of Jeanne d'Evereux, Queen of France, in 1372, six ounces of mace are appraised, per ounce, at three sols. eight deniers, equal to about eight shillings and threepence of our present money. The uses of these spices were diffused throughout Europe long before the Portuguese, in 1512, had discovered the mother plant in the Isles of Banda (*Pharmacographia*). Though so long valued in Europe and Asia, neither nutmegs nor mace are ever employed as a condiment in the islands where they are indigenous.

THE USE OF SALICYLIC ACID IN THE HOUSEHOLD.*

BY DR. VON HEYDEN.

1. *Raw Meat.*—It frequently happens, especially in warm weather, that meat, particularly such as contains easily decomposable fat and blood (tongues, etc.,) although otherwise irreproachable, upon closer examination or upon boiling gives off a disagreeable smell. This may easily be removed either by laying the meat before cooking in lukewarm water containing ½ to 1 gram of salicylic acid to the litre, or by throwing some small crystals of acid into the water during the boiling.

When it is desired to preserve meat for some days, it is recommended to lay it in a solution of salicylic acid in water, ½ to 1 gram to the litre; or to rub lightly salicylic acid into the meat, especially the bones and fat parts. The preservation, as well as the cleaning for the dressing, is done in the usual way.

Although meat treated with salicylic acid loses its red colour on the exterior, it undergoes no change internally. Moreover, it becomes tender with less boiling.

2. *Milk.*—Pure cow's milk, to which dry salicylic acid (not in aqueous solution) has been added in the proportion of ½ to 1 gram to the litre, curdles at the ordinary temperature after about thirty-six hours, retaining its properties, the cream separating and yielding butter perfectly.

3. *Butter* kneaded with water containing ½ to 1 grams of salicylic acid to the litre, or packed in cloths saturated in such a solution, remains good longer than usual. Butter that has already become rancid can be improved by careful washing with aqueous solu-

*From the 'Handelsberichte' of Gehe and Co in Pharm. Jour. & Trans.

tion of salicylic acid (2 to 3 grams to the litre) and afterwards rinsing with pure water.

4. *Preserved fruits* (cherries, currants, raspberries, plums, apricots, peaches) may be prepared advantageously, by placing layers of fruit and sugar alternately, without water, in a not very wide-mouthed pickle bottle, strewing over them a pinch of crystallized salicylic acid (about ½ gram to a kilo of contents), closing the jar with parchment paper that has been steeped in solution of salicylic acid, and boiling the bottles in the ordinary way in a water-bath. Bilberries are best boiled without sugar, allowed to cool, filled into a narrow-mouthed flask, some crystallized salicylic acid strewn over, corked, etc. Fruit thus preserved has been kept in excellent condition during two seasons. Another method is to lay over the surface of fruit preserved in bottles, a closely fitting piece of blotting paper that has been steeped in a strong solution of salicylic acid in rum. Preserved gherkins may be similarly treated. For those preserved in vinegar and sugar (*Essiggurken*) the salicylic acid is boiled with the vinegar, and when boiled poured over the gherkins. For salt gherkins (*sauer gurken*) the acid, ½ to 1 gram to the litre, is added during the boiling; in other respects the preparation is as usual.

5. *Preserved Vegetables* and similar articles may also have a small quantity of crystallized salicylic acid added.

6. *Fumigations.*—Dry salicylic acid, volatilized from a hot plate, purifies the air and perfectly disinfects the walls of a closed room.

7. *Vessels, Corks,* etc., to which a disagreeable smell or taste attaches, are thoroughly purified by washing in solution of salicylic acid.

The solutions of salicylic acid for the above purpose are best prepared by rapidly boiling the acid in water, in the proportion of from 1 to 3 grams to the litre, and leaving to cool. Any excess that then separates is fit for fresh use; or if stirred up and used in suspension causes a eorresponding increase in the action of the solution.

MINERAL OILS.—THEIR PURIFICATION AND USE IN PHARMACY.*

BY M. MASSON, PHARMACIEN, LYONS.

The author finds that mineral oils may be deodorised so as to fit them for pharmacetuical and other uses. The process is cheap and simple, and consists in treating them with,

*Pharmacologiste in Chemist and Druggist.

	Parts.
Alcohol (95°)	500
Sulphuric acid	60
Nitric acid	60

per 100,000 parts of petroleum oil.

The acids are first introduced separately, by means of a funnel with a long tube reaching nearly to the bottom of the vessel. The spirit is then poured on the surface of the oil, and precipitates slowly, uniting with the acids. Heat and slight effervescence are thus set up, produciug the distillation of a small quantity of nitrate of ethyl or nitric ether. The new products have a very agreeable smell, and the substances so treated take a yellowish tinge, and have also an agreeable odour. The operation takes about an hour, after which the oil should be well agitated and washed with water, and left to stand for eight or ten hours. The surface liquor, which is deodorised petroleum, is then decanted, leaving behind a mixture of acids, water and alcohol. This may be used in purifying what are known as fatty oils. It should be well stirred therein, and the mixture left for twelve hours, and afterwards twice washed with milk of lime. The oil is thus deprived of its acids and other foreign matters, and loses much of its rank smell. It will be found well adapted for lubricating purposes.

In pharmacy, the author has found petroleum purified and deodorised as above an excellent substitute for rectified spirit. Various tinctures for external use, camphorated, etherised, and chloroform solutions so prepared answer as well as with an alcoholic base.

The first trials were made in veterinary practice. Mixtures of deodorised petroleum with fats or glycerine are likely to prove of much value in the treatment of skin diseases, &c. A mixture of pertroleum and glycerine has a very pleasant odour, and it is said to be as efficacious as the preparations of sodic or potassic sulphide now in use.

In veterinary pharmacy, more especially, it is submitted, a very important saving would thus be achieved. Rectified spirit of 95° now costs in France 330 francs per 100 litres. An equal quantity of deodorised petroleum would cost only 80 francs.

POISONOUS MATERIAL IN HAIR DYES.*

It is right that the medical profession and the public should understand the poisonous nature of many of the preparations commonly used as hair-dyes and hair-restorers. In spite of the Phar-

*From the London Lancet.

macy Act, the sale of many active poisons is still, in this country, entirely unrestricted. It is true that arsenic, and a certain number of other common poisons, are under legislative control, and may not be sold retail unless properly described, and then only under certain conditions. But these provisions do not extend beyond a comparatively small number of well-known substances. Other poisons may be, and are, openly sold for domestic purposes without any warning of the risks attendant upon their misuse.

Such sale we hold to be dangerous, and morally wrong. Almost every day affords some example of the serious accidents which occur in households from the use of poisons, even when those poisons are properly described. When no printed warning is given, and particularly when the printed description is of such a nature as to lead to the inference that no poison is present, the danger is increased tenfold. Everyone knows the carelessness with which bottles are often treated in houses, and how apt ignorant persons and children, not to speak of those who ought to know better, are to make use of the wrong bottle. Even the word "poison," printed in large type, and the use of a peculiarly shaped bottle, are not found sufficient to prevent accidents altogether, and the sale of poisonous substances without any such warning ought, we think, to be prohibited in every case by law.

Many of the hair-restorers, or more properly hair-dyes, so extensively advertised and used, both in England and America, afford flagrant examples of the danger to which we allude. We have lately purchased and submitted to the independent analysis of two well-known chemists twenty-one samples of the preparations of this kind now in use in England, including, we believe, nearly all those which are best known, because most extensively advertised. The results of these analyses abundantly justify the remarks we have made, and we therefore present their main features to our readers. We of course take no notice of constituents, such as scent and glycerine, which have no significance in our present inquiry.

Out of the twenty-one examples examined, no less than fourteen were practically identical in their nature. They contained sulphur in suspension, and also lead in varying, but always in very considerable quantity. Three of these preparations bore American labels, the rest were English. The descriptions varied a good deal. Only one was plainly described on the label as poisonous if taken internally, while many were described as "perfectly harmless," "free from injurious substances," and so on. The prices varied from 1*s.* to 6*s.* per bottle.

Two more samples, one of them American, were found to contain lead and sulphur, but in a different form. The sulphur was present as hyposulphite, and, in fact, these preparations may be substantially imitated by adding hyposulphite of soda to a solution of a lead salt. A white precipitate first appears, which dissolves in

excess, and the solution so obtained *does not give a precipitate with iodide of potassium*. This is noteworthy, because in the handbill which accompanies one of the samples purchasers are warned against the dangerous hair preparations which contain lead as likely to lead to paralysis of the brain and insanity, and are directed to test all preparations with *iodide of potassium*.

In another example, an American one, no free or loosely combined sulphur was found, but only lead in considerable quantity.

Another of the preparations was contained in two bottles, in one of which ammonio-nitrate of silver, and in the other pyrogallic acid, was detected. This, therefore, belongs to an entirely different class from the preceding.

The remaining three preparations analysed were intended for lightening, instead of darkening, the color of the hair. No substantial difference between these samples was detected. Each was found to contain a tolerably concentrated and slightly acidulated solution of peroxide of hydrogen. It is well known that this is the active agent in preparations of this kind. It can hardly be considered as poisonous, but its action on the hair is said to be injurious. The silly fashion which prompted its use is, we believe, dying out.

It will be seen that, out of the twenty-one samples examined, no less than seventeen contained lead. This lead was present, it must be remembered, not as a mere trace, but in most cases in large and deleterious quantity. In one sample, and that not the worst, we found five grains and a half of lead, equivalent to about ten grains of crystalized sugar of lead, in each fluid ounce of the liquid.

A subsidiary question arises out of this inquiry which deserves the most careful consideration of the medical profession. Is it not possible that lead-poisoning may sometimes be produced by the incautious use of these preparations? Evidence upon the point is conflicting, and many physiologists hold that such an absorption through the scalp cannot take place unless the skin is broken. Taylor quotes a case to the contrary which came within his own observation, and many others of the same kind have been brought to our notice. But few, if any, of these cases are definitive, and real proof appears still to be lacking. It is perhaps not likely that such poisoning very commonly occurs, if it ever does. In the majority of instances the liquid would probably be used with a certain amount of discretion, and would be applied mainly to the hair rather than to the head. But if the preparation were used incautiously, if the lead solution were rubbed frequently and in considerable quantity into the skin of the head, we are inclined to think that danger would exist. It would almost certainly exist if the skin were broken.

Many recorded cases show that very minute quantities of lead may after a time produce symptoms of poisoning. Certain circumstances, moreover, induce us to think that incipient lead poisoning is more common than is generally supposed. In all chemical labora-

tories the testing for lead in drinking water is a common experience. The number of samples of water sent for this purpose is surprising. Now, in a great many instances no lead is found, and it is worthy of consideration whether in some of these cases the symptoms which threw suspicion unjustly on the water may not have been caused by the use of lead cosmetics.

The subject is a highly interesting one, and we shall be glad to receive evidence upon it from any of our readers.

THE U. S. PHARMACOPŒIA.*

Some discussion, slightly tinged with bitterness, has occurred in American pharmaceutical circles in reference to the composition of the committee responsible for the publication of the U. S. Pharmacopœia. Somewhat like the case here, the American Medical Association has at present exclusive control over the work. The pharmacists naturally think that they have some right to be officially represented on the committee, and some of them claim an equal, others even a preponderating, influence over a work which, as they say, should be the text book of pharmacy. The position there is, however, somewhat special, inasmuch as, apart from the copyright in the title common to every book, the U. S. Pharmacopœia has no legal status. It is only by common consent that it is accepted as authoritative. Consequently, some of the more eager pharmacists are disposed to go so far as to advocate the publication of an opposition Pharmacepœia, unless their claim to an equal share in the production of the existing work be admitted. Dr. Squibb, who is the statesmen of American pharmacy, as well as its most able scientific opponent, is not of this view. At a recent "conversational meeting" of the New York College of Pharmacy, he treated the subject with much force and clearness. Touching the special point at issue, he advocates the election of a committee of five, three to be medical and two pharmaceutical members, to be entrusted with the preparation and publication of the Pharmacopœias. He gives his reasons for this proportion, which will be generally obvious. But he makes other suggestions which might be considered with benefit in countries beyond America. He would have this committee permanent, meeting, say every three months, the president and an editor (who is to be in addition to the five) to be continuously occupied in preparing materials for the quarterly meetings. The object of this regular work Dr. Squibb thus explains. He would have a standard Pharmacopœia issued every five years, and, in addition, he proposes that the authorities of the Pharmacopœia should issue an

*Chemist and Druggist.

annual fasiculus, which should never be dignified with the standard force and authority given to the established Pharmacopœia, but be more ephemeral—a year book, in short, which would expire at the end of each year, and contain the current information of the previous year. Such an anuual might contain a great deal which would not be looked upon as suitable to be retained or admitted in the Pharmacopœia proper. It might contain a description of all the novelties which come along—for instance, such an article as jaborandi, of which there was little or nothing known when it came into use—and it would have competent authority, as soon as anything of that kind was published, to send for the article, to put it upon trial, prepared, put in the way of being used in hospitals, and so get all the information possible and publish the results of the observations in the next succeeding year. The Pharmacopœia would still be essential and indispensable, because it would be the standand; but for obtaining current information a work such as the one described would be more useful to physicians and to the pharmacists than the Pharmacopœia itself. From it could be obtained information quite inappropriate to a standard Pharmacopœia. Within two years the necessary information could be obtained regarding any article that might be proposed as a therapeutical agent, which would either discard it entirely, or place it upon further trial, or introduce it into the Pharmacopœia. At present all the novelties are in risk of being lost, or so perverted and extolled that they are dropped, or get into commercial hands and become used as proprietary medicines in one way or another.

Dr. Squibb not unreasonably estimates that the profit on such a publication would ultimately prove sufficient to pay a proper salary to the proposed editor and fair remuneration to the members of the committee for the time and labour which they would be required to devote to the task suggested.

BACTERIA AND FERMENTATION.

A granular powder is placed in your hands, and you are asked to state what it is. You examine it, and have or have not reason to suspect that seeds of some kind are mixed up in it. But you prepare a bed in your garden, sow in it the powder, and soon after find a mixed crop of docks and thistles sprouting from your bed. Until this powder was sown neither docks nor thistles ever made their appearance in your garden. You repeat the experiment once, twice, ten times, fifty times. From fifty different beds, after the sowing of the powder, you obtain the same crop. What will be your response to the question proposed to you? "I am not in a condition," you would say, "to affirm that every grain of the powder is a dock-seed or a thistle-seed, but I am in a condition to affirm that both

dock and thistle-seeds form, at all events, part of the powder." Supposing a succession of such powders to be placed in your hands, with grains becoming gradually smaller until they dwindled to the size of impalpable dust particles; assuming that you treat them all in the same way, and that from every one of them in a few days you obtain a definite crop—it may be clover, or it may be mustard, it may be mignonette, it may be a plant more minute than any of these—the smallness of the particles, or of the plants that spring from them, does not affect the validity of the conclusion—without a shadow of misgiving you would conclude that the powder must have contained seeds or germs of the life observed. There is not in the range of physical science an experiment more conclusive, nor an inference safer than this one. Supposing the powder to be light enough to float in the air, and that you are enabled to see it there just as plainly as you saw the heavier powder in the palm of your hand—if the dust sown by the air instead of by the hand produce a definite living crop—with some logical rigor you would conclude that the germs of this crop must be mixed with the dust. To take an illustration, the spores of the little plant *Penicillium glaucum*, to which I have already referred, are light enough to float in the air. A cut apple, a pear, a tomato, a slice of vegetable marrow, or, as already mentioned, an old moist boot, a dish of paste, or a pot of jam, constitutes a proper soil for the *Penicillium*. Now, if it could be proved that the dust of the air, when sown in this soil, produces this plant—while, wanting the dust, neither the air, nor the soil, nor both together can produce it—it would be obviously just as certain in this case that the floating dust contains the germ of *Penicillium* as that the powders sown in your garden contained the germs of the plants which sprung from them. But how is the floating dust to be rendered visible? In this way. Build a little chamber and provide it with a door, windows, and window-shutters. Let an aperture be made in one of the shutters, through which a sunbeam can pass. Close the door and windows so that no light shall enter save through the hole in the shutter. The track of the sunbeam is at first perfectly plain and vivid in the air of the room. If all disturbance of the air of the chamber be avoided, the luminous track will become fainter and fainter, until at last it disappears absolutely, and no trace of the beam is to be seen. What rendered the beams visible at first? The floating dust of the air, which, thus illuminated and observed, is as palpable to sense as any dust or powder placed on the palm of the hand. In the still air the dust gradually sinks to the floor or sticks to the walls or ceiling, until finally, by this self-cleansing process, the air is entirely freed from mechanically suspended matter. Thus far I think we have made our footing sure. Let us proceed. Chop up a beefsteak, and allow it to remain for two or three hours just covered with warm water; you thus extract the juice of the beef in a concentrated form. By properly boiling the liquid and

filtering it, you can obtain from it a perfectly transparent beef tea. Expose a number of vessels containing this tea to the moteless air of your chamber, and expose a number of similar vessels containing precisely the same liquid to the dust-laden air; in three days every one of the latter stinks, and, examined with the microscope, every one of them is found swarming with the bacteria of putrefaction. After three months or three years the beaf-tea within the chamber is found, in every case, as sweet and clear, and as free from bacteria, as it was at the moment when it was first put in. There is absolutely no difference between the air within and that without, save that the one is dustless and the other dust-laden. Clinch the experiment thus: Open the door of your chamber and allow the dust to enter it; in three days afterward you have every vessel within the chamber swarming with bacteria and in a state of active putrefaction. Here, also, the inference is quite as certain as in the case of the powder sown in your garden. Multiply your proofs by building fifty chambers instead of one, and by employing every imaginable infusion of wild animals and tame; of flesh, fish, fowl, and viscera; of vegetable of the most various kinds. If in all these cases you find the dust infallibly producing its crop of bacteria, while neither the dustless air, nor the nutritive infusion, nor both together, are ever able to produce this crop, your conclusion is simply irresistible that the dust of the air contains the germs of the crops which has appeared in your infusions. I repeat, there is no inference of experimental science more certain than this one. In the presence of such facts, to use the words of a paper lately published in the "Philosophical Transactions," it would be simply monstrous to affirm that these swarming crops of bacteria are spontaneously generated. Is there then no experimental proof of spontaneous generation? I answer without hesitation—none. But, to doubt the experimental proof of a fact, and to deny its possibility, are two different things, though some writers confuse matters by making them synonymous. In fact, this doctrine of spontaneous generation, in one form or another, falls in with the theoretic beliefs of some of the foremost workers of this age; but it is exactly these men who have the penetration to see and the honesty to expose the weakness of the evidence adduced in its support.—*Extract from a Lecture by Prof. Tyndall.*

Analysis of Washing Blue.—Mr. H. G. Debrunner (*Am. Jour. Pharm.*) finds that most of the blues in the market consist of prussian blue, produced by adding solution of potassic ferrocyanide to an equal weight of copperas, and subsequent treatment of the white precipitate with a mixture of nitric and sulphuric acids. Oxalic acid is sometimes added, which renders the blue soluble; about one-sixth of the weight of the dry blue is required for perfect solution.

Editorial.

CHANGES IN THE LAW RESPECTING THE SALE OF LIQUOR BY DRUGGISTS.

Many of our readers will doubtless have learned of the anticipated changes in the License Law which relate to the sale of liquor by druggists. It is proposed to regulate this matter in a manner similar to that which governs the sale of poisons. Every sale of liquor must be recorded in a book, together with the name of purchaser, date of sale, quantity disposed of, and name of medical practitioner who certifies to the necessity of the sale.

The Bill affecting these changes obtained a second reading on January 30th, and its several clauses were discussed by the House in Committee. It has not yet been brought forward for a final reading, but, according to common usage, it will probably pass in its present shape.

For the benefit of those of our readers who have not seen the reports of the doings of the Legislative Assembly we reproduce the discussion which took place on the second reading of the Bill:

Mr. Crooks moved the second reading of the bill to amend the License Law. He said that he had stated on the motion for the first reading of the bill that it did not assume to interfere with the principles of the Acts of 1874 and 1876, but its object was to make the machinery of the existing law more workable, difficulties having arisen in that respect owing to a tendency on the part of magistrates before whom prosecutions were instituted to rather circumscribe the language of the Act, instead of giving it a rather literal interpretation. He had endeavoured in this measure to meet difficulties of that nature; but beyond that it was possible that the proposed amendment would also cover questions about which there were legal doubts, especially in connection with three prominent matters; firstly, with reference to the practice which seemed to have greatly prevailed of chemists and druggists carrying on the business of selling intoxicating liquors as if they were entirely excluded from the operation of the Act. In the measure of last session the House had endeavoured so to amend the law in regard to that class of persons that while they should give them the fullest liberty in selling liquor, that liberty should not degenerate into license. He proposed to submit to the Committee an amendment providing that it should be

the duty of chemists and druggists to record in a book every sale or other disposal of liquor by them, the time and manner of its sale, the person to whom it was given, and the quantity sold, together with the certificate, if any, and the name of the medical practioner who gave it.

Mr. Cameron said that with regard to the provision regulating druggists, he did not know that the proposed change in the law, viz., that of obliging druggists to enter on a book the names of persons to whom they sold liquors, would have the effect of preventing druggists from selling; so that altogether the changes proposed would only be changes on paper, and not changes calculated to amend the practices with reference to the sale of liquors.

After recess, the House in Committee again resumed consideration of the License Bill, and, on the 12th clause,

Mr. Cameron remarked that in order that the clause might fail of its object it would be just as necessary to know how much liquor the druggist bought as to know the quantity he sold.

Mr. Boulter thought it would be very difficult for a druggist to account for all the liquor he sold, because he used a good deal of it in tinctures, for instance.

Mr. Meredith—Oh, is that what they call it now? (Laughter.)

Mr. Merrick asked if a druggist would be liable to punishment supposing his clerk sold liquor without recording it.

Mr. Crooks—Why not?

Mr. Merrick thought there was a good deal of force in the objection the member for North Hastings raised.

Mr. Crooks said the safety of a law was in leaving it in general terms, and then leaving it to the judge to apply it to the particular cases.

The clause was carried with a verbal deletion.

As soon as the Act obtains a final reading we shall take the first opportunity of laying before our readers those portions in which they are specially interested.

THE EXAMINATIONS.

One of the proposed amendments to the Pharmacy Act requires those who present themselves for examination to show satisfactory evidence of their having been engaged for four years as regularly indentured apprentices to the drug business. Under the present law the candidate may present himself without having served any regular term, or, indeed, any term at all; and, if he succeeds in pass-

ing examination, he is entitled to receive a diploma. This state of things has had a very marked influence on the number of those who have attended the last three or four examinations. There has, of course, been a strong desire to "get through" before the new law comes into force, and, at the twelfth semi-annual examination held last month, the entries reached fifty-five—an unprecedentedly large number. Of these, only fifty-three were examined, as two candidates failed to put in an appearance. The proportion of those who passed the ordeal was greater than at the midsummer examination —a result which we have before noticed, and which we believe is to be attributed to the fact that winter is in many respects the most favourable for study.

We append, as usual, the questions asked in the various branches:

PHARMACY.

Examiner—MR. SHUTTLEWORTH.

1. Name the ingredients in—
   Ext. Coloc. comp.
   Linimentum Saponis,
   Mistura Cretæ,
   Infusum Gentianæ Comp.,
   Pil. Rhei Comp.,
2. Write a formula for an imperial pint of *Tinct. Nucis Vomicæ* B. P. using an equivalent quantity of commercial alcohol instead of the spirit ordered.
3. Describe the mode of preparing *Liquor Arsenicalis*; state what quantity of arsenious acid is contained in an average dose; and how you would counteract the effects of an overdose.
4. How would you determine the purity of *Pulv. Colocynth.*, or other powders which often contain an admixture of flour or other similar adulterant?
5. Name the liquids employed in exhausting the solid materials for the following extracts:
   Ext. Aloes Barbadensis,
   " *Ergotæ Liquidum,*
   " *Nucis Vomicæ,*
   " *Opii,*
   " *Rhei.*
6. State what you know regarding the adulteration of essential oils, and name methods for the detection of the ordinary adulterants.
7. How would you estimate the strength of acids?
8, 9 and 10. Recognition of specimens and verbal examination.

MATERIA MEDICA.

Examiner—MR. YEOMANS.

1. Give the Botanical and Geographical source of Fol. Belladonna, Rad. Aconite, Flor. Anthemidis, Rad. Sanguinaria. Mention the different preparations into which they enter.

2. Give the Zoological and Geographical source of Cantharis, Castoreum, Cetaceum, Moschus.
3. Name the adulterations most frequently met with in the following:—Opium, Scammonium, Ol. Croton Tig, Cantharis, Copaiba.
4. Give the natural history of Ergot, describing the development of the fungus which produces it. Name its preparations.
5. Name the Resins, Oleo-Resins and Balsams of the British Pharmacopœia. Give name, habitat, and part of plant from which obtained.
6. How does Starch differ from Glucose, Cellulose or Dextrine? In which of the following can Starch be detected: Calumba, Gentiana, Opium, Nux Vomica, Zingiber, Rad. Sarsæ.
7. What per cent. of morphine is found in good Turkey Opium? What proportion of Codeine, Narceine, Narcotina? and what acids are found in Opium?
8. Where and how are the following obtained? What are their properties, and into what preparations do they enter?—Potas. Nitras, Arsenious Acid, Bismuth, Hydragyrum, Iodine, Pepsin.
9. Recognize samples and give Latin name.
10. Give Botanical and Geographical source of the samples.

CHEMISTRY.

EXAMINER—MR. SHUTTLEWORTH.

1. Give the combining weights of O. N. C. S. Cl. Ky. Na. Fe. Hg.
2. Give the names of the following compounds:—
   H_3PO_4; $MgSO_4.7H_2O$; $NaHCO_3$; $KHC_4H_4O_6$; $C_{12}H_{22}O_{11}$.
3. State the chemical composition of the so-called commercial *Ferri Carb. precip.*, *Ferri Peroxidum humidum B.P.*, and *Ferri Peroxidum Hydratum*, *B.P.*, and the essential differences in their modes of preparation.
4. State the sources, properties, and specific gravity of commercial Liquor Ammoniæ fort; and the specific gravity and strength of *Liquor Ammoniæ*, B.P., and *Liquor Ammoniæ Fortior*, B.P.
5. In what state does Glycerine exist in fats and oils; how is it obtained; state its properties and pharmaceutical uses.
6. Give a general outline of the process by which the vegetable alkaloids are obtained.
7. An unlabelled bottle contains a solution of either chloride, chlorate, bromide or iodide of potassium: name the tests by which you could determine its contents.

8, 9, 19. Recognition of specimens and verbal examination.

BOTANY.

Examiner—MR. YEOMANS.

1. In what respect do plants differ from inorganic matter? And from animals.
2. Describe a Rhizome, Tuber, Bulb; and say if they belong to the root or stem; which are Rheum, Jalapa, Sweet Potato, Onion.
3. Define the difference between natural and special forms of leaves; between simple and compound leaves. Give example of each. Sketch a connate perfoliate leaf.

4. Mention the parts of an embryo. Of a leaf. Of a pistil. Of a stamen. Of a seed.
5. What is meant by an albuminous seed? By diœcious flowers? By a compound ovary?
6. What is the difference between determinate and indeterminate inflorescence? How do they influence growth of the stem? Give three principal kinds of each?
7. Name the parts of a flower? What office is performed by the ovule? Name two kinds?
8. Name the parts of a vegetable cell? What are spiral ducts? Lactiferous vessels?
9. In what parts of the plant is the work of absorption carried on? In what part the work of assimilation? How do plants purify the air for animals.
10. Describe sample plants, and answer verbal questions.

PRACTICAL DISPENSING.

Examiner—MR. GREGORY.

The following prescriptions are to be compounded:—

1. ℞. Res. Podoph. grs. ij.
   Ferri. Sulph. Pur. grs. vj.
   Aloes. Socot. grs. xx.
   Ft. pil. sex. quam. æger sumat pil. i, omni nocte.
2. ℞. Emp. Lyttæ. 6×6.
   Adhibeatur emplastrum epispasticum interscapulas.
3. ℞. Ext. Hyosciam. grs. x.
   Camphoræ, grs. xx.
   Adipis, ʒss.
   Ft. ung. sec. art. utend. more dict.

Each candidate is expected to leave his utensils clean, and in their places, and his dispensing counter tidy. The care, or otherwise, with which he does this will have a very decided effect on his ratings.

PRESCRIPTIONS.

EXAMINER—MR. GREGORY.

1. Translate the following prescription into English:—

   Recipe—Vini Colchici cormi guttas viginti,
   Potassæ Sulphatis, drachmam cum semisse,
   Sodæ Bicarbonatis, scrupulos duos,
   Aquæ Anethi, fluidunciam cum semisse
   Tincturæ Calumbæ, fluid drachmam cum semisse,

   Fiat haustus cum acidi tartarici granis quindecem in aquæ semiunciam fluidam impeter effervescentiæ sumendus.
2. Write a prescription in full Latin for an eight ounce mixture, of which a tablespoonful is to be given every two hours, each dose to contain four minims of Laudanum, a quarter of a grain of Tartar Emetic, and the remainder Camphor Water.
3. Note any errors that may occur in the following prescriptions:—

   R.—Pot. Chlorat, ʒvi.
   Pot. Bicarb, ʒii.
   Mellis, ʒp.
   Tinct. Capsici, gtt. xx.

Acid. Hydrochlor., Dil. ʒii.
Aquæ ad ʒviii.
Tt. gargarism. Saepe utend.

℞.—Strychniæ, grs. ij.
Pulv. Rhei., grs. xxiv.
Pil. Hydrarg, grs. xii.
Podophyllin, grs. xxxvi.
Div. in pil. xxiv. One three times a day.

4. Give maximum and minimum doses for an adult of the following:—Ext. Cannabis, Ind., Fld. Ext. Verat. Virid., Tinct. Aconite, Tinct. Cardamom Comp., Spts. Ammon. Ar., Aloes Barb., Aloes Scoot., Bismuth Subnit., Pepsine, Strychnia, Tinct. Opii.
5. Translate the following contractions, and give full Latin for them:—Add., ad, amp., aq. fluv., aq. font., aq. pur., chart., don. alv. sol. fuer., ejusd., mit., mitt., post. prand., q. e., vesp., usq.
6. How many doses of a teacupful each are contained in a four ounce mixture? Of a wineglassful? Of a tablespoonful? Of a teaspoonful? Of a dessertspoonful? Of a minim? Of a drop?
7. What antidotes would you apply in case of poisoning by Fly Paper, or by a Liniment containing Aconite and Laudanum?

8.
9.
10. Read and translate autograph prescriptions, and answer questions concerning same.

Editorial Summary.

Ozokerite or Earth-Wax.—We have recently been shown some remarkably fine samples of *ceresine*—a substitute for bees-wax—which is derived from the ozokerite of Austria, and which is now being introduced into this country. A few particulars gleaned from a paper read by Dr. J. Grabowsky, at a late meeting of the American Chemical Society, may prove acceptable to our readers. Ozokerite, the crude material from which ceresine is manufactured, is found principally in Galicia, Austria, at the foot of the Carpathian mountains, where it occurs associated with petroleum and brine, in beds of blue clay and marl, which form part of the miocene formation. The industry has assumed very considerable proportions, as may be inferred from the fact that, in 1875, about forty-four millions of pounds of earth-wax were produced in the place referred to. The crude wax is of various colours and degrees of purity; the best is transparent, yellow, and easy to knead between the fingers; this, when melted, yield a so-called "prime" wax, used principally for the manufacture of ceresine. The poorer kinds are dark coloured, and either very soft, from containing much petroleum, or too hard,

resembling asphaltum, and fusing at a high temperature. These kinds are chiefly used for the manufacture of paraffin. Very little is known about the formation of ozokerite, but it is probable that it is a product of the oxidation and condensation of petroleum hydrocarbons, which latter may be produced from an oxidation of marsh gas. There are two commercial kinds of earth wax, that above referred to as "prime," of light yellow colour, and more or less transparent; and "seconds," which is dark brown, almost opaque, containing earthy impurities, and generally of soft consistence. The products of the distillation of the darker kinds are benzine, 2 to 8 per cent.; naphtha, 15 to 20; paraffin, 36 to 50; heavy lubricating oils, 15 to 20; and coke 10 to 20 per cent. The paraffin is treated with sulphuric acid and caustic soda, filtered through paper and fine animal charcoal, and manufactured into candles. Ceresine is made from the best samples of ozokerite, which are treated in various ways for the removal of colour, and impurities. About 60 or 70 parts of white wax may thus be obtained from 100 of ozokerite. In order to complete the resemblance to common beeswax, the white wax is often coloured with gamboge or alkanet, and a little beeswax melted with it in order to communicate the characteristic odour. A good sample can hardly be distinguished from beeswax, but the following methods may be adopted in order to detect the substitution:—(1) Ceresine is not as easily kneaded between the fingers, and becomes brittle more readily than beeswax. This test is, however, doubtful, if the sample consists of a mixture of the two. (2) Ceresine is scarcely attacked by warm concentrated sulphuric acid, whereas beeswax is completely destroyed by it. By this test the quantities of beeswax and ceresine may in a mixture of both be determined. The price of ozokerite in Vienna is from ten to twelve dollars per 100 kilos (220 lbs.); of ceresine, from thirty-two to forty dollars per 100 kilos. The whole industry is in the hands of Jews, and is capable of great extension and improvement.

THE DIGESTIVE PRINCIPLE OF THE SO-CALLED CARNIVOROUS PLANTS.—Our readers will remember the interesting papers of Hooker, Tait, and others, who, some few years ago, made a special study of the habits of *Drosera*, *Sarracenia*, *Nepenthes*, and other insectivorous plants. It was fully proved that insects falling or being entangled in the receptacles were dissolved, and perhaps assimilated. Mr. P. H. Vines, of Christ's College, Cambridge, has recently made an exhaustive series of experiments on the nature of the digestive ferment by which these results have been accomplished, and in a paper published in the *Journal of Anatomy and Physiology*, gives the conclusions arrived at. The plants on which the experiments were made were *Nepenthes hybrida* and *gracilis*. The glands of the

pitchers of these were found to contain a digestive ferment soluble in glycerine, but which can exert its digestive action only in presence of an acid: "that, in fact, the solution of proteids by insectivorous plants is effected by a true digestive process, which resembles in every particular the process of solution of proteids which takes place in the digestive cavity of an animal." Pellets of swollen-up fibrin placed in an acidulated glyceric solution of this principle were completely dissolved, and the filtrate gave a distinct peptone reaction, but the neutral glyceric solution produced little or no effect. It thus appears that in this action in the gland cells of the pitchers, as in the secreting cells of the stomach and of the pancreas, the digestive ferment exists at first in combination with some other body, as zymogen, which, in both cases, is split up by the action of dilute acids, the free ferment making its appearance as a result of the decomposition. These results are in complete harmony with the researches of Riess and Will, who experimented on the secretion of the leaf glands of *Drosera*, and also with those of Van Gorup Besanez, who examined various species of *Nepenthes*.

Preservation of Syrup of Iodide of Iron.—Mr. H. F. Meier (*Druggists Circular*) proposes iodhydric acid as a preservative of this syrup. It is assumed that the change in colour, to which the preparation is subject is to be attributed to the formation of ferric iodide; and that the deposit usually formed is generally composed of ferric oxide. It is stated that by adding to each pint of the syrup of the U. S. P. about two grains of anhydrous acid, these changes may be effectually prevented. For the preparation of the acid the following mode is recommended: Dissolve 166 grains of potassium iodide in two fluid ounces of water, and 153 grains of crystallized tartaric acid in four fluid ounces of alcohol; mix the solutions, and, when the precipitate of bitartrate of potassium has subsided, filter, and wash the filter with a small quantity of 66 per cent. alcohol; then evaporate the filtrate to two fluid ounces. This should be done at once, for in presence of alcohol the acid decomposes more readily than in watery solution. Each fluid drachm of this dilute acid contains eight grains of anhydrous acid, and is therefore sufficient to preserve at least four pounds of syrup. The solution can also be used to redissolve the sediment in old syrup, the above quantity being generally sufficient if time be allowed for the operation. For removing the colour from syrup, the writer thinks the use of clean iron preferable to the mode of decolourizing by sunlight. In the former case, ferric iodide is reduced to the ferrous salt, while, in the latter, ferric iodate is in all probability formed. The writer has not found that the presence of hydriodic acid is followed by any deposition of grape sugar, as some persons have supposed would have been the case.

LIQUID EXTRACT OF CINCHONA.—In a paper read recently at a meeting of the Liverpool Chemists' Association, Mr. A. C. Abraham alluded to the liquid extract of cinchona, a preparation with which he had had considerable experience. After trying various processes, he found that by passing the bark through a sieve of twenty meshes, packing tightly in a percolater, and percolating with water kept at 212°, the best results were obtained. By passing a jet of steam through or into the water over the surface of the powder, the requisite temperature could be easily maintained. The percolate requires filtration before being brought to a very small bulk, as hot water dissolves more of the cinchotannic acid and cinchona red, etc., than cold, but the solubility or diffusibility of the alkaloids is increased in an equal or increased ratio. The author is of the opinion that the difficulty of exhausting cinchona is not to be attributed to want of solubility of the alkaloids in their natural state of combination, but rather that of reaching them without removing the substances surrounding them, which are so insoluble in cold water.

—NEW METHOD OF PREPARING SODA FROM COMMON SALT.—H. Gruneberg and J. Vorster propose the following method: Salt and alumina are mixed with water to a pulp, and the mass is dried, broken into small pieces, and treated with steam heated to dryness. Hydrochloric acid then escapes, and sodium aluminate remains behind; the latter is freed from admixtures by lixiviation and ether decomposed by means of carbonic acid, or with caustic lime.

Instead of alumina, ferric oxide or an other metallic oxide may be used. If caustic potash is to be prepared, the common salt is to be replaced by potassium chloride.—*J. Chem. Soc.* from *Ding. Pol. J.*

ASPARAGIN IN ALMONDS.—M. L. Portes (*Repert de Pharm*) reports the discovery of asparagin in the kernels of sweet almonds. If they be placed in absolute alcohol, or even spirit of 90 per cent., a crystalline crust will in time be formed around each almond. With absolute alcohol this crust commences to form in one or two days, but with that of 90 per cent. five or six days are required. These crystals consist of asparagin, which may be collected, dissolved in hot water and recrystallized.

Varieties.

OINTMENT FOR BURNS.—Dr. Bedford Brown, in an article on burns, recommends the following treatmenl to allay pain and promote the process of healing: Take iodoform, 2 dr.; Spermaceti ointment, 1 oz,; Extract of conium, 1½ dr.; Carbolic acid, 10 drops. This, spread on fine linen, is applied twice daily to the inflamed surface, and then enveloped in oiled silk, no other dressing being required. In cases where there is a great dryness of surface from destruction of vitality and want of exhalation, the wound, before applying the ointment, should be coated with the common linimentum calcis, which affords a soft and moist dressing, and in no wise interferes with the action of the iodoform. The iodoform acts as a certain and most effective sedative on the painful and exposed surface, and at the same time as an antiseptic. It reduces inflammation and suppuration, when in excess, in a remarkable manner, promptly converting a most painful and irritable wound into one that is comparatively painless. It is also an excellent promoter of healthy action and the healing process, and has besides the great advantage of rendering the use of anodynes unnecessary. —*Phiadelphia Medical Times.*

A CRYSTALLINE COATING FOR PAPER OR WOOD.—Professor Böttger recommends the following recipe for this purpose: Mix a concentrated cold solution of salt with dextrine, and lay the thinnest possible coating of the fluid on the surface to be covered by means of a broad, soft brush. After drying, the surface has a beautiful, bright mother-of-pearl coating, which, in consequence of the dextrine, adheres firmly to paper and wood. The coating may be made adhesive to glass by doing it over with an alcoholic shellac solution. The following salts are mentioned as adapted to produce the most beautiful crystalline coating; sulphate of magnesia, acetate of soda, and sulphate of tin. Paper must be first sized, otherwise it will absorb the liquid and prevent the formation of crystals. Colored glass thus prepared gives a good effect by transmitted light.—*Boston Jour. Chemistry.*

TEST FOR BILIOUS URINE.—O. Rosenbach reeommends in "Med. Centr. Bl.," the following as the easiest and a very reliable test for bile in urine: Urine is filtered through white filtering paper; if it contains bile the paper will be colored lively yellow till nearly brown. Now let one drop of pure concentrated nitric acid run down the side of the still moist filter; it will, in the presence of bile, leave a yellow streak, which soon turns orange with a violet border, and outside of this dark-blue and emerald green. These colours stay sometimes for hours. Urine, otherwise dark-colored, but not containing bile, does not show this display of colors.—*Ny Phar. Tid.*, 1876, p. 195. *Am. jour. Pharm.*

VANILLIN FROM WOOD-TAR.—Reimer observed a reaction which is common to all phenols, by which the latter are transformed into aromatic aldehyds. Phenol is mixed with chloroform and an excess of soda solution; after the reaction the excess of undecomposed chloroform is distilled off and an acid added, when salicylic aldehyd is produced, which may be purified by combining with sodium bisulphite and liberation by an acid.

Guaiacol treated in the same way yields vanillin, the aldehyd of vanillic acid. Gorup-Besanez found (1877) guaiacol to be one of the constituents of beech wood-tar creasote.—*Phar. Cent. Halle*, No. 31.

POWDER FOR PRODUCING OZONE.—In order to produce artificial ozone, Mr. Lender makes use of equal parts of peroxide of manganese, permanganate of potash, and oxalic acid. The two former may be mixed, but the latter should be kept in a separate paper till wanted for use. When this mixture is placed in contact with water, ozone is quickly generated. For a room of medium size two spoonfuls of this powder, placed on a dish and occasionally diluted with water, would be sufficient. The ozone develops itself; it disinfects the surrounding air without producing cough.—*Laboratory*

TO FASTEN PAPER TO TIN.—The *English Mechanic* says: Take good, clear, pale yellow glue, break it in rather small pieces, and let it soak a few hours in cold water. Pour off the supernatant water, place the glue thus softened in a wide-mouthed bottle; add sufficient glacial acetic acid to cover the glue, and faciltate the solution by standing the bottle in warm water. This acetic glue, as it oxidizes all but the noble metals (gold, silver, and platinum), roughens the surface sufficiently to produce perfect and lasting adhesion.—*Pharmacist.*

TO PREVENT GUM FROM BECOMING MOULDY.—Moisten the gum with alcohol, then dissolve in water and add a few drops of sulphuric acid. After the precipitation of calcic sulphate is complete, a perfectly colorless solution of gum is obtained, even when inferior kinds of gum are used.

Registrar's Notices.

RENEWALS SINCE 31ST DECEMBER.

Ault, Edward, Iroquois.
Clark, J. A., Hamilton.
Cooke, F., Guelph.
Coombe, J., Toronto.
Cox, W. H., Yorkville.
Crookshank, J. S., Rond-Eau.
Detlar, W. S., Napanee.
Elliot, H., Hampton.
Jukes, E. A., St. Catharines.
Mallory, M. B., Napanee.
Moore, H. P., Rodney.
Passmore, C. J., Gorrie.
Roper, J., Caledonia.
Rowan, Richard, Stouffville.
Scott, J. R., Napanee.
Shepard, C. A., Lucknow.
Thompson, W. B., Cornwall.
Williams, Joseph, London.
Whyte, W. A., Amherstberg.

NEW REGISTRATIONS.

Grange, G. S., Napanee.
Holliday, F., Carleton Place.
Morgan, G. W., St. Thomas.
Rugg, H. C., Perth.

Those Members who have not sent in the Renewal fee for 1876 will please do so at once.

P. O. Box, 1133. G. HODGETTS, Registrar.

Drugs, Medicines, &c.	$ c.	$ c.
Acid, Acetic, fort	0 13 @	0 14
Benzoic, pure	0 22	0 27
Citric	0 90	1 00
Muriatic	0 03½	0 05
Nitric	0 10	0 13
Oxalic	0 15	0 17
Sulphuric	0 03	0 05
Tartaric, pulv	0 44	0 47
Ammon, carb. casks	0 18	0 20
" jars	0 18	0 20
Liquor, 880	0 20	0 22
Muriate	0 14	0 15
Nitrate	0 45	0 60
Æther, Acetic	0 45	0 50
Nitrous	0 25	0 38
Sulphuric	0 45	0 50
Antim. Crude, pulv	0 15	0 17
Tart "	0 50	0 55
Alcohol, 95 per ct. Cash	2 13	0 00
Arrowroot, Jamaica	0 18	0 22
Bermuda	0 50	0 65
Alum	0 02¾	0 03½
Balsam, Canada	0 33	0 38
Copaiba	0 65	0 70
Peru	2 10	2 20
Tolu	4 00	4 25
Bark, Bayberry, pulv	0 18	0 20
Canella	0 17	0 20
Peruvian, yel. pulv	0 35	0 50
" red "	1 60	1 70
Slippery Elm, g. b	0 18	0 20
" flour, packets	0 28	0 32
Sassafras	0 12	0 15
Berries, Cubebs, ground	0 20	0 25
Juniper	0 06	0 10
Beans, Tonquin	1 00	1 20
Vanilla	18 00	24 00
Bismuth, Alb	2 25	2 50
Carb.	2 40	2 65
Camphor, Crude	0 23	0 35
Refined	0 38	0 40
Cantharides	1 50	1 60
Powdered	1 60	1 70
Charcoal, Animal	0 04	0 06
Wood, powdered	0 10	0 15
Chiretta	0 23	0 30
Chloroform	0 00	1 55
Cochineal, S. G	0 80	0 85
Black	90	0 95
Colocynth, pulv	0 60	0 65
Collodion	0 70	0 80
Elaterium oz	3 20	4 00
Ergot	1 10	1 20
Extract Belladonna	1 65	1 80
Colocynth, Co	1 25	1 75
Gentian	0 50	0 60
Hemlock, Ang	0 00	0 95
Henbane, "	2 50	2 60
Jalap	4 50	5 00
Mandrake	1 75	2 00
Nux Vomic oz	0 40	0 50
Opium oz	1 25	
Rhubarb	5 00	5 50
Sarsap. Hon. Co	1 00	1 20
" Jam. Co	3 50	4 00
Taraxacum, Ang	0 70	0 80
Flowers, Arnica	0 22	0 25
Chamomile	0 30	0 35
Gum, Aloes, Barb. extra	0 70	0 80
" " good	0 40	0 50
" Cape	0 16	0 20
" " powdered	0 20	0 30
Socot	0 50	0 75
" " pulv	1 00	0 00
Arabic, White	0 31	0 58
" powdered	0 60	0 75
" sorts	0 19	0 24
" " powdered	0 42	0 50
" com. Gedda	0 13	0 16
Assafœtida	0 15	0 20
British or Dextrine	0 13	0 15
Benzoin	0 35	0 75
Catechu	0 12	0 15
" powdered	0 25	0 30
Euphorb, pulv	0 40	0 45
Gamboge	1 00	1 20
Guaiacum	0 35	1 00
Myrrh	0 50	0 80

Drugs, Medicines, &c.—*Contd*	$ c.	$ c.
Sang Dracon	0 60	
Scammony, powdered	5 50	6 00
" Virg. "	14 50	—
Shellac, Orange	0 50	0 55
Gum, Shellac, liver	0 38	0 40
Storax	0 40	0 45
Tragacanth, flake	1 10	1 75
" common	0 53	0 65
Galls	0 22	0 30
Gelatine, Cox's 6d	1 15	1 20
Glycerine, common	0 25	0 28
Vienna	0 30	0 32
Prices	0 60	0 75
Honey, Canada, best	0 16	0 17
Lower Canada	0 10	0 12
Iron, Carb. Precip	0 16	0 20
" Sacchar	0 40	0 55
Citrate Ammon	1 10	1 20
" & Quinine, oz	0 40	0 85
" & Strychine	0 17	0 20
Sulphate, pure	0 05	0 07
Iodine, good	3 20	3 50
Resublimed	3 90	4 20
Jalapin	1 25	1 50
Kreosote	2 50	2 60
Leaves, Buchu	0 22	0 32
Foxglove	0 25	0 30
Henbane	0 35	0 40
Senna, Alex	0 27	0 60
" E. I	0 14	0 20
" Tinnevilly	0 20	0 30
Uva Ursi	0 15	0 17
Lime, Carbolate brl	5 50	—
Chloride	0 05	0 06
Sulphate	0 08	0 12½
Lead, Acetate	0 13	0 14
Leptandrin oz.	0 60	—
Liq. Bismuth	0 45	0 55
Lye, Concentrated	1 30	1 50
Liquorice, Solazzi	0 50	0 55
Cassano	0 23	0 40
Other brands	0 14	0 25
Liquorice, Refined	0 35	0 45
Magnesia, Carb 1 oz.	0 20	0 25
" 4 oz.	0 19	0 20
Calcined	0 60	0 65
Citrate gran.	0 60	0 75
Mercury	0 80	0 85
Bichlor	0 90	1 00
Chloride	1 05	1 10
C. Chalk	0 50	0 55
Nit. Oxyd	1 15	1 25
Morphia Acet	3 25	3 35
Mur.	3 25	3 35
Sulph	3 40	3 50
Musk, pure grain oz	25 00	.....
Canton	0 60	0 70
Oil, Almonds, sweet	0 55	0 60
" bitter	8 00	8 50
Aniseed	3 25	3 50
Bergamot, super	6 00	6 25
Caraway	3 20	3 50
Cassia	1 75	2 00
Castor, E. I	0 13½	0 15
Crystal	0 22	0 25
Italian	0 24	0 26
Citronella	1 00	1 10
Cloves, Ang	3 50	3 60
Cod Liver, Imp. Gal	2 00	2 10
Croton	1 40	1 50
Juniper Wood	0 81	1 00
Berries	2 75	3 00
Lavand, Ang oz.	0 00	1 00
Exotic	1 25	1 50
Lemon, super	3 50	3 75
ord	0 00	0 00
Orange	2 40	2 60
Origanum	0 65	0 75
Peppermint Ang	14 00	15 00
" Amer	4 00	5 00
Rose, Virgin	8 50	8 75
" good	6 60	6 75
Sassafras	0 80	0 90
Wintergreen	4 00	4 25
Wormwood, pure	5 00	6 00
Ointment, blue	0 70	0 80
Opium, Turkey	7 00	7 25
pulv	9 00	9 25

DRUGS, MEDICINES, &c.—*Cont'd*	$ c.	$ c
Orange Peel, opt.	0 35	0 36
" good	0 15	0 20
Pill, Blue, Mass	0 70	0 80
Potash, Bi-chrom	0 14	0 16
Bi-tart	0 30	0 32
Carbonate	0 13	0 15
Chlorate	0 27	0 30
Nitrate	8 00	9 00
Potassium, Bromide	75	0 80
Cyanide	0 55	0 60
Iodide	2 90	3 00
Sulphuret	0 25	0 35
Pepsin, Boudault's oz	1 25	—
Houghton's doz.	8 00	9 00
Morson's oz.	0 85	1 10
Phosphorus	1 10	1 20
Podonhyllin	0 50	0 60
Quinine, Pelletier's	—	2 45
Howard's	3 45	—
" 100 oz. case.	3 40	—
" 25 oz. tin..	3 40	—
Root, Colombo	0 13	0 20
Curcuma, grd	0 12½	0 17
Dandelion	0 17	0 20
Elecampane	0 16	0 17
Gentian	0 08	0 10
" pulv	0 15	0 20
Hellebore, pulv	0 25	0 00
Ipecac, "	1 30	1 40
Jalap, Vera Cruz	90	1 15
" Tampico	0 70	1 00
Liquorice, select	0 12	0 13
" powdered	0 15	0 20
Mandrake "	0 20	0 25
Orris, "	0 20	0 25
Rhubarb, Turkey	2 10	2 25
" E. I	1 00	1 10
" " pulv	1 10	1 20
" " 2nd	0 60	0 70
" French	0 75	—
Sarsap., Hond	0 35	0 50
" Jam	0 95	1 00
Squills	0 10	0 15½
Senega	0 80	9 90
Spigelia	0 30	0 32
Sal., Epsom	2 00	2 50
Rochelle	0 30	0 32
Soda	0 01½	0 02
Seed, Anise	0 13	0 16
Canary	0 07½	0 08
Cardamon	1 60	1 70
Fenugreek, g'd	0 08	0 09
Hemp	0 06½	—
Mustard, white	0 16	0 17
Saffron, American	0 50	0 60
Spanish	10 00	11 00
Santonine	20 00	22 00
Sago	0 08	0 09
Silver, Nitrate Cash	14 90	16 00
Soap, Castile, mottled	0 11	0 14
Soda, Ash	0 03¾	0 05
Bicarb. Newcastle	4 00	4 25
" Howard's	0 14	0 16
Caustic	0 03¾	0 04
Spirits Ammon., arom	0 38	0 4
Strychnine, Crystals	1 70	1 80
Sulphur. Precip	0 12	0 13
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 70	0 80
Zinc. Chloride oz	0 10	0 15
Sulphate pure	0 10	0 15
" commo 1	0 06	0 10
DYESTUFFS.		
Annatto	0 35 @	0 60
Aniline, Magenta, cryst	2 60	2 60
" liquid	2 00	—
Argols, ground	0 15	0 25
Blue Vitro, pure	0 07½	0 09
Camwood	0 07	0 05
Copperas, Green	0 01½	0 02
Cudbear	0 16	0 25
Fustic, Cuba	0 03	0 04
Indigo, Bengal	2 40	2 50
Madras	0 90	0 95
Extract	0 26	0 30

DYESTUFFS—*Continued.*		
Japonica	0 06¼	0 07
Lacdye, powdered	0 33	0 38
Logwood	0 02½	0 03
Logwood, Camp	0 02⅝	0 03
Extract	0 12	0 13
" 1 lb. bxs	0 15	—
" ½ lb. "	0 16	—
Madder, best Dutch	0 09	0 10
2nd quality	0 08	0 09
Quercitron	0 03	0 05
Sumac	0 06	0 08
Tin, Muriate	0 10½	0 12½
Redwood	0 05	0 06
SPICES.		
Allspice	0 13 @	0 14
Cassia	0 25	0 28
Cloves	0 48	0 50
Cayenne	0 17	0 20
Ginger, E. I	0 14	0 15
Jam	0 25	0 30
Mace	1 10	1 10
Mustard, com	0 20	0 25
Nutmegs	1 00	1 05
Pepper, Black	0 15	0 16
White	0 26	0 28
PAINTS, DRY.		
Black, Lamp, com	0 09 @	0 10
" 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 26	0 28
Magnesia	0 20	0 25
Litharge	0 07	0 09
Pink, Rose	0 12½	0 15
Red Lead	0 06¾	0 08
Venetian	0 02½	0 03
Sienna, B. & G	0 07	0 08
Umber	0 07	0 10
Vermillion, English	0 85	0 90
American	0 25	0 35
Whiting	0 85	1 00
White Lead, dry, gen	0 08½	0 09
" " No. 1	0 07	0 08
" " No. 2	0 05	0 07
Yellow Chrome	0 09	0 15
" Ochre	0 02½	0 03½
Zinc White, Star	0 09	0 11
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 10	0 12
Putty	0 03¾	0 04½
Yellow Ochre	0 08	0 12
White Lead, gen. 25 lb. tins	2 20	—
" No. 1	1 05	—
" No, 2	1 70	—
" No. 3	1 45	—
" com	1 30	—
White Zinc, Snow	2 50	2 75
NAVAL STORES.		
Black Pitch	3 00 @	3 25
Rosin, Strained	3 75	4 00
Clear, pale	4 50	6 00
Spirits Turpentine Imp. Gall	0 70	0 72
Tar Wood	4 50	4 75
OILS.		
Cod Imp. Gall	0 84 @	0 86
Lard, extra "	1 25	1 27
No. 1 "	1 14	1 16
No. 2 "	1 02	1 05
Linseed, Raw per 7½ lbs.	0 61	0 63
Boiled "	0 63	0 67
Olive, Common Imp. Gall	1 26	1 30
Salad "	2 01	2 10
" Pints, cases	4 00	4 20
" Quarts	3 25	3 50
Seal Oil, Pale Im. Gal	0 95	1 00
Straw "	0 90	0 95
Sesame Salad "	1 56	1 60
Sperm, genuine "	2 70	2 75
Whale refined	0 00	0 00