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CANADIAN

PHARMACEUTICAL JOURNAL

VOL. V, No. 8. TORONTO, MARCH, 1872. WHOLE No. XLVII.

Transactions of Societies.

ONTARIO COLLEGE OF PHARMACY.

COUNCIL MEETING.

The regular semi-annual meeting of the Council was held in the rooms of the College, on Wednesday, 7th inst., at noon.

Present—The President, Vice-President, Messrs. Elliot, Miller, Shuttleworth, Hodgetts, Roberts, Saunders, Brendon, Stork, Chandler and Dunspaugh.

Minutes of last meeting, as published in the JOURNAL, were read.

Mr. Hodgetts moved,

Mr. Bickle seconded,

That the minutes of the last meeting, so far as regards the actual doings of the Council, be entered on the minute book of the Council, and signed by the President.—Carried.

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

Toronto, Feb. 7, 1872.

To the Council of the Ontario College of Pharmacy.

GENTLEMEN,—The Board of Examiners beg to report that the February examination has been held in accordance with the provisions of the Pharmacy Act and the subsequent regulations adopted by the Council.

Ten candidates presented themselves, and having thoroughly examined their papers we find that the eight below named are entitled to the diploma of the College having furnished answers of sufficient value to entitle them to marks as follows:

	Mater. Medic.	Pharmacy.	Prescri'ns	Chemistry.	Botany.	Total.
H. Rosser, London.....	19	17¾	17½	19¼	17½	91
C. E. Scarff, Woodstock	18	18¾	16¾	19½	18	91
W. R. House, Toronto.	14½	18¾	16½	15¾	16½	82
A. Jeffery, "	16¼	16½	17½	15	16¾	82
K. Miller, "	14¾	17¾	16¾	17	11	77¼
Fred. Clarke, "	16¼	18¼	17½	13¼	10½	75¾
S. Richardson, Galt.....	14½	14¼	12¼	12¾	14½	68¼
E. Winkler, Mt. Forest.	12½	11¾	11¾	14¾	14½	65¼

We take pleasure in calling attention to the high degree of merit which we have found some of the papers to possess, viz., those of C. E. Scarff's on Chemistry, Pharmacy, and Botany; H. Rosser on Chemistry, Materia Medica, and Pharmacy; House on Pharmacy; Jeffery on Prescriptions; Miller and Clarke on Pharmacy.

In view of the excellence of the paper referred to, it has occurred to us that it might be advisable for the Council to offer some reward to the gainer of the highest number of marks in each examination, as a means of stimulating candidates to thorough preparation; we would, however, suggest that no prize be given for a less number than 75 marks.

W. SAUNDERS, Chairman.

Mr. Elliot moved,

Mr. Hodgetts seconded,

That the report of the examiners, just read by Mr. Saunders, be received and adopted, and that this Council orders that the necessary certificates be granted to the gentlemen therein named, as having passed the necessary examination.

Mr. Miller said that he thought the specimens of colchicum root and cascarilla bark presented to the candidates in materia medica were hardly fair commercial samples, in which case it was hardly to be expected that candidatee would recognize them.

Professor Shuttleworth objected to several of the questions in chemistry.

Mr. Saunders defended the examination papers, and replied to remarks made.

Mr. Stork said that the Council had sufficient confidence in the gentlemen appointed as examiners to adopt their report without discussing the questions given.

Mr. Bickle thought that it was not well to look at the questions too technically. He moved,

Prof. Shuttleworth seconded,

That in compliance with the suggestion contained in the report of the Examining Committee, and as an incentive to high attainment, this Council offer to intending candidates two prizes, the first prize, of the value of ten dollars, to the highest, having a number not less than 85 marks, and a second prize, of the value of five dollars, to the next highest, having not less than 75 marks; and, in case of equal numbers, then the value of prize to be divided between the equal competitors; the prizes to be selected by the examiners and the President of the Council.—Carried.

Mr. Bickle said that in view of the amount of work connected with the examinations, he thought that an increase in the remuneration established in the By-laws would be advisable, and would give notice, That at the next session of this Council he would move that By-law XIV. be amended by the addition of the following: "In case the number of candidates shall exceed five, that a further sum of one dollar be given to each member of the examining board for each candidate.

Mr. Elliott moved,

Mr. Dunspaugh seconded,

That in addition to the sum of five dollars granted to the examiners under the By-law, the sum of one dollar be granted to each examiner for each candidate over five, who has been present at this examination.—Carried.

Prof. Shuttleworth moved,

Mr. Roberts seconded,

That the questions given at the first and second examinations be published in the form of a circular, to be furnished by the Registrar, at the price of ten cents each, to students applying for them.

Mr. Saunders moved,

Mr. Elliott seconded, in amendment,

That the questions given at the last two examinations be placed in the hands of the Registrar, and that he be instructed to furnish copies of them to any of the members of the College on application, the applicant to pay for making copy.

A division having been called for, the amendment was carried.

Yeas—Messrs. Brendon, Dunspaugh, Elliot, Hodgetts, Saunders and Stork.

Nays—Messrs. Roberts, Miller, Shuttleworth.

A letter was read from Mr. G. D. Lucas, wishing the Council to authorize his being examined at Gananoque. It was resolved,

That the request of Mr. Lucas to be examined in his own town, instead of coming to Toronto for that purpose, be not granted.

Prof. Shuttleworth read the report of the Education Committee.

Report of the Committee on Education.

The Committee on Education beg leave to report as follows:

That, bearing in mind that the object in the appointment of your Committee was that of ascertaining what educational facilities could be obtained in Toronto, the principal business done has been in regard to the inquiries necessary to be made. Various Government officials having been interviewed by individual members of the Committee, it was ascertained that the Government would probably regard with favor any suggestions in regard to possible arrangements with the College of Technology about to be established in this city. Thus encouraged, the Chairman of your Committee waited on the Minister of Agriculture and represented the desirability of our College possessing a suitable place for transacting their business. The request that such provision should be made from the rooms at disposal in the building of the College of Technology was graciously assented to by Mr. McKellar, and two suitable apartments, with furniture, were at once placed at our disposal; no conditions as to rent or other expense being specified or required.

It was thought advisable to hold a meeting of the Committee, on Monday, February 5th, to consider the advisability of asking further aid of the Government. This was done, and it was resolved to lay a formal statement of the condition of the College before Mr. McKellar, with a request that provision be made for allowing students in Pharmacy to attend the classes of the College of Technology. To this a favorable answer has been returned, and though the Government are not, at present, in a position to give a decided answer, they have promised to consider the matter at their earliest convenience, and we are justified in reporting our belief that the requests of the College will be acceded to.

As there are a large number of students throughout the country who could not make it convenient to come to this city in order to attend such courses of lectures as may be provided, it appeared desirable that some scheme should be devised to meet the emergency. After discussing various projects having this end in view, the following conclusions were arrived at: That the formation of Local Societies should be encouraged, and a small grant of money in aid of that object should be made from the funds of the College.

Your Committee would suggest that to such Societies as may be formed for the purpose of stimulating and assisting young men to acquire a knowledge of their business, and which should hold regular meetings, at least twice a month, during the winter months —say from the 1st day of October until the 1st of April—shall, on presenting a certificate of attendance, duly certified to by the President and Secretary of such Society, be entitled to receive a sum of money equal to two dollars for each member so attending.

Your Committee are of the opinion that, except it is decided to

hold a summer session of the College of Technology, there is no possibility of getting any educational scheme into operation before September or October next.

All of which is respectfully submitted.

BENJ. LYMAN, Chairman.

The report was warmly received by the Council, and adopted.

A letter from Chas. Ormond and others, of Peterborough, was read, asking assistance from the Council in their efforts to provide instruction to students. Mr. Miller moved, Mr. Stork seconded,—

That, in reply to the letter just read, a copy of the report of the Educational Committee be forwarded by the Registrar with a copy of the resolution adopting the same. Carried.

The President gave a verbal report of the Committee on infringements, stating that circulars had been issued to the leading druggists through the Province, asking them to notify the Council of any infringements of the Act which came under their notice. The circulars had been of benefit in bringing in some delinquents.

Three letters were read, and referred to the Committee to take action on.

Mr. Elliot brought forward the alterations in the By-laws of which he gave notice at the last meeting, viz.:—That By-law No. XI. be amended by inserting the following after the words "fifteen days previous to the election:" "The Registrar's duty shall then be to notify the parties nominated, requesting them to reply as to whether or not it is their intention to stand for election; should no answer be received from them within seven days, the Registrar shall assume they intend to be candidates."

The By-law to be further amended by leaving out the words "of those nominated" and inserting "the names of the candidates."

The resolution was adopted as above.

Mr. Elliot moved that the following be added to the By-laws already in force:—

XIX. That no person shall be eligible to membership in the Council unless he either reside or do carry on business as a druggist in the Province of Ontario; and further, that no person shall be allowed to hold a seat in the Council who is in the receipt of any emolument in the gift of the Council, whether as salary or from a contract, or from any other source excepting the payment of expenses of Councillors and Examiners as provided for by By-laws 13 & 14.

The mover urged the justice and advisability of this By-law as being in accordance with the general principles established and acted upon by all Corporations who had the disposal of trust monies in their hands.

Mr. Dunspaugh said that he believed it was contrary to the laws of the Province for any one to receive such emolument while acting on a board of trustees such as the present Council.

Prof. Shuttleworth said that, as one of the persons affected by the proposed by-law, he would be very sorry either to resign his seat at the Council or his position as editor. He questioned the illegality of his holding both offices, and instanced the cases of members of corporations who held their seats, and, at the same time, were remunerated for their services. If it was against the law of the land for such persons to hold office, what right had this Council to exempt the Examiners, as was proposed in the by-law? He should endeavour to do his duty until an adequate legal decision was obtained, or a majority of the Council signified their wish for his withdrawal.

Mr. Bickle said he regretted that Prof. Shuttleworth took the resolution as personal, and hoped that the mover would consent to let the matter lie over until the next meeting of the Council.

Mr. Elliot consented to leave the question for the next meeting.

Mr. Chandler moved,

Mr. Stork seconded,—That a Committee, consisting of the President, Messrs. Elliot and Miller, be appointed with instructions to submit the by-laws of this College to a solicitor, with the view as to their legality, also with the proposed amendment to said by-laws, and report to this Council at its next meeting, and also to the payment of Examiners. Carried.

The Treasurer read his report, as follows:—

W. H. Dunspaugh in account with Ontario College of Pharmacy.

RECEIPTS.

1871.			
Aug 1	To balance in hand ac. Pharmaceutical Society	$	80 97
Oct. 1	" amount to deposit of College in Bank of Commerce		1899 22
" 13	" cheques Messrs. Elliot & Co., ac. W. Mather, advertising		50 00
July 3	" interest on deposit $311, 2 yrs. 2 mos. and 17 days		41 25
			$2071 44

DISBURSEMENTS.

1871.			
Sept 4	By cash paid J. B. Cook's bills this date	$	59 50
" 16	" " "		9 50
Oct 3	" " "		55 75
" 14	" Henry J. Rose half year's salary		200 00
Nov 7	" J. B. Cook ptg Journal October		53 00
Dec 7	" " " November		53 38
" 7	" Elliot & Co., printing poison books		86 75
" 7	" W. H. Dunspaugh, Treasurer's salary 5 mos. 8 days		43 74
" 10	" Geo. Hodgett's cash in bank		1503 34
1872.			
Jan 29	" " " to balance		6 48
			$2071 44

Geo. Hodgetts in acct. with Ontario College of Pharmacy.

RECEIPTS.

1871.			
Dec 10	To cash from W. H. Dunspaugh in Bank of Commerce.....		$1503 34
1872.			
Jan 20	" balance from Mr. Dunspaugh.....		6 48
" 20	" interest on account in bank.....		27 96
Feb 5	" from H. J. Rose, Registrar.....		165 00
			$1702 78
Feb 7	To balance on hand.....		$1543 48

DISBURSEMENTS.

1871.			
Dec 19	By cash paid W. Saunders, app'n for reporting proc. Am. Ph. Assoc.....	$	20 00
" 19	" expenses members attending meeting of Council		84 80
" 26	" Board of Trade Rooms for meeting.....		1 00
1872.			
Jan 8	" J. B. Cook, printing Journal for December.....		52 00
" 31	" Mechanics' Institute, rent of room August 2....		1 50
Feb 7	" balance in hand this date.....		1543 48
			$1702 78

GEO. HODGETTS, Treasurer.

We, the undersigned Auditors appointed by the Ont. Coll. Ph. have examined the above statement, and compared it with vouchers, and find them all correct.

W. H. DUNSPAUGH.
HUGH MILLER.

The Registrar read the following:

OFFICE OF THE REGISTRAR,
ONTARIO COLLEGE OF PHARMACY,
Toronto, Feb. 5, 1872.

The Registrar begs to report that during the past year the following registrations have been made:

In business prior to framing of Act, paid to Registrar	467
Names received from Secretary Pharmaceutical Society.....	52
Qualified assistants who have registered	161
Total registered.....	683
Associate members	31

The total income from Registration and Associate Fees being for the past year $2754.

As there are about 160 names registered of qualified assistants, who will not be in business during the present year, there will consequently be a diminution of the income of the College to the extent of, say $320 for the current year, supposing they continue their connection with the College by paying Associate's Fees; this course being in my opinion open to them. On this point, however, I beg to ask the decision of the Council.

JOURNAL ACCOUNT.

Dr. Treasurer Ontario College Pharmacy.

To Disbursements,	E. B. S.	$177 75
" "	H. J. R.	7 50
" "	Treasurer	265 13
		$450 38

CR.

By advertisements, etc.,	E. B. S.	$199 90
" "	H. J. R.	56 00
" "	Treasurer	50 00
" balance		144 48
		$450 38

CR.

By balance	$144 48
" Editor's salary unpaid	291 66
" February Journal	59 50
	$495 64

Respectfully submitted,

HENRY J. ROSE, Registrar.

Mr. Hodgetts moved,

Mr. Miller seconded,—That, in the opinion of this Council, the system of conducting the examinations is not fitted to the requirements of pharmaceutical education, inasmuch as some subjects of minor interest are given an undue prominence over those of greater importance. That, in future, the dispensing of prescriptions be actually performed before the Examiners in addition to the present written examination, and the proficiency of students be adjudged by both methods, and that the maximum number of marks be 20 in each department. That each subject be under the entire control of one Examiner, whose ratings shall be conclusive, and that the branches be Practical Dispensing, Pharmacy, Chemistry, Materia Medica, and Botany.

That, in addition to the written examination, there be an oral examination, to be conducted by members of the Council.

Prof. Shuttleworth supported the resolution, and criticized the examination papers.

Mr. Saunders defended the course of the Examiners, and said that as the motion was a direct want of confidence in the examiners, he would bow to the decision of the Council in the matter.

Mr. Bickle said that though he approved of the idea of an ex-

amination in practical dispensing, yet he could not support the resolution, nor would he wish the time of the Council to be occupied with what the examiners were appointed to look after.

Mr. Brendon said that the remarks made in support of this resolution, criticizing the labours of the examiners, were quite uncalled for, and, if persisted in, he would like his name withdrawn from the board.

After other remarks, the resolution was lost on division.

Mr. Elliot moved,

Mr. Bickle seconded,

That the sum of six dollars each be paid to Mr. W. Brydon and Mr. R. A. Wood for their services as scrutineers of this Council. Carried.

The President moved,

Mr. Miller seconded,

That the Committee on infringements be requested to continue the discharge of their labours, and report at a future meeting. Carried.

Mr. Saunders moved,

Mr. Stork seconded,

That Prof. Shuttleworth be requested to act in the capacity of editor until next meeting. Carried.

Meeting adjourned.

HENRY J. ROSE, Secretary.

PHARMACEUTICAL ASSOCIATION OF TORONTO.

A meeting for the purpose of organizing a local association in connection with the College was held on Thursday evening, Feb. 22nd. The chair was taken by B. Lyman, Esq. The prospects of success were discussed and the conclusion was arrived at that so long as the present system of keeping stores open until nine or ten o'clock in the evening was continued there would be no hope of a good attendance at the meetings. It was therefore thought that the first object of the association should be to agitate the question of early closing. In view of this, a committee was appointed to wait on all the city druggists in order to learn the general state of feeling, and, if possible, promote a concerted action in favor of the movement. The committee was requested to report at next meeting.—No further business was transacted.

Original and Selected Papers.

ON THE ADULTERATION OF OIL OF PEPPERMINT WITH CASTOR OIL AND ALCOHOL.

BY E. B. SHUTTLEWORTH.

During the last three months a large quantity of American Oil of Peppermint has been disposed of in Canada, which, the writer has been led to believe, is adulterated to an extent hitherto unrecorded. At the last meeting of the American Pharmaceutical Association, Mr. W. Saunders referred to a case of adulteration of this kind which had been brought before his notice, in which the oil of peppermint contained 25 per cent. of castor oil.* From the following circumstances it would appear that the adulteration is carried much further than this :—

A wholesale house having purchased a small quantity of American oil of peppermint was led to believe that it contained an admixture of fixed oil. This supposition was confirmed by the fact that a little of the oil, when dropped on filtering paper and exposed to heat, left a permanent greasy stain. As it was undesirable to vend an article which gave evidence of adulteration, the sample, amounting to 55 pounds, was sent for distillation to the writer. The oily destillate was separated, and found to weigh 18 pounds; it consisted of oil of peppermint of very good quality. The residue in the still weighed 21 pounds, and was found to consist of castor oil. The sum of these weights, deducted from the original weight of the oil, represents the amount of alcohol present. This would, of course, become mixed with the watery distillate. From these data the composition of the oil may be centisimally represented :—

Oil of Peppermint	32.72
Castor Oil	38.18
Alcohol	29.10
	100.00

* Report of Proceedings in this Journal, Vol. V., No. 3, p. 110.

A mixture of the above ingredients, in the specified proportion, gave a clear and very presentable oil, strongly resembling the genuine article. Its density was slightly lower, being .894 at 60° F. Its behavior with iodine was precisely similar to that of pure oil, and it dissolved perfectly in alcohol of sp. gr. .838.

The detection of this adulteration is best effected by evaporating a portion of the sample from filtering paper, when the characteristic greasy stain, indicating the presence of fixed oil, will remain. The presence of alcohol is shown by agitation with an equal bulk of water, when a milky emulsion will be produced, and the oily layer will suffer a diminution of volume, which is not, however, proportionate to the amount of alcohol present—a sample treated in this way only lost 0.25 its volume. The amount of adulteration can only be ascertained by careful distillation with water, and subsequent agitation of the distillate with water, to remove traces of alcohol. In this way the quantity of oil of peppermint will be slightly understated.

In the case cited by Mr. Saunders, it appears that alcohol was present, but escaped notice, as a mixture of 25 per cent. castor oil with oil of peppermint is so thick as to preclude any possibility of mistaking the mixture for genuine oil. Evaporation from a test tube, as recommended, would, in this case, give no indication of the true quantity of the adulterant.

SQUILL.*

BY R. ROTHER.

The body called scillitin is the supposed active principle of squill; it possesses an alkaloidal character and combines with acids. In the native state it is soluble in alcohol and water, but the prodigious quantity of gum contained in the root and enveloping the principle renders strong alcohol inadmissable as a menstruum; water or weak alcohol is therefore the only available means by which the activity of the root can be perfectly exhausted. This menstruum dissolves the gum and with it the alkaloid. Hence any menstruum which does not completely dissolve the gum fails to extract the virtue of the root. The excessively large proportion of gum has always been an obstacle in the way of a concentrated preparation of squill, as also

*From the Pharmacist, December, 1871.

in the weaker aqueous preparations by reason of its fermentable quality. However, the acidulated preparations, as the vinegar and syrup of squill are perfectly stable. If squill be macerated with water a few days, especially in a warm locality or during the summer weather, the infusion becomes sour. Gum under the combined action of diluted acids and prolonged heat is converted into glucose. When the sour infusion is evaporated the acid converts the gum more or less completely into glucose, according to the duration of the action. Now if alcohol be added to the concentrated syrupy residue, which during the process has acquired a dark brown color and sweet taste, very little if any gum will be precipitated whilst the sugar dissolves. A precisely similar result is obtained by the introduction of acetic or sulphuric acid in the beginning. An alcoholic menstruum, yet containing sufficient water to dissolve the gum readily, yields invariably a light colored residue consisting of gum free from glucose, since the presence of alcohol has prevented the formation of acidity in the dilute infusion. This residue, when treated with strong alcohol, is converted into a doughy magma of an utterly unmanageable nature. Therefore, to produce a concentrated preparation of squill, as fluid extract, for instance, it becomes indispensably necessary to convert the greater part of the gum into glucose, in order to admit the presence of sufficient alcohol in the concentrated liquid to preserve it. The supposition would now seem valid that the volatile acetic acid, above all others, would meet the indications. But this is not realized in practice, the requisite heat to expel all the acid remaining in the concentrated residue is destructive to the product. Sulphuric acid is more adaptable to the case, as this can be easily and completely removed with calcium carbonate. With sulphuric acid the concentration must not be carried so far as to cause injury through the instrumentality of the acid itself, as this would char the syrupy residue were it evaporated to the same extent as the acetic solution; it is therefore neutralized before even a very decided brown coloration has been imparted to the dilute liquor. The generated calcium sulphate, together with the excess of calcium carbonate, is removed by filtration, the filtrate carefully evaporated to the necessary limit and then mixed with the required amount of alcohol. Acetic could be used as well, and even to advantage, if no objection be raised against the presence of the resulting acetate formed by neutralizing the acid with any desirable base after its catalytic action is no longer needed. When operating upon squill it is always desirable to leave it in as coarse a condition as possible. The sliced root is often best; No. 12 powder is very convenient, and for purposes of extraction none should be finer than No. 20.

No preparation of squill should ever be made from the fluid extract.

Vinegar of squill is best produced from the sliced root by maceration, an insufficiency of water is first used with all of the acetic

acid intended for the finished product. After due maceration the liquid is separated by means of a press, measured, and then as much water as will be necessary to complete the whole measure of the finished preparation added to the residue ; after a short maceration this is also pressed out, the whole mixed together and filtered.

Syrup of squill should never be made by heat, as it is invariably clouded with flocculent matter, which has separated during the process. A bright and beautifully clear syrup will always be obtained when the sugar is dissolved in the vinegar of squill without heat. This is accomplished by first filtering the vinegar, if necessary, pouring part of it upon the sugar to cause this to crumble, then adding the remainder, agitating frequently until the sugar is dissolved, and finally straining through muslin. The straining of cold syrups is best performed by placing a large square sheet of muslin upon a proportionately large funnel, then pouring on the syrup until the funnel is filled. By now folding any two opposite sides of the strainer together and twisting the ends in contrary direction, the syrup is rapidly forced through.

Compound syrup of squill can only be rendered permanent by the intervention of a small proportion of alcohol.

The seneka and squill entering into its composition can best be exhausted with a weak alcoholic menstruum. A portion of the alcohol should be expelled, and the dissolved albumin coagulated by slowly heating to the boiling point, filtering after cooling, and dissolving the sugar and antimonial tartrate in the filtrate with heat. The process yields a product which meets every requirement, and is executed as follows:

Take of Seneka root in No. 20 powder.
Squill " " " of each 8 troy ounces.
Sugar, 76½ troy ounces.
Antimonio-potassic tartrate, 96 grains.
Alcohol.
Water of each sufficient.

Mix one measure of officinal alcohol and 3 of water ; pour 3 pints of this mixture upon the powdered roots, and let macerate for 24 hours. Now place this in a cylindrical percolator, forming a moderately low column, and pour on more of the menstruum until four or five pints of percolate has slowly passed ; heat this slowly to the boiling point and then evaporate to 3½ pints, let cool, filter, and in the filtrate dissolve the sugar and antimonial tartrate with heat, and strain through muslin while hot. The product measures six pints.

Fluid extract of squill is sometimes prescribed, and it is advisable for the pharmaceutist to prepare it himself, and always have some on hand. For this purpose either the sliced root or the No. 12 powder can be used. The sliced root is treated by maceration, and

the powder is percolated. The process with powder is as follows:

Take of Squill, in No. 12 powder.....	16 troy ounces.
Sulphuric Acid.....	1 troy ounce.
Calcium Carbonate.....	Sufficient.
Alcohol.....	4 fluid ounces.
Water.....	Sufficient.

Mix the sulphuric acid with 3 pints of water; pour the mixture upon the squill and let it macerate several days. Now place it into a cylindrical percolator, forming a low column, and pour on water until 4 pints of percolate has passed; evaporate this to 2 pints with boiling, and while hot add calcium carbonate in slight excess; filter, wash the residue in the filter with a small quantity of water; evaporate the whole filtrate to 12 fluid ounces, and then slowly pour in the alcohol with constant stirring, and strain through muslin.

INFLUENCE OF MEDICINES ON LARVÆ AND ANIMALCULÆ IN STANDING WATER.*

BY P. J. FARNSWORTH, M. D., OF CLINTON, IOWA.

Some time in August last, having occasion to use rain water, I procured some from a barrel standing at the corner of the house. It had been standing there for a few days, and I at once observed that it was literally crowded with animal life. The mosquito larvæ and that of the gnat, and all the curious creeping, flying, swimming creatures that inhabit standing water during the summer were revealed by a glass of moderate power.

It occurred to me to try medicines on the inhabitants of the teeming world, and watch the physiological effects. I poured into each of a row of goblets four fluid ounces of the water. To the first I added two grains of carbolic acid in solution. In five minutes every animal and animalcula was dead. Into the next glass I put one-half grain of carbolic acid in solution. All were dead at the end of an hour.

Into the third glass were put two drops of chloroform. In two minutes every form of life was still, and on agitating the water the undissolved globules of chloroform caught up a large number of the dead forms, and rolled them up with itself. The minute forms of life, especially the microscopic ones were all killed in less than a minute, when one drop of chloroform was added. Some of the larger forms remained at the top of the water, and did not seem to be affect-

*From the Philadelphia Medical and Surgical Reporter, Dec. 9, 1871.

ed with so small a quantity. Putting a gallon of water into a glass jar, I poured into it a drachm of chloroform, stirring the water with a spatula. Before the motion of the water had ceased, most of the lesser forms were dead, and were gathered into the globules of chloroform that were rolling at the bottom. Some of the larger larvæ lived for a little time at the top of the water, but in a little time they sunk to the bottom dead, and at the end of thirty minutes only one or two of the largest were alive, and no life could be discovered elsewhere with the naked eye, or by the magnifying glass.

Into another glass was put sulphuric ether, at first a few drops, which seemed to have little effect, but when half a drachm was added, the larger forms died very soon, but the more minute lived for two hours. Into the next glass was put a drachm of Fowler's solution (*liq. potas. arsen.*). At the end of an hour most of the smaller animalculæ were dead, but the larger forms were alive at the end of two hours.

A solution of morphine sulph., five grains, was put into another glass, and none seemed affected by it at the end of three hours. Into another glass was put a strong solution of common salt. The larger larvæ seemed affected by it in a short time, but many of the minute forms were alive at the end of three hours.

A solution of tr. iod. co., twenty drops, destroyed all appearance of life in three hours. A solution of soda sulphite destroyed the inhabitants of one glass in two hours. Ten drops of sulphuric acid seemed to have little effect on them. A large amount of alcohol only seemed to increase their activity. I repeated the experiment with chloroform several times, with the same uniform result. I did not have another opportunity to repeat the experiment during the fall.

The most remarkable effect was produced by the chloroform and carbolic acid. It suggested itself to me, that for certain purposes water might be purified in small quantities with either of these substances. The addition of a small portion of chloroform would not injure water for many purposes; the chlorofom would remain at the bottom of the vessel, and the rest might be filtered for use. The small amount of carbolic acid would not injure the water for many purposes, and it might be put into standing water to prevent its becoming populated. In any light the experiments were interesting, and I hope to repeat them on some future occasion.

NEW METHOD OF NICKEL-PLATING.*

Within the last few years a process of nickel-plating by electrolysis has been invented by Mr. Isaac Adams, of Boston, and is now employed to a considerable extent in all of our large cities. Mr. Adams'

*From the American Journal of Science and Art, Jan, 1872.

process, which is patented, involves the employment of a bath of double sulphate of nickel and ammonium and of an anode of cast nickel. The prices charged by companies working under the patent are extremely exhorbitant, and as a coating of nickel is an excellent preventive against rust and injury by acid vapor, chemists will give a hearty welcome to a simple and cheap method of nickel-plating, which is open to the use of all. The process, which is due to Prof. F. Stolba, is as follows: The salt of nickel may be the chloride, sulphate or double sulphate of nickel and potassium. It need not be chemically pure, but must contain no metals which are precipitated by zinc. In addition, the operator will require a solution of chloride of zinc, obtained by dissolving commercial zinc in common chlorhydric acid; cuttings of sheet zinc, zinc-dust and pure chlorhydric acid. The process of plating may be effected in a vessel of porcelain of metal; the author prefers copper, which itself becomes plated with nickel. The articles to be plated may be of cast or wrought iron, steel, copper, brass, zinc or lead. They must be completely immersed in the liquid used for plating, and their surfaces must be perfectly free from fat and rust. Iron vessels may be cleaned by treating with a solution containing 3 or 4 per cent. of chlorhydric acid. A sufficient quantity of concentrated solution of chloride of zinc is now poured into the plating vessel, and from once to twice its volume of water added. The solution is then to be heated to the boiling point, and chlorhydric acid added drop by drop until the precipitate, formed by diluting the chloride of zinc with water, is redissolved. As much zinc-powder as will cover the point of a knife is then added, by which the metal of the vessel becomes, in a few minutes, plated with zinc wherever it is in contact with this liquid. Enough nickel salt is then to be introduced to color the liquid distinctly green, after which the articles to be plated, and with them some small cuttings of zinc, are to be put in, care being taken to afford a sufficient number of points of contact. The liquid is then to be boiled, when the nickel is soon precipitated, and the work is finished in about 15 minutes. If particular parts of the articles are not plated, the boiling must be continued, fresh pieces of zinc, and, if necessary, fresh nickel salt, being added. It is important, if the coating of nickel is to be brilliant, that the liquid on boiling shall not be cloudy from basic zinc salt, or acid from free chlorhydric acid. The nickel-plated articles must be well washed with water and then cleaned with polishing chalk. The author found that articles of copper, plated with nickel, after several month's exposure to the atmosphere of the laboratory, appeared scarcely tarnished. It is important to remark that the same liquid may be employed repeatedly for nickel-plating, especially when chloride of nickel is employed. The same process applies to cobalt, but the coating with this metal, besides its cost, possesses no practical value.—*Polytechnisches Journal*, cci, p. 145 (July, 1871).

BOTANY—THE REQUISITES FOR A PROFITABLE STUDY.*

BY CHAS. FREDIGKE.

(Continued from page 174.)

Indispensable as an herbarium is to a profitable study of botany, it is open to many objections—chief among which are its bulk—a collection of any pretensionrequiring a room for the purpose, which must be kept dry and free from dust. Then, again the fascicles must be frequently opened and examined for the ravages of insects, which in one short season may destroy the labor of years, though this may in great part be prevented by interposing strips of paper saturated with some strong smelling drug, such as opium, benzoin, assafœtida, camphor, etc. With all due regard to morphology in preparing plants for the herbarium, it is often next to impossible to preserve their natural appearance, they being pressed flat, obliterating the natural disposition of phytons, concealing the organs or reproduction, and other essential characters, as in the convolvulaceæ, the gentianaeæ, asclepidæ, etc. Besides, they do not in many instances retain their natural colors, the shining appearance of leaves, the reddish, brownish, or yellowish hues of their greens being often impaired, if not entirely changed, and consequently lost. Many cannot be preserved at all, such are, for instance, the mushrooms and the fungi in general. Petrifying them by means of some saturated saline solution, or casting heated sand into them, results only in very partial success—shrinkage, discoloration, etc.—because their construction is very delicate, containing nitrogenous elements prone to decomposition. In the case of aquatic plants, in order to preserve them in anything at all like their natural form, the only way is to cut off in the water, and to catch them floating on a stiff sheet of packing paper, for in attempting to take them out without this precaution, they generally collapse, and cannot afterwards be so easily restored. For these and similar reasons, a collection of plates is a very desirable, if not indispensable auxiliary to an herbarium, for the representation of these natural objects on paper has many points in its favor; the large size of many plants precludes their preservation, and sections of their parts cannot convey an idea of their habitus, whereas a miniature representation will go far to supplement both. Again, the structure of many plants and their parts are so minute that they cannot be studied to advantage, when a magnified picture of their flowers, seeds, etc., will often be found very opportune. It is, of course, pre-supposed that delineation and tints are

*From the Pharmacist, December, 1871.

executed scrupulously true to nature, *i.e.*, there must be life in their lines, otherwise they are worse than useless.

But the peculiar and intricate construction of many plants, the often endless repetition of some minute part, precludes representation by hand, as of the filices, graminaceæ, cyperaceæ, etc. In their case much was expected of photography, but it was soon found that by this means only pictures of shadows and almost no details were obtained, on account of the predominating green color of vegetables; truthfulness of outline and consequently of the general appearance being the result in its favor. The greatest improvement, however, which modern invention and research have brought to our aid in this respect is the process called "nature printing." It is not the property of any one in particular, but has been elaborated by different men in different countries during the last twenty years, though it may be said that the imperial printing establishment in Vienna has, by its ample resources, done much to bring this process to its present state of perfection. Its main features are these: the plant, treated as if intended for an herbarium, is repeatedly moistened and dried and otherwise prepared to impart a certain resisting elasticity to its fibres, then laid upon a steel plate, covered with a plate of soft lead, and the whole passed very rapidly between heavy rollers. An impression is thus obtained in the lead, which presents with the greatest fidelity every line, etc., of the natural object. From this impression electrotype-plates are prepared. On these the colors are laid, allowing a blending of tints in endless gradation. The paper, properly prepared, is then applied, and both passed between rollers covered with felting, producing that peculiar raised or embossed impression, so much conducing to a life-like appearance of the picture, and enabling the operator to turn out at once a perfectly colored copy. All the more minute organs are most faithfully reproduced, for instance, in the filices, equisetaceae, etc., the growth of which is very favorable for this process. The sporangia, scales and every nerve and fibre are represented; indeed, a very close examination is necessary to convince the eye of the imitation. That this beautiful invention has found thus far not a more extended application is mainly accounted for by reason of the heavy expense incurred in preparing the plates.

In order to profit by the study of botany it would be a great mistake to believe that a mere knowing of one or the other system and a superficial understanding of botanical terminology will constitute a knowledge of the science, for these are only means devised in contemplating the endless forms of nature. Nothing short of practically applying in fields and woods what has been learned will suffice. After a tolerable degree of facility and precision in determining plants has been gained, and a certain reliance in one's own conclusions, a desire is felt to know something more than names and external features; then a study of the internal structure

of vegetable organisms, their physiology, etc., will be found of absorbing interest, whereas, if too early commenced, would perchance be found only dry and unimportant, because but partially understood, and therefore slighted. Then, too, we will be prepared to institute comparisons of entire orders of plants with each other, to consider them as to their geographical distribution, the influences of climate, transplantation, etc., etc., and finally their relation to science and art,—that is agriculture, technology, and—pharmacy, our profession. Then only will a knowledge of this branch of natural history be duly appreciated.

On more extended excursions it will be found convenient to have a strong cane for support, one end of which forms a hook as a handle to reach down branches and fish up objects from waters, the other extremity ending in a steel-point, which may be inserted into a small spade, for the purpose of digging out roots, etc.; a stout pocket-knife for cutting woody branches, a pair of fine pincers, a magnifying glass of four or five powers, a needle and a penknife for dissecting flowers, etc.; paper and pencil for taking notes, and the already mentioned portfolio with a supply of unsized paper, (a good size is 16x20 inches,) having two buckles and straps along its long side and one of each on the opposite ends; this is much better than a so-called botanical box, for it is preferable to study a few plants on the spot where they grow and lay them in, than to gather a quantity, jumble them into the box in the hope to study them at home when we are tired and indifferent, our plants wilted or at least altered in appearance. It is not the quantity we preserve, but the number, however small, which we learn to know and understand thoroughly. A compendious local flora completes the outfit. Thus equipped we are ready for the work, a little perseverance *et exercitium facit magistrum*

P. S.—On page 171 of this journal read *Botane* instead of oravy."

TO COVER METALLIC UTENSILS WITH A CHEAP, DURABLE AND LUSTROUS BLACK COATING.

BY C. PUSCHER, OF NUREMBURG.

At the last Paris Exposition could be seen in the French department furnaces and ovens, covered with a lustrous and thin coating of lacquer, which could not be scratched off with the fingernail. Other metallic articles from Paris, such as steel for corsets, for example, possessed the same elastic coating, which, on heating neither emitted odor, nor became sticky. The perfect evenness of

From Jour. Polytech. v. Dingler.

this lacquer and the absence of any marks caused by a brush, gave rise to the supposition that it might have been produced in a way different from that of painting or dipping, and repeated trials in this direction led to the following method for producing this coating. The bottom of a cylindrical iron pot, which should be about eighteen inches in height, is covered half an inch with powdered bituminous coal; a grate is then put in and the pot filled with the articles to be varnished. Besides articles of cast iron, iron wire, brass, zinc, steel-tinned iron and pottery ware subjected to the same treatment. The cover is then put on and the pot heated over a coke fire under a well-drawing chimney. In the beginning the moisture only evaporates, but soon the coking commences and deep-brown vapors escape, which irritate the throat. When the bottom of the pot has been heated for fifteen minutes to a dull red heat, the coal has been mostly converted into coke; the pot is then removed from the fire, and after standing ten minutes opened for evaporation, all articles except those made of pottery are covered with the above-described coating.

This lacquer is not only a protection against oxidation of metals, but will stand also a considerable heat, only disappearing at beginning redness, and therefore its useful application for ovens and furnaces. Fine iron-ware articles, such as sieves, are in this manner coated with remarkable evenness, which cannot be accomplished in any other way. Articles made of tin or soldered cannot be subjected to this process, as they would fuse. During the coking of the coal in the manner described, the peculiar smelling products of dry distillation, which we observe in the gas manufacture, do not make their appearance, and this is the cause of the absence of odor in the lacquer. Is the heating continued too long or too high, the coating will be of a dull blackness and not so elastic and durable. Smaller articles, like hooks and eyes, receive this coating by heating them together with small pieces of coal in a cylindrical sheet-iron drum like that used for roasting coffee, until they present the desired appearance. These hints will be sufficient for every manufacturer to construct an apparatus suitable to his purposes.

THE PURIFICATION OF FATS AND SUETS.

The task that devolved upon the authorities of Paris, during the late siege of that city by the Germans, of obtaining food for the many thousands who were cut off, by the iron circle of their enemies, from their usual sources of supply, was a difficult, and, as the event proved, an impossible one. Towards its accomplishment, however, great efforts were put forth by French *savans*, and for a time the whole current of scientific investigation was turned

towards securing increased effectiveness in warlike weapons, the enforcement of the sanitary regulations best suited to the abnormal state of affairs, and the discovery and utilization of previously unknown or unused alimentary substances.

Among the many memoirs presented to the French Academy with the last-mentioned object, were some that treated of a subject not without interest to pharmacists,—the purification of fats and suets,—of which the following is a *résumé*:—

M. A. Boillot communicated a method which he stated had yielded excellent results, and for which he claimed the merits of simplicity and moderate cost.* Two litres of lime-water are added to one kilolitre of the fat or suet, mixed well together, and kept over the fire two or three hours. It is then left to cool, and when it has become pasty and acquired a sufficient consistence, it is decanted, placed in flannel or linen, and submitted to an increasing pressure, when water and oleic acid, containing besides some solid fatty acids from which it can readily be freed afterwards, passes through. The oily mass, after two or three days, acquires a whiteness which leaves nothing to be desired; and when freed from the little lime it contains, by treating it with water slightly acidulated with sulphuric acid, may be used for purposes of illumination. Fat thus prepared loses its bad odor, and requires a remarkable hardness and whiteness;† and if run into water to which a small quantity of sulphuric or acetic acid, or vinegar, has been added, it will be thoroughly purified, and may be employed for all purposes to which the best fats are applied.

M. Dubrunfaut states‡ that the most tainted fat may be deprived of its characteristic odor by submitting it to the operation of frying: and that, after being thus treated in a manner specified, it may be used for all culinary preparations, and even for pastry. For this fact he furnishes the following scientific explanation:

M. Dubrunfaut has practically ascertained, by laboratory and manufacturing experiments, that fish oil is radically deprived of its odorous principle by simply heating it to a high temperature (330 C.). He has also found that the fatty acids are volatilized in a current of steam at a temperature above 100° C., whilst the neutral fats remain perfectly fixed. Finally, he has found that the neutral fats comport themselves in a similar manner to the fatty acids under the influence of a current of steam, if they have previously been heated to a temperature of from 300° to 330° C.

The manner in which the purification is effected is by heating the fat in a frying-pan, or other suitable utensil, to a temperature

* *Comptes Rendus*, lxxii., 36.

† The use of lime for the purpose of blanching lard has already been reported from America. There, however, it appears to be left as an impurity in the lard. See *Pharm. Jour.*, 1st ser., vol. i., p. 1,043.

‡ *Comptes rendus*, lxxii., 37.

of about 140° to 150° C., then cautiously sprinkling upon it small quantities of water. The vapor so caused traverses the fat, decomposes the neutral fatty substances,—which, as shown by M. Chevreul in the case of hircine, yield fatty acids,—the whole of the fatty acids are volatilized, and the purification is accomplished. These conditions, he says, unite all the elements that are favorable to the elimination of the volatile fatty acids, which are generally the material cause of the odors of fat substances. The product thus obtained is as perfectly purified as the finest lard.

M. Dubrunfaut had so much faith in the efficacy of this method of purification, that he called attention to the large quantity of candle tallow still in the city, and stated that by a modification of the process to suit the known constituents of the tallow, the whole of it might be so purified as to fit it for use in cooking various kinds of coarse flours, such as buckwheat flour, and thus secured for the purpose of alimentation. The same method might also, he stated, be applied to the large stock of colza oil.

In a second note presented to the Academy, || M. Dubrunfaut again called attention to the facility with which the large stocks of tallow and colza oil might be utilized for food, while the mineral oils would suffice for lighting. On this occasion he pointed out the similarity of the origin of the kitchen fats and the tallow of commerce, and said that the absence from the kitchen fats of the repulsive odor of the tallow was due to the method of preparation. In the operation of roasting meats especially the conditions necessary for the purification of the fat—the high temperature and the superheated vapor—were realized in perfection. And although they were present in a less degree in the operation of boiling, still there was a real purification. This opinion is supported by the fact that tainted fat, undergoing ebullition in a melting-pot in the presence of salt water, is purified in proportion as the boiling is prolonged.

As the result of various experiments in which colza oil was treated according to M. Dubrunfaut s method, he reported that the oil lost its characteristic taste and odor, preserving only a slight savor that was not repulsive, and would not prevent its use in culinary operations.

MM. Wurtz and Willm reported* that they had found that when colza oil was submitted to a current of steam at a temperature of from 116° to 120° C., an odorous and acrid principle was carried off without sensibly saponifying the oil,—an inconvenience which followed the employment of steam too highly heated. Washing with a feeble warm solution of carbonate of soda takes away all traces of the fatty acids that may have been formed, or

|| *Comptes rendus*, lxxii., 57.

* *Ibid.* lxii., 57.

have pre-existed, in oil of bad quality; but the separation of the soap so formed presents some difficulties.†

M. Fua suggested ‡ a modification of M. Dubrunfaut's method, which consisted in melting the fats at so high a temperature that the residue of the cellular and vascular tissues were thoroughly exhausted. He also expressed an opinion that these methods for the purification of fats were preferable to the introduction of either acids, alkalies, or substances, as these foreign bodies had always to be removed afterwards.—*Pharm. Jour.*, Lond., Oct. 21, 1871.

PHYSIOLOGICAL ACTION OF TOBACCO WHEN USED AS A NARCOTIC, WITH ESPECIAL REFERENCE TO THE CONSTITUENTS OF TOBACCO SMOKE.

BY H. VOHL AND H. EULENBERG.*

The authors first give a short account of the introduction of tobacco and a summary of its chemical history, from which they conclude that the action of tobacco, when used as a narcotic, has been erroneously attributed to the nicotine it contains; This conclusion they confirm by analyses and experiments of their own.

The amount of nicotine in snuff they found to be only from ·0392 to ·062 per cent.; in the strongest tobacco for chewing there was only a mere trace of nicotine, and in other specimens of the same kind there was none at all, so that nothing like nicotine-poisoning can result from the use of these sorts.

They then analysed the smoke of strong tobacco containing 4 per cent. of nicotine, burning part of it in a pipe and part of it as cigars. The smoke was drawn by an aspirator first through potash-solution to collect acids, and then through dilute sulphuric acid to collect bases. Besides this, the gases given off when cigars were smoked were collected and examined. These consisted of oxygen, nitrogen, carbonic oxide and marsh-gas.

The potash-solution soon became brown, acquired an almost unbearable odor of tobacco-juice, and an oily substance collected on the surface which became of a consistence like butter when cold, The oily substance was removed, washed with water and dilute sul-

† Some idea of the importance of this subject to the Parisians under then existing circumstances may be inferred from the fact that the stock of colza oil in the reservoirs at St. Ouen and La Valette was estimated at from 12,000,000 to 13,000,000 kilogrammes. This enormous quantity had been accumulated by speculators who, anticipating a great demand for illuminating purposes, had obtained the oil from all the markets of Europe. It was the ordinary colza oil of commerce, prepared by warmth from the seeds of *Brassica Napus*, and had not undergone sulphuric purification which, while rendering it combustible, would have unfitted it for alimentation.

‡ *Comptes rendus*, lxxii., 59.

* Arch. Pharm. [2] CXLVII. 130–166, from the *Journal of the Chemical Society*, reprinted in the Pharm. Jour., London.

phuric acid, and distilled. It began to boil at 200°, but the boiling-point was not constant, and gradually rose. The distillate was at first fluid and oily, but when the temperature rose to 300°, the substance which then passed over thickened on cooling to a laminated mass, which, after being several times recrystallized from ether, formed pearly-white scales, melting between 94° and 95°, and having a higher boiling-point than mercury. In these characters, as well as in their percentage composition, they agree with the carbohydrate ($C_{19}H_{18}$) discovered by Knauss, and examined by Fehling and Fritsche. The oily distillate, after repeated treatment with potash and sulphuric acid, was colorless, neutral, burned with a smoky flame, and had a specific gravity of 0·8 to 0·87. From its percentage composition (92 and 93C, and 8 or 7 per cent. H) it seems to be a mixture of different hydrocarbons belonging to the benzine series or a series analogous to it. None of the nitro-compounds obtained by treating it with nitric acid had any definite character, and when they were deoxydized, no trace of aniline was found, showing that benzine was absent. After separating the oily substance, the potash-solution was distilled, and the distillate added to the sulphuric acid through which the smoke had already been passed. On saturating the residue with excess of dilute sulphuric acid, keeping it well cooled, a large amount of gas was given off which consisted of carbon dioxide, hydrogen cyanide and hydrogen sulphide. The two latter gases were also detected directly in the potash-solution. When it had been used for absorption during a considerable time, the reaction of cyanogen disappeared, and that of sulphocyanogen took its place. This may be the reason of a recent statement that tobacco-smoke contains no cyanogen.

The acid potash-solution was distilled, and acetic, formic, propionic, butyric, valerianic, and carbolic acids and creasote were discovered in the distillate; caproic, caprylic and succinic acids were doubtfully present.

The sulphuric acid which had served to absorb the bases had become dark brown and thick, and a dark brown resin had separated. The liquid was filtered, and, after addition of the distillate from the potash, partially evaporated, cooled, and saturated with caustic potash, whereupon ammoniacal vapors escaped, and a brown oil, with an odor of tobacco-juice, collected on the surface. The liquid was distilled and saturated with caustic potash, redistilled, and the most volatile bases were collected in a Horsford's nitrogen-apparatus containing dilute hydrochloric acid. These were found to be ammonium chloride and traces of ethylamine. The distillate was neutralized with dilute sulphuric acid, filtered, evaporated, and treated with strong potash, the bases taken up by ether, and the ethereal solution distilled. The distillate contained only ammonia. The oily residue was dried by caustic potash and submitted to fractional distillation. The resulting bodies were further separated by repeated

distillation and crystallization of their platinum-salts, and at last the whole series of picoline or pyridine bases, analagous to the aniline bases, were obtained.

The identity of the following bases was determined by the boiling-point, percentage-composition, and the composition of the platinum double salt:—Pyridine, C_5H_5N, boiling-point 115°–116°. Picoline, C_6H_7N, boiling-point 134°–135° C. Lutidine, C_7H_9N, boiling point 155°. Collidine, $C_8H_{11}N$. boiling-point 171·5°, is isomeric with xylidine, and is identified by the authors with the aldehydin of Ador and Baeyer by its composition and characters. Parvoline, $C_9H_{13}N$, boiling-point 187°–188°, isomeric with cumidine. Coridine, $C_{10}H_{15}N$, boiling-point 211°. Rubidine, $C_{11}H_{17}N$, boiling-point 230°, and, probably, Viridine, $C_{12}H_{19}N$, boiling-point 251°, were obtained in too small quantities to determine their percentage-composition, and were identified by their boiling-points and platinum salts. Nicotine was carefully looked for, but no trace of it was found, and the authors thus fully confirm the observations made by Zeise in 184[illegible] that it does not exist in tobacco-smoke. They find that it can be easily separated from the pyridine bases, as it forms with zinc chloride a double salt difficultly soluble in alcohol, which the pyridine bases do not. The formula of this salt is $C_{10}H_{11}N\ 2\ H\ Cl_2\ Zn\ Cl_2 + 8\ H_2O$. The fact that stronger tobacco can be smoked in cigars than in a pipe is explained by the greater proportion of volatile bases present in the smoke of a pipe, and especially by the large quantity of very volatile and stupefying pyridine, while in a cigar little pyridine and much collidine is formed.

The authors think that the disagreeable symptoms which are felt by persons beginning to smoke, and the chronic affections which occur in those who smoke to excess, as well as the cases of poisoning from swallowing tobacco-juice, are due, not to nicotine, but to the pyridine and picoline bases. The idea that they were due to nicotine originated in the fact that picoline bases having a high boiling-point, such as parvoline, resemble that alkaloid greatly both in smell and in physiological action.

The authors did not test the physiological action of each base separately, but only that of a mixture of those bases which volatilize under 160°, and of those between 160° and 250°.

Both of these produced, like nicotine, contraction of the pupil, difficulty of breathing, general convulsions, and death. On *post mortem* examination the respiratory passages and lungs were found congested. They act more quickly when taken internally than when injected subcutaneously, but they do not act so quickly as nicotine.

Plants which contain no narcotic are not unfrequently used for smoking, instead of tobacco. The authors tested the action of the pyridine bases produced from dandelion, willow-wood, stramonium, and of pure picoline from boghead coal. These had an action very much resembling, though weaker than, that of the bases from to-

bacco; but with the exception of those from willow-wood, they produced no contraction of the pupil. The vapor of picoline, was also tested and found to be poisonous, producing great irritation of the respiratory passages, slight convulsions, and death.

The authors are acquainted with a person who can swallow the juice from a tobacco-pipe without being affected by it, but they consider that this exception does not impair the rule that picoline bases have a powerful action on the organism. They also think that the action of opium, when smoked, is not due to the alkaloids it naturally contains, and that the difference of its action from that of tobacco is simply due to a difference in the bases which are produced when the two substances are smoked.

ON FLUID EXTRACT OF VANILLA.*

BY J. B. MOORE.

This preparation, though usually called a fluid extract, is in reality only a tincture in the common acceptation of the term. The rich and delightfully aromatic qualities of Vanilla has given to its fluid extract an importance and popularity unsurpassed by any other flavoring substance. While it is indispensable to the housekeeper and confectioner, it is also of importance to the pharmacist and perfumer. Alone or associated with other flavoring substances, it is often employed by the pharmacist to conceal or modify the taste and odor of many unpleasant remedies.

In making this fluid extract it is absolutely essential to the success of the operation that the vanilla be reduced to a fine state of division, and it is in performing this operation that the operator encounters the greatest difficulty. The peculiarly tough texture of the shell not only renders vanilla very difficult to powder, but it also offers an obstinate resistance to the action of solvents, and unless it is reduced to a sufficiently fine powder to enable the menstruum to exert its full solvent power it cannot be entirely exhausted.

I have tried during the last few years a variety of methods of making this fluid extract, and with variable success, until I adopted the following plan, which, having been tested by repeated trials with uniform success, I deem of sufficient importance to offer to the readers of this *Journal*.

℞. Vanilla,
Sugar, crushed loaf, *aa* ℥ viij, troy.
Alcohol,
Water, each, sufficient quantity.

Slit the pods from end to end with a knife; then take them in small bundles, held tightly between the fingers, and cut them trans-

* From the American Journal of Pharmacy, February, 1872.

versely into very small pieces. Of these, beat small portions at a time, in an iron mortar, with a little of the sugar until reduced to a damp powder, which must be rubbed with the hand through a No. 20 sieve; any coarse particles which will not pass through the sieve must be returned to the mortar, and, with fresh portions of vanilla and sugar, again treated as before. This process is to be continued until the whole of the vanilla, with the sugar, is reduced to a No. 20 powder. This is then to be mixed with five pints of a menstruum, consisting of three parts of alcohol and one part of water, and the mixture introduced into a stone jug of the capacity of one gallon, which must be tightly corked. The jug is then to be placed in a water-bath, resting upon folds of paper, and the mixture digested for two hours at a temperature of from 160° to 170°. The neck and shoulders of the jug must be kept cool, to prevent the undue expansion of vapor during the digestion. This can easily be done by wrapping around the neck and shoulders of the jug an old towel or other cloth kept saturated by having *cold* water squeezed upon it from a sponge every fifteen or twenty minutes. If the jug is of the capacity directed, this will be found to be often enough to apply the water. The jug should also be removed from the bath after each application of the water, and its contents well shaken. In doing this it will be well to keep the hand upon the cork to prevent its expulsion, and perhaps consequent loss of material. When the digestion has been completed, and the mixture has cooled, it is to be expressed through muslin. Pack the residue, previously rubbed with the hands to a uniform condition, firmly in a glass funnel, prepared for percolation, and gradually pour upon it first the expressed liquid, and when this has all disappeared from the surface, continue the percolation with a mixture of three parts of alcohol and one part of water until eight pints of percolate are obtained.

When the pods have been well preserved and are very moist, there may sometimes be required a little more sugar than I have directed in the formula to make them powder easily. When this is the case, the necessary additional quantity of sugar may be added, which will make no important difference beyond rendering the preparation a little sweeter, and this is not at all objectionable. But I have generally found the quantity of sugar ordered to be sufficient.

Many substances, such as sand, glass, &c., have been suggested as auxiliaries in the process of powdering vanilla, and either of these may be employed in the above process, instead of sugar, if preferred by the operator, and the sugar can be mixed with the powder afterwards, and dissolved in the menstruum before digestion. But I have always had success when using the sugar, and prefer it to any other substance.

A thermometer should be kept in the water-bath during the digestion for the purpose of regulating the temperature, which should not be allowed to exceed 170°.

The elevated temperature at which the digestion is conducted very greatly contributes to the ready solution of the active constituents of the vanilla; it softens and expands the tough particles of shell, and admits of the free access of the menstruum, (the solvent power of which is also greatly heightened by the heat), to all its parts. The digestion being performed in a close vessel, there is consequently no loss of *aroma* in the process.

The above is an expeditious and at the same time efficient method of making this preparation, and if the process is managed with care it will thoroughly exhaust the vanilla. In fact, this is almost accomplished by the digestion itself, as is shown by the circumstance that the dregs after they are expressed are almost tasteless.

In the absence of any recognized standard strength for the fluid extract of vanilla, I have, in the above formula, adopted that which is usually employed, namely, one troyounce of vanilla to one pint of menstruum. In preparing it for general use, these proportions are perhaps the best that can be made.

The alcoholic strength of the menstruum to be employed in making the fluid extract of vanilla is also not a matter of indifference, as upon this depends the color as well as the quality of the finished product. The one I have chosen, consisting of three parts of alcohol and one part of water, seems to answer the purpose most admirably. Diluted alcohol is not so good a solvent for the virtues of vanilla, and it extracts too much coloring matter, rendering the fluid extract too dark, while alcohol alone affords a preparation objectionably light in color, and also makes its manufacture rather more expensive.

ERGOT OF RYE. †

BY T. C. HERRMANN.

Although ergot of rye has been repeatedly subjected to chemical analysis, there are several questions touching its component parts which have not been fully explained, and for this reason Dr. Herrmann has chosen the subject for his inaugural dissertation.

One of the constituents of ergot which required further investigation is the fatty oil, which, though not differing from other oils in general characteristics, is peculiar so far, as, according to Manassewitz, it readily saponifies with caustic soda, but not at all with caustic potash; this statement Dr. Herrmann was enabled by his investigation to distinctly contradict.

Twenty ounces of powdered ergot were exhausted with ether, the last separated by distillation, and the oil, which amounted to 6 ounces, subjected to analysis. It was of a brownish yellow color, of aromatic flavor, and acrid taste, viscid, and its sp. gr. was .9249; it was not drying.

† From Buchner's Report. f. Pharm. in Pharmaceutical Journal, London.

It consisted chiefly of palmitic acid, oleic acid, and glycerine, in the proportion of 22.703 per cent. palmitic acid, 69.205 oleic acid, and 8.091 glycerine; it also contains traces of acetic and butyric acid, of trimethylamin, ammonia, and ergotine as coloring matter.

Manassewitz doubted the existence of ecboline, the alkaloid first separated by Wendell, and Dr. Herrmann also settled this point.

Thirty ounces of powdered ergot were for several days digested with warm water, the aqueous extract mixed with acetate of lead, and the precipitate separated by filtration; excess of lead in the filtrate was separated by carbonate of soda, which, however, did not precipitate all the lead, the liquid remaining turbid even after filtration; it was therefore slightly acidified with muriatic acid and then dilute sulphuric acid added, which gave a clear solution; to this an excess of chloride of mercury was added, the dirty white precipitate was collected on a filter, and the alkaloid ecboline separated in the usual manner. It is soluble in water and alcohol, has a bitter taste and an alkaline reaction, and is precipitated in the following manner, viz., by chloride of mercury white, phosphoric molybdic acid yellow, tannin dirty white, biniodide of potassium reddish brown, chloride of gold brownish, chloride of plantinum orange, only after some time, and cyanide of pottassium white.

The inorganic constituents of ergot were also determined afresh, and the following table gives a comparison of former analyses with Dr. Herrmann's results, viz.:—

	Engel-mann.	Manas-sewitz.	Thelau.	Herr-mann.
Potash	38.97	38.00	17.92	30.06
Soda	14.39	14.75	11.42	0.65
Lime	1.43	1.50	1.24	1.38
Magnesia	4.58	4.70	2.00	4.87
Alumina	.....	.....	0.29	0.58
Oxide of iron	2.00	1.80	0.70	0.86
Oxide of magnesia	.....	.....	3.95	0.26
Oxide of copper	.....	.....	0.53	.....
Phosphoric acid	13.24	13.25	58.56	45.12
Sulphuric acid	0.02	.....	.....	.....
Chlorine	2.03	2.10	.....	.....
Silica	9.13	3.30	2.54	14.67
Carbon	12.66	12.10	.....	.....
Chloride of sodium	.....	.....	0.66	1.50
Total	98.45	96.50	99.91	99.95

Editorial.

REGISTRATION OF PARTNERS.

It appears that the By-law regarding the Registration of Partners has been officially disallowed. It will be remembered that the Provisional Council, at its first sitting, declared that every firm should have at least one partner who was qualified to register under the Act; the other partners, if not qualified, might be privileged to carry on business, by the payment of the usual fee; but such payment should not entitle them to any of the privileges of membership.

It was evident to all who gave the matter a little consideration, that however desirable this provision might be, it certainly did not accord with the conditions of the Act, and that such an addition, or amendment, could only emanate from the Legislature itself. This turns out to be the case, and until such amendment is made to the Act, any additions to the Register, or the roll of membership of the College, must only be made through the channel already existing.

Is it desirable that such an amendment be made? We decidedly think not. The Act was intended for the protection of the public safety, as well as the general interests of druggists. To admit unqualified persons would effectually defeat both these objects. Under such a condition of things an ignorant and unqualified person could dispense medicine under the very wing of the law. What incentive would there be for any one to qualify himself, if all the time and expense might be saved by borrowing the name of another? Would the public be satisfied if a doctor were allowed to take in unqualified partners, who, by virtue of his name, might practise medicine? Would the fraternity of physicians be satisfied with such a proceeding? Would legal gentlemen be content to take any monied ignoramus into the profession, provided that he coupled his name with that of a needy and unscrupulous practitioner? We think not; and we are moreover of the opinion that such proceedings would not have a very elevating effect on the status of either professions.

There is an exact parallelism between these instances and that of the apothecary. The rights and privileges belonging to a profes-

sion are legally guaranteed to all. We have a law which is even more stringent in its protective provisions than that which regulates the practice of medicine. The right to dispense poisons is vested only in the apothecary. Any infringement of this right is directly punishable; while in the practice of medicine any one can prescribe, but runs his own risk in regard to the recovery of charges therefor.

We hope that no such amendment will ever be made to the Act, and think that, instead of aiding, druggists should oppose a measure which would be a direct step towards the cession of those privileges which are now enjoyed, and which have cost so much to secure.

EARLY CLOSING.

On so trite a topic we do not put forth the slightest pretension to say anything with even the faintest coloring of originality. There are, however, certain questions which, though exhausted, must ever be discussed anew—certain evils, which, by their oft recurrence, demand a continual repetition of effort for their eradication. An evil of this kind is that of an undue protraction of the hours of labor. In these times there are few classes of laborers who do not suffer from this cause; but of all others, the druggist has, perhaps, the greatest ground for complaint. Late and early he is found at his post; even the very hours which the meanest laborer can claim for undisturbed repose are by no means secure to the druggist. But we need not enlarge on that which is, unfortunately, too familiar to us all, but rather let us seek for the cause of the evil, that we may the more effectually apply the remedy.

If we look closely into the matter, it appears somewhat difficult to find any good sound reason why druggists should keep their shops open later than other tradesmen. It is true that people are liable to sickness during the hours of darkness as well as day, but after all, how very few cases are so urgent as to require the services of an ever-waiting apothecary. The physician makes his professional calls in the day time, and during that period nearly all his business is transacted. It is seldom that his hours of leisure or repose are disturbed, save from these occurrences to which every well-regulated family is subject, and which, in general, require no aid from the apothecary, save the occasional filling of the physician's pocket-

case, or the weighing of a drachm of powdered ergot, long in anticipation of the time when they may be required. As a rule, physicians do not give prescriptions requiring immediate attention at night. It may be asked, how is it that so many prescriptions are sent in during the evening? In most cases from the simple reason that people consult their own convenience rather than that of the apothecary. They well know that unfortunate man must regard neither times nor seasons, but such as are dictated by the whims or necessities of his customers, and they never fail to take advantage of the fact. The supply of bread or groceries must be secured before six, because the baker or grocer closes his shop at that hour; but the medicine can be had at any time, because the druggist's shop is always open.

We think, then, that for the existing state of things the druggist himself is mainly responsible, keeping late hours from the force of habit or custom rather than choice. It is true that in every community there are a few men who would keep their shops open the night through if nature would allow them. These black sheep are a decided bar to the progress of an early closing movement, not only from their individual antagonism, but their influence over others. How often do we hear the remark, "We would be glad to close, but So & So, across the street, does not put up his shutters until bed-time." Such an observation does not savour very strongly of principle, although in a business light it is possessed of a certain force, not, however, sufficiently strong to render it valid. Custom is governed by the majority, and if those who believe in the propriety of early closing were to adopt it, the public would not be long in finding out the character of these exceptional gentlemen, and from their very singularity would avoid them. This is not mere surmise, as may be proved by judging of similar instances in other branches of trade.

At the present time an endeavor is being made in Toronto to bring about an arrangement amongst the city druggists whereby all shops will be closed by seven o'clock. We hope it may prove successful, and that other cities and towns may follow in the wake.

SIMILIA SIMILIBUS AT A DISCOUNT.—At a late meeting of the Pharmaceutical Society of Great Britain, several gentlemen who officiated as dispensers of potencies to the homœpathic persuasion

were proposed as members of the Society. After considerable discussion, it was decided that the admission of these gentlemen might be the means of introducing discord into the Association, and on this ground the applications were rejected. It is not likely that the Pharmaceutical Council could have been aware of the harmonious workings of our Medical Council of Canada, in which the allopathic and homœopathic elements are so sweetly blended. If they had, the discussion would certainly have been a very short one, and the decision would have been rendered with startling promptness.

Editorial Summary.

DETECTION OF IMPURITIES IN BROMIDE OF POTASSIUM.—M. Adrian, (*Jour. de Phar. et de Chim.*,) says that the ordinary impurities of this substance can be easily recognized by dissolving ten grams of the salt in 100 c. c. of solution; effervescence on addition of hydrochloric acid proves the presence of carbonates; one drop of benzole and a few drops of bromine water produce a rosy color if iodides are present; sulphate is detected by nitrate of baryta, and bromate by sulphuric acid producing a yellow coloration. After these preliminary tests, and after complete separation of the carbonate, sulphate, and iodide, the chloride may be determined by a standard solution of silver.

FILTERING ALCOHOLIC LIQUIDS.—The *Druggists' Circular* gives the following method for this purpose. It is said to give very satisfactory results. Clean, unsized paper (Swedish filtering paper is the best) is to be torn into shreds and stirred into the liquid to be clarified. The whole is then to be strained through a flannel bag, when the resulting liquid will be found to possess the utmost clearness and limpidity. A filter may also be made by spreading paper-pulp evenly upon stretched flannel or woollen cloth. When dry, the cloth so coated will be found to give better results than the felts, etc., commonly employed as filters.

SIMPLE SUBSTITUTE FOR THE FIRE-TEST IN ESTIMATING THE QUALITY OF PETROLEUM.—A new test for petroleum has been proposed by Prof. Van der Weyde. It consists in partly filling a long test tube with the oil, and, having closed the open end by the finger, inverting the tube in a vessel of water heated to the degree—say

110°—at which the oil is to be tested. If hydro-carbons soluble at this point are present, their vapor will displace the oil downwards, and their amount may be thus estimated. It is said that the results given by this method are sufficiently accurate, and, at the same time, the discrepancies incident to the method by fire, are avoided.

ADULTERATION OF CUDBEAR.—The *Chemist and Druggist* states that, during the last five years, cudbear has been adulterated with large quantities of a bye-product of magenta. It is stated that the quality of the cudbear does not materially suffer by this addition, although as much as 33 per cent is sometimes present. No test is given for its detection.

NEW MENSTRUUM FOR THE ACTIVE INGREDIENT OF HOPS.—It is stated by the Boston *Journal of Chemistry* that the light products of the distillation of petroleum are complete solvents of the bitter principle and essential oil of hops, while the other constituents are quite insoluble. Newton's process of extraction is said to be based on this fact. The hydrocarbons boiling below 100° F, are to be preferred.

CHLORAL AS A REMEDY FOR TOOTHACHE.—Dr. Page, (*British Medical Journal*,) says that a few grains of the hydrate introduced into the cavity of the tooth, by means of a quill, speedily dissolves, and, in the course of a few minutes, during which a not unpleasant feeling of warmth is experienced, the pain is relieved, or effectually allayed. Two or three applications may be resorted to.

Practical Formulæ.

Bandoline.—1. Take of Carrageen or Irish moss,
Water, of each any quantity to make when boiled, a thick solution; strain through muslin, and when nearly cold add to each pint—
Alcohol,
Cologne water, } of each one fluid ounce.
Oil of cloves.....8 drops.

After mixing the whole thoroughly, keep it in a corked bottle in a cool place.

2. Take of Quince seed.....2 or 3 drachms.
Water .....1 pint.

Add the alcohol, spirit, and oil of cloves as directed in No. 1.

3. Take Gum arabic (clean).....2 ounces.
Rose water .....6 "
Dissolve and add of
Tincture of Cochineal q. s. to color.

4. Take Gum tragacanth.....1½ drachm.
Water .....8 ounces.
Alcohol .....3 "
Otto of Roses.....10 drops.
Macerate for twenty-four hours and strain.

5. Take Castor oil.....2 ounces
Spermaceti .....1 drachm.
Annatto .....½ "
Oil of bergamot.....1 "
Otto of roses.....5 drops.
Mix with heat and strain.

6. Take Oil of Almonds.....1 ounce.
White wax.....1 drachm.
Tincture of mastic.....3 "
Oil of bergamot.....1 "
Melt the wax in the oil with heat, and add the tincture of mastic and the perfume.—*Drug. Circular.*

Glycerine Jelly.—

Transparent soap.....	1 oz.
Water.....	4 oz.
Inodorous glycerine.....	24 oz.

(All by weight.)

Dissolve the soap in the water by heat, adding an equal weight of glycerine. When dissolved, add the remaining portion of glycerine, and sufficient water to make up the weight. When nearly cool, add any suitable perfume and pour in glass jars. It has a very pale amber color, is transparent, melts easily on the skin, and leaves no residue.

Harmless Pharaoh's Serpents.—A mixture, which in burning gives the same appearance as the sulphocyanide of mercury, without being accompanied by similar noxious fumes, can be made by an intimate mixture of two parts acid chromate of potash, one part nitrate of potash, and three parts of white loaf sugar. After mixing, this should be moulded into pastiles of suitable shape and size, and kept away from light in a dry place. If they are to be kept for some time, they should be covered with a thin coat of gum-sandarach. A small amount of Peru balsam gives them a delightful odor when burning. The resulting ash, in the form f a serpent, is said to be an excellent polishing powder.—*American Chemist.*

Books and Pamphlets.

Compendium of Medical Science; edited by Drs. BUTLER, BRINTON, and NAPHEYS. Published by S. W. Butler, M.D., Philadelphia.

This publication which appears half-yearly, contains a synopsis of the American and foreign literature of medicine, surgery, and the collateral sciences. The current number embraces about 550 pages, octavo, and includes either in abstract or extended form, most of the papers of value which have appeared during the past six months. The matter is arranged under the following divisions: I. Anatomy, Physiology and Pathology; II. Physics, Botany, Chemistry and Toxicolo ·; III. Materia Medica and Therapeutics; IV. General Medicine; V. Clinical Medicine; VI. Obstetrics, &c.; VII. Surgery. The departments of Physics, Botany, Chemistry, &c. are not, of course, to be considered complete, as they only contain those papers which are of interest to the medical practitioner.

The Detection of Criminal Abortion, and a Study of Fœticidal Drugs; by DR. ELY VAN DE WARKER, of Syracuse, N.Y. James Campbell, Boston; price 50 cents.

This essay contains a large amount of original information, and though only extending over 88 pages, it is sufficiently comprehensive and thorough. We are assured that physicians in the United States will regard a publication of this kind as being quite opportune; and we are led to believe that the subject is not wholly without interest, at present, in Canada.

New Remedies.—A Quarterly Retrospect of Therapeutics, Pharmacy, and allied subjects. Edited by HORATIO C. WOOD, JR., M.D. New York, William Wood & Co.

The January number of this periodical is the first that has reached us, and we must express ourself much pleased with its appearance. It is arranged in the style of *Braithwaite's Retrospect*, and like that publication, contains the cream of the literature connected with the particular subjects of which it treats. The branches taken up are Therapeutics, Materia Medica, Toxicology, Prescriptions, Formulæ, and General Receipts.

A Contribution to the Treatment of the Versions and Flexions of the unimpregnated Uterus. By EPHRAIM CUTTER, A.M., M.D. James Campbell, Boston, 1871, p.p. 44; price 50 cents.

This pamphlet is of a thoroughly practical nature, and treats

fully of the complaints indicated in the title. The subject is illustrated by a number of engravings. The substance of the work originally appeared in the *Journal of the Gynæcological Society of Boston.*

The Journal of the Gynæcological Society of Boston devoted to the advancement of the Knowledge of the Diseases of Women. Edited by DRS. LEWIS, STORER and BIXBY. Published by James Campbell, Boston.

This excellent periodical has been enlarged by the addition of 16 pages octavo.

The Mutual Relations of the Medical Profession; its Press and the Community; by DR. HORATIO STORER.

Reprinted from the Journal of the Gynæcological Society of Boston. James Campbell, Boston.

Proceedings of the American Association for the cure of Inebriates. Second meeting, held in New York November, 1871.

Annual Report of the Superintendent and Physician of the New York State Inebriate Asylum, Binghampton N.Y., 1871.

Selections.

INSECTICIDES.—Many of the *Anthemidæ,* such as chrysanthemums, chamomiles, etc., possess in the sexual parts of the flower a narcotic matter which has a great effect upon insects, and will even kill small ones. In *Pyrethrum roseum* and *P. carneum,* just within the disk, this matter is found in considerable quantity. In order to prepare the powder to advantage, only the centre of the flower must be used, which must be cut before the seed is fully formed. The Spaniards, to keep off gnats, burn the centres of the flowers of the horse daisy (*Chrysanthemum leucanthemum*); and the powder of the mayweed (*Anthemis Cotula*) has also been used for destroying insects. In some parts of Belgium this plant is fastened by the country people to branches where swarms of bees have settled (after they have been secured), to prevent them from leaving the hive. The Mohammedans and Tartars have long employed the powder of the *Pyrethrum* against all insects indiscriminately. To destroy flies, gnats and bugs, they burn it on an iron plate, which they heat slowly, in order to produce more smoke.—*Gardeners' Chronicle.*

SACCHARATED COD-LIVER OIL.—M. Tissier, in the November part of the *Journal de Pharmacie et de Chimie*, publishes a method for preparing a granulated saccharate of cod-liver oil, for which he claims several advantages, and which may be flavored by orange, vanilla, etc. The ingredients are as follows:—

White Gelatine	4	grams
Distilled Water	25	"
Simple Syrup	25	"
Finely Powdered Sugar	50	"
Pure Cod-liver Oil	50	"

The gelatine should be cut and placed in a wide-mouthed bottle; the water and syrup added, and the whole heated in a water-bath until dissolved. The cod-liver oil and the sugar should next be well rubbed up together in a mortar, and then the warm solution of gelatine stirred in, the stirring being continued until the mixture is quite cold.

After some time the mass will present the appearance of a dense homogenous jelly; it is then necessary to add a sufficient quantity of finely-powdered sugar to form a firm paste, weighing 250 grams. The paste is spread upon a marble slab, divided into small pieces and left for some hours to harden. It is then divided into small pieces the size of a lentil, which, after further drying, become sufficiently firm to allow of granulation in a mortar. The drying of this granulated powder is accomplished on a stove at a temperature of 30° to 35°C. The product will contain one-fifth of its weight of cod-liver oil. It should be kept in well-closed bottles.—*Pharm. Jour.*

MARKET REPORT.

Although the Spring trade can scarcely be said to have commenced, business has been marked by unusual activity throughout the entire course of the month.

The general tendency in price has been towards an advance. This is more particularly true in regard to chemicals. The agitation on the labour question has much to do with this, as also the monopoly of the trade in certain articles by some large firms.

A very noticeable rise is apparent in those chemicals which are derived from wine residues; amongst these, cream of tartar may be mentioned as having advanced 3 to 4 cents per pound; also Tartaric Acid; which now commands 50 cents. Citric Acid has advanced from 90 cents per lb. to $1.10 to $1.15. Newcastle Bicarborate of Soda has risen from $5.00 to $5.25. Iodine does not yet appear to have reached its highest point, an advance of 50 cents has taken place during the last month. Oil of Lemon is higher by 50 cents per pound. Vanilla Beans have risen from $17.00 to $19.00. Oil of Turpentine is still advancing, being quoted 25 cents higher.

Of articles which are lower, we have nothing to note, without it be Magenta Crystals, which have fallen slightly.

DRUGS, MEDICINES, &c.	$ c.	$ c.
Acid, Acetic, fort	0 12 @	0 14
Benzoic, pure	0 25	0 35
Citric	1 10	1 15
Muriatic	0 04	0 06
Nitric	0 11½	0 15
Oxalic	0 30	0 35
Sulphuric	0 03¾	0 07
Tartaric, pulv	0 50	0 50
Ammon, carb. casks	0 21	0 22
" jars	0 21	0 22
Liquor, 880	0 20	0 25
Muriate	0 12½	0 15
Nitrate	0 45	0 60
Æther, Acetic	0 45	0 50
Nitrous	0 27	0 30
Sulphuric	0 45	0 50
Antim. Crude, pulv	0 13	0 17
Tart "	0 50	0 55
Alcohol, 95 per ct.....Cash	1 65	1 72
Arrowroot, Jamaica	0 18	0 22
Bermuda	0 45	0 65
Alum	0 02½	0 03½
Balsam, Canada	0 24	0 35
Copaiba	0 77	0 80
Peru	4 00	4 20
Tolu	0 90	1 00
Bark, Bayberry, pulv	0 18	0 20
Canella	0 17	0 20
Peruvian, yel. pulv	0 42	0 50
" red "	2 10	2 20
Slippery Elm, g. b	0 15	0 20
" flour, packets	0 28	0 32
Sassafras	0 12	0 15
Berries, Cubebs, ground	0 20	0 25
Juniper	0 06	0 10
Beans, Tonquin	0 62	1 10
Vanilla	18 00	19 00
Bismuth, Alb	4 00	5 00
Carb.	4 00	5 00
Camphor, Crude	0 38	0 40
Refined	0 50	0 55
Cantharides	2 20	2 30
Powdered	2 30	2 40
Charcoal, Animal	0 04	0 06
Wood, powdered	0 10	0 15
Chiretta	0 20	0 30
Chloroform	1 25	1 65
Cochineal, S[illegible]	0 80	0 95
[illegible]	1 10	1 20
Colocynth, v.	0 50	0 60
Collodion	0 67	0 70
Elaterium.....oz	4 50	5 00
Ergot	0 65	0 75
Extract Belladonna	2 20	2 50
Colocynth, Co	1 25	1 75
Gentian	0 50	0 60
Hemlock, Ang	1 12	1 25
Henbane, "	1 70	2 00
Jalap	5 00	5 50
Mandrake	1 75	2 00
Nux Vomic	0 60	0 70
Opium	Variable.	
Rhubarb	7 50	—
Sarsap. Hon. Co	1 00	1 20
" Jam. Co	3 25	3 70
Taraxicum, Ang	0 70	0 80
Flowers, Arnica	0 25	0 35
Chamomile	0 30	0 40
Gum, Aloes, Barb. extra	0 70	0 80
" " good	0 42	0 50
" Cape	0 12	0 20
" " powdered	0 20	0 30
" Socot	0 76	80
" " pulv	0 90	00
Arabic, White	0 60	0 65
" " powdered	0 50	0 55
" sorts	0 8	0 30
" " powdered	0 42	0 50
" com. Gedda	0 13	0 16
Assafœtida	0 31	0 35
British or Dextrine	0 13	0 15
Benzoin	0 48	0 55
Catechu	0 12	0 15
" powdered	0 25	0 30
Euphorb, pulv	0 32	0 40
Gamboge	1 05	1 20
Guaiacum	0 38	0 78
Myrrh	0 42	0 60

DRUGS, MEDICINES, &c.—*Contd.*	$ c.	$ c.
Sang Dracon	0 60	0 70
Scammony, powdered	6 50	6 75
" Virg. "	14 50	—
Shellac, Orange	0 50	0 52
Gum, Shellac, liver	0 43	0 45
Storax	0 65	0 75
Tragacanth, flake	1 10	1 40
" common	0 35	0 40
Galls	0 27	0 32
Gelatine, Cox's 6d	1 10	1 20
Glycerine, common	0 28	0 30
Vienna	0 30	0 40
Prices	0 00	c 75
Honey, Canada, best	0 15	0 17
Lower Canada	0 14	0 16
Iron, Carb. Precip	0 20	0 25
" Sacchar	0 40	0 55
Citrate Ammon	1 10	1 20
" & Quinine, oz	0 50	0 60
" & Strychine "	0 17	0 25
Sulphate, pure	0 08	0 10
Iodine, good	12 50	—
Resubiimed	13 00	—
Jalapin	1 50	1 60
Kreosote	1 60	1 70
Leaves, Buchu	0 25	0 30
Foxglove	0 25	0 30
Hemlane	0 35	0 40
Senna, Alex	0 30	0 60
" E. I.	0 12½	0 20
" Tinnevilly	0 20	0 30
Uva Ursi	0 15	0 15
Lime, Carbolate.....brl	5 50	—
Chloride	0 05	0 06
Sulphate	0 08	0 12½
Lead, Acetate	0 1	0 15
Leptandrin.....oz.	0 60	—
Liq. Bismuth	0 50	0 75
Lye, Concentrated	1 50	2 00
Liquorice, Selazzi	0 50	0 55
Cassano	0 23	0 40
Other brands	0 14	0 25
Liquorice, Refined	0 35	0 45
Magnesia, Carb. 1 oz.	0 20	0 25
" 4 oz.	0 17	0 20
Calcined	0 65	0 75
Citrate.....gran.	0 40	0 50
Mercury	1 00	1 15
Bichlor	1 00	—
Chloride	1 15	—
C. Chalk	0 80	—
Nit. Oxyd	1 20	—
Morphia Acet	3 65	4 00
Mur.	3 65	4 00
Sulph	3 80	4 20
Musk, pure grain.....oz	21 00	—
Canton	0 90	1 20
Oil, Amonds, sweet	0 50	0 52
" bitter	14 00	15 00
Aniseed	4 00	4 00
Bergamot, super	5 00	5 25
Carraway	4 00	4 20
Cassia	2 00	2 20
Castor, E. I	0 15	0 15
Crystal	0 22	0 25
Italian	0 26	0 28
Citronella	1 10	1 50
Cloves, Ang	1 00	1 00
Cod Liver	1 00	1 50
Croton	2 00	2 10
Juniper Wood	0 80	1 00
Berries	6 00	7 00
Lavand, Ang	16 00	17 00
Exotic	1 40	1 60
Lemon, super	5 50	6 00
ord	2 20	3 40
Orange	3 20	3 50
Origanum	0 65	0 75
Peppermint Ang	13 00	14 40
" Amer.	3 00	3 25
Rose, Virgin	7 75	8 00
" good	5 50	00
Sassafras	1 25	1 50
Wintergreen	6 00	7 00
Wormwood, pure	6 00	6 50
Ointment, blue	0 70	0 80
Opium, Turkey	6 00	6 25
pulv	8 00	10 00

DRUGS, MEDICINES, &c.—*Cont'd*	$ c.	$ c
Orange Peel, opt.	0 30	0 36
" good	0 12½	0 20
Pill, Blue, Mass	0 80	0 85
Potash, Bi.chrom	0 25	0 27
Bi-tart	0 30	0 32
Carbonate	0 14	0 20
Chlorate	0 55	0 55
Nitrate	10 50	11 00
Potassium, Bromide	1 40	1 50
Cyanide	0 75	0 80
Iodide	11 75	0 00
Sulphuret	0 25	0 35
Pepsin, Boudault's oz	1 50	—
Houghton's doz.	8 00	9 00
Morson's oz.	0 85	1 10
Phosphorus	0 75	0 85
Podophyllin	0 50	0 60
Quinine, Pelletier's	—	2 25
Howard's	2 35	—
" 100 oz. case	2 30	—
" 25 oz. tin	2 30	—
Root, Colombo	0 13	0 20
Curcuma, grd	0 12½	0 17
Dandelion	0 25	0 35
Elecampane	0 14	0 17
Gentian	0 10	0 12½
" pulv	0 15	0 20
Hellebore, pulv	0 17	0 20
Ipecac, "	2 20	2 30
Jalap, Vera Cruz	1 55	1 60
" Tampico	0 90	1 00
Liquorice, select	0 11	0 13
" powdered	0 15	0 20
Mandrake "	0 20	0 25
Orris, "	0 20	0 25
Rhubarb, Turkey	3 50	—
" E. I	1 10	2 00
" " pulv	1 40	2 50
" " 2nd	1 30	1 50
" French	0 75	—
Sarsap., Hond	0 40	0 45
" Jam	0 88	0 90
Squills	0 [illegible]	0 15½
Senega	1 70	1 80
Spigelia	0 40	0 45
Sal., Epsom	2 25	3 00
Rochelle	0 26	0 35
Soda	0 01¾	0 03
Se'ed, Anise	0 13	0 16
Cina ry	0 05	0 06
Cardamon	3 50	3 00
Fe ugreek, g'd	0 [illegible]	0 [illegible]
Hemp	0 06½	—
Mustard, white	0 14	0 16
Saffron, American	2 00	2 50
Spanish	17 00	18 00
Santonine	9 00	10 00
Sago	0 07½	0 09
Silver, Nitrate Cash	14 85	16 50
Soap Castile, mottled	0 10	0 14
Soda Ash	0 03	0 04
Bicarb. Newcastle	5 25	5 50
" Howard's	0 14	0 16
Caustic	0 04¾	0 05
Spirits Ammon., arom	0 25	0 35
Strychnine, Crystals	2 20	2 50
Sulphur, Precip	0 10	0 12½
Sublimed	0 03½	0 05
Roll	0 03	0 01½
Vinegar, Wine, pure	0 55	0 60
Verdigris	0 35	0 40
Wax, White, pure	0 75	0 80
Zinc, Chloride oz	0 10	0 15
Sulphate, pure	0 10	0 15
" common	0 06	0 10
DYESTUFFS.		
Annatto	0 35 @	0 60
Analine, Magenta, cryst	3 00	4 00
" liquid	2 00	—
Argols, ground	0 15	0 25
Blue Vitrol, pure	0 08	0 10
Camwood	0 05	0 09
Copperas, Green	0 01½	0 02½
Cudbear	0 16	0 25
Fustic, Cuban	0 02	0 04
Indigo, Bengal	2 40	2 50
Madras	0 65	1 10
Extract	0 28	0 35

DYESTUFFS—*Continued.*		
Japonica	0 05½	0 06¾
Lacdye, powdered	0 33	0 35
Logwood	0 02	0 03
Logwood, Camp	0 02	0 [illegible]
Extract	0 10	0 14
" 1 lb. bxs	0 14	—
" ½ lb. "	0 15	—
Madder, best Dutch	0 16	0 17
2nd quality	0 15	0 16
Quercitron	0 03	0 05
Sumac	0 06	0 08
Tin, Muriate	0 10½	0 12½
Redwood	0 05	0 06
SPICES.		
Allspice	0 8½@	0 10
Cassia	0 38	0 40
Cloves	0 12½	0 15
Cayenne	0 18	0 25
Ginger, E. I	0 12	0 14
Jam	0 20	0 30
Mace	1 45	1 50
Mustard, com	0 20	0 25
Nutmegs	1 05	1 10
Pepper, Black	0 19	0 20
White	0 35	0 36
PAINTS, DRY.		
Black, Lamp, com	0 07 @	0 08
" refined	0 25	0 30
Blue, Celestial	0 08	0 12
Prussian	0 65	0 75
Brown, Vandyke	0 10	0 12½
Chalk, White	0 01	0 01½
Green, Brunswick	0 07	0 10
Chrome	0 16	0 25
Paris	0 25	0 35
Magnesia	0 20	0 25
Litharge	0 06½	0 07
Pink, Rose	0 12½	0 15
Red Lead	0 06½	0 08
Venetian	0 02½	0 03½
Sienna, B. & G	0 10	0 15
Umber	0 07	0 10
Vermillion, English	1 15	1 25
American	0 25	0 35
Whiting	0 85	0 90
White Lead, dry, gen	0 08	0 09
" " No. 1	0 07	0 08
" " No. 2	0 06	0 07
Yellow Chrome	0 12½	0 35
" Ochre	0 02½	0 03½
Zinc White, Star	0 10	0 12
COLORS, IN OIL.		
Blue Paint	0 12 @	0 15
Fire Proof Paint	0 06	0 08
Green, Paris	0 30	0 37½
Red, Venetian	0 07	0 10
Patent Dryers, 1 lb tins	0 11	0 12
Putty	0 03½	0 04½
Yellow Ochre	0 08	0 12
White Lead, gen. 25 lb. tins	2 30	—
" No. 1	2 10	—
" No. 2	1 90	—
" No. 3	1 65	—
" com	1 30	—
White Zinc, Snow	2 75	3 25
NAVAL STORES.		
Black Pitch	5 50 @	5 60
Rosin, Strained	5 25	5 25
Clear, pale	9 00	10 00
Spirits Turpentine	0 00	1 15
Tar Wood	5 00	5 25
OILS.		
Cod	0 58 @	0 60
Lard, extra	1 00	—
No. 1	0 95	1 00
No. 2	0 85	0 90
Linseed, Raw	0 [illegible]	0 80
Boiled	0 82½	0 85
Olive, Common	1 15	1 35
Salad	1 80	2 30
" Pints, cases	4 20	4 40
" Quarts	3 60	3 00
Seal Oil, Pale	0 70	0 75
Straw	0 65	0 65
Sesame Salad	1 30	1 35
Sperm, genuine	2 35	2 40
Whale, refined	0 90	0 95

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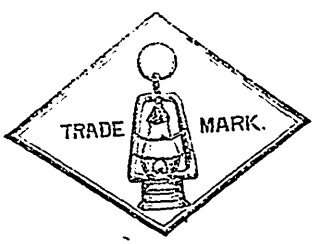

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