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CANADIAN

# PHARMACEUTICAL JOURNAL

VOL. VIII, No. 8. TORONTO, MARCH, 1875. WHOLE No. LXXXII

# Ontario College of Pharmacy.

## MINUTES OF THE SEMI-ANNUAL MEETING OF THE COUNCIL.

The regular semi-annual meeting of the Council was held on Wednesday, 3rd February, 1875; the following members being present.

Mr. B. Lyman, President; Mr. Saunders, Vice-President; Messrs. Hugh Miller, N. C. Love, J. Roberts, C. Brent, L. W. Yeomans, E. Gregory, F. Jordan, E. Harvey, T. Bickle and E. H. Parker.

The Minutes of the meeting held 5th August, 1874, were read, and on motion were adopted.

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

### REPORT OF THE BOARD OF EXAMINERS.

The Board of Examiners beg to report that the Eighth Semi-Annual Examination was held in accordance with the provisions of the Pharmacy Act. Thirty-two candidates entered for competition and of these eighteen were successful in obtaining the requisite number of marks to entitle them to registration:

| | | |
|---|---|---|
| 1. G. Ramsay ..... | Toronto, | 84 marks. |
| 2. J. H. Bowman ..... | London, | 83 |
| 3. T. Edmanson ..... | Bradford, | 81 |
| 4. A. Wilson ..... | Seaforth, | 81 |

| | | | |
|---|---|---|---|
| 5. | T. V. Kennedy | Toronto, | 80 |
| 6. | J. O. Beamish | Cobourg, | 80 |
| 7. | W. C. Cousens | Ottawa, | 79 |
| 8. | Wm. M. Moore | London, | 77 |
| 9. | Henry Fellman | Berlin, | 77 |
| 10. | G. Inglis | Toronto, | 75 |
| 11. | A. Turner | Toronto, | 75 |
| 12. | H. B Small | Ottawa, | 73 |
| 13. | J. E. Platt | London, | 71 |
| 14. | J. H. Fleming | Milton, | 71 |
| 15. | W. M. Robinson | Cobourg, | 65 |
| 16. | B. Robinson | Kingston, | 64 |
| 17. | R. W. Armstrong | Strathroy, | 61 |
| 18. | H. M. Heal | London, | 60 |

The names of those who obtained the highest number of marks in the several branches upon which they were examined are: *Chemistry.*—T. V. Kennedy, Toronto, 16 marks. *Pharmacy.*—G. Ramsay, 19. *Botany.*—W. C. Cousens, Ottawa, 14.8. *Materia Medica.*—J. E. Platt, London, 17.6. *Prescriptions.*—J. H. Bowman, London, and A. Wilson, Seaforth, 16. *Practical Dispensing.*—In this branch four gentlemen received the highest number of marks which can be obtained.

Having found that during the last examination the stipulated amount of time was entirely insufficient for work to be performed, your examiners would beg to recommend that the time be extended to two days.

We notice with pleasure that the majority of the successful candidates have been competitors for the prizes offered in the Students' Department of the Journal. All of which is respectfully submitted.

E. B. SHUTTLEWOTH,
L. W. YEOMANS,
EDM. GREGORY. } Examiners.

Moved by Mr. Love, seconded by Mr. Roberts, that the report of the Board of Examiners be received and adopted. Carried.

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

TREASURER'S REPORT FOR HALF YEAR ENDING JANUARY 31st, 1875.

*Receipts.*

| | | | | |
|---|---|---|---|---|
| Aug. | 4, 1874, | Cash in bank | | $3,342 43 |
| | | Cash in hand | | 8 14 |
| | 14 | Cash from Registrar | | 68 00 |
| Sept. | 15 | " | " | 72 60 |
| Oct. | 8 | " | " | 121 00 |
| | 20 | " | " | 179 00 |
| Nov. | 30 | " | " | 79 00 |

| | | | | |
|---|---|---|---|---|
| Jan. | 18 | 1875, | Cash from Registrar | 101 85 |
| | 26 | | " " | 124 40 |
| | 30 | | " " | 61 10 |
| | | | Interest to 31st December | 56 93 |
| | | | | $4,214 45 |

*Disbursements.*

| | | | | |
|---|---|---|---|---|
| Aug. | 5 | 1874, | Expenses of August Meeting | $ 204 88 |
| | | | E. B. Shuttleworth | 259 00 |
| | | | Geo. Hodgetts | 100 00 |
| | | | Wm. Brydon | 6 00 |
| | | | K. Miller | 50 00 |
| | 20 | | *Mail* Printing Co | 12 50 |
| | | | *Globe* Printing Co | 12 50 |
| | 24 | | *Monetary Times* | 60 35 |
| | 24 | | *Monetary Times* | 5 00 |
| | 29 | | Copp Clark & Co | 12 00 |
| Sept. | 16 | | *Monetary Times* | 67 45 |
| | 16 | | *Monetary Times* | 60 35 |
| | 16 | | Goods for Examination and Prizes | 19 75 |
| | | | Brought up | 869 78 |
| Sept. | 16 | | Postage for Journal | 4 75 |
| Oct. | 8 | | Postage | 10 80 |
| Nov. | 24 | | *Monetary Times* | 127 20 |
| | 26 | | Postage | 3 00 |
| | 6 | | Jno. Fensom | 3 00 |
| | 21 | | Hastings & Peterkin | 1 00 |
| Dec. | 17 | | *Monetary Times* | 60 35 |
| Nov. | 30 | | Geo. Hodgetts | 100 00 |
| Jan. | 18 | 1875 | Postage | 10 00 |
| | | | Copp Clark & Co | 8 75 |
| | | | Lyman Bros & Co | 78 |
| | | | Hunter, Rose & Co | 2 50 |
| | | | Appropriation for prizes | 50 00 |
| | 23 | | Bank of Commerce (per stock) | 2010 00 |
| | 29 | | Mowat, McClelland & Downey | 25 00 |
| | 30 | | E. B. Shuttleworth | 256 30 |
| | | | | $3,543 21 |

| | |
|---|---|
| Receipts | $4,214 45 |
| Disbursements | 3,543 21 |
| Balance in hand | $ 671 24 |

KENNETH MILLER,
*Treasurer Ontario College of Pharmacy.*

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

E. HARVEY,
NEIL C. LOVE, } Auditors.

The Registrar's report was next read.

## REGISTRAR'S REPORT.

*To the Council of the Ontario College of Pharmacy.*

GENTLEMEN,—Your registrar begs to report that during the past six months there have been twenty-seven applications for registration; nineteen certificates have been issued. The papers upon which the Certificates have been granted are laid before the Council; four applications have been refused, the proof of qualification not being satisfactory, four cases are still in abeyance waiting further proof, or the decision of the Council on the same, objection being taken in two of the cases.

The number of Renewals issued during the past six months is 85, making a total of 415 for the year. There are about 50 members who have not yet paid the fee for the current year; efforts are being used which it is hoped will result in the whole being paid, without resorting to rigorous measures.

I have to report that the cases which were put in suit have all been paid.

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

| | | | |
|---|---|---|---|
| 8 | Renewal fees | 1872 | $ 32 00 |
| 10 | " " | 1873 | 40 00 |
| 87 | " " | 1874 | 348 00 |
| 2 | " " | 1875 | 8 00 |
| 32 | Examination " | | 128 00 |
| 27 | Registration " | | 108 00 |
| 8 | Associate | | 16 00 |
| | Balance of fees | | 6 00 |
| | Sale of Poison Books | | 4 45 |
| | | | $690 45 |

The receipts on account of the Pharmaceutical Journal are as follows:

| | |
|---|---|
| To subscription for Journal | $13 25 |
| Advertising situations wanted | 75 |
| Advertising | 138 00 |
| | $152 00 |

| | |
|---|---|
| By paid for Journals to complete setts for Binding | 2 50 |
| " Express charges on printed matter ..... | 3 40 |
| " paid Treasurer ..... | 135 00 |
| " " " ..... | 11 10 |
| | $152 00 |

Your registrar hopes to make arrangements for securing further Advertisements for the Journal.

All of which is respectfully submitted.

GEORGE HODGETTS,
*Registrar.*

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

Mr. Lyman on behalf of the Finance Committee, appointed at the meeting in August, reported that he had invested $2,010 of the funds on hand, in Bank of Commerce Stock.

Mr. Saunders as representative of the Ontario College of Pharmacy, at the twenty-second annual gathering of the American Pharmaceutical Association, held in the City of Louisville, Ky., reported on the very cordial reception he met with from that body. In accordance with resolution of the Council, he extended an invitation to the Association to hold their next annual convention in the City of Toronto; but on account of the approaching Centennial Meeting in Philadelphia, it was decided to meet next year in Boston, but in all probability the meeting of the American Pharmaceutical Association would be held in Toronto in 1877.

Mr. Jordan stated he had met with several gentlemen connected with the American Pharmaceutical Association, and in conversation with them ascertained that Toronto was quite popular for 1877.

An application for registration from Mr. John L. Wideman, of the Village of St. Jacobs, with objection to the same was read, and action of the Council asked thereon. Moved by Mr. Harvey, seconded by Mr. Saunders, that the application of Mr. Wideman be granted. Carried.

Mr. Morris' application for registration was discussed, and it was moved by Mr. Harvey, seconded by Mr. Bickle, that the application of Mr. B. B. Morris be received, on his complying with instructions as forwarded by the Registrar to him.—Carried.

Mr. McGarvin's application for registration was refused, as the evidence of qualification was considered insufficient.

A communication from Mr. E. P. Forde to the Board of Examiners was read, the Council decided that if he would submit his Diploma as M. D. it would be esteemed sufficient evidence of qualification.

A letter from Mr. Frood suggesting an Annual Meeting of the Members of the College was informally discussed.

The Registrar was directed to take legal proceedings against those members who have not paid the renewal fee for the year 1874.

The question of the Amendments to the Pharmacy Act was taken up, but in view of the new Council coming into office, in August next, it was thought better to defer until that time any discussion in regard to the subject.

Moved by Mr. Saunders, seconded by Mr. Roberts, that the thanks of the Council be tendered to those gentlemen, who have conducted the Student's Department in the Journal, and that a further appropriation of $50 for prizes be made.—Carried.

Moved by Mr. Harvey, seconded by Mr. Saunders, that the Auditors be authorized to obtain such blank books, as may be required by the Registrar.—Carried.

Moved by Mr. Saunders, seconded by Mr. Roberts, that those entitled to vote at the coming election, should be reminded that it is desirable the representation should be distributed as equally as possible throughout the province, and to this end, the Editor be requested to publish a scheme for the partition of the Province into electoral divisions, similar to that which appeared in the editorial department of one of the back numbers of the Journal.—Carried.

There being no other business, it was moved that the Council adjourn.

The Council adjourned at 5.30 p.m.

GEORGE HODGETTS,
*Registrar.*

# Original and Selected Papers.

## PHARMACEUTICAL SCRAPS.

BY "MONAD."

### RONDELETIA.

| | |
|---|---|
| Otto Lavender, Eng | 2 oz. |
| " Cloves | 1 oz. |
| " Roses | 3 drs. |
| " Bergamot | 1 oz. |
| Musk | 30 grs. |
| Vanilla | 2 drs. |
| Ambergris | 40 grs. |
| Spirit | 8¾ pts. Imp. |

Let stand for one month and filter. This makes a very fine perfume; but one almost as good, and much cheaper, may be made by omitting the otto of roses and vanilla.

EMULSION OF COD LIVER OIL AND HYPOPHOSPHITES.

| | |
|---|---|
| Powd. Gum, Tragacanth | ½ oz. |
| Glycerine | 3 oz. |
| Water | 9 oz. |

Rub the tragacanth with the glycerine, and add the water gradually. To this mucilage add the following solution :—

| | |
|---|---|
| Hypophosphites of Lime | 4½ drs. |
| " " Soda | 2¼ drs. |
| " " Potash | 2¼ drs. |
| Sugar | ¾ lb. |
| Boiling water | 12 oz. |

Make the admixture gradually, with brisk trituration. To this medicated mucilage add the following, as a flavour and preservative :

| | |
|---|---|
| Otto Almonds, bitter | 10 drops. |
| " Cinnamon | 5 drops. |
| " Canella | 5 drops. |
| Alcohol | 6 oz. |

The whole will now form a semi-transparent mucilaginous liquid of about thirty-seven fluid ounces in bulk. To this add gradually an equal measure of cod liver oil and mix thoroughly. In practice it is advisable to work on small quantities, say half-pint of each, in a number eight mortar. If care is taken the product will be very satisfactory.

EXTRACT OF PATCHOULY.

| | |
|---|---|
| Otto of Patchouly | 4 drams. |
| " Rose | 50 minims. |
| Spirit | 44 fl. oz. |
| Water | 20 fl. oz. |

The otto of patchouly and rose are to be dissolved in the spirit and the water added. If the spirit is weak the mixture will be opalescent, in which case the quantity of water should be decreased and that of the alcohol increased proportionately.

"ELEGANT" PHARMACY.—Physicians frequently prescribe liniments of oil of turpentine with various tinctures, so that the mixture forms an imperfect solution and has not such an agreeable appearance as might be desired by the fastidious. Of course the appearance should be entirely subordinate to the usefulness of a preparation, but when the former can be improved without injuring the latter, I think it is advisable it should be done. The following liniment I have dispensed very frequently :—

℞ Ol Terebinth,
Tinct. Aconiti Rad.,
Spts. Camphor. aa ʒij,
Tinct. Iodi,
Mix. Carbon Bisulph. aa ʒj.

This mixture separates very quickly into two layers.

In attempting to make a perfect solution I found the following substances, when added to the liniment, answered the purpose admirably:—

| | |
|---|---|
| Soap, transparent glycerine, fine shavings. | ¾ oz. |
| Otto of Cedar..... ..... | 1½ oz. fl. |
| or, Otto of Cajeput ..... ..... | 1 oz. fl. |

Either of these may he used in the above proportions, with the 8 oz. liniment.

This is a good liniment, in a great many cases, and when prepared with the otto of cedar and deodorized bisulphide of carbon, it is not offensive to the smell.

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## ON SOME SUBSTITUTIONS.*

BY JOHN M. MAISCH.

*Agaric* or *White Agaric* is a drug which was formerly much more frequently employed than at present, but is still occasionally used, particularly in domestic medicine, and mainly as an ingredient in several bitters, which, among a portion of our German population, enjoy some popularity. The drug consists of the pileus or cap of a fungus, named *Polyporus officinalis*, Fries, s. *Polyp. laricis*, Roques, s. *Boletus laricis*, Jacquin, s. *Bol. officinalis*, Villaris, s. *Bol. purgans*, Persoon. It occurs in the market in irregular masses of the size of a fist and larger, is occasionally semilunar in shape or resembles the section of a cone. It is of a white color, light and friable, nearly inodorous, and possesses a taste which is at first sweetish, but soon becomes bitter and acrid.

Recently a sample of a so-called white agaric, which had been obtained in New York, was sent to me; it was in the form of a coarse white powder, intermixed with some larger, irregular white pieces, none of which exceeded a quarter inch in length or thickness, but, on superficial examination, possessed the physical characters of true agaric. The powder was of a sweetish, subsequently bitter, acrid taste, which, however, was much less marked than in the genuine drug; the larger pieces, freed from the adhering dust, were nearly insipid and entirely devoid of bitterness. A section placed under the microscope showed it to consist of the peculiar filamentous cells of the fungi; but on searching a number of works on Materia Medica, I found no adulteration or substitution mention-

*From the American Journal of Pharmacy.

ed, except by Wiggers, who states that agaric is occasionally mixed with pieces of *Polyporus igniarius*, Fries, made to resemble agaric by covering it with the powder of the latter. The substance in question, however, is not derived from a *Polyporus*, which genus is characterized by having the hymenium or gills concrete with the pileus or cap, and consisting of subrotund pores.

Some of the pieces have fragments of lamellæ still attached showing the substance in question to be most probably the cap of a species of *Agaricus*, from which the lamellate gills have been almost completely removed, and which was afterwards broken into small pieces and mixed with some powder of the larch agaric, to impart a bitter taste. The substitution can easily be detected by examining some of the larger pieces in the manner indicated above.

*Gossypii radicis Cortex* of the U. S. Pharmacopœia, is the bark of the root of the cultivated species of *Gossypium*. The woody, conical, nearly simple root of the cultivated cotton plant is covered with a thin bark, about half a line to one line in thickness, rarely thicker. Externally, the bark is of a brownish-yellow color, with larger irregular patches of a brownish-orange, caused by the abrasion of the outer layer of cork, and smaller ones more scattered, of a nearly black color The yellowish portion has a slight satiny lustre, the other parts are dull. The thin, corky layer which adheres well to the bast layer, forms shallow longitudinal ridges often becoming confluent into narrow, elongated meshes. Suberous warts or their scars are scattered over the surface, at first circular in shape, ultimately forming short transverse, black lines. The inner surface is of a whitish, or reddish-white color, a silky lustre, and finely but, to the naked eye, distinctly striate in a longitudinal direction. A pocket lens reveals these striæ as thin, medullary rays penetrating into the bark. The bast fibres are long and tough, and arranged in tangential rows, on account of which the inner bark may be separated into very thin, almost transparent layers without difficulty. The bark is without odour ; the bast possesses scarcely an acrid taste ; the corky layer is in the main rather feebly astringent.

Some months ago, in one of our wholesale stores, I met with a so-called cotton-root bark, which had been obtained from the State of Georgia, and which is so entirely different from the root bark of our cultivated *gossypium*, as to leave no doubt whatever in regard to its origin from a different plant. The bark is in quills or in curved pieces, several inches to a foot or more in length, and one-eighth to one-fourth in thickness, inodorous, of a slight astringent, afterwards bitterish and distinctly acrid taste ; pale brown to rust-brown throughout in color, and destitute of silky lustre, except the bast fibres upon a fresh fracture. The exterior surface is deep brown, the younger bark with shallow, longitudinal suberous ridges, the older bark with the soft cork more or less fissured, and exfoliating in small patches. The interior surface is of a dark brown or

blackish-brown color, and striate by the rather coarse bast fibres. The bark breaks transversely with little difficulty, and exhibits a coarse, splintery fracture from the numerous bast fibres, which are disposed in tangential rows; the inner bark separates in the same direction in rather thick layers. Some of the coarser pieces of bark are found with a clayey earth adhering in the grooves and bends.

The characters described are, with very insignificant variations, observed in the bark of the root of cotton plants, which some years ago were furnished me from several varieties grown in four or five of our Southern States, and for which I am indebted to the kindness of Dr. Robert Battey, of Rome, Ga., and Mr. Gallagher, of Washington, North Carolina.

It will be observed that the description agrees in several important points with the characteristics of mezereon bark, to which cotton-root bark bears a close resemblance, if color and taste are not considered; the thin, ribbon-like appearance, the silky lustre of the internal surface, the transverse scars of suberous warts and the toughness of the bast fibres are common to both.*

What is the origin of this bark? It can scarcely be doubted that it is derived from the root of a tree, and it is not unlikely that it must be referred to one or more species of *Populus*, several of which are popularly known as *cottonwood*, on account of the cotton-like filaments found in the fruit. This name is more particularly applied to the following three species; *Populus angulata*, Aiton, the western cotton-tree which is found from Pennsylvania to Wisconsin, and further southward; *Pop. monilifera*, Aiton, cottonwood or necklace-poplar, from Western Vermont to Illinois and southwestward to Louisiana; *Pop. heterophylla*, Lin., cotton-tree or downy poplar, found in about the same localities, though rarer than the preceding in the New England States. The three species grow along river banks and in swampy localities, and it does not seem unlikely, that one or all three yield at least a portion of the so-called cotton-root bark of commerce.

I am not aware that authentic specimens of the bark *Gossypium* or of these species of *populus* have been submitted to analysis, but as far as can be judged from the taste, and other sensible properties, I am inclined to the belief that at least a considerable portion of the commercial fluid extracts of cotton-root bark have *not* been made from the officinal *Gossypii radicis cortex*, but from this substitute.

* After the above was in type, I have received, through the kindness of Dr. A. W. Miller, a sample of cotton-root bark collected by Wallace Bros. & Stephenson, of Statesville, North Carolina. This agrees in every respect with my cotton-root bark, except that it is more or less quilled, showing that it has been taken from the recently collected root, and dried without endeavouring to prevent its quilling; my bark was stripped from nearly dry roots and purposely kept in bands. I have not noticed any striking difference in the root-bark of the long and short staple cotton.

The question then presents itself to which cotton-root bark must be ascribed the reputed emmenagogue properties, upon the strength of which *Gosypii radix* afterwards *Gossypii radicis cortex* was admitted into the Pharmacopœia? The writer would be thankful to manufacturers of fluid extracts, to wholesale druggists, and particularly to physicians and pharmacists of the Southern States where *cotton-root bark* appears to be principally used, for authentic specimens of the plant and of its root, to which the medicinal properties are ascribed.

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## THE INSECTICIDAL PROPERTIES OF SOME SPECIES OF PYRETHRUM.*

BY HERMANN KALBRUNER.

Some plants of the Composite family have long been used for the destruction of different kinds of insects. Thus, Mathiolus in his "Herbal" (A. D. 1563) says of the *Conyza media (Conyza squarroso*, L.) that the plant or the smoke of it will drive away fleas, gnats, and other noxious insects. The smell of *Inula Pulicaria* was held to be equally efficacious in dispersing insects, and the herb *Artemisia Absinthium* was used for similar purposes. In the Banat the root of *Inula Helenium*, L., has long been held in high esteem as a fumigant against mosquitoes, etc.

But in more recent times certain species of *Pyrethrum* have obtained considerable reputation as insecticides; *Pyrethrum carneum* and *P. roseum*, M.B., both growing wild, and frequently cultivated in the Caucasus, having, in this respect, proved to be very superior. In the year 1846, Zacherl, a Tiflis merchant, first introduced the sale of these flowers into Vienna under the name of "Persian Insect Powder."

Notwithstanding that *P. carneum* and *P. roseum* are indigenous in the Caucasus and in Persia, they have been successfully cultivated in many localities in Europe and North America. The climate of Lower Austria suits them very well; they are found there as ornamental plants in the gardens, and they grow in northerly cool places with especial luxuriance. The author has had plants of *P. roseum* in his garden during several years, and they have supported the cold of winter without shelter.

Under the name of Dalmatian Insect Powder the flowers of *Pyrethrum cinerariæfolium*, Trev., a plant that grows wild in Dalmatia, have been used. Through the kindness of a friend the author obtained some seeds from Dalmatia, from which he was successful

* Zeitschrift des allgemeinen osterreichischen Apotheker-Vereines, vol. xii., p. 542, in Pharm. Jour. and Trans.

in raising plants in his garden, where they lived through the winter in the open air.

In order to test the effect of the different insect powders the author sprinkled some flies with the powders, and took the length of time required to kill the flies as the measure of the value of the powders. When a house fly was placed in a small flask, sprinkled with four grains of insect powder, if the powder were very powerful, there was considerable stupor at the end of one minute, followed by death of the fly after two or three minutes. The commercial insect powders behaved differently in this respect; some of them corresponding completely to the above standard, whilst others, although they quickly stupefied flies treated as above, required fifteen to thirty minutes to kill them. The druggists in Vienna purchase the whole flowers, yielded, in the author's opinion, by the uncultivated Dalmatian *Pyrethrum cinerariæfolium*, Trev., and the powder they supply is a very energetic preparation. It is noteworthy that both these entire flowers and the powder prepared from them, after being kept six years, do not suffer any particular loss of activity. The author found the powder of the flowers of *P. cinerariæfolium* cultivated by himself also to be very active.

*Pyrethrum roseum*, M.B., of the author's cultivation, appeared to be slower in its action, which he ascribes to the circumstance that the discoid flowers are much more powerful than the radiate flowers, which appear to have little activity. The radiate flowers occur in *P. roseum* in much larger proportion than in *P. cinerariæfolium*; and to this fact he considers the greater activity of the latter due.

The fresh (undried) flowers of both these Pyrethrums will kill flies, but very slowly. The plant itself, powdered, appeared to be quite inactive. In a similar manner the author tested the powdered flowers of several Austrian Compositæ, and he found the following to be quite inactive in this respect:—*Chrysanthemum leucanthemum*, L., *C. Coronarium*, L., *Anthemis arvensis*, L., *A. Cotula*, L., *A. tinctoria*, L., *A. nobilis*, L., and *Inula Pulicaria*, L. The flowers of *Tanacetum vulgare*, L., and *Pyrethrum corymbosum*, Sm., appeared to have a very slight stupefying effect.

Of all the Austrian indigenous Composites tried by the author, only the powdered flowers of *Pyrethrum Parthenium*, Sm., and *P. inodorum*, Sm., exercised a stupefying influence upon flies, and that only after the flies had been dusted from one to two hours; their value, therefore, as insecticides, is very slight. In a scientific aspect it is, however, interesting to notice that up to the present time the action obnoxious to insects has only been observed in the genus *Pyrethrum*, whilst from other Composites approaching very nearly to that genus the property is absent.

Some years since, the *Journal de Pharmacie d'Anvers* contained an article, which was copied into various other journals, asserting

that the insecticidal action of Persian insect powder was due to powdered flowers of *Anthemis Cotula*. As above stated, the author found the flowers of this species quite inactive, since flies which had been dusted with it were after four hours still able to fly away readily. The author conjectures that a species of *Pyrethrum* was mistaken for *A. Cotula*.

The cultivation of *Pyrethrum roseum* and *P. carneum* has already been attempted in various places in Austria. Paukert, an apothecary at Treuenbritzen, has cultivated them for several years, and in Hager's *Pharmaz. Centralhalle* (vol. vii., p. 49), has detailed his method of proceeding, from which it appears that the growth of the plants has been very successful in richly manured soil. The author's experiment also with *P. cinerariæfolium* yielded the flowers at a slight profit. But as very active flowers can be obtained from Eastern Asia and Dalmatia at a moderate price he does not think that the home cultivation would be remunerative.

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## OS SEPIÆ.*

BY THOS. S. WIEGAND, PH. G.

There are many among those who daily handle, and even sell the common cuttle-fish bone, as it is ordinarily termed, who would be quite surprised to learn that it is not a bone at all, at least in the same sense that term bone is used in speaking of the vertebrate animals, the frame-works of whose bodies are bony. This "fish-bone," which is frequently found floating in the Mediterranean Sea, and in much greater quantity on the shores of Australia, is of an oblong oval shape, from three to ten inches long, and its breadth is about one-third of its length, hard upon its upper surface and edges, but soft on its lower side, both surfaces being convex; its specific gravity is about ·935. Its composition, though calcareous, is quite different from bone, being about 83 per cent. of carbonate of calcium, with some magnesia and common salt, and but little animal matter. The structure of the bone is quite peculiar, a fresh fracture, when examined, shows the layers of the calcium salt, supported by pillars of the same material, arranged in regular rows, likened by Wood, the naturalist, to a miniature giant's causeway.

The *Sepia officinalis*, for this is the title of the fish which furnishes the little songsters with their tiny grindstones whereon to whet their bills, belongs to the class Mollusca and order Cephalopoda; this term alluding to the feet being attached close to the head. Its generic name *Sepia* is in consequence of the color which

* From the American Journal of Pharmacy.

it ejects when chased or angered. It is most commonly found on the Australian coast, though most of the commercial supply is derived from Europe.

The various names of Great Polypus, Colossal Cuttle-fish, Gigantic Squid, Kraken, Devil-fish, etc., will appear to be well deserved when some of their performances, for which very truthful observers vouch, are narrated. Montford has described their habits fully, and shows them to be very dangerous and disgusting, even when so small as not to be dreaded for their size and strength; their activity and determination is very remarkable. The attack of one upon a ship, sailing from St. Malo, a seaport in France, is celebrated by a painting, hung up in the church of St. Thomas in that city, representing the vessel with the arms of the fish clasped about the masts and sides of the vessel which was only freed from the monster by the vigorous efforts of the crew in cutting away the encircling arms. The reader must remember, however, that the *Sepia officinalis* are not to be held answerable for these performances, they belong to other branches of the family; the smaller members are generally peacefully inclined, but when irritated they become exceedingly annoying to those who molest them. The rocks and coast of Madagascar is shunned by the natives who wish to swim on account of the rock squids fastening upon the persons of the swimmers with their suckers, if they venture too near the shore. One of the most recent accounts which appears well authenticated, is contained in a number of the *London Spectator*, which tells of a cuttle-fish that appeared off the Newfoundland coast, in Conception Bay; some fishermen supposing it, from its size, to be a portion of a wreck, pulled out for it, and striking at it, they so enraged it that it raised its beaked head and encircled the boat with two of its slimy arms; instantly the men cut them away with their axes, and the fish, finding the fight too severe for him, sailed away, inking the sea for several hundred yards. The arm, which was of a pale pink colour and entirely cartilaginous, was preserved in St. Johns Museum, and was found to measure nineteen feet; this report, so well authenticated, gives some show of truth to the marvellous story which Victor Hugo has so graphically depicted in his tale of the "Toilers of the Sea."

The use to which *Os Sepiæ* is put in pharmacy proper is but trifling, it furnishing when levigated and dried, a very fine variety of carbonate of calcium, but is more generally employed in the fabrication of tooth powders, being the basis of Betton's dentrifice, and the cuttle-fish powder of Piesse, formulas of which are appended to this article.

There is one other product of the cuttle-fish which is used in the arts, a substance called sepia, a coloring matter of black color, and when well prepared highly prized by artists. This substance is secreted by the fish from a bag or sack, which it can contract at

will, and thus discharge some of the coloring matter into the surrounding water, and staining it for the purpose of preventing its enemies from seeing it so as to be able to pursue it.

A few words about the proper method of making the class of powders mentioned will perhaps be useful to the readers of the *Journal*. It is of highest importance that the basis of all tooth powders should be so free from all sharp, gritty particles that there will be no danger of abrasion to the enamel of the teeth. This fineness, of course, is to be obtained only by careful pulverization and passing the powder through a seive of fine bolting cloth, all the various materials being reduced to an equal degree of fineness. When coloring matter is to be added, and this generally is some shade of pink, the finest colour is obtained by washing the calcareous powder with a solution of carmine in aqua ammoniæ, and exposing the powder to the air until free from ammoniacal odour and moisture ; to this prepared calcareous base the remaining powders are added, and the whole thoroughly incorporated by sifting together.

*Betton's Dentifrice.*

Take of—

| | |
|---|---|
| Powdered Cuttle-fish, | |
| " Orris root, each - - | 4 pounds. |
| " Prepared chalk - - | 1 " |
| Musk - - - - - - | 8 grains. |
| Oil rose and lavender (Mitcham), each | 48 drops. |
| Carmine, No. 40 - - - | 2 drachms. |
| Aqua Ammoniæ - - - | 5 fluidrachms. |
| Water - . - - - | 6 fluidounces. |

Rub the carmine with the aqua ammoniæ diluted with the water, and with this solution imbue the prepared chalk and powdered cuttle-fish bone. After the moisture has all disappeared, sift the orsis root perfumed with the essential oils together with the colored lime salts.

*Piesse's Cuttle-Fish Powder.*

Take of—

| | |
|---|---|
| Powdered Cuttle-fish - - - | ½ pound |
| Precipitated carbonate of lime - - | 1 " |
| Powdered orris root - - | ½ " |
| Oil lemon - - - - | 1 ounce. |
| Oil of neroli - - - | ½ " |
| Carmine - - - - | ½ drachm. |
| Aqua ammoniæ - - - | 2 fluidrachms. |
| Water - - - - - | 1½ fluid oz. |

Proceed as in former receipe.

# NOTE ON THE PROXIMATE ANALYSIS OF CINCHONA BARK.*

*Limited to the separation of the four alkaloids, Quinia, Quinidia, Cinchonia and Cinchonidia, and the three acids, Quinic, Quinovic and Quinotannic.*

BY ROBERT M. COTTON.

The process given below is nothing more or less than the combination of methods reported by different authorities, and given in Watt's Dictionary and Gmelin's Handbook, modified, in some particulars, after trial. The writer has found all the results of this process to be satisfactory. The same material was subjected to operations by other methods without obtaining as good results.

Any desired quantity—say one-half pound—of the powdered bark is macerated with warm water for two or three days and then percolated, water being added upon the percolator to exhaustion. Hydrochloric acid is added to the percolate, to a distinct acid reaction; then solution of caustic soda is added, with stirring, to an alkaline reaction, and the mixture is set aside for some hours for subsidence of the precipitate. The whole is then filtered, and the precipitate well washed with cold water: this precipitate, *a*, contains the alkaloids, and the filtrate, A, contains the acids.

The washed precipitate, *a*, is exhausted with (much) ether, giving an ether-solution, *b*, containing the quinia and quinidia, while cinchonia and cinchonidia are left undissolved. Precipitate *a* is again washed with water, and then treated with 90 per cent. alcohol, which dissolves the cinchonidia with a little cinchonia: solution *c*. Precipitate *a*, washed again with water, remains as nearly pure cinchonia. The residue of solution *c*, is the cinchonidia with a little cinchonia. (Cinchonia is soluble in about 120 parts of 90 per cent. alcohol; cinchonidia in about 12 parts of the same solvent.)

The quinia and quinidia of solution *b*, are separated from each other by the unlike solubilities of their oxalates, as follows: A moderately dilute water solution of oxalic acid is added to an acid reaction; the ether is allowed to evaporate or is distilled off; and the residue is treated with water. The solution *d*, contains the quinidia as oxalate, together with a very little oxalate of quinia. The residue is not soluble in water, is dissolved with dilute sulphuric acid, as acid sulphate of quinia, solution *e*. By precipitation with aqueous alkali, quinia is obtained from solution *e*, and quinidia from solution *d*.

Each of the four alkaloids may be obtained in crystals from a saturated alcoholic solution.

* From the American Journal of Pharmacy.

In the work for acids, the quinovic acid is precipitated with normal lead acetate, leaving quinic acid in solution. Also, if the lead acetate is added short of saturation, the quinotannic acid remains in solution. To accomplish this result, two-thirds of solution *a* is treated with neutral acetate of lead solution just to complete saturation, and immediately mixed with the remaining one-third. The precipitate of quinovate of lead is filtered out, washed with water, suspended in water, and decomposed by dropping in very dilute sulphuric acid, until the precipitate turns white, carefully avoiding an excess (which would decompose the quinovic acid.) The liquid is decanted from the lead sulphate, upon a filter, and the filtrate concentrated and left some time to crystallize as quinovic acid.

The filtrate from the precipitate by acetate of lead is concentrated to the consistence of a thin syrup, and set aside to crystallize. It may require the insertion of a nucleus for crystallization. There should now form a crystalline mass (quinic acid), mixed with yellowish drops of oily consistence (quinotannic acid.) The mass is washed with ether, the residue being quinic acid, very deliquescent.

The ether solution is evaporated, leaving in residue the quinotannic acid, uncrystallizable.

*University of Michigan, July 1st*, 1874.

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## LABORATORY NOTES.*

BY J. LAWRENCE SMITH, OF LOUISVILLE, KY.

From long experience I have found it vain to rely upon manufacturers of chemicals for reagents of that exceeding purity which all analytical chemists often require for conducting their researches, and it has been my habit, through a long experience in analytical chemistry, to prepare with my own hands certain of the chemicals used by me and, while many of the processes of preparing them embrace nothing specially novel, still my experience in making them has been of certain importance to others, and from time to time I will take opportunities to give more general information of these methods, which may possibly be of service to some, especially as, while seeking first for purity, I have been obliged to economize time by the least amount of manipulation.

*Pure Carbonate of Soda.*—For many years all the carbonate of soda used by me in mineral analysis has been prepared in the following method, viz., by making oxalate of soda and then decomposing it by heat. It can be described in the shortest possible manner

*From the American Chemist.

by giving the figures and method employed for obtaining a given result. The carbonate of soda commonly used has been the crystals of ordinary sal soda, washed with a little water to detach the adhering dust, or if one has pure soda at his command, it can be used to advantage. The oxalic acid used is the ordinary oxalic acid of the shops once recrystallized, of which crystallized acid I always have a supply of several pounds in my laboratory.

63 grammes of oxalic acid and 143 grammes of sal soda are dissolved by heat in 200 c.c.m. of distilled water—filter the solution if necessary—to the solution of soda, when cold, add the solution of oxalic acid, just hot enough to keep from crystallizing ; add it by degrees, stirring well ; after the mixture is completed, it is expected that the solution will have an alkaline reaction, to keep any trace of soda in solution ; the oxalate of soda will be precipitated in great part shortly after the operation is completed ; let stand for a short while to cool completely, decant the supernatant liquid, add a little distilled water, break up with a stirrer the lumps of crystals that may have formed, throw on a filter over a Bunsen aspirator, using a six-inch filter, wash with about a half litre of distilled water, and let dry. This may be placed aside in a glass bottle if not needed at once for forming carbonate of soda ; the quantity of dry oxalate produced is 30 grammes. To convert into carbonate project the oxalate little by little into a platinum capsule over a good-sized Bunsen burner ; after being strongly heated, the oxalate is decomposed into the carbonate, and, if heated high enough to be fused, will furnish about 23 grammes of fused carbonate of soda; fused or not, dissolve in water, filter, evaporate to dryness, dehydrate over a naked flame, and granulate it by stirring when hot.

Double or quadruple the quantities above given may be operated upon at once with similar results. The carbonate of soda thus made is perfectly free from chlorine, sulphuric acid, silica, or other impurity that will interfere with its use in analysis.

*Pure Carbonate of Potash.*—It may be wrong to use the word pure in connection with the preparation of this substance in the manner to be described, as it may contain at the end of the operation a trace of nitrate of potash. The starting point is pure nitre, which is a cheap potash salt, and can be readily purified by repeated crystallization ; the other is oxalic acid, the commercial acid crystallized once or twice ; 50 grammes of pure nitre and 100 grammes oxalic acid are placed in a platinum capsule ; to this is added a small quantity of water, and heated over a gas burner ; before the mixture is entirely dry, a second portion of water is added and the heat continued until the mass is brought to dryness, at which time nearly all the nitric acid of the nitre is expelled ; the heat is now continued, and the whole mass brought to redness, breaking up the lumps with an iron rod, when the exolate of potash formed will be decomposed into the carbonate ; the mass is treated with water, filtered, dried and

granulated over the flame; this furnishes about 31 grammes of carbonate of potash which, as I have already said, may contain a little nitre, but this in no way interferes with the ordinary use of carbonate of potash in making fusions. For this purpose, I commonly mix equal parts of carbonates of soda and potash at the time they are required for use.

*Absolute Alcohol.*—This substance, as obtained in commerce, very seldom marks more than 98 or 99 per cent. It is, however, not unfrequently made in our laboratories, and when this is done the usual method is employed of pouring strong alcohol on lime until the lumps of lime are covered. This method of proceeding gives a thick magna which, when heated over a water-bath, allows the alcohol to pass over but slowly, and much of the alcohol is lost from the impossibility of the heat penetrating the thick mass. The method I follow differs from this in no way except in the quantity of lime employed; using the smallest quantity of lime necessary to abstract all the water, it is surprising how complete the lime will perform its functions in this respect. Take, for instance, one litre of alcohol of 94 per cent.; this contains about 60 grams of water; if to this be added 120 grams of good and fresh burnt lime, requiring about 40 grams of water to convert it into hydrate, actual experiment proves that, when kept in contact with the alcohol a sufficient length of time, it accomplishes this absorption of water, and the alcohol decanted from the precipitated lime will be fully 98 per cent.

Operating upon this fact, I have been long in the habit of supplying myself with alcohol of 98 and 100 per cent., by proceeding in the following manner: I have in my laboratory three or four two-litre bottles, in each of which I place 1½ litre of 94 per cent. alcohol, the strongest alcohol sold in commerce; to this add 180 grams of fresh burnt lime of the best quality broken up into a coarse powder. These bottles are set aside on the shelf and agitated from time to time, the oftener this is done the more rapid will the reaction be accomplished. A week or ten days will usually suffice, when the bottles are allowed to remain at rest, and the hydrate of lime will settle in a few days, and by a siphon two-thirds of the original alcohol can be drawn off free from lime, which marks 98 per cent. alcohol, and when filtered, and 50 c.c.m. evaporated to dryness there will be left only the merest trace of lime, less than one-half milligramme. But, of course, redistillation is so simple that if we wish the alcohol at 98° it can readily be distilled over a water-bath, the magma remaining in the bottle when distilled over a water-bath furnishes the remainder of the alcohol about one-half per cent. higher.

When absolute alcohol is desired, take the alcohol just as it has been siphoned off or distilled from the magma, put it into a convenient flask for distillation, and to each litre add 120 grams of lime in coarse powder, attach to a Liebig condenser inverted, so that the

alcohol will run back into the flask when condensed ; this is continued for an hour and a half or two hours. The condenser is then placed in its normal condition and alcohol distilled over which will mark 100 per cent. Recently I have learned that there is a method adopted of making the absolute alcohol by one distillation, operating by the inverted condenser first, but in this process the amount of lime called for is the usual quantity, whereas I find that by reducing the lime to its minimum, and always having bottles ready to furnish 98 per cent. alcohol, the operation is facilitated, and the loss diminished. So that with the ordinary conveniences and appliances of the laboratory, that are always at hand to be mounted, I can, with fifteen or twenty minutes of *personal attention and manipulation*, obtain a litre or two of absolute alcohol. Of course, the time for the reaction of the materials and the distillation is not referred to, as this requires little or no supervision.

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## THE WILD VANILLA PLANT.*

By vanilla plant we do not refer to the orchid which furnishes vanilla, but to the hardy North American plant, *Liatris odoratissima*, which, on account of a similiarity of odour, has received that name, Most of the species of liatris, or button snake-root, have a tuber-like root, and long straight stems, upon which the numerous flower-heads are crowded in a close spike. In *L. odoratissima*, the root-leaves are from 8 to 12 inches long by 2 or 3 broad; those of the stem very small. The stem divides above into a broad branching panicle of purple flowers, which make the plant an attractive one. A correspondent of the *American Agriculturalist* has furnished the following account of the plant :—" The wild vanilla, or, as it is commonly called, hound's tongue, or deer tongue, grows abundantly on the edges of what are called "bays." *i.e.*, low places in the pine woods, which are partially covered with water and overgrown with bays (a species of magnolia,) or on low swampy pine woods in east and south Florida, or in portions of Lower Georgia. The fresh leaf has, when crushed, a greenish disagreeable odour, but when pulled from the plant and dried in the shade for a day or so, it becomes highly fragrant, having a smell resembling vanilla or tonka bean, and similar to the sweet-scented vernal grass, but much stronger. This odour is developed by some chemical change made in the leaf during the process of drying, whereby a peculiar principle known as coumarin is formed. Coumarin is found abundantly in the tonka bean of commerce, but so abundant is it in the *Liatris*, that it is often found in large quantities on the upper portions of a

*From the Garden, reproduced in The Pharmaceutical Journal and Trasnactions.

mass of semi-dried leaves. It is readily sublimed by a low degree of heat (150°,) and the heat generated in these masses or bundles is sufficicient to sublimate it on the upper or cooler layer. When found in this way, coumarin is composed of snow-white needle-shaped crystals, exceedingly fragrant—a leaf of the *Liatris* often being covered on its under side, and looking as though it had been out all night in cold, frosty weather. The dried leaves furnish an article of commerce, and one that is steadily growing in importance. It is gathered all through east and south Florida, principally on the St. John's River and its tributaries, and sold to the country store-keepers in exchange for goods; by these storekeepers it is sent to the balers and packers, by whom it is sent to New York for home use and exportation. Pilatka, on the St. John's River, is the head-quarters in this trade. One may often see 75 to 100 bales, of 200 lbs. each, lying on the wharves, awaiting shipment—one dealer at this place having an order to fill of 150,000 lbs. Adults can gather from 150 to 400 lbs. of the green leaves in a day; active boys and girls nearly as much. The green leaves are taken home and dried in the shade, and lose about 80 or 85 per cent.; they are, when dried, sold at the country stores for from 3 to 6 cents per lb., yielding quite a good return for the labour. The packer bales and ships, and realizes from 8 to 12½ cents per lb. The dried leaves are used to give a flavour to cigars, snuff and smoking tobacco. For cigars, it is sufficient to place the leaves and the cigars in alternate layers in a box, and allow the whole to remain together for several days; for snuff, the leaves are dried, ground and mixed: it is granulated, or shredded up, and mixed with smoking tobacco. A small quantity is sufficient to flavour a large mass of tobacco. The odour is given off much more intensely on a damp day than on a dry one. Although large quantities of these leaves are consumed in our home factories, a much larger quantity is shipped to Germany and France direct, where it is rapidly growing in favour. It is quite probable that it will soon be an article used extensively in perfumery; and as it is known to keep 'the wicked moth away,' it will be in great demand for the purpose in the stead of the strong-smelling camphor and tobacco stems.

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## MONOBROMATED CAMPHOR.

M. Gault a pharmacien at Nancy, has summarised in an interesting note the researches made by different chemists on monobromated camphor, and has examined into the conditions which are most favourable to its preparation. This compound being now employed by many physicians, we think it will be interesting to pharmacists to know its principal characters, and how it may be prepared.

Monobromated camphor was discovered by M. Schwartz in

1862, and studied successively by Messrs. Perkin, Maisch, and Gault.

It is known that camphor and bromine combine by simple addition, and that the product $C_{10}H_{16}OBr_2$ is very unstable. Perkin observed that by distilling this body, and purifying the distillate obtained above 264° C., monobromated camphor is obtained:—

$$\underset{\text{Camphor bromide.}}{C_{10}H_{16}OBr_2} = \underset{\text{Monobromated Camphor.}}{C_{10}H_{15}OBr} + \underset{\text{Hydrobromic acid.}}{HBr.}$$

Monobromated camphor is therefore camphor in which one atom of hydrogen is replaced by one atom of bromine. It can be prepared by heating at 100° C. for some hours, in sealed tubes, one molecule of camphor and one molecule of bromine, and purifying the product; but this method occasions great loss.

M. Maisch has proposed to prepare monobromated camphor by forming first the camphor dibromide at a low temperature and in presence of alcohol, then decomposing this at 132° C., and finally transforming the major part of the oily residue into monobromated camphor at 260° C. According to M. Gault, the use of alcohol is not necessary. This chemist, profiting by the observations of Perkin and of Maisch, recommends the following process, which is described in his own words:*—

I introduce a given quantity of camphor into a flash capable of holding ten times the volume of dibromide to be prepared; I then cause to fall on this powder, agitating the while, a fine stream of bromine, until the camphor is liquefied. Under these conditions about one molecule of bromine is used for one molecule of camphor.

The transformation of the camphor dibromide into monobromated camphor is effected in the same flask, to which is now adapted a large and long tube leading into an alkaline solution, for the absorption of injurious vapours. The flask is placed in water, which is raised to the boiling point: the reaction immediately commences, accompanied by the abundant disengagement of hydrobromic acid and some vapours of bromine and undecomposed camphor. The liquid, at first of a rich brown, acquires an amber colour, and the disengagement of gas suddenly slackens. The arrangement of the apparatus and the tumultuous disengagement of gas have not permitted a determination of the exact temperature of the reaction, but it is certainly between 80° and 90°, and does not reach 132°. This temperature, indicated by M. Maisch, is too high; I insist on this last point, because I have been able to convince myself, by a comparison of processes, that the quanity of oily product is thus notably diminished, and that the purification of the monobromated camphor becomes much more easy. The amber liquid in the flask solidifies on cooling into a friable mass, of a pale lemon colour.

*Journ. de Pharm. et de Chemie, Dec., 1874, p. 438. Translated in the Chemist & Druggist.

If the contents of the flask be emptied into a capsule it will be noticed that the disengagement of the hydrobromic acid still continues and does not cease for some hours. But if this same liquid be thrown into boiling distilled water, and the boiling kept up for some time in the open air, the hydrobromic acid and the last traces of bromine are almost entirely removed, and what remains is nearly white. I should remark that the volatilisation of monobromated camphor by means of water vapour, a fact announced by M. Maisch, is not so notable as to neutralise the advantages of this first step in purification. To obtain a colourless and crystalline product, either the method of decolorisation by animal charcoal, or that of successive crystallisation may be adopted. In either case the crude lemon-coloured mass is treated by boiling alcohol (90°-95°,) and the filtered liquid to crystalise. The crystals obtained are dried in the open air on unsized paper. The plan of successive crystallisations presents a certain advantage over that of decolorisation; indeed, the mother liquors are coloured by concentration and require a new addition of charcoal each time.

Monobromated camphor forms tufts of colourless acicular crystals, with a rectangular base, sometimes three centimetres long. These crystals are hard, and crack between the teeth; their odor is at the same time camphoraceus and terebinthinate, less penetrating than that of camphor, but also less fleeting. The taste, slightly bitter, recalls that of camphor and Venice turpentine.

Monobromated camphor is insoluble in water, soluable in alcohol, fixed and volatile oils, ether, sulphide of carbon, chloroform, &c. It melts at 67° according to Maisch, and at 70°-76° according to other observers. Heated at 100° it gives no sublimate of camphor; ignited with potash it leaves a residue of carbonate and bromide.

In the mother liquors and in the crystals of the second and third crystallisations, is an oily substance, the hydrobromate of monobromated camphor, the utilisation of which constitutes the fourth phase in the above process. This body may be also entirely removed by submitting the crystals to pressure between folds of filtering paper, but this operation causes considerable loss. I have also tried the use of alkalies, in the hope of fixing the hydrobromic acid, but the result was not successful. It is preferable to follow the indications furnished by M. Schwartz, according to which the dissociation is effected at 260°, as represented by the equation—

$$C_{10}H_{15}OBr = C_{10}H_{15}OBr + HBr.$$

I ought to observe, however, that in order to avoid carbonisation of a large proportion of the product, it is preferable to work below 260°, for between 200° and 220° the disengagement of hydrobromic acid is abundant and almost complete. The product is a black viscous mass, which, on cooling, becomes solid and brittle. With boiling alcohol, the mass furnishes, after filtration, new colourless crystals

of monobromated camphor. If the anti-spasmodic and sedative properties of this body are confirmed, physicians may easily obtain it in a state of great purity, for by the above process pharmaceutists will be able to prepare it in their own laboratories.

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## IMPORTANCE OF THE PURITY OF CHLORAL HYDRATE.

Dr. Oscar Liebreich has recently published a paper in the *Berliner Klinische Wochenschrift*, in which he calls attention to the important subject of the purity of chloral hydrate, and the effect which its deterioration may produce on the patient to whom it is administered, and on its reputation as a remedy. The case he says, is different from that of such a substance as quinia, the adulteration of which will only reduce, but not pervert, the proper action of the drug. With chloral and other substances prepared by analagous chemical processes, the result of the manufacture may be the formation of compounds which, if administered, produce an altogether different result from that intended. The process of manufacture is one which requires great care; and it seems that it is at least difficult to insure the purity of chloral if made in large quantities. Liebig himself, who discovered it, never attempted to make more than a few grammes at once ; and Dr. Liebreich was so convinced, when he brought it into notice as a medicinal agent, that purity was necessary for success, that the first supplies were made under his immediate superintendence. At present it is manufactured in various places, and the result is that in some parts of the continent, notably in Saxony and Switzerland, it has fallen into disrepute. Dr. Liebreich has made a collection of specimens of the drug used in cases where it has failed to produce its proper action, and possesses, he says, some horrible chemical compounds which he would not venture to give to a human being. He perfers the crystallized form of chloral hydrate, as the most stable. It may contain hydrochloric acid ; this is no disadvantage if the proportion remain the same; but if it increases it indicates that the formation of dangerous compounds may be going on. Sometimes the hypnotic action is increased ; this he attributes to the production of chlorine compounds, which are more readily changed into chloroform than chloral itself is. An acid reaction arising from the formation of trichloracetic acid does not show that the chloral is unfit for use, though it weakens its action. In pure chloral this action is limited, while impure chloral is liable to the constantly increasing production of acid compounds—not trichloracetic acid—of a deleterious nature. Mr. Liebreich remarks that the German Pharmacopœia is in error in fixing the boiling point of chloral hydrate at 95° Cent. (203° F). This, he says, is correct for anhydrous chloral, but the boiling point of chloral hydrate is not contant —*Brit. Med. Jour.*

## NICKEL MINES.

Most of the nickel of the world, until within a few years, came from Germany, but the discovery of mines in America has entirely driven the foreign article from the market, and considerable quantities are now exported to Europe. But one deposit is being worked in America, and is believed to be the largest yet discovered in the world. The mine lies in Lancaster county, Pennsylvania, about three miles south of the Gap Station, on the Pennsylvania Railroad. It is on the high land separating Chester and Pequea Valleys, a region rich in minerals; for, besides the copper found in connection with the nickel, there are large deposits of iron and limestone a short distance south. The existance of copper there was known many years ago; indeed, it was taken out seventy years ago, but the mining was never prosecuted with much vigor, and afforded little profit.

The copper was impure, but about the year 1856 the material mixed with it was discovered to be nickel, and as the depth of the mine increases so it predominates. The ore is very hard, and the mining is carried on altogether by blasting. There are a few Cornish miners to take the lead, but the rest are Americans. A Cornish pumping-engine, seventy-five horse power, draws half a barrel of water at every stroke from the mine, which is 240 feet deep, and another brings the ore to the surface. The ore, in appearance, is iron gray, very heavy, and in some pieces the bright copper ore is very prominent. The amount taken from the mine varies from four hundred to five hundred tons per month. The mining and manipulation of this amount requires one hundred and seventy-five hands employed here and at the furnaces. The ore has to be hauled in wagons about half a mile to the furnace, which is situated on very high ground, and overlooks the beautiful Pequea Valley. This situation was chosen partly that the wind might carry away the noxious smoke and gas, and partly because of the stores of limestone and flint in the neighborhood.

The process adopted is first to throw the ore between the jaws of a ponderous iron breaker, by which it it reduced to small fragments weighing about half a pound each. Thence carts convey it to the kilns, which are constructed very much like the old-fashioned lime-kilns, except that these have a very tall smoke stack, to increase the draught. A kiln, holding eighty or ninety tons, is filled with ore and kindled with a little wood. It burns for about six weeks, its own gas supplying the fuel for burning out the impurities. This first step towards purification is followed by a process almost precisely similar to that to which iron is subjected. There are three large furnaces, and into these the ore is put, mixed with powdered flint and limestone (the former predominating) and coke. About three draws are made in twenty-fours hours, for the work does not stop either night or day, two sets of hands being employed. The product of the furnaces is passed through iron rollers and crushed to powder, in

order that it may more easily be transported to Camden, New Jersey, where the final process of separating the nickel and copper, and preparing each for the market is effected. No waste is allowed. The ore dust, large quantities of which are made in drilling and blasting, is mixed with flux and clay, baked in square bricks, and reduced in the furnaces, just as is the rest of the ore.

The pure nickel commands a high price, varying, of course, according to the demand, but averaging over two dollars per pound. Not only does this mine supply all the material for the nickel coins, but nickel is being extensively used in plating iron and other metals, and in various compounds. The whole property is owned by a Philadelphia gentleman, who has, by his energy and capital, not only opened up a new branch of industry to the American artisan, but has taken another step towards making the Americans independent of other nations.—*Druggists' Circular.*

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CAMPHORATED PHENOL.—Bufalini, in *Campania Med. (London Medical Record)* describes the combination of camphor and phenol. If equal parts of carbolic acid and camphor be dissolved in alcohol, and the mixture be allowed to stand for twelve hours, an oily stratum arises to the surface. This will not mix with the water or liquid, nor is the camphor precipitated by the alcohol. This substance is called camphorated phenol. It is best prepared as follows: One part of carbolic acid and two of camphor are mixed in a vessel and allowed to stand for some hours. An oily liquid will be formed, which is to be purified by washing with water. The properties of this combination are an oily appearance, smell of camphor, insolubility in water, but solubility in alcohol and ether. From considerable experience in its use, Bufalini concludes:—1. Camphorated phenol produces the same effects as carbolic acid, but is less dangerous. It may be used both externally and internally, viz: in enteric fever, etc. 2. It has the power of modifying unhealthy wounds and of destroying the parasities which are present in certain diseases, as septicæmia, fever, etc. 3. The medical use of camphorated phenol is to be preferred to that of carbolic acid, as the latter does not present the advantages of the former. 4. Camphorated phenol, when applied to wounds, does not irritate them or act as a caustic or disorganizing substance on them, and may be used in large doses, without producing symptoms of poisoning.—*Laboratory.*

RED MARKING INK.—According to Th. Wegler, egg albumen is diluted with an equal weight of water, rapidly stirred with a glass rod until it foams, and then filtered through linen. The filtrate is mixed with a sufficient quantity of finely levigated vermilion until a rather thick liquid is obtained, which is used for marking with a quill; the rear side is then touched with a hot flat iron, whereby the albumen is coagulated; the marking is affected neither by soap, alkalies or acids. The ink may be preserved for a long time, in well-corked vials, without depositing the vermillion.—*Pharm. Centr. Halle, in Am. Jour. Pharm.*

# Editorial.

## THE EXAMINATIONS.

The mid-winter examinations, held on Tuesday, Feb. 2nd, were more numerously attended than any held heretofore under the auspices of the College. Thirty-two candidates were present, three of whom had attended former examinations, but had failed in passing. Of the thirty two examined, eighteen were successful in obtaining the requisite number of marks—sixty per cent—to entitle them to diplomas.

Comparing this occasion with others of a similar character we find that the percentage of rejected candidates—about 45 per cent—was greater than at any former examination, but it need not necessarily be inferred that the degree of proficiency shown was not up to the average. Speaking as an examiner, we think that the candidates were quite as proficient as any we have yet tested. The fact of so many failing may in great part be accounted for by the character of the questions on prescriptions, and the attention given to practical dispensing. Both these subjects were much more difficult than usual, and we hope will be so maintained, as of the subjects of examination these are the most essential, and of the greatest practical importance. It is to be regretted that so small a number as five marks is the maximum for dispensing, while other subjects, of less import, as Botany, are entitled to three times that number. This is an obvious injustice, and we would urge upon the new Council the necessity of dealing with it as such.

For comparison it may be interesting to note the result of the examinations held under the auspices of the Pharmaceutical Society of Great Britain, during the last two years. In 1873, 1064 candidates sought to pass the minor examination—which is of a similar character to that held in Canada—and of these only 33 per cent. passed ; while at the last examination, held in 1874, the percentage of successful candidates fell below 32 per cent. Our rejected candidates may derive some little encouragement from this as they will see that they are at least in no worse condition than their transatlantic confreres.

By reference to the report of the examiners, published in an-

other part of the *Journal* it will be seen that Mr. G. Ramsay, of Toronto, obtained the first prize by a total of 85 marks; Mr. J. H. Bowman, of London, carried off the second prize and was only one mark behind his Toronto rival. In the report referred to the ratings of the successful competitors will also be found.

We append, as usual, the questions which were submitted to the students:—

## PHARMACY.

*Examiner*—MR. SHUTTLEWORTH.

1. Describe a method for ascertaining the specific gravity of a liquid, as nitric acid; and of a solid, as lead.
2. State the number of grains of water, temp. 60°, contained in an imperial ounce; in a wine ounce; in a minim, imperial measure; in a Troy ounce; in an avoirdupois ounce; in a litre; in a gramme.
3. How much water and commercial alcohol 65 o. p. (91·21 per cent) will be required to make an imperial pint of proof spirit, B. P.? (Answer in fluid ounces and decimal parts thereof.)
4. Name the impurities or adulterations to which the following preparations are liable: *Argenti Nitras: Liquor Potassæ: Ferri et Quiniæ Citras: Hydrarg. Subchlor.*
5. Name the officinal solutions which consist of ammoniacal gas dissolved in water. State their percentage strengths and specific gravities.
6. How does the process for *Jalapæ Resina* differ from that for *Podophylli Resina?* State the characters and doses of these resins.
7. Give an instance of an alcoholic, hydro-alcoholic, acetic, and aqueous extract, and also of one consisting of inspissated juice.
8. Name the ingredients in the following preparations: *Inf. Cinchonæ flavæ: Pil. Coloc. co: Pulv. Rhei co.: Syr. Scillæ: Tinct. Benzoini co.*
9. What is the proportion of the active ingredient contained in one fluid-ounce of each of the following preparations: *Liq. Arsenicalis: Liq. Strychniæ: Syr. Ferri Iodidi: Tinct. Opii: Vin. Colchici.*
10. Recognize specimens and answer verbal questions concerning them.

## MATERIA MEDICA.

*Examiner*—MR. YEOMANS.

1. Calumba. Give officinal name of plant, where grown, and what part of plant is used medicinally.
2. Describe the difference in action upon the system between Iodide and Bromide of Potassium.

3. Give three vegetable and three mineral astringents, with form in which administered, and dose.
4. Do any other remedies dilate the pupil of the eye and act generally upon the system in the same manner as Belladonna, and its active principle.
5. Give three laxative, three purgative, and three drastic cathartics, with the doses as such.
6. Spigelia. Give its derivation, properties, and usual manner of administration, with dose.
7. Give the officinal varieties of Cinchona, and the percentage of quinine in each.
8. Enumerate the wines of the British Pharmacopœia and give properties and dose of each.
9. Give antidotes and treatment in poisoning with arsenic, opium, and tartar emetic.
10. Give officinal names of following: Foxglove, Monkshood, Blk. Henbane, Mandrake, Thornapple, Burdock, Dandelion, Boneset, Indian Hemp, Black Snake Root.

## CHEMISTRY.

*Examiner*—MR. SHUTTLEWORTH.

1. To what extent is the volume of a gas affected by temperature and atmospheric pressure? How is the boiling point of a liquid affected by atmospheric pressure, or the pressure of confined vapor? What instruments are employed for estimating temperature and atmospheric pressure?
2. State the *melting points*, in degrees Fahrenheit, of glacial acetic acid, lard, and beeswax; the *boiling points* of officinal alcohol, chloroform and ether; the *fusing* points of mercury, lead, and gold.
3. Give the names of the compounds indicated by the following formulæ:—

   $Hg\,Cl_2$: $Ag\,NO_3$: $FeSO_4, 7H_2O$; $H_3PO_4$: $(C_2H_5)_2\,O$.
4. State the sources and properties of sulphur; and explain what constitutes the differences between roll brimstone, sublimed sulphur, and milk of sulphur.
5. How is hydrochloric acid prepared: state its composition, characters, and tests? What is the percentage of real acid contained in the officinal acid.
6. Give the formulæ of caustic soda, sal soda, dried carbonate of soda, and bicarbonate of soda.
7. Name common tests for iron, silver, lead, mercury, and gold.
8. Is there any difference between the chemical composition of chloride of calcium, and ordinary chloride of lime? What are the leading properties of these substances?
9. Describe the method of preparing chlorine as given in the officinal process for *Liquor Chlori*. State the characteristics of the gas.

10. Recognize specimens and answer verbal questions concerning them.

## BOTANY.

*Examiner*—MR. YEOMANS.

1. Is the embryo formed or only developed in germination.
2. Define difference between herbs, shrubs and trees.
3. Enumerate the different kinds of buds.
4. Give names of three different sorts of indeterminate inflorescence.
5. When is a flower said to be sessile.
6. Define the different parts of a stamen and pistil.
7. When is the corolla said to be monopetalous and give example.
8. Explain difference between endogenous and exogenous stems.
9. What causes the sap to ascend to the leaves.
10. Describe sample leaves and answer questions in regard to same.

## PRACTICAL DISPENSING.

*Examiner*—MR. GREGORY.

The following prescriptions are to be compounded *secundem artem:*

1. R. Pulv. Ipecac. Co. ʒss.
   Pulv. Camphoræ grs. v.
   Misce. Ft. pulv. x. One to be taken every three hours.
2. R. Ext. Coloc Co.
   Pil. Hydrarg. aa. grs. xv.
   Ft. Pil. sex. Two to be taken each night.
3. R. Tinct. Gent. Co. ʒss.
   Tinct. Card. Co. ʒij.
   Aquæ ad ʒiv.
   Ft. mist. coch. parv. ter in die.
4. Correct the errors in grammar in the following prescription:
   Recipe Liquor Ammonia Acetatis, unciam.
   Spiritus Ætheri Nitrosi, semi-drachma.
   Tinctura Opii, guttæ quindecim.
   Aquæ pura, drachma duæ.
   Misce. Fiat haustum quartæ quaque hora capiendus.
5. Give the average dose for an adult, of Pulv. Opii, Liquor Strychniæ, Liquor Morphiæ Acetatis, Tinct. Nucis Vomicæ, Acid Hydrocyan. Dil., Liquor Arsenicalis, Elaterium, Ext. Belladonnæ, Hydrarg. Perchlor., Podophyllin.
6. Describe as concisely as possible the method of making an emulsion of Cod Liver Oil.
7. In a sixteen ounce mixture how many doses are there of a teacupful each? of a wineglassful? of a tablespoonful? of a teaspoonful?

8. Translate into English and give full Latin for the following contractions: Aq. ferv., cap., abst. febre., coch., coch. mag., coch. min., cyath., f. pil. x., h. s., more dict., omn. hor., P. B., U. S. P., Si. op. sit.
9. How much distilled water will be required to dissolve three drachms of Chlorate of Potash and three drachms of Perchloride of Mercury?
10. Name a few substances (say two with each) that are incompatible with Mucil. Acaciæ, Tinct. Ferri Perchlor., Calomel, Acid Nit=Mur., and Liq. Arsenicalis.

## PRESCRIPTIONS.

*Examiner*—MR. GREGORY.

1. Translate the following prescription into full Latin:
   Tincture of Gentian, one ounce.
   Tincture of Nux Vomica, half an ounce.
   Tincture of Cardamoms, two drachms.
   Water to make eight ounces.
   A teaspoonful to be taken three times a day.
2. Write a prescription in the ordinary contracted form for a four ounce mixture, containing sixteen doses, each dose to consist of Tincture of Iron, ten drops, Chlorate of Potash, five grains, Simple Syrup, half a drachm, and Water, q. s., to be administered every two hours.
3. Translate into English the following prescriptions, and point out any errors that may be discovered:
   I. Recipe Vini Ipecacuanhæ, drachmas duas.
      Acidi Hydrocyanici, drachmam.
      Mucilaginis Acaciæ, unam.
      Syrupi Simplicis, ad uncias quatuor.
   Misce. Æger sumat cochleare minimum quaque secunda hora.
   II. Recipe Strychniæ, granum.
      Extracti Belladonæ, drachmam cum semisse.
      Extracti Gentianæ, grana triginta.
   Misce. Fiant pilulæ viginti et quatuor, quarum capiat unam ter in die.
   III. Recipe Quiniæ Sulphatis, grana viginti.
      Liquoris Arsenicalis, drachmas sex.
      Tincturæ Digitalis, uncias duas.
      Aquæ ad uncias octo.
   Fiat mistura, cujus sumat cochleare magnum quanta quaque hora.

## JABORANDI.

We have already published notices of the new Brazilian drug Jaborandi, and have now to call attention to a paper by Mr. Martindale, originally published in the *Pharmaceutical Journal* of London, and now reproduced in another part of this number, which places beyond a doubt the remarkable sudorific and sialogogue properties of the remedy. It will be remembered that our hopes of possessing a diaphoretic of such extraordinary powers as described by Prof. Gubler were somewhat damped, lately, by experiments made with fresh leaves of a Rutaceous plant—*Pilocarpus pennatifolius*—grown in the Royal gardens at Kew, and by Prof. Baillon supposed to be identical with the Brazilian plant originally forwarded to Professor Gubler. These leaves did not at all produce the effect anticipated, but from the imperfect character of the original specimen examined by Professor Baillon, it may be quite possible that there may be some mistake about the plants being of the same species; or, as remarked by the editor of the *Pharmaceutical Journal*, it may be that the negative results obtained were to be accounted for by the different and somewhat unnatural conditions under which the new plant was grown. However this may be, and to whatever botanical source, Rutaceous or Piperaceous, the Jaborandi plant is to be referred, there can be no doubt that the imported drug possesses properties which entitle it to one of the most prominent places in our *materia medica*.

From the journal above named we learn that the sample with which Mr. Martindale experimented was recently received from Pernambuco, and that, at the earliest opportunity, a detailed botanical description will be drawn up by Mr. Holmes, Curator of the Museum of the Pharmaceutical Society, and published in the *Transactions*.

A cursory examination shows the leaves to be about nine inches long, and to consist of from three to five pairs of opposite leaflets. The texture of the leaf is leathery, and when held up to the light the leaflets are found to be covered with numerous pellucid dots, containing a granular matter, not of the nature of essential oil. It will be remembered that M. Rabuteau's analyses of the sample first received from Brazil, gave, as constituents, an odorous principle, not analagous to that of ordinary aromatic plants, and a bitter

principle, soluble in water and alcohol. The leaves did not appear to contain any alkaloid.

Of the physiological action of the plant we have further testimony in the statements made by Dr. Craig, at a recent meeting of the Edinburgh Branch of the Pharmaceutical Society. This gentleman said that he had been able to procure, from a friend in London, about one dracham of the bruised leaves. This he carefully infused for two hours in a cupful of boiling water, and after it became cold, the infusion was swallowed. In about twenty minutes there came on an abundant perspiration over the forehead and trunk of the body, but the temperature remained normal throughout, showing that the perspiration was not due to increase of heat. As a sialogogue, the power of the medicine was wonderful. Simultaneously with the perspiration the saliva commenced to flow abundantly, and in little more than two hours, ten ounces of fluid had passed from the mouth. Dr. Craig concludes that Jaborandi is a very efficient diaphoretic, and one of the most powerful sialogogues with which we are acquainted.

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# Editorial Summary.

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Poisoning by Cypripedium.—In a short paper in the *Pharmacist*, Mr. H. H. Babcock states certain experiences which lead to the supposition that various species of *Cypripedium* possess a similar toxic action to that attributed to *Rhus Toxicodendron*. For four or five seasons, Mr. Babcock had carefully avoided the latter plant; but despite all precautions, he at last realized the symptoms of severe Rhus poisoning. In June, 1872, after gathering many specimens of *Cypripedium spectabile*, he observed that his hands were stained with the purplish secretion peculiar to the plant, and shortly afterwards he experienced an irritation of the eyes which, by the next day, had developed into unmistakeable symptoms of poisoning. A review of the notes of previous years revealed the fact that other poisonings—hitherto attributed to Rhus—had always followed the days on which *C. spectabile* or *C. pubescens* had been collected. During the seasons of 1873 and 1874 he was particularly careful to avoid touching these plants, and thus escaped a result which had been before considered almost inevitable. Mr. Babcock is convinced that, at least upon himself, the action of Cypripedium and Rhus is precisely similar,

and thinks that it is possible that, in other cases, the toxic action of the former plant is wrongly attributed to the latter.

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CHLORAL HYDRATE AS A SOLVENT FOR ALKALOIDS.—Mr. R. F. Fairthorne (*Am. Jour. Pharm.*) calls attention to the fact that a solution of chloral hydrate—nine of chloral to three of water—is capable of dissolving certain alkaloids. A portion of the solution, equal to twelve grains of the hydrate, will dissolve one grain of morphine; a portion equal to five grain will dissolve one grain of veratria; a portion equal to twenty grains, one grain of atropia. These active principles should be in powder, mixed with the solvent in test tubes, and heated by means of a water bath. The solutions thus made are in a convenient form for employment, either alone or when mixed with oils, ointment or glycerine. Camphor is freely dissolved by these solutions. The addition of glycerine to the alkaloidal solution is recommended. The following proportions may be used:—Alkaloid, five grains; chloral, one drachm; glycerine, half a fluid ounce.

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PERSIAN OPIUM.—The *Chemist & Druggist*, of London, speaking of the improved position taken by Persian opium in the English market, says:—It seems likely to become an important competitor with "Turkey seconds." The supply received during 1874, especially the North Persian growths, is said to be far in advance of what has come to hand previously. From some parcels a yield of morphia equal to fine Turkey has been obtained. A point in favour of the Persian is the fact that all the pieces in a parcel are invariably alike in quality. In "Turkey seconds" no two pieces are equal, and therefore it is next to impossible to get a correct assay of the drug from sample. Egyptian opium seems to have almost retired from the competition altogether, and it seems likely that the substitution of Persian for it will prove a considerable advantage to English buyers.

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ESTIMATION OF THE STRENGTH OF VERY SMALL QUANTITIES OF ALCOHOL.—The authority mentioned in the preceding paragraph directs attention to the method, originating with Prof. Barford, of Copenhagen, whereby the alcoholic strength of as small a quantity as five drops of spirit may be approximately estimated. Small slips of filtering paper are moistened with the spirit and a light is applied, when, after the alcohol is consumed, the paper slips catch fire

readily, the alcohol must be stronger than 80 per cent. If the paper barely catches fire, the strength may be presumed to be between 75 and 80 per cent.; if it does not catch fire at all, the alcohol cannot be stronger than 73 to 75 per cent. The water contained in this spirit leaves the paper too damp for ignition.

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HARMLESS COSMETIC POWDERS.—Mr. Hans M. Wilder (*Am. Jour. Pharm.*) announces the fact that that the apothecaries of Copenhagen have agreed on the substitution of certain harmless compounds for the numerous poisonous face-powders now commonly used. In avoirdupois weight, the proportions of the ingredients will be about as follows; White powder; Oxide of zinc, 1 oz.; wheat starch, 9 oz.; oil of rose, 3 drops; Red powder; Carmine, 1 oz.; carbonate of magnesia, 4 oz.

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PRESERVATION OF ERGOT.—M. Ducros (*Jour. de Chim. Med.*) recommends for this purpose that the ergot be stored in well closed glass vessels, and covered with a layer of powdered pine or oak charcoal.

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# Students' Department.

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Answers to the following questions must be sent in so as to be received by the editor before the twentieth of each month. Competitors must be engaged in the drug business, not being proprietors or having passed examination, and must furnish, with the answers sent, their real names and addresses. Answers to each of the questions must be written on *separate sheets* or slips of paper, and must be followed by the name and address of the competitor. It is trusted that all answers sent will be the *bona fide* work of competitors, and that no assistance will be sought except such as is afforded by books. Any attempt to copy *verbatim*, or in part, from any published work, will impair or altogether nullify any value which might otherwise have been assigned to such answer.

The same competitor may not carry off more than one First Prize and one Second Prize during the term of six months.

Answers requiring calculation and involving fractions must be given in decimals, which need not be carried beyond the third place.

The following books are offered this month as prizes:—

| FIRST PRIZES. | SECOND PRIZES. |
|---|---|
| PARRISH'S *Pharmacy.* | GRAY'S *First Lessons in Botany.* |
| GARROD'S *Materia Medica.* | WITTSTEIN'S *Pharmaceutical Chemistry.* |
| GRAY'S *Manual of Botany.* | ROSCOE'S *Chemistry.* |
| FOWNES' *Chemistry.* | PAREIRA'S *Selecta e Præscriptis.* |
| ATTFIELD'S *Chemistry.* | *British Pharmacopœia.* |
| SQUIRE'S *Companion to the Pharmacopœia.* | *U. S. Pharmacopœia.* |
| BENTLEY'S *Manual of Botany.* | KAY-SHUTTLEWORTH'S *Principles of* |
| REDWOOD'S *Supplem't to the Pharmacopœia.* | *Modern Chemistry.* |

Successful competitors may select from any of the above works, and, on notifying the Editor, the book selected will be forwarded by post.

All communications to be addressed, E. B. SHUTTLEWORTH, Box 517, Toronto.

## QUESTIONS.

1. *Chemistry.*—Name several chemicals, which, without foreign admixture, are sensitive to the action of light; explain the changes which result from such exposure, and state whether these salts might be better preserved by the use of colored bottles; and what color would best answer the purpose? Give reasons for the selection.

2. *Pharmacy.*—When a certain oleo-resin, obtained from a plant belonging to the order *Leguminosæ*, is triturated or heated, with carbonate of magnesia, a peculiar result takes place. Explain the action.

3. *Materia Medica.*—Give the Resins, Oleo-resins, Gum Resins, and Concrete Volatile Oils of the Pharmacopœia, with properties and doses of each.

4. *Botany.*—(1). Explain which are the *essential* and which the *protecting organs* of a flower, and give instances where one or other is wanting. (2.) What is *cellular tissue?* Give instances where it forms the entire structure. (3.) Explain what is meant by *centrifugal* and *centripetal inflorescence*, and give principal sorts of each, with description of same.

5. *Dispensing.*—Describe a method of weighing accurately when the balance used is defective from having one arm heavier than the other; the weights being correct.

6. *Prescriptions.*—Correct the errors, if any, in the following prescription:

Recipe—Potassæ chloras unciam.
Tincturæ Ferri Perchloridi, drachmam quatuor.
Tincturæ Capsici, guttæ decem.
Aqua ad uncias octo.
Misce et fiat gargarisma more dictuutendum.

*To T. E., Bradford.*—If you will examine your Latin dictionary you will find that *ad* is translated *by, to, towards, up to, &c.*, consequently, *aquæ ad* ℥vi. means *water up to six ounces.*—E. G.

*To Students in Dispensing.*—The question in this department was given as an exercise in composition from the belief that an attempt to define a subject helps materially to a right understanding of it. The answers given were in the main correct, but the definitions were not clear and are marked accordingly. Many of the students seem to have followed Worcester's Dictionary, and though it may seem presumption we cannot help thinking that he is hardly a safe guide. For instance very many Liniments contain no oil, and very few ever contain lard.—E.G.

*Prescriptions.*—In this question the Podophyllin is the *basis* or *chief ingredient*, Hyd. Subchlor is the *adjuvans*, which *assists* the basis, Pulv. Capsici is the *corrigens*, intended to *correct* the unpleasant effect of the basis, and Conf. Rosæ is the *excipiens*, or vehicle for the whole.—E.G.

## ORDER OF MERIT.

*Maximum Nnmber of Marks* = 70.

| No. | NAME. | Chemistry. | Pharmacy. | Materia Medica. | Botany. | Dispensing. | Prescriptions. | Extra. | Total. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | G. Maclagan, Lindsay .... | 10 | 10 | 10 | 8 | 9.0 | 10.0 | 10 | 67.0 |
| 2 | R. McCormick, Ottawa .. | 10 | 10 | 10 | 9 | 6.0 | 10.0 | 10 | 65.0 |
| 3 | " Ether," Toronto..... | 10 | 10 | 10 | 8 | 5.0 | 10.0 | 10 | 63.0 |
| 4 | E. D. Martin, Milton West | 10 | 10 | 10 | 8 | 8.0 | 9.0 | 7 | 62.0 |
| 5 | R. S. Strong, Toronto .... | 3 | 10 | 10 | 7 | 9.0 | 10.0 | 10 | 59.0 |
| 6 | J. Parker, Bowmanville .. | 10 | 9 | 10 | 4 | 5.0 | 10.0 | 10 | 58.0 |
| 7 | S. V. R., London ..... | 10 | 9 | 10 | 9 | 5.0 | 6.0 | 8 | 57.0 |
| 8 | W. W. Stephen, Meaford.. | 10 | 8 | 10 | 4 | 5.0 | 10.0 | 7 | 54.0 |
| 9 | A. R. Frazer, Toronto .... | 10 | 10 | 9 | 4 | 4.0 | 10.0 | 6 | 53.0 |
| 10 | " Radix," Owen Sound.... | 10 | 3 | 8 | 9 | 5.0 | 10.0 | 8 | 53.0 |
| 11 | J. H. Mackenzie, Mt.Forest | 10 | 4 | 3 | 8 | 5.0 | 10.0 | 6 | 46.0 |
| 12 | R. E. Scott, Sarnia ..... | 9 | 6 | 7 | 5 | 7.0 | 6.0 | 4 | 44.0 |
| 13 | C. V. Green ..... | 0 | 5 | 7 | 8 | 5.0 | 10.0 | 8 | 43.0 |
| 14 | J. C. Cook, Kincardine.... | 2 | 6 | 8 | 3 | 8.0 | 10.0 | 5 | 42.0 |
| 15 | W. Howell, St. Catharines | 0 | 7 | 10 | 3 | 4.0 | 9.0 | 9 | 42.0 |
| 16 | A. J. Greenwood, St. Cath. | 2 | 6 | 9 | 4 | 5.0 | 10.0 | 5 | 41.0 |
| 17 | J. W. Brown, Morrisburg.. | 3 | 8 | 7 | 3 | 4.0 | 1.0 | 9 | 35.0 |
| 18 | J. L. Payne, London .... | 0 | 7 | 7 | 2 | 0.0 | 5.0 | 8 | 29.0 |
| 19 | A. J. Thompson, Strathroy | 0 | 2 | 7 | 2 | 4.0 | 9.0 | 4 | 28.0 |
| 20 | A. B. Wright, Smith's Falls | 0 | 3 | 4 | 2 | 7.0 | 10.0 | 0 | 26.0 |
| 21 | " Alpha," Mt. Forest .... | 3 | 4 | 0 | 0 | 5.0 | 10.0 | 3 | 25.0 |

R. The first prize is awarded to G. Maclagan, Lin lsay; the second prize to McCormick, Ottawa.

# Varieties.

THERAPEUTIC NOTES.—Suppositories of Chloral.—℞ Chloral., 1½ drachms; Ol. theobromæ, 2½ drachms; Ceræ alb., 5½ scruples; Ft. suppositor. No. vi. ℞ Ol. theobromæ, 5 drachms; Ceræ alb., 2½ drachms; Glycerinæ, 4 scruples; Chloral., 2½ drachms. Div. in suppositor. No. vi. The chloral should be dissolved in the glycerin at a gentle heat, and the cacao butter and wax added subsequently. These suppositories of chloral are recommended by Dr. Const. Paul in cancer of the uterus. His formula is—cacao butter 11 grammes, white wax 7 grammes, and chloral hydrate 6 grammes, to be divided into six suppositories.—*Phila. Med. Times.*

AN INSECTICIDE.—As the best of insecticides, a German chemist recommends a tincture of nux vomica prepared with caustic solution of ammonia. Bedbugs, cockroaches, etc., are at once destroyed by it, and it is said that if a horse's harness is painted with it, the flies will avoid him! Against ants, castor oil is found an entire protection.—*Med. & Surg. Rep.*

# Registrar's Notices.

LIST OF RENEWALS.—CONTINUED.

Bannister, Edward, Brampton.
Barclay, M. F., Wardsville.
Burgar, J. H., Welland.
Chidley, George, Clinton.
Cumming, George, Rosemont.
Eccles, Daniel, Park Hill.
Ferguson, D. C., Belleville.
Garland, L., Hamilton.
Gayfer, John, Ingersoll.
Grange, J. T., Napanee.
Grange, A. W., Napanee.
Gray, R. B., Pembroke.
Gunn, W. A., Kingston.
Jamieson, W. A., Ottawa.
Jukes, E. A., St. Catharines.
Kennedy, Wm., Kingsville.
Morton, Thomas, Smith's Falls.
Mortimer, Geo., Ottawa.
McKenny, T. Thornbury.
McLeod, A., Woodville.
Nelson, C. A., Montreal.
Owen, Richard, Toronto.
Rutherford, A., Hamilton.
Striker, G., Picton.
Terryberry, J. G,, Drumbo.
Thompson, M. H., Bobcaygeon.
Turner, Allan, Brockville.
Turner, Allan, Jun., Brockville.
Tupper, R. L., Bobcaygeon.
Walmsley, D. L., Elmira.

NEW REGISTRATIONS.

Bond, James, B., Barrie.
Carman, F. T., Dundas.
Faris, O. W., Port Colborne.
Lutz, C., Elmira.
Sharman, Wm., Stratford.
Wideman, J. L., St. Jacobs.

ASSOCIATES.

Johnson, W. J., Gananoque.
Meek, F. W., Strathroy.
Nimmo, C. B., Port Colborne.
Wells, Thomas C., Welland.
Werner, A., Elmira.

No notice will be taken of anonymous communications.

POST OFFICE BOX, 1133,
Toronto.

GEORGE HODGETTS,
Registrar.

| DRUGS, MEDICINES, &c. | $ c. | | $ c. |
|---|---|---|---|
| Acid, Acetic, fort | 0 14 | @ | 0 15 |
| Benzoic, pure | 0 22 | | 0 27 |
| Citric | 1 40 | | 1 50 |
| Muriatic | 0 05 | | 0 06 |
| Nitric | 0 11½ | | 0 15 |
| Oxalic | 0 22 | | 0 23 |
| Sulphuric | 0 03½ | | 0 07 |
| Tartaric, pulv | 0 50 | | 0 50 |
| Ammon, carb. casks | 0 22 | | 0 24 |
| " jars | 0 23 | | 0 24 |
| Liquor, 880 | 0 25 | | 0 28 |
| Muriate | 0 14 | | 0 15 |
| Nitrate | 0 45 | | 0 60 |
| Æther, Acetic | 0 45 | | 0 50 |
| Nitrous | 0 40 | | 0 42 |
| Sulphuric | 0 50 | | 0 50 |
| Antim. Crude, pulv | 0 15 | | 0 17 |
| Tart " | 0 55 | | 0 65 |
| Alcohol, 95 per ct.....Cash | 2 02 | | 2 05 |
| Arrowroot, Jamaica | 0 18 | | 0 22 |
| Bermuda | 0 50 | | 0 65 |
| Alum | 0 02½ | | 0 03½ |
| Balsam, Canada | 0 33 | | 0 38 |
| Copaiba | 1 10 | | 1 15 |
| Peru | 3 40 | | 3 75 |
| Tolu | 1 40 | | 1 50 |
| Bark, Bayberry, pulv | 0 20 | | 0 22 |
| Canella | 0 17 | | 0 20 |
| Peruvian, yel. pulv | 0 35 | | 0 50 |
| " red " | 1 60 | | 1 70 |
| Slippery Elm, g. b | 0 18 | | 0 20 |
| " flour, packets | 0 28 | | 0 32 |
| Sassafras | 0 15 | | 0 18 |
| Berries, Cubebs, ground | 0 20 | | 0 25 |
| Juniper | 0 06 | | 0 10 |
| Beans, Tonquin | 0 62 | | 1 10 |
| Vanilla | 30 00 | | 30 00 |
| Bismuth, Alb | 2 90 | | 3 00 |
| Carb. | 3 10 | | 3 25 |
| Camphor, Crude | 0 38 | | 0 40 |
| Refined | 0 45 | | 0 50 |
| Cantharides | 2 20 | | 2 30 |
| Powdered | 2 30 | | 2 40 |
| Charcoal, Animal | 0 04 | | 0 06 |
| Wood, powdered | 0 10 | | 0 15 |
| Chiretta | 0 23 | | 0 30 |
| Chloroform | 1 10 | | 1 55 |
| Cochineal, S. G | 0 65 | | 0 70 |
| Black | 85 | | 90 |
| Colocynth, pulv | 0 60 | | 0 65 |
| Collodion | 0 70 | | 0 80 |
| Elaterium | 3 20 | | 4 00 |
| Ergot | 0 55 | | 0 60 |
| Extract Belladonna | 1 50 | | 1 60 |
| Colocynth, Co | 1 25 | | 1 75 |
| Gentian | 0 50 | | 0 60 |
| Hemlock, Ang | 0 00 | | 0 95 |
| Henbane, " | 1 70 | | 1 80 |
| Jalap | 5 00 | | 5 50 |
| Mandrake | 1 75 | | 2 00 |
| Nux Vomic | 0 40 | | 0 50 |
| Opium | 1 80 | | |
| Rhubarb | 5 00 | | 5 50 |
| Sarsap. Hon. Co | 1 00 | | 1 20 |
| " Jam. Co | 3 50 | | 4 00 |
| Taraxacum, Ang | 0 70 | | 0 80 |
| Flowers, Arnica | 0 17 | | 0 25 |
| Chamomile | 0 32 | | 0 40 |
| Gum, Aloes, Barb. extra | 0 70 | | 0 80 |
| " " good | 0 40 | | 0 50 |
| " Cape | 0 16 | | 0 20 |
| " " powdered | 0 20 | | 0 30 |
| " Socot | 0 50 | | 1 35 |
| " " pulv | 1 00 | | 0 00 |
| Arabic, White | 0 50 | | 0 60 |
| " powdered | 0 60 | | 0 75 |
| " sorts | 0 24 | | 0 30 |
| " " powdered | 0 42 | | 0 50 |
| " com. Gedda | 0 13 | | 0 16 |
| Assafœtida | 0 40 | | 0 42 |
| British or Dextrine | 0 13 | | 0 15 |
| Benzoin | 0 35 | | 0 75 |
| Catechu | 0 12 | | 0 15 |
| " powdered | 0 25 | | 0 30 |
| Euphorb, pulv | 0 35 | | 0 40 |
| Gamboge | 1 40 | | 1 50 |
| Guaiacum | 0 45 | | 1 00 |
| Myrrh | 0 50 | | 0 85 |

| DRUGS, MEDICINES, &c.—*Contd.* | $ c. | | $ c. |
|---|---|---|---|
| Sang Dracon | 0 60 | | |
| Scammony, powdered | 6 00 | | 6 50 |
| " Virg. " | 14 50 | | — |
| Shellac, Orange | 0 80 | | 0 85 |
| Gum, Shellac, liver | 0 60 | | 0 70 |
| Storax | 0 40 | | 0 45 |
| Tragacanth, flake | 1 10 | | 1 75 |
| " common | 0 53 | | 0 65 |
| Galls | 0 22 | | 0 30 |
| Gelatine, Cox's 6d | 1 15 | | 1 20 |
| Glycerine, common | 0 21 | | 0 30 |
| Vienna | 0 29 | | 0 30 |
| Prices | 0 60 | | 0 75 |
| Honey, Canada, best | 0 15 | | 0 16 |
| Lower Canada | 0 14 | | 0 16 |
| Iron, Carb. Precip | 0 20 | | 0 25 |
| " Sacchar | 0 40 | | 0 55 |
| Citrate Ammon | 1 75 | | 1 80 |
| " & Quinine, oz | 0 52 | | 0 55 |
| " & Strychine | 0 20 | | 0 25 |
| Sulphate, pure | 0 08 | | 0 10 |
| Iodine, good | 4 50 | | 5 00 |
| Resublimed | 6 00 | | 6 50 |
| Jalapin | 1 25 | | 1 50 |
| Kreosote | 2 40 | | 2 50 |
| Leaves, Buchu | 0 22 | | 0 32 |
| Foxglove | 0 25 | | 0 30 |
| Henbane | 0 35 | | 0 40 |
| Senna, Alex | 0 27 | | 0 60 |
| " E. I. | 0 14 | | 0 20 |
| " Tinnevilly | 0 20 | | 0 30 |
| Uva Ursi | 0 15 | | 0 17 |
| Lime, Carbolate.....brl | 5 50 | | — |
| Chloride | 0 05 | | 0 06 |
| Sulphate | 0 08 | | 0 12½ |
| Lead, Acetate | 0 15 | | 0 16½ |
| Leptandrin.....oz. | 0 60 | | — |
| Liq. Bismuth | 0 50 | | 0 60 |
| Lye, Concentrated | 1 50 | | 1 60 |
| Liquorice, Solazzi | 0 50 | | 0 55 |
| Cassano | 0 23 | | 0 40 |
| Other brands | 0 14 | | 0 25 |
| Liquorice, Refined | 0 35 | | 0 45 |
| Magnesia, Carb. 1 oz. | 0 20 | | 0 25 |
| " 4 oz. | 0 17 | | 0 20 |
| Calcined | 0 65 | | 0 75 |
| Citrate.....gran. | 0 60 | | 0 75 |
| Mercury | 2 20 | | 2 30 |
| Bichlor | 2 00 | | 2 10 |
| Chloride | 2 35 | | 2 45 |
| C. Chalk | 0 95 | | 1 00 |
| Nit. Oxyd | 2 40 | | 2 50 |
| Morphia Acet | 4 50 | | 4 60 |
| Mur. | 4 50 | | 4 60 |
| Sulph | 4 65 | | 4 75 |
| Musk, pure grain.....oz | 25 00 | | — |
| Canton | 0 60 | | 1 20 |
| Oil, Amonds, sweet | 0 40 | | 0 45 |
| " bitter | 14 00 | | 15 00 |
| Aniseed | 4 00 | | 4 25 |
| Bergamot, super | 7 50 | | 7 75 |
| Caraway | 3 20 | | 3 50 |
| Cassia | 2 00 | | 2 25 |
| Castor, E. I | 0 15 | | 0 17 |
| Crystal | 0 22 | | 0 25 |
| Italian | 0 26 | | 0 28 |
| Citronella | 1 05 | | 1 15 |
| Cloves, Ang | 3 50 | | 3 75 |
| Cod Liver | 1 25 | | 1 50 |
| Croton | 1 75 | | 2 00 |
| Juniper Wood | 0 80 | | 1 00 |
| Berries | 2 75 | | 3 00 |
| Lavand, Ang.....oz. | 0 00 | | 1 00 |
| Exotic | 1 25 | | 1 50 |
| Lemon, super | 3 80 | | 4 00 |
| ord | 3 20 | | 3 40 |
| Orange | 3 00 | | 3 25 |
| Origanum | 0 65 | | 0 75 |
| Peppermint Ang | 15 00 | | 16 00 |
| " Amer | 5 50 | | 7 00 |
| Rose, Virgin | 8 50 | | 8 75 |
| " good | 7 00 | | 7 25 |
| Sassafras | 0 75 | | 1 90 |
| Wintergreen | 6 00 | | 6 50 |
| Wormwood, pure | 4 00 | | 6 00 |
| Ointment, blue | 1 60 | | 1 70 |
| Opium, Turkey | 9 00 | | 9 25 |
| pulv | 11 50 | | 12 00 |

| DRUGS, MEDICINES, &c.—*Cont'd* | $ c. | $ c |
|---|---|---|
| Orange Peel, opt. | 0 30 | 0 36 |
| " good | 0 12½ | 0 20 |
| Pill, Blue, Mass. | 1 60 | 1 65 |
| Potash, Bi.chrom | 0 18 | 0 20 |
| Bi-tart | 0 33 | 0 35 |
| Carbonate | 0 14 | 0 20 |
| Chlorate | 0 35 | 0 40 |
| Nitrate | 8 00 | 9 00 |
| Potass um, Bromide | 70 | 0 80 |
| Cyanide | 0 75 | 0 80 |
| Iodide | 3 50 | 3 70 |
| Sulphuret | 0 25 | 0 35 |
| Pepsin, Boudault's oz | 1 40 | — |
| Houghton's doz. | 8 00 | 9 00 |
| Morson's oz. | 0 85 | 1 10 |
| Phosphorous | 1 10 | 1 20 |
| Podophyllin | 0 50 | 0 60 |
| Quinine, Pelletier's | — | 2 45 |
| Howard's | 2 20 | — |
| " 100 oz. case. | 2 17 | — |
| " 25 oz. tin.. | 2 17 | — |
| Root, Colombo | 0 13 | 0 20 |
| Curcuma, grd | 0 12½ | 0 17 |
| Dandelion | 0 17 | 0 20 |
| Elecampane | 0 16 | 0 17 |
| Gentian | 0 08 | 0 10 |
| " pulv | 0 15 | 0 20 |
| Hellebore, pulv | 0 17 | 0 20 |
| Ipecac, " | 1 50 | 1 60 |
| Jalap, Vera Cruz | 90 | 1 15 |
| " Tampico | 0 70 | 1 00 |
| Liquorice, select | 0 12 | 0 13 |
| " powdered | 0 15 | 0 20 |
| Mandrake " | 0 20 | 0 25 |
| Orris, " | 0 20 | 0 25 |
| Rhubarb, Turkey | 1 75 | 2 00 |
| " E. I | 0 75 | 0 90 |
| " " pulv | 1 60 | 1 10 |
| " " 2nd | 0 60 | 0 70 |
| " French | 0 75 | — |
| Sarsap., Hond | 0 53 | 0 60 |
| " Jam | 0 88 | 0 90 |
| Squills | 0 10 | 0 15½ |
| Senega | 1 10 | 1 10 |
| Spigelia | 0 25 | 0 30 |
| Sal., Epsom | 2 25 | 3 00 |
| Rochelle | 0 31 | 0 35 |
| Soda | 0 02½ | 0 03 |
| Seed, Anise | 0 13 | 0 16 |
| Canary | 0 12 | 0 13 |
| Cardamon | 2 00 | 2 10 |
| Fenugreek, g'd | 0 08 | 0 09 |
| Hemp | 0 06½ | — |
| Mustard, white | 0 14 | 0 16 |
| Saffron, American | 0 75 | 0 85 |
| Spanish | 12 00 | 13 00 |
| Santonine | 7 50 | 8 00 |
| Sago | 0 08 | 0 09 |
| Silver, Nitrate Cash | 14 85 | 16 50 |
| Soap Castile, mottled | 0 11 | 0 14 |
| Soda Ash | 0 03¾ | 0 05 |
| Bicarb. Newcastle | 5 75 | 6 25 |
| " Howard's | 0 14 | 0 16 |
| Caustic. | 0 05½ | 0 05¾ |
| Spirits Ammon., arom | 0 35 | 0 35 |
| Strychnine, Crystals | 2 00 | 2 20 |
| Sulphur. Precip | 0 10 | 0 12½ |
| Sublimed | 0 03½ | 0 05 |
| Roll | 0 03 | 0 04½ |
| Vinegar, Wine, pure | 0 55 | 0 60 |
| Verdigris | 0 35 | 0 40 |
| Wax, White, pure | 0 70 | 0 80 |
| Zinc. Chloride oz | 0 10 | 0 15 |
| Sulphate, pure | 0 10 | 0 15 |
| " common | 0 06 | 0 10 |
| DYESTUFFS. | | |
| Annatto | 0 35 @ | 0 60 |
| Aniline, Magenta, cryst | 2 50 | 2 80 |
| " liquid | 2 00 | — |
| Argols, ground | 0 15 | 0 25 |
| Blue Vitrol, pure | 0 09 | 0 10 |
| Camwood | 0 06 | 0 09 |
| Copperas, Green | 0 01½ | 0 02 |
| Cudbear | 0 16 | 0 25 |
| Fustic, Cuban | 0 02¼ | 0 04 |
| Indigo, Bengal | 2 40 | 2 50 |
| Madras | 0 85 | 0 90 |
| Extract | e 26 | 0 30 |

| DYESTUFFS—*Continued.* | | |
|---|---|---|
| Japonica | 0 07 | 0 08 |
| Lacdye, powdered | 0 33 | 0 38 |
| Logwood | 0 01¾ | 0 03 |
| Logwood, Camp | 0 01¾ | 0 03 |
| Extract | 0 9½ | 0 12 |
| " 1 lb. bxs | 0 13 | — |
| " ½ lb. " | 0 14 | — |
| Madder, best Dutch | 0 11 | 0 12 |
| 2nd quality | 0 10 | 0 11 |
| Quercitron | 0 03 | 0 05 |
| Sumac | 0 06 | 0 08 |
| Tin, Muriate | 0 10½ | 0 12½ |
| Redwood | 0 05 | 0 06 |
| SPICES. | | |
| Allspice | 0 11½@ | 0 12 |
| Cassia | 0 26 | 0 28 |
| Cloves | 0 60 | 0 65 |
| Cayenne | 0 22 | 0 28 |
| Ginger, E. I | 0 19 | 0 20 |
| Jam | 0 30 | 0 30 |
| Mace | 1 50 | 1 60 |
| Mustard, com | 0 20 | 0 25 |
| Nutmegs | 1 15 | 1 25 |
| Pepper, Black | 0 22½ | 0 23 |
| White | 0 31 | 0 32 |
| PAINTS, DRY. | | |
| Black, Lamp, com | 0 07 @ | 0 08 |
| " refined | 0 25 | 0 30 |
| Blue, Celestial | 0 08 | 0 12 |
| Prussian | 0 65 | 0 75 |
| Brown, Vandyke | 0 10 | 0 12½ |
| Chalk, White | 0 01 | 0 01½ |
| Green, Brunswick | 0 07 | 0 10 |
| Chrome | 0 16 | 0 25 |
| Paris | 0 30 | 0 35 |
| Magnesia | 0 20 | 0 25 |
| Litharge | 0 07 | 0 09 |
| Pink, Rose | 0 12½ | 0 15 |
| Red Lead | 0 07¼ | 0 08 |
| Venetian | 0 02½ | 0 03½ |
| Sienna, B. & G | 0 07 | 0 08 |
| Umber | 0 07 | 0 10 |
| Vermillion, English | 2 10 | 2 20 |
| American | 0 25 | 0 35 |
| Whiting | 0 1½ | 0 02 |
| White Lead, dry, gen | 0 08½ | 0 09 |
| " No. 1 | 0 07 | 0 08 |
| " " No. 2 | 0 05 | 0 07 |
| Yellow Chrome | 0 12½ | 0 35 |
| " Ochre | 0 02½ | 0 03½ |
| Zinc White, Star | 0 10 | 0 12 |
| COLORS, IN OIL. | | |
| Blue Paint | 0 12 @ | 0 15 |
| Fire Proof Paint | 0 06 | 0 08 |
| Green, Paris | 0 30 | 0 37½ |
| Red, Venetian | 0 07 | 0 10 |
| Patent Dryers, 1 lb tins | 0 11 | 0 12 |
| Putty | 0 03¾ | 0 04½ |
| Yellow Ochre | 0 08 | — |
| White Lead, gen. 25 lb. tins | 2 35 | — |
| " No. 1 | 2 10 | — |
| " No, 2 | 1 85 | — |
| " No. 3 | 1 60 | — |
| " com | 1 30 | — |
| White Zinc, Snow | 2 75 | 3 25 |
| NAVAL STORES. | | |
| Black Pitch | 4 10 @ | 4 50 |
| Rosin, Strained | 3 80 | 4 25 |
| Clear, pale | 5 75 | 7 25 |
| Spirits Turpentine | 0 50 | 0 52 |
| Tar Wood | 4 40 | 4 50 |
| OILS. | | |
| Cod | 0 63 @ | 0 70 |
| Lard, extra | 1 10 | 1 20 |
| No. 1 | 1 05 | 1 10 |
| No. 2 | 0 85 | 0 90 |
| Linseed, Raw | 0 62½ | 0 67½ |
| Boiled | 0 67½ | 0 72½ |
| Olive, Common | 1 05 | 1 10 |
| Salad | 1 80 | 2 30 |
| " Pints, cases | 4 20 | 4 40 |
| " Quarts | 3 25 | 3 50 |
| Seal Oil, Pale | 0 75 | 0 75 |
| Straw | 0 68 | 0 70 |
| Sesame Salad | 1 30 | 1 35 |
| Sperm, genuine | 2 55 | 2 60 |
| Whale refined | 0 70 | 0 75 |