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# PHARMACEUTICAL JOURNAL

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## TREATMENT OF ACUTE ARTICULAR RHEUMATISM BY SALICYLIC ACID.*

BY DR. STRICKER.

*Translated by "Monad."*

Dr. Stricker, who publishes this work, recapitulates as follows the effects produced by salicylic acid in acute articular rheumatism.

1st. Observations made for many months prove that articular rheumatisms have always been treated with great success by salicylic acid.

2nd. The effect of the remedy is produced generally at the end of forty-eight hours.

3rd. Even before this time, with many patients, the temperature is lowered, and what is more remarkable, the local manifestations such as swelling, redness, and especially pain, have disappeared.

Dr. Stricker does not pretend that salicylic acid will cure all rheumatisms in forty-eight hours; but he declares the fact true when the treatment is applied from the very outset. Not being able to attribute to simple chance the constancy of the results, he does not hesitate to affirm that :

4th. Salicylic acid, beyond its antipyretic virtues, is the most efficacious remedy, perhaps the only radical one, against acute articular rheumatism, and he does not in any case fear inspection of his observations.

Since the work of Dr. Stricker has been published, Dr. Buss has produced a pamphlet which he has sent to Prof. Traube, and in which he arrives at the same conclusions.

Stricker requests physicians who propose to try salicylic acid in

* Extract from the clinic of Prof. Traube, translated from the German by Dr. A. Renault in the Bulletin General de Therapeutique.

rheumatism, to conform to the rules that he has established for treatment. They must expect, according to him, from time and experience the modifications necessary in the choice of preparations and method of treatment.

At present, the observations collected by him prove that the salicylate of soda, administered in larger doses, produces the same effect as the acid itself.

The most remarkable effect of this remedy in rheumatic polyarthritis is not the lowering of temperature, but especially the soothing of the local pains. Nevertheless, in cases of rheumatism where no objective symptoms exist depending on the joints, and where the pain is purely subjective, the acid appears to Dr. Stricker to be contraindicated. Success, on the contrary, is not doubtful when there is swelling, redness, and heat of the joint.

As much as possible, the treatment should begin in the morning. The effect produced in the day will insure the patient a tranquil night.

In the practice of Prof. Traube, salicylic acid reduced to powder is employed. It is indispensable that it be pure, otherwise the effects of the medicine become hurtful: great irritation of the buccal, aesophagal, and stomachic mucous membranes is caused. This is due to foreign principles, particularly to phenol, mixed with the acid, which gives then a yellowish coloration, and a troubled solution. When absolutely pure it crystallizes in white brilliant needles, is inodorous, and completely soluble in water and alcohol.

The acid may be administered in large doses without causing inconvenience to the digestive tube. Applied to the mucous membrane of the mouth and pharynx, it produces a sensation of dryness, later a slight burning, and increases the secretions from these membranes.

Dr. Stricker recommends the administration of salicylic acid in powder, in the dose of one-half to one gramme every hour, in unleavened bread, and he has never seen the least injury follow. These doses are continued until the patient can move his joints without pain. The quantity of the medicine necessary is variable; it may range from five to fifteen grammes. The remedy acts more rapidly in proportion as the case is taken early. There is nothing to fear in exceeding the quantity of fifteen grammes when necessary: the digestive tube will not suffer from it. Dr. Stricker speaks of a patient who took, unknowingly, in the space of twelve hours, twenty-two grammes of the medicine, and felt no pain in the stomach; and very singularly, this energetic treatment cleaned the tongue and brought back his appetite. A large dose may be given once, and thus replace small ones, without causing the least danger to the patient; but experience has not yet taught us the limit beyond which it will be dangerous to pass.

There may occur, in the course of the treatment, perspiration,

ringing in the ears, and even a slight deafness; but these are of slight importance, and should not arrest the physician. It is not necessary to regard the nausea and vomiting which are produced in extremely rare cases.

Dr. Stricker does not possess data sufficient to show the influence of salicylic acid on the production of secondary inflammations, and particularly of eudocarditis, which supervenes in the course of acute articular rheumatism. Most of the patients that he has treated presented injuries of the orifices, or signs of endocarditis, at the time the treatment was begun.

His statistics consist of fourteen cases; without doubt this number is small, but his observations present such an agreement, that after having compared them with one another, physicians will be tempted to try this new mode of treatment. It is not to be supposed that a rheumatic patient freed from his pains by salicylic acid, can return immediately to his employment: he ought, as other patients, take a certain time for convalescence. It remains to be seen if it will not be useful to continue for several days the exhibition of salicylic acid in decreasing doses. Subsequent observations will demonstrate the value of that assertion, expressed *à priori*.

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In this connection "Monad" would say, that in dispensing he finds that the salicylic acid deposits in a short time from a mixture of alcohol and water, unless the former be in excess of that allowed by the necessities of the case; but when the acid is dissolved in *Liquor Ammoniæ Acetatis*, the solution remains perfect and its medical virtues unimpaired.

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## LINIMENTUM SAPONIS OF THE BRITISH PHARMACOPŒIA, WITH SPECIAL REFERENCE TO ITS EMPLOYMENT IN HOSPITAL PHARMACY.*

BY W. WILLMOTT.

A late eminent prelate of the established church, to whom was applied the epithets "saponaceous," was wont to say, in explanation of the term as applied to himself, that he supposed it to refer to his being able to come clean-handed out of any difficulty in which he was concerned.

I hope, in the following remarks, to come with equal success out of the treatment of a subject which has already received attention at the hands of able pharmacists.

*Read at an Evening Meeting of the Pharmaceutical Society of Great Britain, April 5, 1876, and published in the Pharm. Jour. Trans.

I need scarcely say that the preparation known as "soap liniment" has successfully borne the test of long tried experience. "*Quod primum est verum est*" is true of many things pharmaceutical, and I shall not, I feel sure, be thought to be assailing a time-honoured prescription in my humble desire to point out the way of rendering it more accessible and efficient where circumstances deny to it the exact composition to which the sanction of authority has been accorded.

In the Pharmacopœias of 1824 and 1836 the liniment was presented to us as a soft gelatinous mass. To the conscientious pharmacist this at once suggested a difficulty which it was not easy to overcome. It arose from an alteration which had been made in the spirit of rosemary from the strength of proof spirit to that of rectified spirit, which caused the gelatinization of the soap when dissolved in it by the aid of heat. Complaints were made and suggestions offered to remedy this defect, and accordingly in the next Pharmacopœia, that of 1851, the soap was reduced in quantity and water was added to the spirit. This, however, did not prove effectual. In all the Pharmacopœias the colleges had ordered the soap *to be dissolved*. This seemed sufficiently correct, otherwise a smaller quantity might have been named for the purpose intended. The expressions used to indicate this intention was as follows: Ph. 1746, "*dum solutus sit;*" Ph. 1788, "*donec solvatur:*" Ph. 1809, "*macera balneo arenæ donec liquetur;*" Ph. 1836, "*macera leni calore donec liquetur;*" and Ph. 1851, "*macera subinde agitans donec liquentur.*" It was abundantly clear, therefore, that the soap was intended to be dissolved, and it was this circumstance rather than the exact proportions of the ingredients composing the liniment which, in reality, was the cause of the trouble referred to. Here I ought to say that we are indebted to the researches of the late Mr. Deane for an elucidation of the whole subject. He found that the gelatinization was due to the presence of margarate of soda, which was dissolved from the soap when the temperature was above 70° Fahrenheit. He, therefore, recommended that in the process of making the liniment this temperature should not be exceeded. Accordingly, on the appearance of the British Pharmacopia in 1864 we find this provision introduced, though the error respecting the solution of the soap is perpetuated,* "Digest" (say the instructions appended to the formula in this work) "at a temperature not exceeding 70°, with occasional agitation until all are dissolved." This was very misleading, since "at a temperature not exceeding 70°" the soap resisted all efforts, however extended in duration, to bring it to this condition. It was not, therefore, until the publication of the revised

*This error is still present in the minds of many pharmacists, who not unfrequently overlook the important alteration in the instructions now given. Hence an impression prevails that, as formerly, there is "a difficulty" connected with this preparation.

edition in 1867 that this error was rectified, and the directions rendered clear and free from all ambiguity. We are now instructed as follows: "Mix the water with the spirit, and add the oil of rosemary, the soap, and the camphor. Macerate for seven days at a temperature not exceeding 70°, with occasional agitation and filter."

These directions are very explicit, and it is now clearly understood that so much of the soap only shall be dissolved as the spirit will take up at a temperature not exceeding 70°, the remainder being regarded as waste of a necessary character belonging to the process. Prepared in this way we have a liniment which is perfectly clear and bright, and being free from any tendency to thicken or gelatinize, except at unusually low temperatures, is admirable in every way.†

If, however, in my capacity as Hospital Dispenser, I were to take exception to this form, it would be in two important respects. (1). The waste occasioned by the undissolved soap; and (2). The length of time required, namely seven days, to complete the process. The loss of the soap may seem a trivial matter when making a pint or a gallon of the liniment, but when fifty or one hundred gallons have to be prepared (and this is by no means an excessive quantity where patients are numbered by thousands), the waste thus occasioned ought not, I think, to pass unheeded. We may usefully estimate the extent of this waste under the circumstances mentioned. It will be observed that the Pharmacopœia directs the soap to be "cut small," an injunction which though somewhat indefinite could hardly be expressed otherwise. That a difference in the size of the pieces when "cut small" should more or less affect the result will not be surprising, inasmuch as the greater the surface of the soap exposed to the action of the solvent, the greater relatively will be the quantitty dissolved.‡ If, then, the 2½ ozs. (*i.e.*, the quantity ordered for one pint) be cut into 13,000 pieces (and this is not a simple guess) there will be dissolved in the 20 fl. ozs. of liniment, after seven days' maceration, about seven-tenths of the whole quantity, equivalent to 38 grs. in each fluid ounce; the remaining three-tenths being left undissolved. But if, on the other hand, the division extends only to 500 pieces, which may fairly be taken as the size indicated by the Pharmacopœia, the quantity taken up at the end of the process will not exceed six-tenths, or equivalent to 29·35 grs. in each fluid ounce; in this case the remaining four-tenths or rather more (*i.e.*, nearly half) being left undissolved. The waste, therefore, of Pharmacopœia hard soap in preparing 100 gallons of this liniment (making all needful allowance for difference of weighing, and moisture, etc.,)

†B. P. soap liniment gelatinizes completely at 15° below freezing point.

‡To so great an extent does this obtain that if the soap be reduced to very fine particles sufficient will be taken up *below* 70° to gelatinize the liniment at 35°. It is consequently of importance that it should be *cut into pieces* as directed, and not, to save time and labour, powdered or broken up in a mortar.

may, *mutatis mutandis*, be fairly set down as 750 ounces, or over 46 lbs., and where economy is of paramount importance, as it is in most of our London hospitals, such waste should, if possible, be avoided. Now the question arises, can the Pharmacopœia form be dealt with alike to the saving of time and the prevention of waste, the liniment remaining as effectual as before in the specialties of hospital practice? It is true that if we disregard the instructions given and employ heat to dissolve the soap, gelatinization of the liniment occurs at comparatively low temperatures; but it is noticeable that this decreases as we weaken the spirit to a certain point. From this point continuing the same process the gelatinization again appears until, in using water only as in using spirit only, we have the same congealed mass which is so troublesome to encounter. In the proportion of proof spirit, or better still equal parts of each spirit and water, the margarate of soda no longer gelatinizes the fluid but is precipitated in a flocculent form. Taking advantage of this circumstance, and being prepared to sacrifice the necessary amount of spirit, we have only to submit our liniment, after solution by heat, to a temperature a little below freezing for one or two hours and then filter. Thus prepared it will remain bright and clear, and in respect of any tendency to congeal will scarcely be distinguishable from the Pharmacopœia preparation. The same result may be insured if we are prepared to part with a portion of our soap, in which case the whole of the spirit may be retained. By reducing the proportion to two-fifths of the quantity ordered (and this it will be remembered is but little lsss than is taken up below 70°) we obtain, on exposure to the cold as in the former case, the separation of the greater portion of the gelatinizing substance, which, having been filtered out, no further trouble will be experienced.* The

*In the modifications here proposed the formula would stand thus:

I.

R Sapo. Dur. ..... 2 ozs.
(To be thoroughly dried and powdered.)
Camphor ..... 1½ ozs.
Ol. Rosmar ..... 3 fl. drms.
Sp. Rect.
Aq. Destill .....aa 10 fl. ozs.

II.

R Sapo. Dur. ..... 1 oz.
(To be thoroughly dried and powdered.)
Camphor. ..... 1½ ozs.
Ol. Rosmar. ..... 3 fl. drms.
Sp. Rect. .....18 fl. ozs.
Aq. Destill. ..... 2 fl. ozs.

Add the oil of rosemary, the soap, and the camphor, to the water and the spirit previously mixed, and dissolve by the heat of a water-bath. Then expose to a temperature a little below freezing for two hours, with occasional agitation, and filter.

sacrifice of a portion of the soap or a portion of the spirit may be attended with disadvantages or the reverse, and some difference of opinion on these points may be entertained; but the question is, perhaps, rather of a medical than a pharmaceutical character, and it must be understood that I do not propose these modifications as a readily available solution of the problem where large quantities of ingredients have to be dealt with. They are simply given to show that something at least may be done in this direction. We have another alternative in the use of a different kind of soap which shall be a pure oleate of soda dissolving readily when added to the water and spirit. Almond oil and castor oil soaps have both been proposed as fulfilling these conditions, and it remains to be seen whether at some future period they can be rendered available for the purpose. In the meantime as our inquiry has especial reference to hospital needs, it will be interesting to observe how the question is regarded by those medical authorities who, in the Pharmacopœias of their respective institutions, have taken note of this preparation. In the following table I give the formulæ of the hospitals mentioned, the quantities of each ingredient being estimated as near as need be for one pint of liniment:

| Hospitals. | Soap. | Camphor. | Spirit. | Water. | Remarks. |
|---|---|---|---|---|---|
| Guy's. | 3 ozs. (soft.) | 1 oz. | 16 fl. ozs. | | Contains no water. Ol. Origan. 2 fl. drms. to pint. |
| Gt. Northern. | 2½ ozs. (soft.) | 1 oz. | 2 fl. ozs. | 16 fl. ozs. (boiling) | Water "boiling." Camphor not dissolved. Contains no esssential oil. |
| London. | 3 ozs. (soft.) | 6 drms | 3 fl. ozs. | 15 fl. ozs. | Ol. Tereb. 4½ fluid drms. to pint. |
| St. Bartholomew's. | 3 ozs. (soft.) | | 2 fl. ozs. | 15 fl. ozs. (boiling) | Contains no Camphor. Ol. Tereb. 7½ fl. drms., Ol. Marjoram ½ fl. drm. and Sol. Ammon. 5 fl. drms. to pint. "Boiling" water. |
| Middlesex. | 2 ozs. (soft.) | | | 20 fl. ozs. (boiling) | Consists of soft soap and boiling distilled water only. |

It will be observed that in each case *potash or soft soap* is the kind employed,† and whilst we have all spirit and no water at Guy's we are reduced to all water and no spirit at Middlesex. Here, then, we have medical authority for the use of soft soap in combination with spirit in varying proportions even to omitting it altogether. As we can scarcely think that medical men would willingly sacrifice the

†Other considerations apart, soft soap from its ready solubility and its freedom from all tendency to gelatinize, meets the difficulty we have been considering most completely.

good of their patients to economy, or for the sake of pharmaceutical convenience, it is open to us to infer that the *litera scripta* of the Pharmacopœia need not always be strictly followed. On the other hand, the hard soap and the rectified spirit from long usage will doubtless hold their own in the Council and Colleges of the future. The fear entertained that the use of potash soap may be productive of ill results when applied in the weakened form of an embrocation scarcely seems borne out in practice. In hospital pharmacy it is customary to use the commercial kind with methylated spirit. The objection to the employment of the former—namely, that it contains a large quantity of uncombined alkali, may be removed to a great extent by the method of manipulation adopted. It is not unusual, I believe, to commence by dissolving the soap in hot or boiling water. This is objectionable, as well as troublesome, and should be avoided as likely to impart to the liniment properties of an irritating character. The following form will, I think, be found to give satisfactory results where, on medical authority, the Pharmacopœia instructions are departed from‡:

| | | |
|---|---|---|
| R Sapo. Moll. (free from Caustic Potash) | ... 1 | lb. |
| Camphor | ... 8 | ozs. |
| Ol. Rosmar | ... 2 | fl. ozs. |
| Sp. Rect | ... 5 | pts. |
| Aq. Destill. | ... 3 | pts. |

Mix the camphor and oil of rosemary with the spirit, and then add the soap. Stir occasionally during twenty-four hours, and strain or filter. Afterwards add the distilled water and mix.

The spirit rapidly disintegrates the soap and dissolves the neutral portion only, so that the irritating alkaline matter which would be taken up by boiling water is absent from the preparation. The liniment is clear and free from sediment, and remains so at all temperatures

Should this combination be thought to differ to too great an extent from the recognized formula, the specialties of our position will, I trust, be deemed sufficient justification for the adoption of those ready methods which the needs of hospital pharmacy would appear to require. If, as now, we cannot at all times accept the Pharmacopœia as our "standard and guide," it is satisfactory to know of this work that, apart from its many excellencies, it sets up no Procrustes law, but itself proclaims that in the discussions of those who read it and ponder it lies the true road to its perfection.

‡We have here an approach to the *depth of colour* which, in medicinal compounds, is so much appreciated by the public, and which seems to be regarded, by the hospital patient more especially, as an indication of efficiency and strength.

# PRESSED HERBS.*

BY J. U. LLOYD.

Herbs are pressed to reduce their bulk, they then are compact, require but little space for storage, and are easily handled. If I mistake not, I have named about the only advantages pressed herbs possess over loose.

My experiments teach me that they deteriorate nearly, if not quite, as rapidly when pressed as loose. In either case, they are exposed to the action of the atmosphere, and the decomposing effects of the moisture with which it is usually laden. Insects attack both. Pressed herbs, without a doubt, mould quickest. Excepting the mere matter of bulk there is no inducement for pressing herbs. Common paper bags, or even cotton sacks, will preserve them as well. The desideratum of the day is a process for preserving the delicate medicinal principles of our herbs from season to season. If this can be accomplished, in conjunction with compactness of form, so much the better, otherwise let us choose quality first, even though it be at the sacrifice of convenience in handling.

In the proceedings of the Amer. Pharmaceutical Association, 1875, we find an article from the pen of Mr. A. W. Miller, upon an improved method for preserving herbs, said improvement being the substitution of pasteboard boxes for paper. The herbs, instead of being pressed by the dealers into compact masses, as is now customary, are, by the pharmacists themselves, firmly packed into the box by hand, remaining loose enough to admit of examination at any time. In my opinion, the important point in connection with dried herbs is preservation, not convenience. Is there any advantage to be derived, in this respect, from the substitution of pasteboard boxes for our machine presses, or even paper or cotton bags? Will boxes prevent the ravages of insects, or preserve the delicate organic principles upon which many of our herbs depend for their medicinal values? This is the direct issue, not convenience in packing and the value of shelf room.

Personally, I have met with many aggravations respecting loose and pressed herbs, barks and roots, as found upon the market. Necessity has compelled me to experiment upon their preservation. The subject is very important to every druggist and pharmacist, and I feel that a brief description of the most successful of my experiments will be of interest to many readers of the "Journal." To preserve herbs with any satisfaction, I was compelled to use air-tight tin cans. Gather the herb when in its prime, quickly and carefully dry it, then, by hand, press it into the can, sprinkle upon

*American Journal of Pharmacy, May.

it chloroform, in the proportion of half an ounce to each pound, replace the cover immediately and render the can air tight by painting the edges with melted beeswax. Herbs like peppermint, spearmint, &c., which depend for their virtues mostly upon delicate essential oils. can be nicely preserved in this way. Roots and herbs that are particularly liable to the attacks of insects, *e.g.*, parsley root, burdock root, motherwort, will show no sign of their presence. Is their any objection to chloroform in this connection? I think not; it is quickly dissipated when exposed to the atmosphere; it certainly is of much value, insect life being destroyed by its vapor; without it, even though in air-tight cans, specimens will be attacked. Aside from this, I believe the vapor of chloroform exerts a preservative influence over most of the delicate proximate principles of our plants.

Any druggist can have tin cans made to order, at small expense; with careful handling they will last many years, being refilled each season. Of course the process necessitates some trouble, and when the customer is waited upon, a little time must be consumed in replacing and waxing the cover. It is time well employed, however, for the majority of customers will prefer paying double the price of ordinary herbs for those preserved in this manner.

The season is now approaching for replenishing the stock of botanical specimens. This stock must last until next year. Druggists can gather many articles they will otherwise be compelled to purchase. Pharmacists who knowingly will not allow a grain of other inferior and adulterated medicines to enter their stores, are compelled to dispense from their counters, each year, a large amount of old and worthless pressed herbs, often mouldy, and usually full of stems, sticks, dirt, &c. They must take what the market affords, unless they gather prime articles at the proper season. But it may be well to remember that prime herbs in August are entirely different materials the following January, unless precautions are taken to preserve them.

The process of preserving herbs in tin cans, by means of a little chloroform, was suggested to me by the late Prof. W. B. Chapman, of this city, who had met with remarkable success in applying it to ergot.

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## SYRUPUS FERRI PROTOCHLORIDI.*

BY H. WILLIAMS JONES.

As protochloride of iron appears to be coming into general use, it was thought advisable to make a few experiments on the best

*From the Pharm. Jour. and Trans.

method of combining it. A syrup appears to be the most likely compound from the well-known property of sugar to retard oxidation. Although the higher chloride is incompatible with it, a reduction taking place, there is no apparent action with the ferrous salt.

In the first experiment a weighed quantity of the anhydrous protochloride was dissolved in water, filtered, and converted into a syrup. An unsatisfactory compound was, however, the result. The solution could not be filtered perfectly bright, and after the syrup made from it had been kept for a few days, a marked change took place. A red deposit had formed on the bottom and sides of the bottle, the body of the syrup at the same time being coloured and cloudy.

The next trial consisted in the preparation of a solution of ferrous chloride by saturating somewhat diluted hydrochloric acid with metallic iron. This was filtered, and the amount estimated in a measured portion with potassium bichromate, after reduction with zinc and hydrochloric acid, in the usual way. The strong solution was next diluted with a mixture of syrup and orange flower water, so that each fluid drachm contained one grain of the salt. The proportion used being :—

Orange Flower Water (triple).....1 part
Syrup .....4 parts

After standing for a month the syrup exhibited no change and was as bright as when first made.

Since the anhydrous chloride as met with in commerce is partially decomposed, and as the crystals of hydrated ferrous chloride are deliquescent and rapidly oxidize in the air, the advantage of using a solution of the recently formed salt is obvious.

The orange flavour well masks the iron taste and renders the syrup an agreeable preparation.

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## EXTRACTUM PRUNI VIRGINIANÆ FLUIDUM.*

BY ISAAC W. SMITH, PH.G.

Having experienced great difficulty in obtaining a satisfactory fluid extract of wild cherry bark, it occurred to me that a modification of the officinal process might with advantage be adopted, to obviate the difficulty, and herewith I present the following formula, which yields an extract superior in its sensible properties to that of the " Pharmacopœia " :

*American Journal of Pharmacy, May.

| | |
|---|---|
| Take of Wild cherry bark, in course powder, | 64 oz. (troy) |
| Water, | 2 pints |
| Glycerin, | 1 pint |
| Alcohol, 95 per cent, | sufficient quantity |
| Sweet almonds, blanched, | 8 oz. (av.) |

Mix glycerin and water, moisten the bark with 2 pints of the mixture, allow it to stand in a closely covered vessel for four days, then pack in a conical glass percolator and pour on the remainder of the mixture; when this has disappeared from the surface, gradually pour on the alcohol until 48 fluid ounces have been obtained, and set this portion aside. Continue the percolation with the alcohol until 80 fluid ounces more have been obtained. Evaporate this by means of a water-bath to 16 fluid ounces; allow it to cool. The almonds having been reduced to a smooth paste, mix this last portion with them and add to the first portion reserved, in a closely stopped bottle, and agitate the whole together. Allow it to remain in contact for 48 hours, with frequent agitation; then prepare some paper pulp, and place in a filter in a glass funnel; adding the mixture gradually to the pulp, stirring upon each addition, so as to get the mixture thoroughly incorporated with the pulp, observing to keep the funnel closely covered during the process—the result being an extract of a brilliant reddish-brown color, possessing all the virtues of the bark in a very marked degree.

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## HOW TO MAKE CASTOR OIL AND COD LIVER OIL PALATABLE.*

BY H. M. WILDER.

The best way is to pour frothy porter in a tumbler and the castor oil on top of the froth. It will be so enveloped by the latter as to be swallowed without tasting it.

If porter is not admissable, then the next best thing is soda-water with a frothy syrup. In default of soda water, make it. Put about half an ounce of water in a tumbler, about as much, or a little more, of a frothy syrup (Parrish's second formula for Sarsaparilla syrup, p. 722, 4th edition, is about the best for that purpose), a pinch of bicarbonate of soda, and a little less of tartaric acid, and stir; now pour the castor oil on top of the froth.

The above is nothing new to many of the readers of *Druggists' Circular:* but, while it is a good way for adults to take castor oil, it will not do for children. I have found nothing better than the *glyceritum olei ricini* of the Philadelphia Hospital. One fluid ounce each of

*Druggists' Circular.

castor oil and glycerine, and oil of cinnamon to taste ; (the original formula uses three drops, but that is rather too much.)

For cod liver oil Hager's idea is excellent. He adds to each pint one fl. drachm of chloroform. The oil will taste quite blandly, and not at all nauseous.

By the way, Hager recommends chloroform as an addition to bitter mixtures or tinctures, the bitterness of which will not be so perceptible.

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## LIQUOR AMMONIÆ ACETATIS B.P.*

BY J. C. THRESH, F.C.S.

It is somewhat strange that this, one of the most readily prepared official solutions, should be found to be frequently carelessly prepared and varying much in strength; yet I am afraid such is the case. This arises from the acetic acid found in commerce varying much in strength (often being 10 to 20 per cent. weaker than the B.P. standard) and from the practice so prevalent of making concentrated solutions.* Few appear to take the trouble to apply heat to the solution previous to ascertaining that the fluid is neutral, hence nearly all the specimens examined were distinctly alkaline. According to Pereira this is erring on the wrong side, since it would be better if it were slightly acid.

The seven following samples were purchased from three wholesale and four retail chemists. No. 1 was prepared by myself.

Samples 5, 6, 7 and 8 were concentrated preparations, being labelled 1 to 2, 1 to 5, 1 to 7, and 1 to 7, respectively, and before being examined were duly diluted.

| No. | Reaction. | Sp. Gr. | Action of $H_2S$. | P. c. of Am. A. |
|---|---|---|---|---|
| 1 | Neutral. | 1·016 | None. | 6·9 |
| 2 | " | 1·016 | Slight colour. | 7·0 |
| 3 | Strongly Alkaline. | 1·015 | " | 6·5 |
| 4 | Alkaline. | Not taken. | None. | 4·6 |
| 5 (1 to 2) | " | 1·018 | Slight colour. | 7·9 |
| 6 (1 to 5) | " | 1·014 | " | 5·8 |
| 7 (1 to 7) | " | 1·011 | Deep colour. | 4·9 |
| 8 (1 to 7) | " | 1·015 | Slight colour. | 6.5 |

Sample 4 appeared to have been extemporaneously prepared, since after being in my possession a few minutes the cork was blown out with considerable violence and brisk effervescence ensued.

* From the Pharm. Jour. & Trans.

* Liq. Ammon. Acet. Conc. is frequently prescribed, and it would be interesting to know which of the three various strengths (viz., 1 to 2, 1 to 5, and 1 to 7) is intended by prescribers. I always use the 1 to 5.

No. 6 I learn was made by neutralizing acetic acid with ammonium carbonate. If by thus neutralizing the acid there was no increase in volume, the solution would be exactly six times the B.P. strength, but as 10 oz. acetic acid makes nearly 12 of this concentrated solution it is obviously only about five times the proper strength.

In the next edition of the B. P. I think it would be advisable to order this solution to be made with solution of ammonia instead of with carbonate (as in Liq. Ammon. Cit.), thereby saving both time and trouble. The characters, tests, etc., should also be added, and it should be directed to be kept in green glass bottles to avoid contamination with lead.

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## THE VANILLA CULTURE.*

The great demand for vanilla that has sprung up during the last few years in the markets of Europe, has given a great impetus to its cultivation. To such an extent have plantations been multiplied in the island of Reunion or Bourbon that it is reported the crop will probably, in two or three years, amount to fifty or sixty tons, being about three times the quantity exported in 1874. The cultivation is also carried on extensively in Madagascar and the Mauritius. The crop is a favourite one with the small proprietors, as provided the soil be fertile, moist, and shaded, it needs but a small space to accommodate thousands of plants, whilst at the present average price the crop yields to the cultivator a profit exceeding that obtained from any other grown in the island. The cultivators are represented, however, as having been recently very much disturbed by a report which has reached the islands, but which is received with a certain amount of doubt, that a German chemist has succeeded in extracting from the pine tree an essence of which the perfume is identical with that of vanilla and which can be offered in the market at a very reduced rate. It will not be inappropriate to mention here the analogous instance of alizarine, which has now so universally displaced madder, that the cultivation of madder roots is being gradually abandoned, and this branch of commerce will probably soon be extinct. A great portion of the madder land in the island of Cyprus has been already turned to other purposes, as the price to be obtained for roots no longer remunerates the grower.

*Pharm. Jour. and Trans.

# COMMERCIAL BICARBONATE OF SODA.*

BY P. W. BEDFORD.

Query 41. A quantitative estimation of the carbonic acid in the numerous brands of bicarbonate of soda existing in the American market, and of the impurities.

In pursuing his researches in order to answer the above query, the writer has examined eleven brands of bicarbonate of soda, these fairly representing the kinds usually found in this market.

Of this number, four represent the English manufacturers, viz., Chance Brothers, of Birmingham, C. Allhusen & Sons, Lee, and Jarrow, all of Newcastle-on-Tyne.

Representing the French manufacturers, are two samples, one in crystals, the name of the maker being unknown, the other in powder, sold at Schering's, but which it is known is not made by him, but is only purchased and exported by him.

It is usual for exporting chemists in France and Germany to purchase any good brand of bicarbonate of soda, produced in France, Belgium, and Holland, and export it as French.

The remaining varieties examined are of American manufacture.

Notwithstanding the improvement in the manufacture of this article by what is known as the "ammonium" process, it is not known that much, if any, made by this process reaches this country.

Some few of the foreign manufacturers use cryolite instead of chloride of sodium, but they do not compete in this market with the American makers of cryolite soda, better known as "Natrona" soda.

Of the American manufacturers of bicarbonate of soda, the most extensively known are the Pennsylvania Salt Company, who produce at their works at Pittsburg the cryolite or Natrona soda, and at Philadelphia a brand known as "Greenwich" bicarbonate of soda, the latter being made from chloride of sodium.

"Dwight's" manufacture, as also that of Church & Co., have an extensive sale among grocers, while Kidder's soda has alwas held a high rank as a medicinal soda, on account of its more pleasant taste.

In making an examination of these various brands of bicarbonate of soda, the writer has mainly followed the plan of Dr. E. R. Squibb, as given in a paper read before this Association at its meeting in St. Louis in 1871.

Theoretically this salt should contain 52.25 per cent. by weight of carbonic acid, and when heated to low redness should leave a residue of carbonate of soda amounting to 63.2 per cent. of the amount tested.

*Read before the American Pharmaceutical Association, 1875, and published in the Transactions.

Bicarbonate of soda is soluble in ten parts of water at 70° F. The samples examined were all soluble in this proportion, except the small quantities of dirt, ash, and similar impurities which were present in some of the samples, and which are probably due to want of care in process of manufacture.

The chief chemical impurities are chlorides and sulphates, which if present are readily detected by the appropriate reagents.

In an article made on the immense scale that this is, it is impossible and unreasonable to expect to find it chemically pure. The price at which it is produced forbids that nicety of manipulation which we expect to find in the finer chemicals. It is, therefore, gratifying to know of this article, so largely employed in domestic economy, that it is so free from impurities, and that the small quanties which are found in some of the samples are due not to intentional adulteration, but to the fact that the cost of removing them is too great to enable the manufacturers to sell their product at market rates.

The estimation of the carbonic acid was made by means of Schrotter's apparatus, while the determination of chlorides and sulphates was made by volumetric analysis, and each verified by several repetitions.

The annexed table gives the results of these experiments, from which it will be seen that in quality the brands examined may be fairly arranged in the following order: Natrona, Greenwich, Lee's, Allhusen's, French, Schering's, Chance's, Jarrow's, Dwight's, Kidder's, Church's.

| Manufacture or brand | Loss on heating one gram should be 0,368 or 36.8 per cent. The actual loss was per cent. | Loss of carbonic acid should be 52.25 per cent. The actual loss was per cent. | Chloride of sodium per cent in sample. | Sulphate of sodium per cent in sample. |
|---|---|---|---|---|
| Chance Brothers | 35.5 | 50.11 | .08 | .14 |
| Allhusen. | 35.7 | 50.76 | .04 | None. |
| Jarrow. | 35.2 | 49.00 | .10 | .11 |
| Lee. | 36.5 | 51.35 | None. | .06 |
| Schering. | 35.2 | 50.20 | .04 | .08 |
| Frennch Crystals. | 36.2 | 50.18 | .10 | .014 |
| Natrona. | 35.7 | 50.80 | None. | None. |
| Greenwich. | 36.5 | 51.89 | None. | .11 |
| Kidder. | 35.0 | 48.81 | .15 | .105 |
| Dwight. | 35.5 | 50.30 | .71 | .636 |
| Church. | 35.0 | 47.11 | .71 | .90 |

# BAY ESSENCE.*

BY R. ROTHER.

Formerly, when imported cologne water was comparatively much cheaper than now, a domestic article was scarcely known; now the foreign perfume is but little used, chiefly owing to its high price, and in its place an endless variety of unquestionably inferior imitations are largely consumed. Bay rum has a similar history; only a few years since, an "artificial" bay rum was a novelty. At present, it can be safely estimated that three-fourths of the bay rum consumed is a domestic imitation, compounded by the pharmacist. Genuine bay rum is said now to be prepared in the West Indies, by distilling rum with the leaves of the bayberry tree. If this is the true method of its preparation, it explains the fact why the genuine remains clear when mixed with water, whilst the imitation almost invariably becomes turbid or milky. All the volatile oils have boiling points higher than that of water, but at the boiling temperature of water they emit vapor of sufficient tension to enable them to rise mechanically with the steam, and thus be carried over with it. A strongly alcoholic liquid, as rum, for instance, distils at a much lower heat, and, therefore, but comparatively little volatile oil, if present in the still, will pass into the receiver along with the alcoholic vapor; if the distillation is, however, pushed after that, then the aqueous portion will naturally bring the volatile oil with it. As the genuine bay rum contains so little of the aromatic substance that water fails to precipitate it, it is evident that the distillation was stopped at an early stage. The belief is, however, entertained that no imitation can, in point of fragrance, at all compare with the imported rum. Doubtless the aroma of the rum added to that of the bay berry leaf, determines a different perfume from that obtained by simply dissolving the bay berry oil in alcohol. It is also highly probable that, owing to the adulterated character of the bay oil as found in commerce, a fair approach to the imported essence is prevented. Owing to some erroneous opinions regarding bay oil, it has been subject to various methods of sophistication, but no dealer has yet resorted to alcohol as an adulterant.

No thorough investigation of the oil of the bay berry tree has yet been made, and therefore it is not known whether bay oil is a simple hydrocarbon or terpene, as, for instance, oil of lemon; a terpene hydrate, as oil of peppermint; an aldehyde, as oil of cinnamon; a mixture of a terpene and a compound ether, as oil of wintergreen; or a mixture of a terpene and an acid, as oil of cloves. Oil of bay evidently belongs to the latter class; that is a terpene associated with an acid. It is lighter than water, and has a moder-

* From the Pharmacist, May.

ately warm, pungent taste, quite free from acrimony, which soon disappears, leaving but little impression on the tongue. Treated with aqueous potash, the greater part of it dissolves to a yellow solution, on the surface of which the insoluble portion collects. The yellow solution filters clear, from which the addition of an acid precipitates an oil heavier than water. This heavy oil, as well as its alkaline solution, has a hot, acrid, enduring taste, resembling oil of cloves, to which its odor also approaches. From this it appears that eugenic acid, common to the oils of pimento and cloves, is also the chief ingredient of oil of bay, and that the difference in the odor and taste of the oils of cloves, pimento, and bay berry, is determined by the characteristic terpenes.

Early last summer, the writer obtained several parcels of oil bay, which was remarkable for its insolubility in alcohol; and as bay oil is said to be but sparingly soluble in alcohol, the writer for a time believed that he had now found a pure article. On examination, this oil was, however, ascertained to contain about fifty per cent. of some fixed oil insoluble in alcohol. As a general thing, volatile oils are now adulterated with castor oil, which, being soluble in alcohol, is not so easily detected. But in this case the dealer evidently found it necessary to conform to the prevailing belief that bay oil possesses but little solubility in alcohol.

The writer has, however, noticed that oil of bay, when pure, mixes with alcohol in all proportions, producing although, an opalescent solution in whatever proportion the alcohol is used, excepting in great excess, when an apparently clear liquor is obtained. It appears, therefore, that a third body, yet in small amount, is also present. If the pure oil is dissolved in a large volume of alcohol, and water in not too large proportion is added, an opalescent liquid is obtained which can not be cleared by filtration through paper. Magnesium carbonate added to such a mixture clears it, but at the same time removes the most essential part of the bay oil, in the shape of an insoluble magnesium salt; therefore magnesium carbonate should not be used in this case. Yet, if oil of bay, alcohol and water in the same proportions be used, but compounded by mixing the alcohol and water first and then adding the oil, a clear solution is obtained, in which a minute quantity of fatty matter, aggregated in small lumps, floats on the surface. This solution now filters with great rapidity, and remains permanently bright.

At the time the writer was experimenting with the sophisticated oil, he also applied the ordinary glacial acetic acid of the shops as a means of detecting fixed oils when mixed with volatile oils. It was then found that pure bay oil and glacial acetic acid mixed, but did not form a clear solution. The mixture, upon standing, reparted upon its surface the peculiar body precipitated by the alcohol. The writer believed he had found a convenient method of testing volatile oils for fixed oil, but it was also noticed that the

presence of alcohol in mixtures containing castor oil formed perfect solutions, even a small proportion of alcohol sufficing to unite the castor oil and acid. Subsequently, Mr. Barnes announced "that fixed and volatile oils unite with glacial acetic acid in all proportions," which statement he afterwards modified considerably. It was, however, proved that certain proportions of fixed oils and acid would unite, but the acid used by these experimenters was very much stronger than the glacial acetic found in our market.

In the preparation of bay essence, many pharmacists also add other spices, as pimento and cloves, together with various coloring matters, with a view of imparting a yellowish tint, as for instance, caramel, sanguinaria and curcuma; others even add aqueous potash. Imported bay rum has very little, if any, color when new, but soon gets colored from the staves of the barrels. Very little imported bay rum that is not coloured can, however, be found, as the precaution is not taken to draw it off in glass when received.

The writer believes that since bay rum is officinal, but as a genuine and undiluted article is difficult fo obtain except directly from the Custom house, that it might be advisable to incorporate bay essence with the preparations, and have an officinal formula for it. The writer finds the following formula to yield a satisfactory product which, whatever influence the presence of rum may have, is certainly much stronger in aroma than the imported perfume:

Take of Oil of bayberry tree.....one fluid ounce.
Jamaica rum.....one pint.
Strong alcohol .....four pints.
Water .....three pints.

Mix the rum, alcohol and water, then add the oil; mix and filter.

Of course Jamaica rum is not officinal, but it is doubtful whether its presence adds anything besides color, as a solution of the oil in diluted alcohol is probably the best form.

It is possible that New England rum in place of diluted alcohol might be appropriately used with oil, or perhaps with the berries or leaves by maceration; but the writer thinks that diluted alcohol would better conform with the title of bay essence.

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## PRODUCTS OF THE ORANGE FAMILY.*

The orange, in the widest sense of the term, *Citrus aurantium*, Lin., is a native of Southern Asia. It is a tree of great longevity, having been known to attain an age of 600 years and more. Any specific differences to distinguish *C. aurantium* from *C. medica*, if

* Journal of Applied Science.

they ever existed, are obliterated now through hybridisation, at least in the cultivated forms. As prominent varieties of *C. aurantium.* may be distinguished: the bitter orange (*C. Bigaradia*, Duhamel). This furnishes from its flowers the Neroli oil, so delicious and costly as a scent. The French are endeavouring to promote the manufacture of the essential oils of lemon and orange in their intertropical colonies. A machine or apparatus has been sent to Guiana, one to Tahiti, and another to Martinique. The French settlements in the Pacific send millions of oranges to California, although five or six millions are produced there. The annual requirements of the San Francisco market are over 12,000,000, of which 5,000,000 are imported from Tahiti and Mexico. A part of the crop is made into an excellent spirit, and the rest are wasted. In Martinique many houses make large quantities of orange wine, which finds a ready sale in Turkey and Russia. The oranges employed for these diverse uses might be first made to yield their essential oil from the rind. Oil of oranges sells at about 7*s.* the pound in Paris, and oil of criton 10*s.* the pound. These high prices are likely to stimulate an industry which has hitherto been monopolised by Sicily. It is stated that orange flowers to the value of £50 might be gathered from the plants on an acre within a year. The rind of the fruit is used for candied lemon peel. It contains a bitter principle, hesperidin, and limonin in the seed. The sweet orange (*C. dulcis*, Volkamer), of which many kinds occur. The St. Michael orange has been known to bear in the Azores, in sheltered places, 20,000 fruits on one tree in a year. Neroli oil is also obtained from the flowers of this and allied varieties. An infusion of the leaves of the orange, in the form of tea, is considered efficacious in fevers, and when amalgamated with the flowers, it acts as a stimulant, and is given as a tincture when its effects are required to be energetic. The seeds contain a fixed oil, of an amber colour, which is highly valued for reducing swellings, and as an excellent oil for the hair. It may also be used for the table. From the flowers an odoriferous perfume is extracted, and they constitute an excellent stomachic. The Mandarin orange (*C. nobilis* Loureiro). The thin peel separates most readily from the deliciously flavoured sweet pulp. There are large and small fruited Mandarin oranges; the Tangerine variety is one of them. The Shaddock, or Pumpelmos (*C. decumana*, Linn.) This fruit will exceptionally attain a weight of twenty pounds. The pulp and thick rind can both be used for preserves. *Citrus Bergamium*, Risso. From the fruit rind of this variety Bergamotte oil is obtained, and also oil from the flowers. The Mellarosa variety furnishes superior oil, and exquisite confitures. All the varieties of the orange tribe may be raised from seed. Those thus raised will produce fine fruit, but if not suffered to grow to trees, may be used as stocks for budding. The bitter orange and the citron are, however, considered the best stocks for the sweet orange. Once fairly in growth, it requires only to be attended to, and plentifully

watered in dry weather, with a supply of manure from the cowhouse. The orange may also be propagated by layers.

The citron, in the widest sense of the word (*C. medica*, Linn.), is indigenous to Southern Asia, but is widely diffused. As prominent varieties may be distinguished: the real citron (*C. Cedra*, Gallesio). From the acid tubercular fruit essential oil and citric acid can be obtained, irrespective of the ordinary culinary use of the fruit. A large variety, with thick rind, furnishes the candied citron peel or succade. The cedrat oil comes from a particular variety.

The real lemon (*C. Limonium*, Risso). From the fruit of this is largely pressed the lemon juice, while the thin, smooth, aromatic peel serves for the production of volatile oil, or for condiments. The sweet lemon (*C. Lumia*, Risso), including the Pear Lemon, with large pear-shaped fruit. The rind is thick and pale, the pulp not acid. This variety serves for particular condiments. The juice of this fruit is especially rich in citric acid. A large variety is the Roseline Lemon. Five hundred or six hundred tons of candied peel are said to be used in this country. Among the many cooling drinks for which American hotel-keepers have a *spécialité*, lemonade is not wholly forgotten. Their demands, indeed, give activity to a flourishing industry in the South of Europe. The lemon-growers of Mentone depend greatly on American custom, which they almost entirely monopolise, as the lemons produced in the districts surrounding this part, being of a very superior quality, have the merit of bearing a long voyage uninjured, provided they are carefully packed previous to their embarkation. The lemons cannot bear the shock of removal in a cart, and are carried in baskets to the packing shed, where they are severally wrapped in silver paper, and laid in rows in the packing cases, care being taken to pack them loosely enough to avoid bruising the fruit, and yet tightly enough to prevent their becoming displaced during the voyage. Each of the American steamers engaged in this trade carries 5,000 cases; each case contains 500 lemons, and therefore, each of these vessels conveys 2,500,000 of this useful fruit to the United States. The real Lime (*C. Limetta*, Risso). The best lime juice is obtained from this variety. In several of our colonies attention is now given to the production of this article. From the island of Dominica, in 1874, 12,462 gallons, valued at £1,600, were exported.

The requirements in the culture of the lime are very simple, and consist mainly of keeping the trees free from weeds, allowing them to spread freely, and irrigating during the dry months. No pruning is required, but merely the removal of exhausted and dry branches. Although the lime tree delights in a good soil, and is strengthened by a degree of moisture somewhat above the average, being a hardy plant it will thrive and be fruitful in soils and situations that may prove too poor and dry, or exposed for coffee and cacao. Protracted drought is particularly fatal to the lime tree. The process of ex-

tracting and preparing the lime juice is most simple, consisting of submitting the fruits to the pressure of a mill of no great power, and boiling down the resulting juice—which may be kept a great length of time without deteriorating—to the required density, and putting it into casks for exportation. The density which has been found most satisfactory in Dominica, is reached by boiling down to one-eighth the original volume. In Jamaica, lime juice has been, of late years, concentrated and shipped to America, to be used in fixing certain dyes. The exports, in 1874, amounted to 107,558 gallons, of the value of £5,378; 475 barrels of limes, worth £190, and nearly 5,000,000 oranges were shipped from Jamaica in 1874. From Montserrat 400 to 500 puncheons of lime juice have been shipped in the year. The quantity of oranges and lemons we receive in the United Kingdom has doubled within the last ten years. Our imports, in 1875, reached nearly 3,000,000 bushels, of the value in round numbers, of £1,400,000.

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## COMPARATIVE ANALYSIS OF CERTAIN FLUID EXTRACTS.*

BY HENRY C. SCHRANCK.

Mr. Schranck presented at the last examination of the New York College of Pharmacy a thesis having the above title. It being of more than usual value for such papers, and containing the results of his examinations which are of general interest to pharmaceutists and are creditable to his attainments and industry, we propose to make of it a short summary for *The Druggists' Circular*. It has come to our hands too late for giving it *in extenso* in the April number.

The reagent used by the writer was a solution of Iodohydrargyrate of potassium substantially at first recommended by F. L. Winkler, and later by Mr. F. F. Mayer and Prof. Dragendorff. In all his experiments full packages were used, and all the fluid extracts examined were treated in a precisely similar manner. All the precipitations were repeated at least three times, to confirm the first result. The test liquid was made as follows:

Bichloride of mercury..... .....13.546 grammes.
Iodide of potassium . . . ... . .....49.8 "
Distilled water... .....1 litre.

The result is really a deci-normal solution, but for convenience's sake the writer calls it his normal solution, and the dilution to one-tenth he calls his deci-normal solution.

*Druggists Circular.

All assays were made at the ordinary temperature of 60° F., if not otherwise stated, and all solutions of alkaloids acidulated with sulphuric acid. Alcohol, ammonia with acetic acid were avoided or evaporated when used, because they dissolve the precipitate. The same property is possessed by concentrated hydro-chloric and nitric acids, the latter liberating iodine at the same time. Concentrated sulphuric acid appears to have no effect, and the same acid, diluted, on the contrary, promotes the precipitation. Tannin, gum, albumen, sugar, have no influence on the reaction.

The method followed by Mr. Schranck is substantially that of Mr. Mayer; it consists in first experimenting with the pure alkaloids; when the exact number of cubic centimetres of the deci-normal solution necessary to precipitate a known weight of a certain alkaloid has been ascertained with precision, the fluid extracts known to contain the same alkaloid are evaporated to drive off the alcohol, and the solution is added to the watery residue previously cooled and acidulated with sulphuric acid. From the quantity of solution needed to completely precipitate the alkaloid, it is easy to calculate the weight of that active principle.

The fluid extract of nux vomica, the first treated, presents several difficulties. The first is that the preparation contains two alkaloids of different saturating power, and the second, that brucia somewhat resists the action of the reagent. The separation of the two alkaloids, a very tedious labour, was effected by repeated washings with water, which dissolves out the brucia and leaves behind the strychnia. An interesting remark also made by the writer is that when the solution of strychnia is heated, much less of the normal solution is needed to precipitate the whole of it, but that on cooling the full amount usually necessary has to be added.

In regard to the quantitative estimation of atropia, the results obtained by the iodohydrargyrate process were proved by another method, that of agitating the fluid extract with caustic potassa and chloroform, and the quantity thus found agreed substantially with that indicated by the first process.

The conclusions of the paper are the following:

"Having given in the preceding pages the results of each separate investigation, I append herewith a tabular statement of the entire result. It cannot be doubted that the inferiority of some of the fluid extracts is partly due to the lack of integrity of the manufacturer, nor is it less true that some drugs, however carefully selected for their apparent quality as judged from physical appearances, vary in the amount of alkaloid which they contain. A notable example of this variation in alkaloidal strength is that of opium, of which perhaps no two lumps in a case will assay exactly alike. So it may be fair to infer that there are variations in the alkaloidal values of different lots of hyoscyamus, stramonium, belladonna, etc., although they may have the proper physical appearance as to colour, odour, and taste, as well as other properties."

"The experiments performed in connection with this thesis proves conclusively to the mind of the writer that the reagent used is a reliable test, not only for the presence of alkaloids, but also for their quantitative proportions as present in any pharmaceutical preparation of the drug."

The following are the different proportions of alkaloids found by Mr. Schranck in the fluid extracts examined.

*Nux vomica.* The fluid extracts of five different manufacturers gave respectively, 0.56 per cent. of strychnia, and 0.91 per cent. of brucia; 0.74 and 1.00; 0.66 and 0.97; 0.38 find 0.52 : 0.58 and 0.82.

*Stramonium leaf.* Four fluid extracts were found to contain 0.05, 0.04, 0.06 and 0.11 per cent. alkaloid.

*Belladonna leaf.* Six different fluid extracts yielded 0.24, 0.22, 0.21, 0.20, 0.28, and 0.22 per cent. of atropia.

*Belladonna root.* One sample contained 0.37 per cent. of alkaloid.

*Conium seed.* Three fluid extracts gave respectively 0.64, 0.80, and 0.50 per cent. of conia.

*Hyoscyamus.* Six samples contained 0.05, 0.05, 0.04, 0.03, 0.02 and 0.03 of hyoscyamia.

*Veratrum viride.* Seven fluid extracts were found to represent 0 53, 0.80, 0.53, 0.32 0.34, 0.49 and 0.53 per cent. of alkaloid.

*Stramonium seed.* Three samples gave 0.19, 0.12 and 0.15 per cent. of atropia.

*Conium leaf.* Two different fluid extracts contained respectively 0.33 and 0.22 per cent. of conia.

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## ON CASSIA OCCIDENTALIS OR NEGRO COFFEE.*

Prof. J. Clonet has had occasion to examine some seeds, exported from French African colonies, and sent to Havre under the name which they bear in their native place, and which we will call for the present "Negro Coffee." These seeds, which have been used in some countries as a substitute for coffee, are derived from *Cassia occidentalis* L., a native of India and Cochin China; also found in the West Indies and very abundantly on the coast of Africa. [It is sometimes called Jamaica Piss-a-bed, or Stinking weed.] Their chemical examination yielded the following results: fatty matters (olein and margarin) 4.9, tannic acid 0.9, sugar 2.1, gum 28.8, starch 2.0, cellulose 34.0, water 7.0, calcium sulphate and phosphate, chrysophanic acid 0.9, malic acid, sodium chloride, magnesium sulphate, iron, silica, together 5.4, and *achrosine* 13.58 parts in 100. The latter substance was obtained by exhausting the powdered seeds,

*New Remedies.

previously treated with ether, by means of alcohol of 60 per cent; the alcohol is distilled off, the syrupy residue treated with absolute alcohol, which dissolves out various constituents, leaving a solid brown red mass, having when dry, resinous fracture and being soluble in water, to which it communicates a garnet colour. It contains C, H, O, N and S, but its exact composition has not been determined; [it is most likely a mixture of various bodies]. It is soluble also in weak alcohol, and in acids and alkalies. The colour cannot be fixed upon tissues by any known mordant. This circumstance induced the author to term it *achrosine*, or "not colouring," although being coloured itself.

The whole plant is purgative, like others of the genus *Cassia*, which effect is ascribed mainly to the mucilaginous and extractive matters in conjunction with the chrysophanic acid; 6 grammes (92.6 grs.) of the leaves are an average dose for an adult; a larger dose is liable to produce emesis. The seeds are more active, and more rapidly emetic; some also ascribe to them a slight emmenagogue action.

One of the most useful properties of the plant is its febrifuge effect. The seeds have repeatedly been employed in France and in some West-Indian colonies for this purpose, chiefly in the form of vinous tincture, containing 60 gm. per litre of Malaga wine (about ʒij to Oij. An infusion of the root is considered by the Indians an effective antidote against various poisons.

It is not at all improbable that the use of the roasted seeds as a substitute for coffee will become extended. Torrefaction appears to destroy the purgative principle entirely, and an infusion of these roasted seeds is said to approach in flavour and taste so closely to genuine coffee as to be scarcely distinguishable therefrom. The supply is so abundant, that the price will be much lower than that of coffee.—*Répert. de Pharm.*, 1876, *Nos.* 6 *and* 3.

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## HINTS AND WARNINGS.

We desire to draw the attention of manufacturing chemists and of wholesale druggists to the absurd custom of sealing certain bottles of chemicals with *common red sealing-wax*, a habit which has at all times done more harm than good, and causes great annoyance to the consumer. It is only rarely possible to prevent the admixture of little particles of the brittle red wax with the contents of the bottle, while common beeswax would in all cases answer the same purpose without breaking up into a mass of chips and fine dust.—Another bad feature we have often noticed, is the use of wax where it *should not be used* at all, viz., in the case of packages of ether, chloroform and volatile oils, these liquids being able to dissolve

portions of it while flowing over the neck.—Finally we would remind our friends that caution should be used in the storage and handling of potassium chlorate, which in itself is harmless enough, but when intended for the preparation of oxygen-gas, must be *absolutely free from organic combustible matters.* It should be remembered that a few sticks or pieces of packing-hay, or pieces of wrapping-paper accidentally mixed with it may cost a life or at least do serious damage. It is strongly recommended to keep this article separate from others in such a way that no foreign substance may by any possibility be mingled with it.

We would take occasion to warn our confrères of the insecurity of the common packages of phosphorus. Several instances have come to our notice lately where serious accidents have been escaped only by a miracle, the tin cans containing the phosphorus having become rusty and leaky, the water having escaped, and the phosphorus taking fire, or at least beginning to diffuse fumes. Keep your phosphorus-tins in water, or at least in a fire-proof place, buried in sand.—*New Remedies.*

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## THE EMPLOYMENT OF SNOW AND HYDROCHLORIC ACID AS A FREEZING MIXTURE.*

From some experiments made by MM. Pierre and Puchot, and recently reported to the French Academy, they have drawn the following conclusions respecting the use of a mixture of snow and hydro-chloric acid as a refrigerant:

(1) By mixing two parts of snow with one part of commercial hydrochloric acid the temperature can be lowered to −32° C.

(2) By cooling the acid previously to mixing to −15° or −16° C. the temperature can be lowered to −35 C.

(3) Acid supersaturated at −16° or −18° C. does not appear to present any advantage over ordinary hydrochloric acid.

(4) Although it is difficult to retain the temperature of a refrigeratory bath of snow and hydrochloric acid for any considerable time so low as −34 or −35 C., it is not difficult to obtain a persistent temperature of 25° or 26° C. by successive additions of snow and slightly cooled acid.

When the temperature shows too pronounced a tendency to rise the subjacent liquor should be siphoned off and fresh snow and acid added. The siphoned liquor can be used to cool the acid before using it.

* *Comptes Rendus*, vol. lxxxii, p. 45, in the Pharm. Jour. & Trans.

## CANADIAN PHOSPHATES.

In a paper by Mr. W. C. Reid, read before the Newcastle-on-Tyne Chemical Society, we find the following particulars regarding Canadian mineral phosphates as compared with those obtained from Norway:

"Under the name of apatite, we import from Norway and Canada small quantities of phosphatic minerals, obtained from veins in the primitive rocks. They are hard and crystalline, of vitreous lustre, and of various shades of color, white, yellowish white, and greenish white. According to Voelcker, the Norway apatite contains no fluoride of calcium, but the Canadian a great deal. Neither contain any carbonate of lime, and only a little iron and alumina. Some parcels have tested above 90 per cent. of phosphate of lime, but on an average they do not exceed 75 per cent. The following analyses represent the best qualities:

| | Norway. | Canada. |
|---|---|---|
| Tri-phosphate of Lime | 90·74 | 91·2 |
| Iron and Alumina | 2 0 | ..... |
| Fluoride of Calcium | ..... | 7·6 |
| Sand, etc | 1·64 | ·9 |
| Chloride of Calcium | 1·61 | ·78 |

The apatites are the only mineral phosphates that contain an appreciable quantity of chloride of calcium. In one kind, from Snarum, in Norway, the fluoride of calcium is, to a great extent, replaced by chloride of calcium, thus:

| | | |
|---|---|---|
| Tri-phosphate of Lime | 91·13 | per cent. |
| Chloride of Calcium | 4·28 | " |
| Fluoride of Calcium | 1·59 | " |

From apatites alone it is difficult to make dry and powdery superphosphates; but, by mixture with weaker phosphatic materials that contain more carbonate of lime, they work very well indeed."

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THE POISON OF INSECT POWDER.—Insect powder is largely made from a species of *Pyrethrum*. M. Jousset states that if the powder has been previously treated with alcohol it loses its insecticide power and the alcohol becomes poisonous. The poison is not due to the essential oil of the plant, as this does not exert any baneful influence on insects; but the poisonous property is contained in a concentrated state in the crystallized substance, which he believes to be of the nature of an alkaloid.—*Phila. Med. and Surg. Rep.*

# Editorial.

## THE CANADIAN CHEMICAL SECTION AT THE CENTENNIAL.

If we view the Centennial Exhibition as a commercial undertaking, regarding it in the light of a vast sample room, and also take into account the almost prohibitory tariff which our neighbors impose upon imported goods, we can only wonder that there is any Canadian exhibit at all—more especially in the chemical department. However, in this we have been agreeably disappointed, for, taking Canadian goods as a whole, the display is one of which we have no reason to feel ashamed.

A serious disadvantage under which Canadians labor is that the commissioners and their assistants appointed by the Government to oversee the work, are, with few exceptions, wholly incapable of the task. Whether these gentlemen hold their respective positions as a reward for party or political services, or whether their selection is the result of carelessness or defective judgment it becomes us not to inquire, but certain it is that the choice has been an exceedingly unfortunate one. Lacking in capacity to comprehend or originate any system or plan, and alike deficient in ability to execute, they spend their time in imbecile wanderings too and fro, varying the monotony by frequent altercations in which decency of language forms no very prominent characteristic. These bickerings usually originate in jealousy, personal and sectional, and have resulted in the complete defeat of the representative from Ontario, who, though of good enough intentions, lacks the capacity and stamina to carry them out. In the midst of this pandemonium the choleric French Canadian, Perrault, reigns supreme. This official must certainly be excepted from the category of the inactive ones. Of simious restlessness, blustering, blundering and disobliging to the last degree, he has made himself obnoxious to everyone with whom he has come in contact. Morbidly irritable, and in his wrath terrible as a volcano of mud, he has showered on those who would maintain their rights, the vilest invective, and even hapless and innocent inquirers have often come in for a share. We are told that

the harp of David soothed Saul ; equally magical is the effect of the broom on Monsieur Perrault. In some of his wildest moments we have seen him snatch a broom from a workman and frantically endeavour to sweep the floor. Boxes, barrels, and straw fly before him and impenetrable clouds of dust surround him, while gathering round are anxious groups of *habitant* workmen waiting till their chief shall again be restored to them. These fits of sweeping are usually followed by lucid intervals falling like streaks of sunshine through a murky sky, and irradiating with stray beams the grateful band of Canadian exhibitors, who, with a thousand questions and requests, lose not the opportunity to take the commissioner's secretary while he is in the humor.

Another serious drawback to the success of the Canadian exhibit is the sombre and gloomy appearance of the show cases. They are of unsightly dimensions, being ten feet high, ten feet from end to end, and three from side to side. They are made to answer for all classes of goods. They are devoid of fittings except such as have been improvised from strips of bad lumber and by the aid of bungling *habitants.* They are entirely wanting, externally, in any evidence of taste, except such as we might find displayed in an undertaker's shop ; indeed, they appear to have been modelled for the display of coffins and for this purpose would be most appropriately employed. However, despite these disadvantages, the Canadians have done well ; in some departments, as that of furs, particularly so. We shall briefly enumerate the exhibits of interest to the class represented by our readers.

Entering from one of the side aisles we first notice the case of Messrs. Lymans, Clare & Co., of Montreal, who exhibit some of the products of their drug mills on the Lachine canal. A most prominent feature is the display of powdered drugs, of which there is a complete collection, neatly put up in thirty-two ounce stoppered bottles. Samples of spices contained in ten pound canisters, tastefully japanned, extend around the lower shelves. Oil cake, putty, and plaster of Paris, take up the bottom of the case. The quality of the plaster is appropriately shown by some casts of two vases, and a life-size bust of one of the members of the firm. White lead in oil, of various grades, in kegs and tins, and also colored paints, with samples of raw, bleached, and boiled oil complete the exhibit.

Next in order are the collections of Mr. W. Saunders, of Lon-

don, Ont., and Mr. Hugh Miller, of Toronto, who together take up half of the next case. Mr. Saunders shows his full list of fluid extracts put up in the bottles in which they are usually sold, which present a very neat appearance. Some of the popular and most used elixirs are exhibited, and also an assortment of suppositories, which appear to be very nicely made, and are conveniently placed in small boxes, containing a dozen in each. Mr. Miller shows his Yorkshire Cattle Feeder in various sized packages ; also samples of his well-known Tick Destroyer and Prepared Glycerine.

Messrs. Lyman Brothers & Co., of Toronto, display some of the productions of their Chemical Works, including the various ethers and medicated spirits, chloroform, dilute phosphoric acid, and other liquid preparations ; also salts of ammonia, iron, lead, mercury, etc , and paris green. These are put up in handsome half gallon stoppered bottles, and make a good display. One of the most noticeable features is a large glass vessel containing fifty pounds of nitrate of silver, in very large crystals, and with it a sample of about 100 ounces of refined granulated silver, used in the manufacture ; a similar vessel, containing the so-called citrate of magnesia, occupies a place on the other side of the case. Fluid extracts are shown in the usual bottles, and also some of the proprietory preparations of the firm, as Quinine wine, Fluid Magnesia, Mangano-carbolic Disinfectant, and Alkali—the latter in a large pile containing some 500 pounds.

The next case is occupied by several exhibitors: Mr. S. J. Lyman of Montreal shows his Phosphorus Soap, for destroying insects on vegetation ; Culexifuge, a protection from mosquitoes ; and Arctusine, a toilet preparation, of which the basis is bear's grease. Messrs. Evans Mercer & Co., of Montreal, exhibit their deservedly popular Ursini ; and Mr. Cooper, of Toronto, shows samples of his Washing Crystal.

Messrs. A. Ramsay & Son, of Montreal, have a very large and complete collection of samples of white lead in oil, and colored paints, and Messrs. Alfred Savage & Son send samples of oils, which were not, however, arranged at the time of our visit.

The fancy soaps belonging to Mr. Hood of Montreal are very good, perhaps the best in the building ; Mr. Morse, of Toronto, also makes a creditable show of the coarser but not less useful household soaps. We might pass by the biscuits of Messrs. Christie, Brown

& Co., of Toronto, as being too far out of our line, but the magnitude and completeness of the collection attracts our attention and we are rewarded by finding that these gentlemen have entered somewhat on the domain of pharmacy, and in the form of jalap, carbonate of iron, and carbon biscuits, have prepared a very palatable means for the administration of these remedies.

Few, if any of the displays of petroleum, or petroleum products, in the Exhibition, will surpass that of the Messrs. Waterman of London, Ontario. Not content with the mere splitting up of crude oil into burning and lubricating oils and residue, they have pushed the industry to its utmost limits, and present specimens of the numerous products attainable. Especially worthy of remark is a large obelisk of paraffin, some six or seven feet high, and a female figure moulded of the same material. Plain and colored paraffin candles, and burning and lubricating oils, with benzine of various densities—the fluids being enclosed in bottles of very handsome patterns—make the case exceedingly attractive.

Another very attractive exhibit is that of the Plumbago Company of Ottawa, represented by Mr. H. W. Walker. It is well known that plumbago of the best quality is to be found in Canada, but until lately it has not been utilized to any considerable extent. The present company, whose operations are carried on at Buckingham, near Ottawa, appear to have entered upon the work with laudable energy, and we have no doubt will meet with a well deserved reward. Plumbago is used for many purposes besides the making of pencils and crucibles, and the polishing of stoves. Thus in the samples exhibited we notice it prepared for the use of organ builders, piano makers, electrotypers, painters, glass makers, shot makers, hatters, and also for lubricating purposes. The pencils shown appear to be of excellent quality, and some crucibles, tested at Birmingham, by twenty-two heats with steel, bear evidence of the excellence of the material and manufacture. An immense block of plumbago weighing 4870 pounds, representing the average deposit, and also many fine specimens averaging as high as 97 per cent, are also exhibited.

We can merely glance at the magnificent collection of the economic minerals of Canada, arranged by Mr. Selwyn of the Geological Survey. The exhibit occupies a space of 24 feet wide by 134 feet long, and is certainly unsurpassed by any other collection in the

building. A striking feature is the immense blocks of coal from our Nova Scotia mines, and also a large gilt obelisk representing the product of the British Columbian gold mines, from 1858 to 1875 inclusive. If made of gold this mass would weigh about 65 tons and would be worth $37,839,851 48. The iron ores will be sure to attract attention, and also the specimens of cast and wrought metal made by the Ottawa Iron Company and the Steel Company of Nova Scotia. Our vast deposits of mineral manures, as phosphate, carbonate and sulphate of lime, are brought into notice, and the salt industry of Canada is well represented. Until seeing this collection we had no idea that our native marbles were so beautiful or so numerous, or that the New Brunswick granite surpassed that of Scotland, but the polished slabs and columns so attractively displayed by Mr. Selwyn leave no possible doubt on the subject. Our space will not allow us to go into any further details of this most interesting and instructive section but we would merely say that in the Canadian Mineralogical department, and also the Educational department of Ontario—we are convinced that we can safely challenge the world.

We had intended to have taken notes of matters of chemical or pharmaceutical interest throughout the entire exhibition, but the confused and disordered condition of things, generally, and the very unsystematic arrangement of goods—some of the same class being in differerent buildings, perhaps a mile away—prevented our making advantageous use of the limited amount of time at our disposal. With the assistance of some of our more fortunate contemporaries we shall, however, endeavour to supply the deficiency.

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## SALE OF LIQUORS BY DRUGGISTS.

There appears to be some activity amongst the newly-appointed Inspectors of Licenses, and there are rumors that their operations may be extended beyond the usual limit. We have received several communications asking for information regarding the new License Act, as to whether any of its clauses apply to druggists. We have looked over it but cannot find anything directly referring to the subject. In the License Act passed last session but one, there is a section exempting from the operation of the Act all persons registered under the Pharmacy Act of 1871. Many portions of previous

statutes are repealed, but we believe some unrepealed parts still apply to the sale of liquors for medicinal purposes. We would not dare to penetrate this legal labyrinth, but, by our next issue, shall have obtained a reliable opinion by competent authority. In the meantime we may say that we have been told by those who have made the necessary inquiries, that druggists may sell to any person spirits and wines in quantity not exceeding twelve fluid ounces. This is the prevailing impression, but for its correctness we will not vouch.

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## INCOMPATIBILITY OF SPIRIT OF NITROUS ETHER AND FLUID EXTRACT OF UVA URSI.

Several communications having reference to this subject have appeared lately in the columns of our contemporaries. It has been asserted that when these liquids are mixed an explosive compound is formed, but, from the harmless nature of the constituents, this result appeared so unlikely that some doubt was thrown on the statement. There can, however, be now no question but that gas is sometimes evolved, possibly with sufficient force to burst a tightly corked bottle.

Mr. Creuse, of Brooklyn, recently alluded to this subject in a paper read at a meeting of the New York College of Pharmacy. After detailing certain experiments in which he found that ordinary spirit of nitre, having a slight acid reaction, would cause a brisk evolution of gas if mixed with solution of tannin, he says that the gas appears to be carbonic acid resulting from the oxidation of the tannic acid, and that the tannin is thereby much altered, if not entirely destroyed. He also found that with spirit of nitre, in which the acid had been neutralized with calcium carbonate, the reaction was strongly marked, and in no way different from that from acid specimens. Mr. Landis, and several others (*Druggist's Circular*, May), tried the experiment with fluid extract of uva ursi and spirit of nitre, of reliable manufacture and perfectly free from acid; effervescence did not take place, nor was it observed during the course of thirty-six hours. The addition of a few drops of nitrous acid occasioned an evolution of brown vapors. One experimentor attributes the reaction to the presence of some of the nitrogen acids,

which act upon alkaline salts contained in the fluid extract of uva ursi. In the *American Journal of Pharmacy* for May, Mr. R. S. Bidwell contributes a short paper in which results similar to those last described are given. He comes to the conclusion that if the spirit of nitre is in good condition no disturbance will take place, but if it is old and strongly acid, effervescence will be produced While the subject is so imperfectly understood, and there is some confliction of opinion, it would be well for dispensers to bear the reaction in mind, and carefully watch the effect of mixing these liquids before finally securing the containing vessel.

# Editorial Summary.

QUANTITY OF CITRIC ACID IN LEMON AND LIME JUICE.—In a very exhaustive paper on the manufacture of citric and tartaric acids, read by Mr. R. Warrington, before the Society of Arts, Great Britain, and published in the *Pharm. Jour. and Trans.*, we find some details regarding the strength of lemon and lime juice of commerce. Of lemon juice there are two well marked kinds; that pressed in England, containing about 12 onnces of free acids per Imperial gallon, and about one-fortieth combined acids; and that pressed in Sicily, which contains about 9 ounces if collected in November, and 6 ounces if left until April; the combined acids are equal to as much as 7 or 9 per cent. of the total acids. Concentrated lemon juice contains about 63 oz. of crystallized acid per gallon. Concentrated bergamot juice has a higher gravity than lemon juice, but only contains 51 ounces of crystallized acid per gallon. Of lime juice the Montserrat variety has an average acidity of 12 oz., and about 5 per cent. of the total quantity of combined acids. The concentrated juice is very thick, and of a gravity of 1.32, sometimes yielding 112 ounces of acid per gallon, and holding nearly 9 ounces of acids combined as salts.

QUANTITY OF CITRIC ACID MADE IN GREAT BRITAIN.—According to the above authority, the quantity of acid made in 1875 was 300 tons—a considerable increase on that manufactured twenty years ago, the amount of which was stated by Muspratt to be 60 or 80 tons per annum. The factories are, with one exception, con-

ferred to London, where four are in operation. Acid is made in foreign countries, but none is imported into Great Britain.

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FRUIT SYRUPS FOR SODA WATER.—Mr. A. T. W. Neynaber, (*Druggist's Circular*,) proposes the following method for the preparation of fruit syrups. Particular stress is laid on the necessity of fermentation, but in regard to this we would state our opinion that this process must modify the flavour of the fruit. The result may not, however, be unsatisfactory, and in any case the method is worthy of a trial. The selected fruit is mashed in a tub, and the pulp left for twenty-four hours at a temperature of 70° to 80°. F. After separating by pressing, the juice is allowed to stand one night, when, for every pound, one ounce of deodorized spirit is added. After standing another night the juice is filtered, and, for every pound, one and a-half pounds of white sugar are added, and heat applied. The syrup is brought to the boiling point and skimmed, when cold it is bottled in bottles previously rinsed with deodorized spirit.

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COLORED REACTION IN A MIXTURE.—A Nashville pharmacist noticed a somewhat singular color in a mixture containing the syrups of wild cherry, tolu, and squills, with tincture of lobelia, spirits of nitrous ether, and sulphate of morphia. On mixing the ingredients a dark red color was produced, which, in a few hours, changed to dark green. Mr. J. P. Remington has confirmed this result, and, in the May number of the *American Journal of Pharmacy*, gives his conclusions as to the nature of the reaction. He attributes the change to traces of iron, often present in commercial syrup of squills and spirits of nitre; and the tannic acid contained in the syrup of wild cherry. The other ingredients did not appear to be concerned in the reaction. This simple explanation explains changes which at first appear quite puzzling.

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SUBSTITUTION OF EPSOM SALT FOR OXALIC ACID.—Many serious and fatal accidents have arisen from the accidental substitution of oxalic acid for sulphate of magnesia. It appears, however, that in certain parts of the United States the interchange would not be attended with as serious consequences as might be anticipated. A Boston pharmacist lately examined a cask of oxalic acid received from a wholesale house, and found in it twenty-two and a half per cent. of Epsom salt. This fact is recorded in the *Drug-*

*gist's Circular*, and is certainly something new in the adulteration line.

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CACHETS DE PAIN.—These "envelopes of bread," or wafer discs, to which reference was made in a late number of this journal, still continue to form a prominent subject for discussion in the *American Journal of Pharmacy*. After reading the different statements, *pro and con*, we believe that the advocates of the cachets have decidedly the best of it. As with pills, the preparation of the discs requires some experience and skill, but it is claimed that the time expended is but slightly greater than that required for making pills or powder, and the result is vastly more satisfactory.

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LABELS FOR BOTTLES CONTAINING CORROSIVE LIQUIDS.—For this purpose a correspondent of the *Druggist's Circular* recommends the use of paraffin. One ounce of paraffin is dissolved in three ounces of turpentine, by the aid of a water bath, and the varnish is applied to the previously sized labels by means of a camel's hair brush. In the course of a week the turpentine evaporates leaving an even coating of paraffin free from stains or blots.

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GLYCERINE AS AN EXCIPIENT FOR PILL MASSES.—Mr. L. Emanuel (*Am. Jour. Pharm.*) shows by the results of a number of experiments that glycerine is in most cases superior to other excipients for pill masses. The glycerine dropper described in this journal, page 337, or a glass tube drawn out at one end to an aperature of one-eighth of an inch, were found most convenient for effecting the addition of the glycerine.

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DISCOLORATION OF SYRUPS OF IODIDE OF IRON.—Mr. C. Parrish, (*Am. Jour. Pharm.*) takes up this hackneyed subject, and, as many experimentors have done before, comes to the conclusion that the decomposition of the preparation is due to the effect of the atmosphere and not to the influence of light.

# Varieties.

BORNEO CAMPHOR.—Her Majesty's Consul at Labuan, speaking of the Borneo camphor, attributes its comparative rarity to the fact that not one in a thousand of the trees of the species yielding it (*Dryobalanops aromatica*, Gart.) is found in the state which causes its secretion in the crevices of the wood. When of the first quality this variety of camphor is highly valued by the Chinese, it being specially suited to the process of embalming the dead on account of its slow loss by evaporation. Its value as an export from Borneo increased in 1874 to £2,578, against £1,043 in 1873.

INDELIBLE INK FOR RUBBER STAMPS.—An excellent marking ink that dries rapidly and is free from grease may be cheaply prepared by dissolving

| | |
|---|---|
| Crystallized aniline black | ½ ounce. |
| in pure alcohol | 15 ounces. |
| And adding concentrated glycerine | 15 " |

to the solution. This liquid is poured upon the the cushion and rubbed with a brush. *Show Card Ink* :—

| | |
|---|---|
| Pure asphaltum | 16 ounces. |
| Venice Turpentine | 8 " |
| Lampblack | 4 " |
| Spirit of Turpentine | 2 quarts. |

Dissolve and mix thoroughly.—*Drug. Circular.*

TO DISSOLVE SANTONIN.—The best method is probably to combine it with alkalies, which form with it soluble compounds possessing the same medical properties. The following is a good process :

| | |
|---|---|
| Santonic acid (santonin) powdered | 2 oz. |
| Caustic soda lye | 4 fl. oz. |
| Distilled water | 12 fl. oz. |

Heat on a sand-bath until the solution is comple, which usually requires about half an hour. On cooling, crystals are formed containing fifty-four per cent. of santonin, which may be used for preparing syrups, elixirs, or other liquid mixtures.—*Drug. Circular.*

AMERICAN QUICKSILVER.—Mr. J. B. Randol, General Manager, gives the production of the New Almaden mine for the year 1875, in flasks of 76½ lbs. ench, as follows :—

| Months. | Flasks. | Months. | Flasks. |
|---|---|---|---|
| January | 850 | July | 1,220 |
| February | 800 | August | 1,100 |
| March | 1,033 | September | 1,200 |
| April | 850 | October | 1,250 |
| May | 1,095 | November | 1,700 |
| June | 1,050 | December | 1,500 |
| | | Total | 13,648 |

The total product of the mine for 1874 was 9,084 flasks, making the increase this year 4,564 flasks, or nearly 50 per cent.—*Scientific American, Feb.* 26, 1876.

Soap-Root.—A large commerce is carried on from California in a fibrous substance known as soap-root. It is obtained from a lily-like plant, a species of Phalangium, *Chlorogalum pomeridianum*, Kunth, which is met with about the mountains, and attains a height of eight feet. The heavy bulb is covered with many coatings, consisting of fibres, which are used for cushions, mattresses, &c. Large contracts are entered into for the supply of this material on a very extensive scale. The inner part of the bulb serves as a substitute for soap, and it might be tried whether it can be utilised for technological purposes like the root of *Saponaria*.

Pyrites Employed in France for the Manufacture of Sulphhric Acid.—Professor Girard and M. Henri Morin have recently published an interesting essay on the pyrites used in France for the manufacture of sulphuric acid, nine-tenths of which, it appears, are obtained from the French mines. The principal sources of supply are St. Bel Sourcieux on the Rhone, St. Julian de Valgalgues and Soulie, and in Gard and Soyon in Ardeche. A small quantity is imported from Belgium and Spain. The quantity now used is about 180,000 tons, or double what it was ten years ago. The development of the soda industry, considerable as it is, and the abandonment of the sulphur formerly used for sulphuric acid will not explain this rapid increase, which is chiefly due to the increase in artificial manures, and especially superphosphates. This is not special to France alone; most manufacturing countries are marked by the same progress, for the imports of foreign pyrites into England have increased in the last ten years from 171,000 to over 500,000 tons. It is pointed out in this essay how essential it is in burning pyrites not only to ascertain the quantity of sulphur it yields, but also the proportion of foreign matters other than sulphur and iron. Among these arsenic is one, and often it is found in considerable quantities, so as to encumber the vessels with arsenious acid. Illustrated maps and detailed analyses, with statistics of the production, are then given by the writers for each of the French localities, from actual investigation and careful experiments.

# Registrar's Notice.

The Registrar would remind the members of the College, that the Act requires that he shall cause to be printed and published on the fifteenth day of June, an alphabetical list of the members who were on the first day of June, entitled to keep open shop as Chemists and Druggists.

A large majority of the members have not yet complied with the requirements of the Act, and it is my duty to draw their attention to the notice sent them a month ago.

To ensure the name being on the list, the annual fee of Four Dollars must be sent in not later than the tenth of June.

George Hodgetts,
Registrar.

| Drugs, Medicines, &c. | $ c. | $ c. |
|---|---|---|
| Acid, Acetic, fort | 0 13 @ | 0 14 |
| Benzoic, pure | 0 22 | 0 27 |
| Citric | 1 00 | 1 05 |
| Muriatic | 0 03½ | 0 05 |
| Nitric | 0 10 | 0 13 |
| Oxalic | 0 16 | 0 20 |
| Sulphuric | 0 03 | 0 05 |
| Tartaric, pulv | 0 49 | 0 50 |
| Ammon, carb. casks | 0 21 | 0 22 |
| " jars | 0 22 | 0 23 |
| Liquor, 880 | 0 24 | 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 50 | 0 55 |
| Alcohol, 95 per ct.....Cash | 2 19 | 0 00 |
| Arrowroot, Jamaica | 0 18 | 0 22 |
| Bermuda | 0 50 | 0 65 |
| Alum | 0 02½ | 0 03½ |
| Balsam, Canada | 0 33 | 0 38 |
| Copaiba | 1 15 | 1 20 |
| Peru | 2 90 | 3 20 |
| Tolu | 2 90 | 3 25 |
| Bark, Bayberry, pulv | 0 18 | 0 20 |
| Canella | 0 17 | 0 20 |
| Peruvian, yel. pulv | 0 35 | 0 50 |
| " red " | 1 60 | 1 70 |
| Slippery Elm, g. b | 0 18 | 0 20 |
| " flour, packets | 0 28 | 0 32 |
| Sassafras | 0 15 | 0 18 |
| Berries, Cubebs, ground | 0 20 | 0 25 |
| Juniper | 0 06 | 0 10 |
| Beans, Tonquin | 0 62 | 1 10 |
| Vanilla | 14 00 | 23 00 |
| Bismuth, Alb | 2 50 | 2 75 |
| Carb. | 2 65 | 2 90 |
| Camphor, Crude | 0 33 | 0 35 |
| Refined | 0 35 | 0 40 |
| Cantharides | 1 85 | 1 90 |
| Powdered | 2 00 | 2 10 |
| Charcoal, Animal | 0 04 | 0 06 |
| Wood, powdered | 0 10 | 0 15 |
| Chiretta | 0 23 | 0 30 |
| Chloroform | 0 90 | 1 55 |
| Cochineal, S. G | 0 58 | 0 70 |
| Black | 0 75 | 0 90 |
| Colocynth, pulv | 0 60 | 0 65 |
| Collodion | 0 70 | 0 80 |
| Elaterium | 3 20 | 4 00 |
| Ergot | 1 75 | 2 00 |
| Extract Belladonna | 1 80 | 1 90 |
| Colocynth, Co | 1 25 | 1 75 |
| Gentian | 0 50 | 0 60 |
| Hemlock, Ang | 0 00 | 0 95 |
| Henbane, " | 3 00 | 3 20 |
| Jalap | 5 00 | 5 50 |
| Mandrake | 1 75 | 2 00 |
| Nux Vomic | 0 40 | 0 50 |
| Opium | 1 40 | |
| 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 28 | 0 32 |
| 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 38 | 0 60 |
| " powdered | 0 60 | 0 75 |
| " sorts | 0 19 | 0 24 |
| " " powdered | 0 42 | 0 50 |
| " com. Gedda | 0 13 | 0 16 |
| Assafœtida | 0 25 | 0 30 |
| British or Dextrine | 0 13 | 0 15 |
| Benzoin | 0 35 | 0 75 |
| Catechu | 0 12 | 0 15 |
| " powdered | 0 25 | 0 30 |
| Euphorb, pulv | 0 40 | 0 45 |
| Gamboge | 1 00 | 1 20 |
| Guaiacum | 0 35 | 1 00 |
| Myrrh | 0 50 | 0 80 |

| Drugs, Medicines, &c.—*Contd.* | $ c. | $ c. |
|---|---|---|
| Sang Dracon | 0 60 | |
| Scammony, powdered | 5 50 | 6 00 |
| " Virg. " | 14 50 | — |
| Shellac, Orange | 0 63 | 0 65 |
| Gum, Shellac, liver | 0 52 | 0 55 |
| 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 18 | 0 23 |
| Vienna | 0 25 | 0 28 |
| Prices | 0 60 | 0 75 |
| Honey, Canada, best | 0 16 | 0 17 |
| Lower Canada | 0 14 | 0 16 |
| Iron, Carb. Precip | 0 16 | 0 20 |
| " Saccharated | 0 40 | 0 55 |
| Citrate Ammon | 1 10 | 1 20 |
| " & Quinine, oz | 0 40 | 0 85 |
| " & Strychine | 0 17 | 0 20 |
| Sulphate, pure | 0 08 | 0 10 |
| Iodine, good | 3 20 | 3 50 |
| Resublimed | 3 90 | 4 20 |
| 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 14 | 0 16 |
| Leptandrin.....oz. | 0 60 | — |
| Liq. Bismuth | 0 50 | 0 60 |
| Lye, Concentrated | 1 30 | 1 50 |
| Liquorice, Solazzi | 0 50 | 0 55 |
| Cassano | 0 23 | 0 40 |
| Other brands | 0 14 | 0 25 |
| Liquorice, Refined | 0 35 | 0 45 |
| Magnesia, Carb. 1 oz. | 0 20 | 0 25 |
| " 4 oz. | 0 19 | 0 20 |
| Calcined | 0 65 | 0 75 |
| Citrate.....gran. | 0 60 | 0 75 |
| Mercury | 1 05 | 1 15 |
| Bichlor | 1 25 | 1 40 |
| Chloride | 1 40 | 1 50 |
| C. Chalk | 0 55 | 0 60 |
| Nit. Oxyd | 1 60 | 1 75 |
| Morphia Acet | 2 75 | 2 90 |
| Mur. | 2 75 | 2 90 |
| Sulph | 2 90 | 3 10 |
| Musk, pure grain.....oz | 25 20 | ..... |
| Canton | 10 60 | 1 20 |
| Oil, Almonds, sweet | 0 45 | 0 47 |
| " bitter | 14 00 | 15 00 |
| Aniseed | 4 25 | 4 50 |
| Bergamot, super | 5 50 | 5 00 |
| Caraway | 3 20 | 3 50 |
| Cassia | 2 00 | 2 25 |
| Castor, E. I | 0 12½ | 0 14 |
| Crystal | 0 22 | 0 25 |
| Italian | 0 26 | 0 28 |
| Citronella | 1 05 | 1 15 |
| Cloves, Ang | 3 75 | 3 80 |
| Cod Liver | 1 50 | 1 60 |
| Croton | 1 40 | 1 50 |
| 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 50 | 3 75 |
| ord | 3 20 | 3 40 |
| Orange | 3 00 | 3 25 |
| Origanum | 0 65 | 0 75 |
| Peppermint Ang | 15 00 | 16 00 |
| " Amer. | 4 00 | 5 00 |
| Rose, Virgin | 8 50 | 8 75 |
| " good | 7 00 | 7 75 |
| Sassafras | 0 75 | 0 90 |
| Wintergreen | 4 40 | 4 60 |
| Wormwood, pure | 4 00 | 6 00 |
| Ointment, blue | 1 05 | 1 15 |
| Opium, Turkey | 5 50 | 5 75 |
| pulv | 8 00 | 8 50 |

| DRUGS, MEDICINES, &c.—*Cont'd* | $ c. | $ c |
|---|---|---|
| Orange Peel, opt. | 0 35 | 0 36 |
| " good | 0 15 | 0 20 |
| Pill, Blue, Mass | 1 10 | 1 20 |
| Potash, Bi-chrom | 0 16 | 0 18 |
| Bi-tart | 0 33 | 0 35 |
| Carbonate | 0 14 | 0 20 |
| Chlorate | 0 30 | 0 35 |
| Nitrate | 8 00 | 9 00 |
| Potassium, Bromide | 75 | 0 80 |
| Cyanide | 0 60 | 0 70 |
| Iodide | 2 90 | 3 00 |
| Sulphuret | 0 25 | 0 35 |
| Pepsin, Boudault's oz | 1 40 | — |
| Houghton's doz. | 8 00 | 9 00 |
| Morson's oz. | 0 85 | 1 10 |
| Phosphorus | 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 15 | — |
| Root, Colombo | 0 13 | 0 20 |
| Curcuma, grd | 0 12½ | 0 17 |
| Dandelion | 0 17 | 0 20 |
| Elecampane | 0 16 | 0 17 |
| Gentian | 0 08 | 0 10 |
| " pulv | 0 15 | 0 20 |
| Hellebore, pulv | 0 17 | 0 20 |
| Ipecac, " | 1 50 | 1 60 |
| Jalap, Vera Cruz | 90 | 1 15 |
| " Tampico | 0 70 | 1 00 |
| Liquorice, select | 0 12 | 0 13 |
| " powdered | 0 15 | 0 20 |
| Mandrake " | 0 20 | 0 25 |
| Orris, " | 0 20 | 0 25 |
| Rhubarb, Turkey | 2 10 | 2 25 |
| " E. I | 0 75 | 0 90 |
| " " pulv | 1 60 | 1 10 |
| " " 2nd | 0 60 | 0 70 |
| " French | 0 75 | — |
| Sarsap., Hond | 0 60 | 0 65 |
| " Jam | 0 95 | 1 00 |
| Squills | 0 10 | 0 15½ |
| Senega | 1 00 | 1 10 |
| Spigelia | 0 25 | 0 30 |
| Salts, Epsom | 2 00 | 2 50 |
| Rochelle | 0 30 | 0 32 |
| Soda | 0 01⅜ | 0 02½ |
| Seed, Anise | 0 13 | 0 16 |
| Canary | 0 15 | 0 16 |
| Cardamon | 2 00 | 2 10 |
| Fenugreek, g'd | 0 08 | 0 09 |
| Hemp | 0 06½ | — |
| Mustard, white | 0 14 | 0 16 |
| Saffron, American | 0 65 | 0 75 |
| Spanish | 10 00 | 11 00 |
| Santonine | 10 25 | 10 50 |
| 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 | 4 00 | 4 25 |
| " Howard's | 0 14 | 0 16 |
| Caustic. | 0 03¾ | 0 04 |
| 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 65 | 2 80 |
| " liquid | 2 00 | — |
| Argols, ground | 0 15 | 0 25 |
| Blue Vitrol, pure | 0 09 | 0 10 |
| Camwood | 0 07 | 0 08 |
| Copperas, Green | 0 01½ | 0 02 |
| Cudbear | 0 16 | 0 25 |
| Fustic, Cuban | 0 03 | 0 04 |
| Indigo, Bengal | 2 40 | 2 50 |
| Madras | 0 75 | 0 80 |
| Extract | 0 26 | 0 30 |

| DYESTUFFS—*Continued.* | | |
|---|---|---|
| Japonica | 0 07 | 0 08 |
| Lacdye, powdered | 0 33 | 0 38 |
| Logwood | 0 01⅞ | 0 03 |
| Logwood, Camp | 0 02⅝ | 0 03 |
| Extract | 0 12½ | 0 13 |
| " 1 lb. bxs | 0 15 | — |
| " ½ lb. " | 0 14 | — |
| Madder, best Dutch | 0 10¼ | 0 11 |
| 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 55 | 0 60 |
| Cayenne | 0 20 | 0 25 |
| Ginger, E. I | 0 19 | 0 20 |
| Jam | 0 30 | 0 30 |
| Mace | 1 40 | 1 60 |
| Mustard, com | 0 20 | 0 25 |
| Nutmegs | 1 15 | 1 25 |
| Pepper, Black | 0 18 | 0 20 |
| White | 0 27 | 0 29 |
| PAINTS, DRY. | | |
| Black, Lamp, com | 0 09 @ | 0 10 |
| " refined | 0 25 | 0 30 |
| Blue, Celestial | 0 08 | 0 12 |
| Prussian | 0 65 | 0 75 |
| Brown, Vandyke | 0 10 | 0 12½ |
| Chalk, White | 0 01 | 0 01⅛ |
| 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 | 1 25 | 1 30 |
| American | 0 25 | 0 35 |
| Whiting | 0 1 | 0 1½ |
| 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 10 | 0 12 |
| Putty | 0 03¾ | 0 04½ |
| Yellow Ochre | 0 08 | 0 12 |
| White Lead, gen. 25 lb. tins | 2 45 | — |
| " No. 1 | 2 20 | — |
| " No, 2 | 1 95 | — |
| " No. 3 | 1 70 | — |
| " com | 1 30 | — |
| White Zinc, Snow | 2 75 | 3 25 |
| NAVAL STORES. | | |
| Black Pitch | 3 00 @ | 3 25 |
| Rosin, Strained | 3 30 | 4 25 |
| Clear, pale | 5 75 | 7 25 |
| Spirits Turpentine | 0 50 | 0 53 |
| Tar Wood | 3 80 | 4 00 |
| OILS. | | |
| Cod | 0 65 @ | 0 70 |
| Lard, extra | 1 10 | 1 20 |
| No. 1 | 105 | 1 10 |
| No. 2 | 0 90 | 0 95 |
| Linseed, Raw | 0 55 | 0 58 |
| Boiled | 0 59 | 0 62 |
| Olive, Common | 1 10 | 1 15 |
| Salad | 1 80 | 2 30 |
| " Pints, cases | 4 20 | 4 40 |
| " Quarts | 3 25 | 3 50 |
| Seal Oil, Pale | 0 72½ | 0 75 |
| Straw | 0 62½ | 0 65 |
| Sesame Salad | 1 30 | 1 35 |
| Sperm, genuine | 2 55 | |
| Whale refined | | |