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On the Introduction of Metrical Weights and Measures for use in Pharmacy.

BY DR. REDWOOD.

In proposing to submit the subject of weights and measures for discussion, my principal object has been to draw forth the expression of opinion as to the desirability of taking some steps to promote the introduction of the metrical system for use in pharmacy.

The subject has come under the consideration of the Pharmaceutical Society or its members on several previous occasions, and although some difference of opinion has been manifested on those occasions with reference to the practical expediency of attempting a sudden or speedy change from the system at present used in this country to the metrical system, yet the superiority, in many respects, of the latter, and the probability, amounting almost to certainty, that sooner or later it will supersede all other systems, have been generally admitted.

The object of establishing one system of weights and measures for all nations, commends itself so forcibly to the approval of those who are engaged in scientific or commercial pursuits, that the abstract proposition that it is desirable to accomplish such an object meets with ready assent, and any differences of opinion that may arise in connection with it almost exclusively relate to the comparative merits of different systems proposed for adoption, or to the balance between the anticipated gain from the adoption of that which is considered the best system and the loss or inconvenience which must inevitably attend a change while it is being made, or to the means by which, in the event of a change being decided upon, it may be most advantageously effected.

At the present time it seems hardly necessary to consider the question of the comparative merits of competing systems. The greater part of those who have studied the subject, and are capable of appreciating the relative merits of the system in use in this country and of the French system, have decided in favor of the latter; but with the general public the question is not one of comparative merits but of comparative acquaintance or familiarity with these or other means for estimating the measurement of quantities, and as they have daily occasion for the application of such means, they are satisfied to use those with which they are most familiar.

As far as the general public is concerned, I have no doubt the prevailing feeling would be in favor of leaving things as they are, or of mending but not revolutionizing our system; yet there is undoubtedly a growing tendency to aim at a nearer approach to perfection than is attainable by any mere patching of that which is already, but a clumsy piece of patchwork.

I believe the practical requirements of pharmacy present stronger grounds for a thorough reform of our system of weights and measures than can be adduced with relation to any other application of it, and the subject is one, therefore, which has strong claims upon our attention.

The acknowledgment in the Pharmacopoeia "that the absence in the present system of any denomination of weight between the grain and the avoirdupois ounce of 437·5 grains, and the fact that the ounce is not a simple multiple of the grain, are grave defects," is sufficient to establish the necessity for further change, and the only question is, as to the nature of change to be made. Shall we try again to patch up our own system, or shall we adopt an entirely new one?

The only new system that we can hope, or indeed could desire to have substituted for the one with which so much dissatisfaction has been expressed, is the metrical system, which has already received the sanction and approval of scientific and commercial men in almost every part of the civilised world.

In deciding to change our system for the metrical system, however, we do not necessarily imply that we are wholly dissatisfied with the one or entirely approve of the other. It is a great mistake, not unfrequently committed, to endeavor to discredit our system, in the hope of bringing about a speedy change to another, by ascribing to it defects that do not belong to it, and at the same time to extol the advantages of the metrical system by claiming for it more than it is entitled to.

It is sometimes represented that our weights and measures are not accurately defined, that they are liable to variation, and therefore cannot be relied upon, that in fact their construction is not based upon scientific principles, and that they are indefinite and uncertain.

On the other hand, the metrical system is sometimes represented as having a scientific basis, which gives to it in all its details a greater degree of certainty and accuracy than can be claimed for our system.

Now these are entirely erroneous notions, and it is important that no arguments in favor of the metrical system should be founded upon such false assumptions. Originally, it is true, there were no well defined standards to which our weights and measures could be referred for verification, and no scientific means by which they could be reproduced in the event of all existing measures being destroyed. When a troy grain had no better definition than the weight of a grain of wheat, when the inch was defined as having the length of three barleycorns, the foot the length of a man's foot, and the yard that of the king's arm, there was indeed uncertainty enough in these measures. And even when, in course of time, the natural standards originally referred to were superseded and more reliable ones adopted, much still remained requiring further improvement.

In the latter part of the last century, the reformers of the great French Revolution, in reforming the then existing systems of weights and measures, adopted three fundamental propositions on which to base their new system.

1. That some natural object or phenomenon, presenting an unvarying measure of extension, should be taken as the unit from which all their measures should be calculated.

2. That measures of extension, of capacity, and of weight, should bear a definite and simple relationship to each other and to the fundamental unit.

3. That the different denominations of weight and measure should be multiples and submultiples of each other by ten; in fact, that the system should be throughout a decimal system.

In seeking for a natural standard to be used as the unit of measure, they took the metre, not, as it would appear, because it was found or considered to be the most suitable measure that could be fixed upon, but because it was the ten-millionth part of a quadrant of the earth's meridian. As it has since turned out, no advantage resulted from taking this particular measurement as the initial standard or unit, and in fact the first proposition might have been omitted without any practical disadvantage.

In this country we have pursued a somewhat similar course to that adopted by the French reformers, in reforming our system and framing that which has been established here by law, but we have not acted entirely upon the same principles.

We proposed to take an object representing an unvaring measure of extension, which depending upon a fixed law of nature, could be reproduced at any time and applied for the verification of our standards. But instead of taking the measurement of the earth's circumference, we took the length of a pendulum vibrating seconds of mean time, in the latitude of London, in a vacuum at the level of the sea. This measure scarcely differs from the French metre, but instead of using this measure as our unit, we used it only for indicating the proper length of the inch, from which all other measures of extension, capacity, and weight, according to our system, are calculated.

We have not established the same simple relationship between measures of extension, capacity, and weight, as exist in the French system, but have mostly retained such measures as were previously in use; and as the old measure was not framed in accordance with a decimal division, such a division does not characterise our system.

The essential differences between our system and the metrical system are these, that there is great incongruity between the different parts of our system, which is not the case with the metrical, and that the metrical system is a decimal one, which ours is not.

It may be stated of both systems, and equally of both, that the means originally proposed and provided for verifying the standard by reference to natural objects or phenomena have not proved to be practically available. Both systems in this respect have, to a certain extent, given way under the rigid application of the test of experience, and it is found that the most accurate method of verifying all weights and measures is by comparison with artificial standards carefully kept for that purpose.

Any superiority for which the metrical system may possess of ours must be referred not to the method of determining the fundamental unit from a natural standard, but to the more perfect systematic manner in which all measures are related to the first integer in this system, to the decimal arragement in it of all measures, and above all to the fact that it presents the only apparent means by which we can reasonably hope to establish one uniform system of weights and measures for all countries.

The advantages which in these respects the metrical system presents would probably ensure a ready assent to its adoption, if those required to use it could be induced so far to master the details of the subject as to acquire definite ideas of the quantities represented by the integral measures. It is with reference to this part of the subject that I wish particularly to invite discussion.

If we are to look to the metrical system as that which is ultimately to replace our present system we must prepare the way for its adoption by making those who are engaged in the practice of pharmacy acquainted with it, and not merely acquainted with the system, which involves very little difficulty, but what is of far more importance, acquainted with the values of the integral measures, so as to have some definite ideas of what they represent.

Until this has been done I cannot conceive that it would be practicable, and certainly it would not be compatible with a due regard for the interests of the public, to introduce so great a change as would be involved in the adoption of the metrical weights and measures in preparing, prescribing, and dispensing medicines. The difficulty, and I think almost the only difficulty experienced by those who are unaccustomed to the use of metrical weights in adopting them for any special purpose, is caused by the absence of clear conceptions of the quantities represented by the different integers. What is wanted in the first instance is that we should be able to associate some familiar objects with the several units of metrical weights and measures. I should like to hear the opinions of practical pharmaceutists as to the practicability and desirability of introducing forms of medicine representing the more important metrical units, or some even multiples of them. Thus, for instance, most of the lozenges ordered in the Pharmacopœia weigh about 15 grains. Might they not all be made to weigh exactly a *gram*, and be marked with this weight? In fact the same rule, modified perhaps in some cases so as to make the weight 2 grams, might be applied to medicinal lozenges generally, by which means the public would become familiar with the quantities represented by the weights which would be marked on each lozenge. If in this way we could establish forms of medicine representing different metrical units we should be doing much towards preparing ourselves and the public for the reception of the new system, to which we should all become more reconciled as we became acquainted with the values of the terms used.

Our greatest difficulty would probably be with reference to measures of capacity. In France liquids as well as solids are weighed, and the measure-glass is rarely if ever used; but I believe it would be very difficult to establish that practice among our pharmacists, and there is no measure of capacity in the metrical system that accords well with the fluid drachm or ounce. There is room for the exercise of ingenuity or judgment in devising the most suitable means of meeting the requirements of the physician and pharmacist in adjusting quantities by measure in prescribing and dispensing.

If the metrical system were adopted by us in pharmacy, it would have to be adopted, of course, by the physician as well as the pharmaceutist; and those who advocate its introduction must be prepared to show how, for instance, the physician is to indicate the quantities of the several ingredients in a six or eight ounce mixture containing drachms of some ingredients, such as tinctures, and ounces of others, such as infusions. At present we have no better method of representing the metrical equivalent for the fluid ounce than by 28 cubic centimetres, but the multiples of this number would be inconvenient for use, as they would have to be used in prescribing and dispensing.

To meet this and similar cases, it may perhaps be worth a consideration whether it would not be desirable to do something similar to that which was attempted by the French in 1812, and again in 1827, that is, to approximate the old system to the new by establishing some intermediate links between them, taking care in doing this to maintain the integrity of the new system, but slightly bending the old so as to bring them into juxtaposition. If we were to do something of this sort we might construct a new measure both for capacity and weight, consisting of 4 grams, corresponding to 493·8 grains, and this might be called a *tetram*. In the same way we might construct a new representative for the ounce, consisting of 8 tetrams, or 32 grams, corresponding to 61·7 grains, and this might be called an *octram*. If it were thought advisable to go further we might have a representative of the pound, consisting of 16 octrams, or 128 tetrams, or 512 grams, corresponding to 493·8 grains, and this might be called a *libram*. These three new measures of weight and capacity, for in each case the weight of distilled water would represent a measure of capacity, while they would correspond with metrical measures, would be sufficiently near approximations to the drachm, ounce, and pound of our system to render them convenient integers to replace those measures in making a change from one system to the other. I throw out the suggestion for the purpose of courting discussion.

I would also suggest that, in introducing the metrical system in this country, the names of the different integers should be written according to English rather than French orthography. This would, I think, tend to reconcile some persons to the system who are accustomed to look upon it as a foreign innovation, besides which it would simplify the spelling of the names.

Provision has been made in the Pharmacopœia for the use of metrical weights and measures in volumetric testing, and if chemists and druggists would adopt that method of conducting those and other similar operations, the practice of doing so would soon render them familiar with the system.

It has been proposed that in the Pharmacopœia, in addition to the weights and measures now specified in the processes, the metrical equivalents should also be given, with the view of showing the relationship existing between the values of the terms used in the two systems. I am not prepared to say that this might not with advantage be done in some cases where integral quantities can be expressed, and simple relationship shown; but to do it in all cases would, I think, encumber the descriptions of the processes without producing an adequate amount of good. Indeed, I am not sure that such an array of figures as the carrying out of this suggestion would necessitate would not tend more to involve the subject in confusion than to supply any useful information.

I have brought the subject forward on this occasion for the purpose of raising a discussion upon it; and the suggestions I have thrown out may, I hope, serve to call forth the expression of opinion upon the points I have alluded to, and induce others to contribute in the same direction.

The Adulteration of Olive Oil.—The President of the *Comité du Des Alpes-Maratimes* publishes a letter in which he offers, on behalf of that body, a prize of 15,000 francs to the inventor of a rapid and easy method, not involving strict chemical manipulation, for detecting the admixture of seed oils with olive oil.

On Elixir of Calisaya, Iron and Bismuth.

BY ROBERT W. GARDNER.

As an unofficinal preparation, known as "Elixir Calisaya, Iron and Bismuth," has acquired considerable reputation, and is being commonly used in various parts of the country, and having seen no reliable formula published in any of our leading pharmaceutical journals, I would most respectfully submit my process, which I have for years employed, and which furnishes a permanent and reliable preparation containing just proportions of each active ingredient, free from any disagreeable quality, and the bismuth of which does not conceive such an affection for the bottom of the bottle that it fails to remain in solution.

Take of Pyrophosphate of Iron scales, one troy ounce.
Citrate Bismuth, one troy ounce,
Sulphate Quinine, twenty-four grains,
Citric Acid, eight grains,
Carbonate Magnesia, one drachm,
Sugar, half a troy ounce,
Water of Ammonia, sufficient,
Oil Orange, best, half a fluid drachm,
Oil Lemon, fifteen minims,
Oil Caraway, five minims,
Oil Nutmegs, five minims,
Alcohol, eight fluid ounces,
Syrup, twenty fluid ounces,
Water, sufficient,

Rub the oils with the sugar and magnesia, gradually adding one pint of water, and filter. Put it into a half-gallon bottle and add the syrup.

Dissolve the pyrophosphate iron in two fluid ounces water, and add to the mixture.

Now add seven fluid ounces of alcohol.

Put the quinine, citric acid, one fluid ounce of water, and the balance (one ounce) of the alcohol in a capsule; heat over a spirit lamp until dissolved, and mix with the other ingregients.

Rub the citrate bismuth with one ounce water, and carefully add sufficient water of ammonia to effect the solution. Mix with the other ingredients.

Add water of ammonia until neutral to litmus paper (avoiding excess), and finally as much water as will bring the whole to the measure of sixty fluid ounces, and filter. To be kept and dispensed in dark bottles.

One fluid ounce contains about eight grains ammonia-citrate bismuth, eight grains pyrophosphate iron, and the equivalent in quinine of sixteen grains of calisaya bark.

The following is the process I have employed for making citrate bismuth: First,

Take of pure Sub-nitrate Bismuth, two troy ounces.
Nitric Acid (sp. gr. 1·44), 1450 grains,
Water sufficient.

Put the bismuth in a porcelain dish; add the acid, and heat over a spirit lamp until the bismuth is dissolved; then add one fluid ounce water, and let stand until cold; then gradually add water, constantly stirring with a glass rod, until a further addition produces milkiness, or until the whole measures one and a half pints. Filter and set aside. Next,

Take of Carbonate Soda crystals, sufficient quantity,
Citric Acid, three troy ounces,
Water, one and a half pints.

Dissolve the citric acid in the water and add sufficient carbonate of soda (previously dissolved in water) to exactly neutralize the acid. It is important that there shall be no excess of soda, as the resulting citrate bismuth would be contaminated with the oxide after decomposition.

Put the bismuth solution in a suitable vessel, and add, stirring constantly with a glass rod, sufficient of the solution citrate soda exactly to decompose; the precise quantity is known to have been added, when, after placing the whole upon a cloth filter, the washings after having been suffered to run awhile until clear, *first*, fail to precipitate bismuth when dropped into water, and *second*, show no precipitate upon the addition of a few drops of ternitrate bismuth, a small quantity of which should be reserved for this purpose. When the liquid portion has mostly passed, pour water upon the filter until thoroughly washed from nitrate soda, or until the water passes tasteless; then after draining, transfer to bibulous paper, and dry by gentle heat.—*Am. Jour. of Pharm.*

Observations on Ferric Hydrate, the so-called Soluble Peroxide of Iron.

BY PROFESSOR ATTIFIELD, PH.D.

In a memoir, noticed in the 'Chemical News' of June 12, as having been recently presented to the Academy of Sciences, M. Jeannel, in allusion to the fact that ferric hydrate is not always soluble in acids, states that the incomplete solubility is, in his opinion, generally due to the influences of traces of sulphates. He says, according to the Paris correspondent of the 'Chemical News,' "sesquioxide, precipitated from the persulphate, is always to a certain extent insoluble or yields unstable salts; the same is the case with the sesquioxide precipitated from the perchloride, when this has been contaminated by sulphuric acid, or equally when the alkalies employed as precipitants have been so contaminated, or, finally, when the ferric hydrate, precipitated from pure solutions by pure alkalies, has been washed by common water. This explanation does not accord with my experience of the properties of ferric hydrates and oxyhydrates. Firstly, in England the ferric citrates and tartrates used in medicine, are successfully made in large quantities by dissolving ferric hydrate, prepared from ferric sulphate, in solutions of the respective acids and acid-salts. Secondly, I have frequently seen moist ferric hydrate perfectly dissolve in solutions of acids or acid-salts, even though the precipitate has been washed with common water containing sulphate of calcium, a final washing with distilled water having, for various reasons, been neglected. Thirdly, I have often noticed that *pure* ferric hydrate, soluble when freshly precipitated, becomes imperfectly so if long kept moist or dry. It is true that when alkali is added to solution of ferric sulphate, instead of the latter to the former, an insoluble oxysulphate is precipitated, and a similar compound may, possibly, be formed under other circumstances; but ferric hydrate, properly prepared and fairly washed, is readily soluble if only it be used in the moist and recently precipitated condition, with a solution of acid or acid-salt which is not too weak, and the mixture be not boiled or even strongly heated for any considerable length of time. The fact is that ferric hydrate, even though kept under water, decomposes after a time, or more quickly if heated, losing the elements of water, and become an oxyhydrate, a body insoluble in weak acids, and, also unlike ferric hydrate, incapable of acting as an antidote to arsenic, that is, incapable of forming ferrous arseniate.

It may be useful again to draw attention to the decided alteration in properties which ferric hydrate spontaneously undergoes when exposed beneath the surface of water, or when boiled with water, as evidence that this substance (Fe_2 6 HO) is a true analogue of hydrate of sodium (Na HO), etc., and not a hydrous ferric oxide (Fe_2O_3, $3H_2O$). It is more reasonable to suppose that in acquiring new properties ferric hydrate becomes changed to new compounds then to consider that the changes result from the loss of a portion of water already existing as water. Between ferric hydrate ($Fe_2$6 HO) and ferric oxide (Fe_2O_3) there would appear to be several oxyhydrates, analyses, etc., of most of which have already been given in the 'Chemical News' (xvii 56) by Brush and Rodman.

1. Fe_4 12 HO.
2. Fe_4O 10 HO.
3. Fe_4O_2 8 HO.
4. Fe_4O_3 6 HO.
5. Fe_4O_4 4 HO.
6. Fe_4O_5 2 HO.
7. Fe_4O_6.

In the above formulæ, No. 1 represents two molecules of ferric hydrate; Church found a stalactite of true ferric hydrate, native, in Cornwall, and Wittstein gives a similar formula to fresh artificial ferric hydrate. No. 2 is the only oxhydrate, in this series, still unknown, unless, indeed, Haughton's Kilbride mineral contains this body. No. 3 is brown iron-ore from the Huttenrode Hartz. No. 4 is the formula of a limonite and of artificial ferric hydrate altered by age,—described by Wittstein as having a crystalline structure. No. 5 is the mineral gothite, and also the dried oxyhydrate commonly used in pharmacy. No. 6 is turgite, hydro-hematite, or the mineral from Salisbury, Conn., analysed by Brush and Rodman. No. 7 represents two molecules of ferric oxide.—*Chemical News.*

As stated in the March number of the 'Pharmaceutical Journal,' M. Jeannel prepared a ferric precipitate, which is soluble, not only in solutions of weak acids or acid salts, but even in water. The substance appears to be a mixture of ferric hydrate, or, when dried, oxyhydrate, with a small quantity of ferric oxychloride or oxynitrate. This compound merits further investigation. Hitherto peroxide and perhydrate of iron, pure or impure, have only been dissolved in water under the extraordinary conditions of dialysis. It would be especially interesting to know whether or not M. Jeannel's compounds in the dry, or even in the moist, state is an efficient permanent antidote to arsenic.—J. A.—In *Ph. Journal* (Eng.)

On the Use of the Chloride of Gold in Microscopy.

BY THOMAS DWIGHT, JR., M. D.

Perhaps no re-agent has of late years played so important a part in microscopy as the chloride of gold. By means of it Conheim first demonstrated the terminations of the nerves in the cornea; and since it has been very generally used, particularly in investigations of the nerves. Its application is very difficult, and it is only after a long series of experiments and failures that proficiency is obtained.

Having had considerable experience with this re-agent in the laboratory of professor Stricker, in Vienna, and having obtained some very satisfactory results, I hope that a few words on its application may not be out of place. The chloride should be dissolved in distilled water, and the solution should never be stronger than the half of one per cent. The object to be examined should be as fresh as possible, and should remain in the fluid for three minutes to perhaps an hour, according to its affinity for the re-agent, during which time it assumes a pale straw color. If the piece be small enough to be readily acted upon, ten or fifteen minutes is almost always sufficient. It is then laid in distilled water, to which just enough acetic acid has been added to give it the faintest possible re-action. In two or three days it will have become purple, verging sometimes on blue, sometimes on red; the latter is the least favourable. The preparation is now enclosed in glycerine, and improves for several days as the color becomes deeper and as the finest fibres are the last to be affected. If the experiment has succeeded, for it sometimes unaccountably fails, the picture presented is one of the most beautiful and instructive that can be imagined. The nerves, muscular fibres and fibrous tissue appear black on the purple background. Epithelial cells are colored, but not so well as by nitrate of silver.

Although the color makes fibres visible which are so fine that they can be seen by no other method, it does not determine their character. To prove beyond all doubt that a minute fibre is a nerve, we must be able to follow it to a large branch. On a very successful preparation of the cornea of a frog, observed nerve fibres of such minuteness that with a magnifying power of nearly two thousand diameters it was impossible to follow them to their terminations. I particularly endeavoured to verify the connection, asserted by Kuhne but not generally accepted, between the nerves and the corneal corpuscles. With every advantage, such a connection is very difficult to prove. I often thought I had found one; but, when examined by a higher power, and placed in different lights, it proved to be only apparent, except in a single instance, and then it was not certain that the fibre in question was a nerve. I mention these facts as proofs of the value of the method, for it is no paradox to say that the better the preparation the more difficult it is to obtain results. As the magnifying power is increased, elements come into view, which, by inferior methods, are never seen and spaces are discovered between bodies supposed to be in connection. The use of the chloride of gold, however, is not yet thoroughly understood, and offers a large field for original investigatigtion.

[The preceding article was written at the suggestion of Prof. Stricker, of Vienna, by whom it has been examined and fully approved.—ED.]—*Boston Med. & Surg. Journal.*

—A NEW illuminating material, recently patented in Germany, consists of a mixture of two parts of the poorest rape seed oil, and one part of good petroleum. It is burned in a lamp of peculiar construction, but somewhat similar to that of the ordinary moderator lamp, and gives a light not to be surpassed for purity and brilliancy.

CANADIAN PHARMACEUTICAL SOCIETY.

PRESIDENT, - - - WM. ELLIOT, ESQ.

The regular meetings of the Society take place on the first Wednesday evening of each month, at the Mechanics' Institute, when, after the transaction of business, there is a paper read, or discussion engaged in, upon subjects of interest and value to the members.

The Society admits as members, Chemists and Druggists of good standing, and their assistants and apprentices, if elected by a majority vote, and on payment of the following fees:

Principals - - - - - $4 00 per Annum
Assistants & Apprentices, 2 00 "

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Parties wishing to join the Society may send their names for proposal to any of the members of the Society. A copy of the Constitution and By-laws of the Society will be furnished on application.

HENRY J. ROSE, *Secretary.*

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PRIZES are offered for collections of indigenous medical substances of vegetable origin, as follows:—

1ST PRIZE—FIFTEEN DOLLARS—a copy of *Griffith's Medical Botany*, and *Certificate.*

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Conditions of competition to be—

1st. *Competitors to have been engaged in the drug trade, and for not more than three years, and to be members of the Pharmaceutical Society previous to* 1869.

2. *Specimens to be forwarded (carriage paid) to the Secretary of the Society, Toronto, by 1st September, 1869, with a sealed letter, enclosing the address of the competitor, a certificate from his employer that the collection has been made by the competitor solely within a year; that he has been engaged in the drug trade during that time, and that he has not been more than three years so engaged at the date of this notice.*

3. *Each specimen is to be carefully prepared ready for sale or use, and packed in a paper bag. On each shall be written legibly, the common and scientific names, the date and locality of collection, and a private mark, which shall also be put on the outside of the letter accompanying the collection.*

4. *Three judges shall determine the order of merit; they shall be at liberty to withhold any or all of the Prizes, if the collections do not warrant an award, and to select such specimens as they may deem meritorious for the Museum of the Society, which specimens will have the name of the collector put upon them.*

5. *The points of competition to be number of specimens, condition, correctness of naming, and general excellence; quantity a secondary consideration.*

Collections to which Prizes are awarded wil be sent to the Provincial Exhibition at the expense of the Society; and any Prizes secured there, shall be for the benefit of the collector.

Address—Collections,
Canadian Pharmaceutical Society,
H. J. ROSE, *Secretary,*
September 15th, 1868. *Toronto.*

THE CANADIAN
Pharmaceutical Journal.
E. B. SHUTTLEWORTH, EDITOR.

TORONTO, ONT., JUNE, 1869

Correspondence and general communications of a character suited to the objects of this JOURNAL, are invited, and will always be welcome. The writer's name should accompany his communication, but not necessarily for publication.

Subscriptions will not be acknowledged by letter, as our sending the paper may be taken as sufficient evidence of the receipt of the money.

All communications connected with the paper to be addressed, post paid,
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A WORD TO OUR APPRENTICES.

We have received numerous inquiries from apprentices connected with the Society, as to the course of study laid down by the Pharmaceutical Board, and the text books which are recommended to be used. At the present time it impossible to give a definite answer to these questions, as the Council have not yet decided on what subjects examination is to be made. The matter was broached at the last monthly meeting, and there appeared to be an evident inclination to follow in the steps of the Pharmaceutical Society of Great Britian. The subject is at present, in the hands of the Council, and as soon as a final conclusion is arrived at, we shall duly apprise our young readers.

We cannot forbear expressing our gratification at the evident desire, evinced on the part of our apprentices, to qualify and render themselves fit for the position which they expect to occupy in the future. We are also glad to see that the apprentices themselves have taken the initiative and are not actuated by compulsatory motives. It should be an object of ambition "to learn all that can be learned," and never to rest while there is anything to be attained. There is no danger in aiming high, if impatience is curbed, and every step taken with deliberation. The great error is aiming too low—the requirements of an examination—the general opinion of the public—the imitation of supposed perfection in another, are all motives beneath the true student.

But for the attainment of true perfection a certain course must be laid out, which once entered, must be pursued with undeviating perseverence and determination. It will not do to branch off at every turn, or to lose sight of the desired object for a moment. Nor will it answer to stand stiil and contemplate, from afar, the consumation of desire; a steady, plodding step must be maintained throughout; and though the way be difficult, and the hills hard to climb, yet success is certain.

Although we thus hold out ambition as a motive to action, we do not fail to recognize the fact that the love for knowledge itself should form one of the strongest incentives to learning. In this, as in other cases, love and ambition go hand in hand; both go unsatisfied without the possession of the desired object, and alike seek preferment and superiority.

It may be said that our remarks are visionary and unpractical; that the druggist does not engage in his calling either for the advancement of knowledge, or a desire to excel, but for the earning of his daily bread. This is, in many respects, undeniably true, and there is little danger of our ignoring the fact, but, nevertheless, we believe the course we have recommended to be the most certain way of gaining the public confidence, and their consequent support; and at the same time, relieving the mind of the drudgery of mere labor. An intelligent community—and it is, principally, with such the druggist deals —are sure to find out and appreciate real merit; and though disability or charlatanism, may for a time succeed, yet, sooner or later, the deceit will be unmasked, and the pretender reminded that pharmacy is not a trade but a profession, and that the public know it.

While advocating high aspirations on the part of the student we must not be understood to mean the grasping of too much at once. A very little must be attempted at a time, and that little learned thoroughly and effectually. If a book is to be studied let it be *studied* and not *read*. It is quite possible to get over a large amount of reading in a very short time, but this is not at all true with regard to study. A man may read a whole work in a few evenings, and when he has finished, his mind may retain nothing of it, whatever. Let no statement pass without thoroughly understanding it, thinking it out in all its relations and bearings. If one page of an ordinary text book is comprehended and retained, a good day's work will have been done. Let there be no skipping of sentences or pages; no looking what is to come next; or a habit will be contracted, which is, of all others, the most fatal to study. Finally, let what is to be done, be done at once; procrastination and impatience are the two great evils to be guarded against. Bear in mind the old proverbs, "Never put off until to-morrow what may be done to-day," and "That which is worth doing at all is worth doing well," and your labors will be certain to be crowned with an abundant reward.

A great deal depends on the works which are selected for study, but we must not anticipate the wishes of the Society, and shall defer any observations on the subject until a further issue.

EDITORIAL SUMMARY.

Adulteration of Food and Drugs.—A bill is now before the British Parliament "To amend the Adulteration of Articles of Food or Drink Act, 1860, and to extend its provisions to Drugs." The former Act was, from various causes, found to be ineffectual, and the present measure, introduced by Mr. Dixon, is supposed to put matters in a practicable shape.

The first clause declares that any person who shall admix, or cause to be admixed, with any article of food or drink, any injurious or poisonous ingredient to adulterate the same for sale, or any person who shall mix, or cause to be mixed with any drug, *any* material to adulterate it for sale shall, for the first offence, pay a penalty of *fifty pounds* sterling, with costs, and if convicted a second time shall be deemed guilty of a misdemeanor and be imprisoned for six calendar months, with hard labor.

The second clause imposes a penalty of twenty pounds, on any person who shall sell any adulterated article of food, or drug, whether he knows it to be such or not; a repetition of the offence is punishable by the publication of the offender's name in a newspaper, or any such method as the justices may deem desirable. Public analysts are to be appointed, to which suspected articles may be submitted by inspectors of markets, nuisances, &c., whose business it shall be to find out adulterated substances. Purchasers of adulterated articles can also submit them for analysis on payment of a fee not exceeding five shillings, and the certificate of the analyst shall be deemed sufficient evidence for conviction.

The above are the principal features of the Act, which is certainly sufficiently stringent for all purposes, and if enforced will be of great service to the community.

Trichina Spiralis.—A most interesting lecture on trichinosis was delivered recently by Prof. J. C. Dalton, at the College of Physicians and Surgeons, New York, and is published in the Boston *Medical and Surgical Journal*. The Dr. states, that by investigations made in Chicago, it was found that one pig in every fifty was infected by disease, and that the Germans in that city furnished most, if not all, the cases of trichinosis which had occurred. This is to be accounted for by their eating badly cooked sausages and underdone ham. A temperature at least 160° F. is necessary to destroy the worm. The Dr. accounts for the perpetuation of the species by the following hypothesis :—

Suppose we start with the pig infected with quiescent and sexless trichina. This pig is butchered. You know that butchering establishments are the abundant resort of rats, which feed on the refuse scraps of meat, and of course these after a time become infected with trichina. The worms are developed in the intestine of the rat, and produce living young. These not only infect the muscular system of the rat, but they are also discharged with the fæces. These fæces become mingled with the blood of the pig—an animal, as we know, not very fastidious with regard to his food, and consequently subject to several parasitic diseases—and thus the round of development of the trichina is completed. Again, its perpetuation is provided for by a similar round between the cat and the mouse. The mouse becomes infected by feeding upon refuse meat, and the cat by devouring the mouse or rat. We have, therefore, the natural history of the animal, embracing in each case two different phases, in one of which it undergoes an active development, in the interior of the intestine, while in the other it assumes the quiescent form, becoming encysted in the substance of the muscular system.

Weights and Measures.—The introduction of the metrical system of weights and measures into pharmacy is exciting considerable attention in England. The subject was brought before the Pharmaceutical Society at their last meeting, by Dr. Redwood, and considerable discussion ensued, which will be continued at the next meeting, as members thought it desirable that the question should be thoroughly ventilated, and a means devised to render the adoption of the metrical system imperative Mr. Haselden remarked, that for the future it was intended to examine young gentlemen who intended to pass the Pharmaceutical Board, in this system, and that after Oct 1st, he believed the examination would be enforced. The sooner, therefore, students become acquainted with the subject the better. France, Belgium, Holland, Italy, Spain, Portugal, Greece, and part of Germany, have now adopted the system in full, and we hope this attempt to introduce it in England may prove successful, and that Canada may not show herself behind the times. Prof. Redwood's remarks will be found in another column.

New Law regarding Dispensing in New York.—A bill has been introduced, and is now awaiting the governor's signature, regulating the dispensing of physician's prescriptions, in New York. The act declares it unlawful for any person to prepare a medical prescription unless he has served two years apprenticeship in a drug store, or is a graduate of a medical college or college of pharmacy. The employer, or person in charge as proprietor, is also held amenable for permitting an unqualified person to dispense. The penalty is a fine, not exceeding $100; or six months imprisonment in the county jail. In case of death arising from violation of the act, the person offending is to be deemed guilty of a felony, and is punishable by a fine of not less than $1,000, nor more than $5,000 ; or by a term of imprisonment of not less than two, or more than four years ; or by both fine and imprisonment, if the court so direct. The act is to take effect immediately.

A New Element.—Spectrum analysis has again proved the means of discovering a fresh addition to the rapidly increasing list of elementary substances. H. J. Sorby, F.R.S., while examining a specimen of jargon, noticed certain bands which he could not attribute to the presence of zirconium, or any other known element, and which he therefore held to denote a new substance. At a recent meeting of the Royal Society, he exhibited these bands, by means of a spectrum microscope, and formally announced the discovery of a new metal, for which he proposes the name *jargonium*. It is, however, questionable whether the same appearances which led Mr. Sorby to this conclusion, were not observed previously by Prof. Church, who attributed the phenomena to the presence of Svanberg's *norium*. The *Chemical News*, for May, contains a letter from Prof. Church to this effect. At all events, Mr. Sorby was ignorant of Prof. Church's investigations, which were, however, published in the May number of the *Student*, 1866. The *Chemical News* thinks it probable that further researches may show that Svanberg's noria, Church's nigria, and Sorby's jargonia, are each separate entities.

Composition of Road Dust.—Mr. Dancer, F.R.A.S., has been making microscopic examinations of dust, and has embodied his observations in a paper read before the Manchester Philosophical Society at their last meeting. A liberal allowance of animal life was found to be present in ordinary road dust, the largest amount being about five feet above the surface of the earth. The main portion at this point was composed of vegetable matter which had passed through the stomachs of animals, or suffered decomposition in other ways. This is a very pleasing reflection, when we consider that five feet from the surface is about the height of a man's mouth. The investigations of Mr. Dancer may go far to show how the germs of disease may be inhaled into the system through the medium of the air, and will doubtless prove useful in a sanitary point of view.

New Lucifer Match.—Dr. Fleck, of Dresden, has invented a non-poisonous match, in which sodium, in a fine state of division, is made to take the place of phosphorus. A mixture of sodium, nitrate of potash and sulphide of antimony is made into a paste, with a solution of caoutchouc, and small pellets are made of the composition. The matches ignite by being moistened with water. Although several German manufacturers are said to have taken up the invention, we do not think the new match is likely to supersede the old-fashioned lucifer—not to to mention the Special Safety's of Bryant & May.

Emp. Belladonnæ—I. Balmer, (*Pharmatical Journal*) proposes the use of the resinous extract of belladonna root, in place of the spirituous extract of the leaf, for the production of this plaster. The advantages claimed are, greater reliability, superior adhesion, and greater convenience in use, as the plaster requires no adhesive margin, does not run or exude, nor will it stain the linen by being worn a month or longer. The proportion of extract used is one-third the weight of the plaster. The color is said to resemble that of emp. cerat. saponis.

Composition of English and Aleppo Galls.—An analysis by Mr. Watson Smith, F.C.S., gave the following result:

	Aleppo Galls.	English Galls.
Gallo-tannic acid...........	61·65	26·71
Gallic acid	1·60	trace
Woody fibre	15·68	46·88
Water..............................	12·32	20·61
Coloring matter and loss...	8·75	4·80
	100·0	100·00

Lanthanum.—M. Zschiesche gives the atomic weight of this element as 45·09. This number is deduced from the mean of six experiments.

East India Cinchona.—At the last meeting of the Pharmaceutical Society of Great Britain, Mr. J. E. Howard, F. L. S., made some remarks regarding several samples of bark, cultivated in the East Indies, which were presented to the Society by Mr. Broughton. He said that the number of varieties and species now cultivated in the East Indies was somewhat embarrassing, many of them being exact reproductions of the barks found in South America; whilst some varieties did not appear to correspond exactly with any that they were as yet acquainted with from South America. The subject, therefore, still required investigation among these new varieties. Mr. Broughton had quite recently found a variety which was quite new to them, possessing lanceolate leaves almost approaching appearance to the *Cinchona lancifolia*, the bark differing entirely from the characteristic of the bark of the *lancifolia*, and pertaining more to that of the best species of Pitayo or of Loja. Mr. Broughton had found this variety to be so extraordinarily rich in quinine that he had obtained from it the almost incredible quantity of 10 per cent. of sulphate of quinine. Though this fact had only been communicated to him (Mr. Howard) in a letter from Mr. Broughton, there could not be any objection to his mentioning it at that meeting. He had himself examined a small portion of the bark, and his examination fully confirmed Mr. Broughton's analysis. This circumstance, together with other collateral observations, showed the great importance of attending with even minute accuracy to discrimination of the species and varieties which were already growing luxuriantly in the East Indies, some of which were so very much more productive than others. The neighboring plants to that he had mentioned did not produce one-third of the amount of sulphate of quinine. In Mr. Broughton's last report he mentioned the circumstances connected with finding this species and his analysis of it, and he stated there that he had found 8·5 per cent. of sulphate of quinine, but since then he had obtained what he (Mr. Howard) had just mentioned. One specimen on the table was this extraordinarily rich bark. There was another specimen, which was the third harvest of bark renewed from the same tree, the *Cinchona succirubra*, or red bark of commerce. The bark had been three times stripped from the tree and then renewed; and certainly it was greatly improved from the original bark. Some pieces of wood on the table were transverse sections of some of the trees of *Cinchona succirubra*, which had been stripped of their bark and had replaced it. They would observe the lines representing the first, second, third, and fourth growth, the old part contrasting with the appearance of the new.

In answer to an inquiry, Mr. Howard said it appeared to him the effect of cultivation was to increase the value of the product. There was one thing to be noticed, and that was that perhaps the quantity of cinchonidine was rather larger in East Indian bark than in Peruvian bark. The greater warmth and dryness of the atmosphere in the East Indies probably tended to the production of this alkaloid.

CANADIAN PHARMACEUTICAL SOCIETY.

The regular meeting of the Society was held at the usual place on 2nd inst., with the Vice-President in the chair.

After reading and adoption of the minutes, the following were proposed as members:—

PRINCIPALS.

G. Jackson, ...Egmondville.
P. Cruickshank, ...Parkhill.

ASSISTANTS.

Thos. B. Fraser, ...Napanee.
Wm. H. Clarke, ... "

Letter from W. A. McCollum was read, and the Secretary instructed to reply that the engagements of the Society would scarcely permit a reduction of the membership fee at present.

The Secretary said he had received (charges paid) from Mr. J. M. Maisch, Secretary of the American Pharmaceutical Association, a file of the proceedings of that Society up to date.

Moved by Mr. R. W. Elliott, seconded by Mr. J. T. Shapter, That the thanks of this Society be tendered to the American Pharmaceutical Association, for their valuable contribution, and that the Secretary and the movers of this resolution be instructed to convey the same to Mr. J. M. Maisch. Carried.

Mr. R. W. Elliott said that during his late visit to Europe he had received the promise of some contributions to the Museum, consisting of salts of opium from Mr. Smith, of Edinburgh, and other contributors. He proceeded to give some account of a visit to the Museum of the London Pharmaceutical Society, and at the request of the members present promised to give a more extended account in a paper, for the Society, at a future meeting.

The question of legislation was brought up, and whether it would be advisable to communicate with the Premier on the subject, but the members were of opinion that it would be useless on account of the pressure of more public measures.

The attention of the Society was called to the fact of the next meeting being the annual one for the election of officers, and according to the Constitution, two auditors should be appointed—one by the Chairman and one by the meeting.

Mr. Shuttleworth was appointed by the meeting, and Mr. Brydon by the Chairman. Meeting adjourned.

HENRY J. ROSE,
Secretary.

OBITUARY.

It is our painful duty to record the death of Joseph W. Parker, of Owen Sound, on Saturday, May 22nd, from an attack of inflammation of the bowels.

Mr. Parker was born in Yorkshire, England, Nov. 26, and consequently was under 43 years of age. His frame was hardy and vigorous, until a few days before his decease, and he looked like one in the noon of existence with many years of active life before him.

His first connection with pharmacy, was as apprentice to Mr. Sager, of Haywood, Lancashire. He was afterwards, for short periods, assistant at Macclesfield and Diss. Then manager of a business in Southampton for several years. In 1855 he came to Canada and was for a year with Lyman, Elliot & Co. Having by this time the necessary local knowledge, he entered into partnership with Mr. George Cattle and commenced business in Owen Sound. In 1859, Mr. Cattle started the Goderich business to which he has since devoted his attention. About 1861 a commencement was made in Durham under Mr. H. Parker, and last year the firm of Parker & Cattle bought a business, in Paris, to be conducted by Mr. J. S. Parker.

All the operations with which he was connected were marked by enterprise, energy and prudence. The very idea of a mean or dishonorable action was hateful to him. Taking great pride in his business, he was one of the most thorough pharmacists in this country.

His loss just when his experience was ripe, and his physical powers were at their prime, will be felt by the entire pharmaceutical body, and his family have the sympathy of all who had the pleasure of his acquaintance.

STEIGER'S LITERARISCHER MONATSBERICHT: A Monthly Record of German Literature. New York.

This is the title of a classified list issued by E. Steiger, containing a full register of recent German publications, announcements of forthcoming works, literary criticisms, and items of interest to the literary world. It will prove of undoubted value to all book buyers, and may be procured, gratis, by addressing the publisher, 22 and 24 Frankfort street, New York.

Selections.

The Action of Light on Citrate of Iron and Quinine.

BY C. H. WOOD, F.C.S.

I was engaged about two years ago in preparing some citrate of iron and quinine, and by scaling my product in a hot cupboard, I obtained good-sized scales—bright, of a golden-green color, and perfectly soluble in water. Remembering, however, that potassio-tartrate of iron gives far better scales when scaled in the sun's rays, than by any artificial heat (a fact I learnt from Mr. Braithwaite), I spread some of my solution on plates of glass, and exposed them in a window to an April sun. I was soon surprised, however, to observe the citrate becoming darker in color and exhibiting a very good photograpic image of some bottles which cast their shadows on the plates. After a time, but while still wet, it gradually became opaque, as if the quinine had been precipitated. It ultimately came off in minute brownish-colored powdery scales. The two results from the same solution were as different as they possibly could be. The sun-scaled specimens when put into water became white and opaque, and only dissolved after the lapse of a long time. The scales produced by heat, when thrown on water, rapidly melted, retaining their perfect transparency to the last. The salt contained 17 per cent. of quina.

I then thought it would be worth while to [ascer]tain whether the strong solution only is subject to this change, or whether the finished product would be also affected in like manner by exposure to the light. About a drachm of the good citrate, scaled by heat and dissolving freely without opacity, was therefore spread out on a sheet of white paper and laid in the sun's rays. After a quarter of an hour's exposure, it was perceptibly deepened in color. In twenty minutes it had become brownish, and when put into water became at once white and opaque. The white spongy bits floated about in the liquid, and gradually but slowly dissolved. Some samples of citrate of iron and quinine were then obtained from several different makers, and exposed in the same manner. All were more or less similarly affected, but nevertheless the results varied considerably. In some cases the salt was even more decidedly affected than my own had been; but in others the result was less injurious, and when the scales, after isolation, were treated with water, although they became white and opaque, their ultimate solution took place rapidly. Portions of these exposed specimens were wrapped up and put away in a dark place for some time; upon subsequently examinining them, they had to a great extent passed back to their original condition. It has often happened that samples of this salt have been disparaged on account of their difficult solubility; from these results, however, it would appear possible that this defect has hot been so much due to any fault in the manufacture as to some accidental circumstance in the preservation of the product. Should time and opportunity offer, I hope on some future occasion to investigate more fully the nature of the change which thus occurs in citrate of iron and quinine by exposure to light.—*Ph. Journal* (Eng).

Shellac for Water-Proof Coatings, Dyes, Paints and Printing-Inks.

A solution of shellac in ammonia, after having become to a certain extent concentrated from exposure to the air, possesses, according to Puscher, very remarkable properties. They are of such a nature as to warrant the belief that the use of ammoniacal solution of shellac will soon prevail extensively in the arts. The solution is prepared by putting three parts of white shellac, one part of sal-ammoniac, and from six to eight parts of water in a bottle, and then allowing the bottle to stand well corked for twelve hours. Thereafter the contents must be boiled until dissolved. During the process of boiling a constant stirring must be kept up. The solution as thus obtained may take the place of the alcoholic shellac solution used by the hatters, or, if diluted with twelve parts of water and mixed with terra de sienna and ochre, it may be used as a paint for floors. If to an ammoniacal solution of shellac a dilute solution of Cassel brown in sal-ammoniac be added, a durable water-proof brown dye for wood is obtained. By previously digesting the sal-ammoniac solution with logwood or Brazil-wood, various shades of brown in combination with the Cassel brown may be produced. Mixed half and half with Runge's ink, or ground with soot, an ammoniacal solution of shellac forms a preparation for coating leather or wood, or for addressing boxed goods. Such a coating is perfectly water-proof. By grinding it with carefully prepared chalk, it may be used in the manufacture of pergament paper, or ground with colors it becomes an element in the manufacture of water-proof wall paper. But for this purpose colors that have been adulterated with gypsum, as, for instance, some carmine lakes inferior chrome yellows, or green of Neuwied, should be rejected, from the fact they decompose the shellac solution. The most interesting and useful property of this solutton consists in its solvent action upon some the aniline dyes. Aniline green, which is soluble only in acidulated spirits of wine, is readily taken up by a hot shellac solution that contains eight parts of water to one part of the original preparation. Aniline yellow is readily taken up by means of boiling water, but in such cases only a pale shade of color is produced upon non-nitrogenous, such as paper and wood. If a shellac preparation of the proper degree of concentration is added to a solution of yellow aniline dye in water, dyes are obtained which are water-proof, and applicapable to both wood and paper. Different shades of color may be given to this yellow dye by means of the above-mentioned solution of green aniline, or a most beautiful red ink or dye for wood may be obtained by adding a solution of carmine in ammonia to it. If a solution of Magnetia red in water is boiled for some time with the original shellac solution, it is first converted into violet and then into blue. This process takes place with the separation of an insoluble blue color, and the blue solution obtained may be used in the manufacture of inks, wood-dyes, and for coloring paper pulp. Again, by thoroughly mixing small quantities of common salt, gypsum, or dilute acids with these colored inks, dyes of great vivacity and body separate, which when leached with water may be employed for marbling paper, or as print colors for wall-paper and fabrics of various kinds. It may be used alone, or mixed with starch paste. When ground with linseed-oil and printer's varnish, they may be used for book, stone and calico printing. If they are mixed with more sulphate of lead or gypsum they give rise to a series of bright-colored paints. If, instead of the ordinary shellac, that of the best quality is employed, the solution is particularly serviceable as a binding material for water-colors. Pictures painted with such a color posses not only more freshness and greater durability, but also waterproof like oil-paintings. It it is quite certain that these ammoniacal solutions of shellac will find application in the decorative art instead of glue; and finally, as a hint to painters it may be remarked that they form an excellent drying material when used in combination with white-lead and zinc-white.—*Manufacturer and Builder.*

Leeches.

In buying leeches, it is well to select from a dealer of reputation, and the invoice, if received in winter, must not at once be taken into a warm room, but placed in one, the temperature of which is a few degrees above freezing, where the parcel ofturfy earth is sprinkled over with cold water and allowed to thaw gradually and slowly. A cold of 14° F., renders the animal immovable, without, however, causing death, provided the warming takes place in a cool place at a few degrees higher than 32°. Rapid changes of temperature, or sudden warming, kills or sickens the leech, as does also a cold below 10 degrees F., or long continued cold between 10 and 20 degrees. The best mode of preservation is in a glass or porcelain jar, with perforated lid, or linen cover, holding soft water, as free as possible from lime and iron, at a temperature of 50 to 70 degrees F., which should be in a place where there are no ammoniacal, acid, or acrid vapors. The water, as often as it becomes turbid, or when threads of mucus are found floating in it, is to be replaced by water of the same temperature, and at every one of these changes the vessel and its sides must be thoroughly cleansed, after removing the leeches into a basket or dish lined with soft linen cloth, where they can be washed by pouring on water and softly rubbing them. Rain water must always be avoided. The vessel should not be filled to more than half its height, and not be crowded with the animals. For a more lengthy storing, the wooden boxes, with most turfy earth, in which they are usually transported, or one of a large size with a little dish of water within, are advisab'e. The earth used must at any rate be free from lime, or marl, or iron pyrites. The water should be renewed every week, and the earth examined every month or two, to allow the removal of larvæ or other foreign denizens. The whole should be kept apart from any noxious vapor that may be created by the laboratory or otherwise, as well as from all kinds of salts, alkalies, and acids. The ordinary disease of the leech, which renders the animal unfit for use, is a nodosity that prevents it from contracting when touched, and shows irregular knotty aggregations, which give it an unsightly appearance. As soon as noticed the whole number must be searched through, examined, and all those showing the knotty condition are to be removed, as contagious; and they may be treated in a separate vessel with a daily change of fresh soft water. Another contagious affection is dysblennia, an abnormal secretion of mucous matter; it usually arises from calcareous water, uncleanliness, or a temperature above 70 degrees F. *Jaundice* or *typhus* is the disease in which the leech dies suddenly, after general emaciation and loss of color has shown itself. The dead must be removed as soon as possible, on account of their contagious influence. This disease may be brought about by protracted starvation, the very common lot of leeches. They ought, when in good health, to be treated to a dinner of frogs, three or four times a year. Sugar and farinaceous food are injurious to the leech, but it readily digests the blood of cold-blooded animals, while it requires half a year to digest that of warm-blooded. Feeding on the latter also often causes dysentery; a symptom of which disease is seen in a reddish-colored, thin mucous liquid issuing from the passages, and usually followed by dysblennia. All leeches that show the slightest traces of diseases must be kept separate from the healthy ones, and under no circumstances be dispensed for medicinal purposes. Cleanliness is the great preservative. —*Druggists' Circular.*

Whales and their Oils.

Mr. Bird read a paper before the Liverpool Chemists' Association on "Whales and Whale Fishing, and the Products Obtained," in which he stated that there are a very large number of species of whales, of which the most important are—the sperm whale, which yields sperm oil, spermaceti, and ambergris; the Greenland whale, which gives the best whalebone and the most blubber, but which is now becoming scarce; the humpbacked whale, and the rorqual, which was the one with the capture of which he was personally acquainted. This whale, of an average length of seventy to ninety feet, does not yield so much blubber as the Greenland whale, and the whalebone is much shorter. It has only been captured of late years, owing to its great strength and swiftness, it cannot be caught by the old method of harpooning. The new method consisting of the use of a rocket-harpoon with explosive shell, which sometimes kills the animal at once, was described, and the harpoon exhibited and its use explained. The blubber is stripped off spirally from the body of the whale. The lecturer looked upon the blubber rather as a store of food in time of scarcity of the minute animals on which the whale feeds, than as a preservative against cold. The various methods of extracting the oil were then given, viz. the purefactive method, principally used by the the Scotch whalers; the dry pot method; and a new steam process, which he recommended, as yielding more oil, of a more pleasant odor and higher lubricating power. The average composition of blubber was given as—

Oil	62·0.
Gelatine	11·5.
Water	26·5.

The oil on cooling becomes thick. It is pressed in bags, giving a solid fat used for sheep-shearing and soap-making, and an oil known as train oil. The nature and uses of whalebone were mentioned, and the lecture concluded with an account of an attempt to utilize the gelatine in making glue, which, though of good quality, would not sell well, owing to its unpleasent smell.—*London Jour. of Pharm.*

Dyeing Wool with Magenta.

The process of dyeing with magenta is extremely simple. For animal fibres it is sufficient simply to dip them in a bath of magenta. For dyeing silk and wool the magenta crystals are dissolved in diluted acetic acid or in vinegar. The magenta might just as well be dissolved in simple water or in diluted sulphuric acid as in vinegar. Practice has, however, shown that by being dissolved in acetic acid, the colors produced obtain a very agreeable bluish shade, which is very popular among the ladies. In preparing the magenta solution it is best to place the crystals together with vinegar or acetic acid in a retort, and to allow the crystals to dissolve. The retort must be placed in some warm locality, and shaken at intervals until the crystals are quite dissolved. Then the resulting thick, red fluid is obtained perfectly clean; it may be decanted or filtered and added to the bath. For the purpose of preparing the dyeing bath in a vat, water is heated by steam; when it has attained the correct temperature, as much of the above-mentioned solution is added as is sufficient to give the entire bath a perfect red hue. Into this, then, the silk or wool, after being well washed, is dipped; when wool is to be dyed the bath must be heated to boiling. We may readily observe that as the bath gradually loses its color the wool and silk attract it, and finally the entire coloring matter is fixed on the fibre. The goods are then removed from the bath, to which a fresh quantity of magenta solution is added, and the whole bath thoroughly stirred. The goods are inserted a second time, if a deeper shade be desired. In this manner every shade of red may be obtained from the brightest rose color to the darkest red. Whenever the desired shade is attained, the goods are simply removed from the bath. The main difficulty in dyeing is to prevent the coloring substance from spreading with unequal intensity, over the goods. This is very liable to happen through the rapidity with which the color is attracted by the animal fibre. That portion of the fibre which is first inserted in the bath has already attracted a quantity of color before the last part of the goods has been thrown into the bath, and therefore, unless considerable caution be exercised, one part will receive a deeper shade than the other. It is advisable not to put too much color into the bath, and if the same goods are immersed several times, those goods which, on the first occasion, had been last immersed should on the second occasion be immersed first. Also by addition of a little sulphate of soda (salt-cake) the too rapid attraction of the coloring matter may be prevented, and thus the goods will be dyed more equally. After the dying process has been completed, the goods are washed and dried. As we have already stated, the color produced in dyeing depends upon the quantity of magenta employed. In buying coloring matters, dyers must regard the purity rather than the cheapness of the article.

Glycerine.

Tubs and pails saturated with glycerine will not shrink and dry up, the hoops will not fall off, and there will be no necessity for keeping these articles soaked. Butter tubs will keep fresh and sweet, and can be used a second time. Leather treated with it also remains moist, and is not liable to crack and break. It is used for the extraction of perfume from rose leaves and other scented materials; employed to preserve animal matter from decay, and therefore also to prevent many articles of food from undergoing decomposition; mixed with its own bulk of water it is used in gas-meehronometers, clocks and watches are lubricated with it. It is largely used in pharmacy to keep moist and preserve extracts, pills and other preparations; it is used in dyeing some of our beautiful organic colors; in chemistry it is employed to prevent the precipitation of the heavy metals by the alkalies, and is thus a reagent in analysis; it is used in brewing beer for making an extract of malt, as also in the manufacture of liquers (cordials); it is applied to the preservation, and no doubt to more than that, viz., the making of wines and champagne. Since glycerine can be fermented into alcohol with chalk and cheese, it may in future become a source of alcohol and acetic acid. Lastly, glycerine is the source of nitroglycerine, a most dangerous explosive substance, and of dynamite, which is simply nitroglycerine mixed with sand, and is much less dangerous than nitroglycerine, and nearly as destructive in its effects, as it contains 76 per cent of nitroglycerine.

Poppies and Opium.

The following letter appears in the *Scientific American*:—

Messrs. Editors:—During the war, a farmer in Middle Georgia, latitude 33° 20', made opium from the common poppies, some had white and others red blooms. The poppies raised in Turkey, for opium, have larger capsules than those usually grown in the Southern States. Both are hardy and easily raised, the seeds falling on the grounds where raised one year and come up the next spring in great abundance. A deep, rich, moist soil is best for the poppy; in dry seasons irrigation would increase the crop. The seeds may be planted at any time in the winter, or early spring—November or December is the best time.

Some of the opium was given to a practising physician, who made it into laudanum, and used it in his practice. He said it was much stronger than the opium he purchased at the drug stores.

Three feet is wide enough between the rows, with the plants six to ten inches apart. When the blooms drop, the capsules, or seed pods are cut with a sharp knife, the incisions shallow and perpendicular, and nearly the whole length of the capsules. This operation must be performed near sunset, and while there is enough light to see, to prevent evaporation and desiccation of the opium, and it must be scraped off as early as practicable the next morning, for the same reason. A spoon with sharp edges is a good implement for that purpose. Three or four incisions in each pod is sufficient at one time, equi-distant apart; they may be cut again between the first incisions with like success the second time. Cutting the capsules perpendicularly facilitates the gathering of the opium. The tediousness of slitting and scraping the seed pods will limit the quantity of opium made.

Here is a fine field for the chemist to extract opium, or morphia, at least, from the leaves, stalks, and capsules, as they all contain opium. After the juice that exudes from the pods is scraped off, it is placed in plates in the sunshine to dry, and is worked by hand, before it becomes dry and hard; that is all that is necessary. When dry, it is pure opium. No flower garden can excel a field of poppies in bloom.

Indian Springs, Ga. W.

New Method for preparing Pure Hydrochloric Acid.

Mr. Hofmann, chemist at Dieuze, has improved the usual method for preparing muriatic acid in the following particulars:

The receivers, which hold about 200 litres, and of which there are 60 attached to each furnace, are Woulfe's flasks, connected together by a pipe on top, in order to allow the circulation of the vapor, and one near the middle height, for that of the liquid. Hoping that the first 50 flasks were those that contained all the impurities, he disconnected the lower communication between the first ten receivers, filling them to one-third with distilled water; but was greatly surprised on noticing that it was the last bottles that contained the largest proportion of sulphuric acid. Experiments proved afterwards that sulphuric acid, when conducted over water in the form of gas, is absorbed only with difficulty.

To find a better method, Hofmann used a vessel with double tubulus, which he filled with crude muriatic acid, to which he added by means of a funnel oil of vitriol of 1·848 specific gravity. Hydrochloric acid was immediately disengaged, was passed through a Woulfe's washer, and conducted into a vessel with distilled water. The disengagement of acid gas proceeds quite regularly and does not bring about much rise of temperature; it ceases only when the specific gravity of the oil of vitriol has sunk to 1·566. The cost of this purification of muriatic acid then is very small; the dilute sulphuric acid is at once used in preparing sulphate, hence, calculating the cost of evaporation to 1·848 as amounting to 1 franc for 100 kilogrammes, and since 100 kilo. furnish 40 of muriatic acid, the increase of cost over the crude acid will be only 2½ francs above that of the crude acid.—(*Berichte der deutschen Chemischen Gesellschaft zu Berlin*, 1868.)

Assay of Gold Quartz.

First let the rock containing gold be roasted at a red heat, as is practised in regard to flints intended for pottery-ware manufacture; this roasting renders it easy to break the rock afterwards into small pieces. In this state the rock should be placed in a large earthenware (fire clay) tube, fixed in a furnace in a manner similar to the large fire clay retorts used in the manufacture of gas (double retorts), open at both ends and projecting beyond the furnace at each end; the heat in the interior of the tube should be bright cherry-red. If, under these circumstances, a current of chlorine gas be passed through the retort, the gold contained in the rock will combine at the high temperature with the chlorine, and become volatile therewith, whereas at the place were the heat of the tube or retort is less high, the chloride of gold will become again decomposed and gold deposited.—*Chemical News.*

Paraffin.

Dr. Bolley has found that paraffin (a pure sample of which having its melting point at 53° C., and which on analysis was found to contain in 100 parts—C, 85·61; H, 14·69), after having been kept for eight days at a temperature of 150° C., had become a brownish pasty mass. A portion thereof was soluble in alcohol, and was unaltered paraffin, but the dark colored residue yielded on analysis C, 70·04; H, 10·25; O, 19·72. A sample of paraffin which had been kept for some time at 300°, gave off vapors on being afterwards again heated up to 150. Paraffin if, in all probability, a mixture of various hydrocarbons, all of which have various melting and boiling points.

Purification of Bisulphide of Carbon.

According to M. Millon, the disagreeable odor of bisulphide of carbon can be got rid of by distilling it with quicklime, the two having been in contact twenty-four hours. The distillate is received in a flask partially filled with clean copper turnings. The lime remaining in the retort is strongly colored. By means of the deodorized bisulphide, MM. Millon and Commaille have separated the perfume of milk to the extent of recognizing certain plants eaten by the cow—the *Smyrnium olusatrum* among others.

Welding Copper.

The great obstacle hitherto experienced in welding copper has been that the oxide formed is not fusible. Mr. P. Rust, starting from the well known fact, that libethenite and pseudomalachite (both native compounds of copper and phosphorus acid) are very readily fusible below the blow pipe, concluded that any salt containing free phosphorus acid, or capable of yielding it at red heat, would make the weld easy by removing the oxide as a fusible slag. A first trial was made with microcosmic salt (phosphate of soda and ammonia) and succeeded perfectly; as that salt, however, is rather expensive, he substituted for it a mixture of one part of phosphate of soda, and two parts of borax, which answers the purpose, although the slag formed is not so fusible.—*Abbreviated from Dingl. Jour. in Chemical News.*

Mosquitoes.

The eggs of the mosquito are laid in a bowl-shaped mass upon the surface of stagnant water by the mother fly. After hatching out they finally become the "wiggle-tails" or wriggling worms that may be seen in the summer in any barrel of water that is exposed to the atmosphere for any length of time. Finally, the "wiggle-tails" come to the surface, and the full-fledged mosquito bursts out of them, at first with very short limp wings, which in a short time grow both in length and in stiffness. The sexes then couple, and the above process is repeated again and again, probably several times in the course of one season. It is a curious fact that the male mosquito, which may be known by its feathered antennæ, is physically incapable of sucking blood. The mosquito is not an unmitigated pest. Although in the winged state the female sucks our blood and disturbs our rest, in the larva state the insect is decidedly beneficial, by purifying stagnant water, that would otherwise breed malarial diseases. Linnæus long ago showed that if you place two barrels of stagnant water side by side, neither of them containing any "wiggle-tails" or other living animals, and cover one of them over with gauze, leaving the other one uncovered, so that it will soon become full of "wiggle-tails" hatched out from the eggs deposited by the female mosquito; then the covered barrel will in a few weeks become very offensive, and the uncovered barrel will emit no impure and unsavory vapors.—*Entomologist.*

Use of Phenate of Potash to Detect Water in Ether.

As dry phenate of potash is almost insoluble in anhydrous ether, while hydrated ether partially dissolves it, and the undissolved part, after some time, becomes reddish-brown, the author applies those characters to detect water in ether. By this means he has recognized the presence of so small a quantity as 2·5 parts of water in 1000 of ether.

Preservation of Hydriodic Acid.

This acid is kept and properly preserved in a white state in the presence of turnings of copper; the iodide of copper which is slowly formed is not dissolved by the acid; hydriodic acid which has become brown colored will be restored to its pure color when shaken up with copper turnings.—*Deutsche Industrie Zeitung.*

Cement for Leather.

This is not the cement hawked about the streets in wagons with hay, which is certainly never fed to the horses. We find it in the *Polytechnische Notizblatt*, a very excellent publication in German, and to be had of E. Steigher, 17 North William Street, New York. In a mixture of ten parts of bisulphide of carbon and one of oil of turpentine enough of gutta-percha is dissolved to form a mass of dense consistence. For the purpose of uniting the surfaces of two pieces of leather, they must all be free from fatty substances, which is accomplished by placing upon each some blotting paper and heating them with a flat iron. After putting on the cement, pressure is applied until it is quite dry.—*Druggists' Circular.*

Glycerine Cement.

When a cement is to answer only temporary purpose, as for instance in making the corks or stoppers of bottles perfectly air and vapor tight, it will not do to employ a kind which becomes very hard, as is the case with oil and lead compounds nor, again, other kinds, such as wax and resin, which are softened by many chemical vapors. The best cement in such cases is red-lead, or finely powdered litharge mixed with undiluted glycerene. This hardens soon enough, and when required, can be easily removed.

Cement to resist Red Heat and Boiling Water.

To four or five parts of clay, thoroughly dried and pulverised, add two parts of fine iron filings free from oxide, one part of peroxide of maganese, one-half of common salt, and one-half of borax; mingle thoroughly; render as fine as possible; then reduce to a thick paste with the necessary quantity of water, mixing thoroughly well. It must be used immediately. After application it should be exposed to warmth, gradually increasing almost to a white heat. This cement is very hard, and presents complete resistance alike to a red heat and boiling water.

Another Cement.

To equal parts of sifted peroxide of manganese and well pulverized zinc white add a sufficient quantity of commercial soluble glass to form a thin paste. This mixture, when used immediately, forms a cement quite equal in hardness and resistance to that obtained by the first method.—*Blätter fur Gewerbe.*

A New Styptic Collodion.

Mr. Carlo Pavesi gives in the 'Gazette de Turin' the following form for a new collodion.

Collodion	100
Carbolic Acid	10
Tannin	5
Benzoic Acid	3

Agitate until a perfect solution be formed. It is of a brownish color, gives a pellicle similar to ordinary collodion, and instantly coagulates blood.

Essence of Patchouli.

Either when left to itself, or when treated with dehydrating substances, yields a camphor which has a black colored solid substance, and has a composition which is isomeric with the essence, its composition represented by $C_{30}H_{26}$, it melts at between 54° and 55° C, and boils at 296°; density = 1·061 at 4.5° C. Vapor density at 324° = 8·00. When essence of Patchouli is heated up to from 282° to 294°, it is entirely converted into this camphor, which is, moreover, homologous with Borneo camphor.—*Chemical News.*

A New Copying Ink.

A black copying ink, which flows easily from the pen, and will enable any one to obtain very sharp copies without the aid of a press, can be prepared in the following manner: One ounce of coarsely broken extract of logwood and two drachms of crystallized carbonate of soda are placed in a porcelain capsule with eight ounces of distilled water, and heated until the solution is of a deep red color, and all the extract is dissolved. The capsule is then taken from the fire. Stir well into the mixture one ounce of glycerin of a specific gravity of 1.25, fifteen grains of neutral chromate of potash, dissolved in a little water, and two drachms of finely pulverized gum arabic, which may be previously dissolved in a little hot water so as to produce a mucilaginous solution. The ink is now complete and ready for use.

In well-closed bottles it may be kept for a long time without getting mouldy, and, however old it may be, will allow copies of writing to be taken without the aid of a copying press. It does not attack steel pens. This ink cannot be used with a copying press. Its impression is taken on thin moistened copying paper, at the back of which is placed a sheet of writing paper.

Blue Indelible Ink.

Blue indelible ink for marking linen, is made of five parts of oxide of molybdenum, dissolved in the requisite quantity of hydrochloric acid; two parts of the extract of liquorice, and six of gum-arabic dissolved in two hundred parts of water. These two solutions are mixed, and after writing with them on the objects, the spot written upon is moistened with a solution of chloride of tin in water. This indelible ink not only withstands washing, but also all kinds of acids and alkalies, except those which also destroy the linen.—*Manufacturer and Builder.*

Miscellaneous.

Blood.—The age of blood-stains may be determined by immersing the material in one grain of arsenic and two drachms of water. If the stain be recent it will bleach in a few minutes. If one year old, four or six hours will only imperfectly dissolve it.

Carbolic Paper.—Pugliari, an Italian chemist, has invented a kind of paper, wherein carbolic acid is so thoroughly incorporated that the paper, when used to pack animal substances therein, preserves the same in a fresh state without salt or any curing whatever.

Substitute for White Lead.—Mr. Sace has called attention to the fact that tungstate of baryta forms an excellent white paint, which has as good a tone and depth as white lead, and has the advantage above this of not becoming blackened on exposure to the atmosphere. Zinc white, which was tried as a substitute for white lead, has failed through a want of body.

Coal Ashes.—A series of experiments conducted at the Museum of Natural History, Paris, during the past year, by Professor Naudin, has resulted in the conclusion that coal ashes act neither as a manure nor even as earth of the most infertile quality. It is certain, however, that upon a heavy clay they act as disintegrators, an effect which cannot very well be only mechanical, as a very small amount of coal ashes is sufficient to destroy the adhesiveness of a very large amount of clay.—*Engineer.*

Solubility of Indigo.—M. Camille Kœhlin has discovered the curious fact of the solubility of indigo in alkaloid salts, and particularly in the acetates and chlorides of aniline, morphine, etc.

Professor Nickels, of the Faculty of Sciences of Nancy, in France, recently met with his death in a very peculiar manner—by accidentally inhaling the vapor of concentrated hydrofluoric acid, while engaged in making experiments to isolate fluorine. Professor Nickels was the author of many valuable published scientific works.

On some new Products obtained from American Petroleum.—Lefevre has found therein a substance which boils at 23° C., and the composition of which it is expressed by C_6H_8; the specific gravity of this liquid is 0·613, the vapor density is 1·60; with hydrochloric acid it forms propyl-chlorhydric ether. The residue of the recitication of these kinds of petroleum yielded hydride of butyl C_8H_{10}, which boils at o° C, and has a specific gravity of 0·624.

A Novel Way of Reducing Strangulated Hernia.—Dr. Geo. Weller cites a case of strangulated hernia, where manipulation in the warm bath failed to give relief. After covering the patient's eyes with a towel, the leg of the affected side was flexed upon the abdomen, and about a pint of cold water dashed suddenly upon the chest and epigastrium which caused a quick and deep inspiration, and the slipping back of the hernia into the abdomen.—*Ohio Med. and Surg. Rep.*

Constipation in Females.—Dr. Thompson, of New York, recommends for the above the use of belladonna, in combination with nux vomica and colocynth. He remarks that to induce a natural action of the bowels with slight catharsis after prolonged constipation, he prescribed a pill compounded of $\frac{1}{3}$ gr. ext. belladonna, $\frac{1}{2}$ gr. ext. nucis vom., 3 grs. ext. colocynth comp. to be taken at night. In obstinate cases a second pill is sometimes required to take effect, but in a short time one will become sufficient.—*Ec. Med. Jour. of Cin.*

Growth of Fungi in Chloride of Magnesium.—Mr. Slack recently noticed a quantity of flocculent matter in a strong solution of chloride of magnesium, which had been kept a long time in a dark cupboard. On examination it proved to be a gelatinous mass, in which innumerable fungoid threads were discernable. This may be added to the numerous cases of fungi growing in chemical solutions that might have been supposed unfavorable to their existence.

Age in Wines.—All natural wines, if any improvement is to be effected by age, must throw down a deposit, and thereby they become *sweeter in bottle by the elimination of their tannin, tartrates, &c.* From red wine the deposit contains tannin, which, uniting with the albuminous matter contained in the wine, forms a crust, that year by year becomes less and less, until at length it becomes so thin that it acquires the name of "beeswing." The deposit also takes the form of crystals, which will both adhere to the cork and fall to the bottom of the bottle like powdered glass. All natural wines that have been any length of time in bottle should therefore be decanted with care.

VANILLINE.—Mr. Gobley has instituted researches concerning the odoriferous principle of vanilla. He found a substance therein which crystallises in long colorless needles: to the taste this substance was aromatic and hot; it does not effect litmus paper, fuses at 70° C., volatises at 150° C., is nearly insoluble in cold, somewhat more soluble in hot water, and very soluble in alcohol, ether, and volatile as well as fatty oils. Its composition is expressed by $C_{20}H_6O_4$. Gobley call it *vanilline*.

LIQUEFACTION OF GASES.—Mr. Ladd has lately exhibited at the Royal Institution, London, a very elegant experiment, showing the liquefaction of gases by pressure. Three glass tubes, open at the bottom, containing cyanogen, sulphurous acid and ammonia in their upper parts, and filled with mercury below, are enclosed in a strong glass cylinder filled with water. At the top of the cylinder is a small force-pump, which, when worked, drives more water into the cylinder, and forces the mercury, which acts as a piston up the tubes. As the mercury rises the gases are condensed, and now appear as liquids at the top. When the pressure is reduced by opening a stop-cock the liquids boil, and the gases speedily resume their normal dimensions.

—A not uncommon adulteration of glycerin is to mix sugar and dextrine with it. These substances have not hitherto been easy to discover when mixed with the glycerin; the following process is, however, said to answer perfectly:—To 5 drops of the glycerin to be tested, add 100 to 120 drops of water, 3 to 4 centigrammes of ammonium molybdate, 1 drop of pure nitric acid (25 per cent.), and boil for about a minute and a half. If any sugar or dextrine is present, the mixture assumes a deep blue color.

WITH microscopic and blowpipe, Mr. Sorby is developing a new method for the examination of minerals. He fuses a small portion (a bead) of the substance to be examined, in borax, adds various re-agents according to circumstances, keeps the bead at a dull red heat for a short time, when crystals appear characteristic of the substance, and in some instances singularly beautiful in form. The whole process can be seen and the crystals identified under the microscope.

A CEMENT said to possess many advantages, and to be especially adapted for sealing up vessels containing benzoles, etherial oils, etc., is prepared by rubbing up finely ground litharge with concentrated glycerin. The liquid cement is to be poured upon the cork or stopper, or it may be applied with a brush.

MELTED lead, which has a specific gravity of 11·5 will float on melted iron, which has a specific gravity of 7. This has been recently explained by Prof. Karmarsch, of Hanover, who finds that the lead when melted forms a hollow spheroid, which is filled with some vapor of lead, making it specifically lighter than iron. In smelting, however, certain ores of iron which contain lead, the lead is found at the bottom, where, owing to its specific gravity, we should expect to find it.

—PIPE clay rubbed on the hands will remove the unpleasant order caused by the use of chloride of lime and salts.

THE STAINS OF IODINE.—By adding a few drops of liquid carbolic acid to the iodine tincture, the latter will not stain. According to Dr. Bogs, of the Indian Service, carbolic acid also renders the efficacy of tincture of iodine more certain. He recommends the following formula, whenever injections of the latter are indicated: Alcoholic tincture of iodine, 45 drops; pure liquid carbolic acid six drops; glycerine, one ounce; distilled water, five ounces. In blennorrhœa and leucorrhœa, his mixture is said to be superior to tar-water.

CINCHONA IN JAMAICA.—From 8,000 to 10,000 plants of *cinchona succirubra* are ready for sale in the island of Jamaica, at the plantation at Gorden Town, this spring.

Notes and Queries.

C. B. L.—COLORING FOR SYRUPS.—Raspberry and strawberry syrups are commonly colored with magenta. If you have any objections to that substance, on account of its poisonous properties, tincture of cudbear may be substituted. The following proportions may be used:—

Cudbear,... ..... 8 oz.
Alcohol.......... 1 pint.

For sarsaparilla syrup, use caramel or brandy coloring.

Inquirer.—OIL OF ARNICA.—There is an oil bearing this name, derived from both the root and leaves of *arnica montana*. That from the root is soluble in two parts of rectified spirit; that from the flowers requires one hundred parts for solution.

Nova Scotian.—It is commonly, but erroneously, supposed that a gallon of castor oil equals eight pounds in weight. The specific gravity of the oil is about ·970; consequently one gallon would weigh, only 7¾ pounds.

W. H. L.—FILTRATION.—Acids, and acid substances, which usually destroy a paper filter, may be cleared by filtration through a little asbestus, placed in the neck of a funnel. It will be necessary to cover the asbestus with a perforated diaphram of stoneware, or a few pieces of glass, in order to prevent it from floating, which will certainly occur if the fluid to be filtered is of great density. Asbestus is only about two and a half times heavier than water, consequently, it will rise to the surface of a liquid whose specific gravity is over 2-6. Common glass, powdered in a mortar will also make a good filtering medium; and ordinary cotton wool placed in the bottom of the funnel with slight pressure, and having been previously wetted, will often answer for acid solutions, when a paper filter is inapplicable.

Apprentice.—We are not in a position, at present, to answer your enquiry; but as soon as the society has taken a definite course in the matter, we shall be happy to do so. In the mean time, use such books as are within reach. See editorial in present issue.

Changes.

L. W. Youmans is commencing in Belleville, with a new stock and stand.

J. S. Parker intends taking charge of the Owen Sound business of Parker & Cattle, and offers their Paris branch for sale.

Henry K. Knowles is commencing a new business, in Toronto, under the management of R. C. Newman.

The business at Arthur, belonging to L. H. Youmans, has been purchased by Dr. E. Allen.

J. L. Margach, Toronto, has taken into partnership W. Anderson and J. P. Buchan. The style of the new firm is Margach, Anderson & Co.

Mr. Killman, formerly of Barrie, is about to commence business in Newmarket.

Trade Report.

The unsettled weather during the past month has tended somewhat to keep back business, but during the past week there has been a decided improvement. A great many of the best buyers have been down, and, on the whole, they have bought largely, especially of sundries and fancy goods.

The spring importations have been coming forward during the whole of the past month, and are pretty nearly all in stock; we would advise all buyers who intend making a personal selection of goods, to come during the coming month, as stocks have never been so good as at present, and will well repay a journey for this purpose.

The changes in our Price List are not very numerous; but in some instances, show a very decided advance. Vanilla beans are very scarce, and are steadily going up; ergot, also, is very firm at higher rates; glycerine is quoted lower than in our last; English oil of lavender is decidedly higher; opium still remains at its high figure, but is not held quite so firmly; bromide of potassium which of late has come into such extensive use is advanced in England, equal to about thirty-five cents per lb. Quinine is still very firm, and at last advices had risen one penny per ounce during the week. Cardamons are almost out of market, and consequently command very high figures.

In dyestuffs the only material change is in Logwood, which both in the shape of wood, and extract, is very much higher. Madder is slightly lower.

Olive oil is quoted very low, Cod and Seal oils are very scarce at present, but in all probability, will be very low as soon as new stock comes in.

Spirits of Turpentine have fallen considerably, and can be bought at a very reasonable price at present.

WHOLESALE PRICES CURRENT.—JUNE, 1869.

Drugs, Medicines, &c.	$ c.	$ c.
Acid, Acetic, fort.	0 12@	0 15
" Benzoic, pure	0 28	0 35
" Citric	0 85	0 90
" Muriatic	0 05	0 07
" Nitric	0 11½	0 15
" Oxalic do	0 26	0 32
" Sulphuric	0 04¾	0 07
" Tartaric, pulv.	0 40	0 45
Ammon., carb. casks	0 17	0 19
" " jars	0 18	0 20
" Liquor, 880	0 18	0 25
" Muriate	0 12½	0 15
" Nitrate	0 45	0 60
Æther, Acetic	0 45	0 50
" Nitrous	0 22½	0 25
" Sulphuric	0 48	0 55
Antim. Crude, pulv	0 10	0 12
" Tart. "	0 50	0 60
Alcohol, 95%	1 67½	2 00
Arrowroot, Jamaica	0 21	0 22
" Bermuda	0 60	0 65
Alum	0 02½	0 03½
Balsam, Canada	0 32	0 40
" Copaiba	0 75	0 80
" Peru	2 90	3 00
" Tolu	1 20	1 40
Bark, Bayberry, pulv	0 20	0 25
" Canella, "	0 17	0 20
" Peruvian, yel. pulv	0 40	0 45
" " red "	1 50	1 60
" Slippery Elm, g. b.	0 18	0 20
" " flour, pkt's	0 28	0 32
" Sassafras	0 15	0 18
Berries, Cubebs, ground	0 30	0 40
" Juniper	0 06	0 10
Beans, Tonquin	0 60	1 10
" Vanilla	9 00	10 00
Bismuth, Alb.	6 20	6 40
" Carb.	6 20	6 40
Camphor, Crude	0 46	0 50
" Refined	0 60	0 68
Cantharides	0 90	1 00
" Powdered	1 00	1 10
Charcoal, Animal	0 04	0 06
" Wood, pow'd.	0 12	0 15
Chiretta	0 55	0 65
Chloroform	1 40	1 50
Cochineal, S. G.	0 90	1 15
" Black	1 30	1 75
Colocynth, Pulv.	0 50	0 80
Collodion	0 55	0 60
Elaterium ...oz.	4 50	5 00
Ergot	1 08	1 15
Extract, Belladonna	2 00	2 20
" Colocynth, Co.	1 25	1 75
" Gentian	0 50	0 60
" Hemlock, Ang.	1 12	1 25
" Henbane, "	2 40	2 60
" Jalap	5 00	5 50
" Mandrake	1 75	2 00
" Nux Vomic...oz	0 60	0 70
" Opium "	Variable.	
" Rhubarb	7 50	—
" Sarsap. Hon. Co	1 00	1 20
" " Jam. Co	3 25	3 70
" Taraxicum, Ang	0 70	0 80
Flowers, Arnica	0 26	0 35
" Chamomile	0 36	0 45
Gum, Aloes, Barb. extra	1 00	1 10
" " " good	0 50	0 55
" " Cape	0 15	0 20
" " " pow'd	0 25	0 30
" " Socot.	0 80	0 90
" " " pulv.	0 90	1 00
" Arabic, white	0 42	0 65
" " " pow'd	0 57	0 65
" " sorts	0 34	0 37
" " " pow'd	0 50	0 60
" " com. Gedda	0 13	0 16
" Assafœtida	0 32	0 40
" British or Dextrine	0 13	0 15
" Benzoin	0 48	0 55
" Catechu	0 15	0 20
" " pow'd	0 25	0 30
" Euphorb, pulv	0 32	0 40
" Gamboge	1 40	1 60
" Guaiacum	0 32	0 50
" Myrrh	0 48	0 60
" Sang Dracon	0 60	0 70
" Scammony, pow'd	5 60	—
" " Virg. "	14 50	—
" Shellac, orange	0 31	0 35

Drugs, Medicines, &c. *Continued.*	$ c.	$ c.
Gum, Shellac, liver	0 21@	0 28
" Storax	0 65	0 75
" Tragacanth, flake.	0 70	1 00
" " common	0 30	0 35
Galls,	0 32	0 37
Gelatine, Cox's, 6d.	1 10	1 20
Glycerine, com.	0 30	0 40
" Vienna	0 35	0 45
" Price's	0 65	0 75
Honey, Canada, best	0 16	0 20
" Lower Canada	0 12½	0 13
Iron, Carb. Precip.	0 20	0 25
" " Sacchar.	0 40	0 45
" Citrate Ammon.	0 90	1 00
" " & Quinine oz.	0 43	0 48
" " & Strychnine "	0 17	0 25
" Sulphate, pure	0 08	0 10
Iodine, good	4 50	5 00
" Resublimed	5 60	6 00
Jalapin ...oz.	1 50	2 00
Kreosote	1 60	2 50
Leaves, Buchu	0 30	0 50
" Foxglove	0 25	0 30
" Henbane	0 35	0 40
" Senna, Alex	0 30	0 60
" " E. I.	0 12½	0 20
" " Tinnevelly	0 20	0 30
" Uva Ursi	0 15	0 20
Lime, Carbolate ...brl.	5 50	—
" Chloride	0 04½	0 06
" Sulphate,	0 08	0 12½
Lint, Taylor's best	1 12½	1 25
Lead, Acetate	0 14	0 17
Leptandrin ...oz.	0 65	—
Liq. Bismuthi	0 50	0 75
" Opii, Battley's	7 60	9 00
Lye, Concentrated	0 00	2 00
Liquorice, Solazzi	0 40	0 45
" Cassano	0 30	0 40
" Other brands	0 14	0 25
Liquorice, Refined	0 35@	0 45
" " Hessin's doz	2 00	
Magnesia, Carb. ...1 oz.	0 22	0 25
" " ...4 "	0 17	0 20
" Calcined	0 65	0 75
" Citrate ..gran.	0 40	0 50
Mercury	0 65	0 75
" Bichlor	0 70	0 80
" Biniodid ...oz.	0 25	0 35
" Chloride	0 90	1 00
" C. Chalk	0 45	0 60
" Nit. Oxyd	0 90	1 00
Morphia, Acet. } about	--	—
" Mur. } about	8 00	—
" Sulph. } about	—	—
Musk, Pure grain ..oz.	22 00	—
" Canton	1 75	2 00
Oil, Almonds, sweet	0 48	0 55
" " bitter	14 00	15 00
" Anniseed	4 00	4 50
" Bergamot, super.	6 50	7 00
" Carraway	4 00	4 20
" Cassia	3 00	3 20
" Castor, E. I.	0 17	0 20
" " Crystal	0 22	0 25
" " Italian	0 26	0 28
" Citronella	1 65	2 00
" Cloves, Ang.	1 00	1 10
" Cod Liver	1 40	1 50
" Croton	2 50	3 00
" Geranium, pure, oz.	2 00	2 20
" Juniper Wood	0 90	1 00
" " Berries	6 00	7 00
" Lavand, Ang.	21 50	22 00
" " Exot.	1 40	1 60
" Lemon, super.	3 20	3 60
" " ord.	2 70	2 80
" Orange	3 [illegible]	3 20
" Origanum	0 [illegible]	0 75
" Peppermint, Ang.	16 00	17 00
" " Amer.	5 00	5 50
" Rose, virgin	7 75	8 00
" " good	5 00	5 50
" Sassafras	1 30	1 40
" Wintergreen	5 80	6 50
" Wormwood, pure	5 80	50
Ointment, blue	0 65	0 70
Opium, Turkey, about	12 50	—
" " pulv	14 50	—
Orange Peel, opt.	0 65	0 75
" " good	0 12½	0 20
Pill, Blue, Mass	0 70	0 75

Drugs, Medicines, &c. *Continued.*	$ c.	$ c.
Potash, Bi-chrom	0 15@	0 20
" Bi-tart.	0 25	0 28
" Carbonate	0 16	0 20
" Chlorate	0 40	0 45
" Nitrate	8 50	9 00
Potassium, Bromide	1 90	2 00
" Cyanide	0 70	0 75
" Iodide	3 80	4 50
" Sulphuret	0 25	0 35
Pepsin, Boudault's ...oz.	1 65	1 80
" Houghton's, doz	8 00	9 00
" Morson's. ...oz.	0 85	1 10
Phosphorus	0 75	0 85
Podophyllin	0 60	0 75
Quinine, Pelletier's	1 70	—
" Howard's	1 77½	1 80
" " 100oz. case	0 00	—
" " 25 oz. tin	0 00	—
Root, Colomba	0 14	0 20
" Curcuma, grd.	0 12½	0 17
" Dandelion,	0 25	0 35
" Elecampane	0 14	0 17
" Gentian	0 08	0 12½
" " pulv.	0 15	0 20
" Hellebore, pulv	0 20	0 25
" Ipecac	2 40	2 60
" Jalap, Vera Cruz.	1 55	2 —
" " Tampico	0 90	1 —
" Liquorice, select.	0 13	0 17
" " pow'd	0 12½	0 16
" Mandrake, "	0 20	0 25
" Orris "	0 20	0 25
" Rhubarb, Turky.	5 25	5 50
" " E. I., China.	1 50	1 75
" " " pulv.	1 60	1 85
" " " " 2nd	1 30	1 50
" " French	0 75	—
" Sarsap., Hond	0 45	0 50
" " Jam.	0 75	0 80
" Squills	0 10	0 15½
" Senega	0 40	0 50
" Spigelia	0 35	0 40
Sal., Epsom	3 00	4 00
" Rochelle	0 30	0 35
" Soda	0 02	0 03
Seed, Anise	0 16	0 30
" Canary	0 06½	0 07
" Cardamon	2 90	4 00
" Fenugreek, gr'd	0 10	0 15
" Hemp	0 06	0 07
" Mustard, white	0 14	0 16
Saffron, Amer.	1 25	1 50
" Spanish	14 00	16 00
Santonine	11 50	12 50
Sago	0 07½	0 09
Silver, Nitrate, cash	14 90	16 50
Soap, Castile, mottled	0 12½	0 14
Soda Ash	0 03	0 04
" Bicarb. Newcastle	4 00	5 00
" " Howard's	0 14	0 16
" Caustic	0 04½	0 05
Spirits Ammon., arom	0 25	0 35
Strychnine, Crystals	2 65	3 00
Sulphur, Precip.	0 10	0 12½
" Sublimed	0 4	0 05
" Roll	0 03	0 04½
Tamarinds	0 15	0 20
Tapioca	0 20	0 23
Veratria ...oz.	0 25	0 30
Vinegar, Wine, pure	0 55	0 60
Verdigris,	0 35	0 40
" Pow'd	0 45	0 50
Wax, White, pure	0 85	0 90
Zinc, Chloride ...oz.	0 20	0 25
" Sulphate, pure	0 10	0 15
" " com.	0 06	0 10
Dyestuffs.		
Annatto	0 40@	0 60
Analine, Magenta, cryst	Variable.	
" " liquid	2 50	—
Argols, ground	0 15	0 25
Blue Vitriol, pure	0 08	0 10
Camwood, pure	0 06½	0 09
Copperas, green	0 01½	0 02½
Cudbear	0 16	0 25
Fustic, Cuban	0 03	0 04
Indigo, Bengal	2 40	2 50
" Madras	1 15	1 20
" Extract	0 28	0 35
Japonica	0 05½	0 06½
Lacdye, pow'd.	0 35	0 40
Logwood	0 02½	0 03

Dyestuffs—*Continued*	$ c.	$ c.
Logwood, Camp	0 02½@	03½
" Extract	0 13	14
" " 1lb bxs	0 14½	—
" " ½lb "	0 15½	—
Madder, best Dutch	0 16½	0 18
" " French	0 00	0 00
Quercitron	0 04	0 05
Sumac	0 06½	0 08
Tin, Muriate	0 10½	0 12½
Redwood	0 05	0 06
Spices.		
Allspice	0 08½@	0 10
Cassia	0 44	0 45
Cloves	0 13	0 14
Cayenne	0 18	0 25
Ginger, E. I.	0 12	0 14
" Jam.	0 28	0 30
Mace	0 78	0 90
Mustard, com.	0 20	0 25
" D. S.	0 40	0 45
Nutmegs	0 45	0 75
Pepper, Black	0 11½	0 12½
" White	0 20	0 22
Paints, Dry.		
Black, Lamp, com.	0 07@	0 08
" " refined	0 25	0 30
Blue, Celestial	0 08	0 12
" Prussian	0 65	0 75
Brown, Vandyke	0 10	0 12½
Chalk, White	0 01	0 01½
" Red	0 08	0 10
Green, Brunswick	0 07	0 10
" Chrome	0 20	0 25
" Paris	0 30	0 35
" Magnesia	0 20	0 25
Litharge	0 08	0 09
Pink, Rose	0 12½	0 15
Red Lead	0 06½	0 08
" Venetian	0 02½	0 03½
Sienna, B. & G.	0 10	0 15
Umber, "	0 07	0 10
Vermillion, English	0 90	1 00
" American	0 25	0 35
Whiting	0 85	1 25
White Lead, dry, gen.	0 07½	0 09
" " " No. 1	0 06½	0 08
" " " No. 2	0 05½	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 32	0 37½
Red, Venetian	0 07	0 10
Patent Dryers, 1lb tins	0 14½	0 16
Putty	0 03¾	0 04½
Yellow Ochre	0 08	0 12
White Lead, gen. 25lb tins	2 35	—
" " No. 1 "	2 10	—
" " No. 2 "	1 90	—
" " No. 3 "	1 65	—
" " Com. "	1 30	—
White Zinc, Snow	2 75	3 25
Naval Stores.		
Black Pitch	4 50@	5 50
Rosin, Strained	3 75	4 50
" Clear, pale	6 50	10 00
Spirits Turpentine	0 52½	0 60
Tar Wood	4 00	5 00
Oils.		
Cod	0 65@	0 70
Lard, extra	1 25	—
" No. 1	1 12½	—
" No. 2	1 05	—
Linseed, Raw	0 76	0 82
" Boiled	0 81	0 87
Olive, Common	1 30	1 45
" Salad	1 85	2 20
" " Pints, cases	4 25	4 50
" " Quarts	3 60	3 75
Seal Oil, Pale	0 80	0 00
" " Straw	0 70	0 75
Sesame Salad	1 60	1 75
Sperm, genuine	2 40	—
Whale, refined	0 80	1 00