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Contents.

Original Papers.

ON SOME OF THE PHYSICAL CHARACTERISTICS OF METALLIC BISMUTH.

BY B. B. SHUTTLEWORTH.

THE introduction of a soluble preparation of bismuth into medical use has invested the metal with an interest not heretofore realized by pharmaceutical chemists. Although the subnitrate has been officinal for many years, its preparation has been confined almost exclusively to the manufacturing chemist, and, as a consequence, druggists are not generally so well informed regarding its source and relations, as of those compounds resulting from the work of their own hands. The advent of *Liq. Bismuthi*, in the British Pharmacopœa of 1867, gave impetus to an inquiry which had been already set on foot by the secret preparation of Mr. Schact, and up to the present time, the discussion of bismuth, its compounds, and impurities, has been carried on with uninterrupted energy.

Previous to the middle of the sixteenth century, the ancients regarded bismuth as a peculiar form of lead, but G. Agricola, of Saxony, about the year 1546, (Ure.) proved its existence as a separate metal. Until quite recently, the old mines of Schneeberg, in Saxony, furnished the principal part of the bismuth of commerce. A few years ago, about ten thousand tons were produced annually, of late, the quantity has fallen off, owing to the mines not being fully worked. A small supply has been obtained from Cornwall and Cumberland, and the metal has been found in Australia and Peru. A large exportation was said to have been made from the former locality, last year, but the price appears to be as yet unaffected, being quoted at present, in London, at the extremely high figure of 22s. 6d. per pound.

There are a number of ores containing bismuth, but it occurs, principally, in the native state, associated with cobalt, arsenic, and silver, and is obtained as a secondary product in the reduction of those metals. As found in commerce, it is always impure, and is almost invariably contaminated with arsenic and copper, and occasionally, with silver, lead, iron, and thallium. Chemically pure bismuth was exhibited by Messrs. Johnson, Matthey & Co., the great refiners of London, at the late Paris Exhibition; they stated that it could be supplied in any quantity for 40s. a pound; but so far, there had been little demand for it.

A few weeks ago, we were shown a sample of a substance sold to a firm in this City. for metallic bismuth. It bore very little resemblance to that metal, and lacked the characteristic pink, or reddish tinge, always observable. In fact, it could scarcely be mistaken for anything but galena, and subsequent examination proved it to be such. This is a substitution which could, of course, only be practised on those not at all familiar with the appearance of bismuth.

The specific gravity of the pure metal is 9.83; its melting point is about 500° F., and in cooling it always assumes the crystalline form. Perfect crystals form a very pretty object for the shop window, and preserve their lustre for a long time. They may be best obtained by the following method:—Melt a quantity of ordinary bismuth in an iron ladle and pour it into a clay crucible, surrounded by hot sand or ashes; allow it to cool very slowly, and when a crust has formed on the surface of the metal, make two openings in it at opposite sides, by means of a red hot iron. Invert the crucible carefully and allow the metal to run out by one of the holes, while the air finds ingress by the other. Break the crucible as nearly as possible in two halves; the interior will be found to be lined with very beautiful, iridescent crystals in the form of cubes and hollow tetrahedrons.

Bismuth is in many respects a curious and peculiar metal, and in its physical properties proves rather an exception to the general rule. It has been stated that its specific gravity is 9.83; when subjected to a pressure of 200,000 pounds its density is 9.55, so that it actually gets lighter the more it is compressed. When fused it is heavier than in the solid state. In solidifying it expands one thirty second part of its bulk, and this property forms the basis of its application in type founding, as by the expansion the finest lines of the type mould are filled and a perfect letter produced. It has been found that in a mixture of bismuth with several other metals the specific gravity of the alloy is greater than the mean of its constituents. An alloy of bismuth, lead and tin constitutes the fusible metal discovered by Sir Isaac Newton, and melts at a much lower temperature than any of the metals composing it. According to Rose a mixture of two parts of bismuth, one of lead, and one of tin melts at 200°-75 F. Teaspoons are sometimes made of this alloy which disappear on stirring a hot cup of tea. It also serves a more useful purpose as a medium for taking impressions of objects which would be spoiled by a higher temperature, as of anatomical specimens, fruit, flowers, &c. The addition of a little mercury (about one part) renders this mixture still more fusible. Bismuth is not at all sonorous, but when alloyed with tin it communicates sound in a high degree, and for this purpose is much used in bell founding.

When subjected to a high temperature it volatilizes and may be distilled in close vessels.

It is unfortunate, however, that this method cannot be employed for its purification as its chief impurity—arsenic—would of course sublime with it. When heated in the air it oxidizes rapidly, and if the heat be raised takes fire, burning with a bluish flame, and giving off a dense yellow smoke which condenses as a yellowish powder—the trioxide.

We shall reserve the consideration of the chemical relations of bismuth for a future paper.

THE RENEWAL OF PRESCRIPTIONS.

BY HENRY J. ROSE, TORONTO.

The medical and pharmaceutical world south of the lakes has been agitating, for some time past, the question as to the extent to which the renewal of physicians' prescriptions is justifiable. The question was mooted at the meeting of the East River Medical Association of New York in 1867, and their views embodied in an address to the American Pharmaceutical Association, taking the ground that it was unjust to the medical profession, and frequently an injury to the public, to allow prescriptions to be repeated indiscriminately, and calling upon the American Pharmaceutical Association to take means to suppress the practice. That society took the matter up at its last annual meeting, held in Philadelphia in September last, and showed that the practice was general of repeating medicines for the original patient, or any one to whom he gave the number or distinctive mark of the prescription, and giving copy of the original, if desired. They held that the prescription was the property of the patient, and that it would be impossible to restrict the demand for its renewal; while recommending the dispenser to use his judgment in cases where the continued use of any of the ingredients would be injurious. Such were the leading points of the courteous reply to the Medical Society.

The question has, since then, received a fresh impetus by a melancholy accident which occurred in Philadelphia on the 3rd November. A lady had obtained a prescription from her brother—a doctor—for some pills, containing two grains of assafœtida, which had been repeated several times. On that day she sent for some more, when the druggist mistook assafœtida for atropia, alleging that the prescription had become blurred. Of course, the first dose proved fatal. This is certainly rather a slim thread on which to hang a demand for abolishing all renewals of prescriptions; for a so-called druggist, who would put two grains of atropia into a dose of medicine, no matter how legibly written the prescription might be, could scarcely be looked upon as a model for a dispenser. Still, the medical press urge this as an argument. The *Medical Record*, of New York, among others, claims this as a deduction; and, while urging the point, gives, in the January number, a letter from a legal authority in Washington, in which he argues the question as to the patient's and apothecary's rights in a prescription. He draws a distinction between the usufruct, or benefit of using, and the formula itself, which latter belongs to the physician, the former being the *quid pro quo* to the patient; and looks on a prescription as under the same legal obligations as a letter, or literary document, the absolute property of the receiver for his own, but not for public use, without the consent of the writer; and afterwards quotes cases where even the publication of a letter is justifiable, when in vindication of the receiver's own rights.

With regard to the legal obligations of the apothecary in the case, he is at full liberty to dispense a prescription as often as called upon by the party owning the usufruct, but he has no authority over the formula in the way of using it or making it public. But to make the prescription come under the same law as a letter, it must have the signature in full of the physician, and the name of the party for whose use it is written. He recommends, as the proper legal remedy, one that will limit the right of sale of certain articles of *materia medica*, such as mercurials, antimonials, narcotics, drastrics, and poisons, by requiring a fresh order for each sale of any prescription containing either of such articles.

Now, although we may, and no doubt do, recognize an injustice to the physician in the the indiscriminate repeating of prescriptions, there is not sufficient proof that the practice is carried to such an extent as to warrant the passing of a law as stringent as the one mentioned. The case of the accident quoted is entirely baseless as an argument, except in favor of a higher standard of ability behind the dispensing counter. Any and every lawful attempt in this direction will meet with the approval of every real pharmaceutist, and is the prime object of the society to which we belong.

The proper remedy for the injustice to the physician is to be obtained, not in hampering the druggists by legislative restrictions—means tending more to create than allay an opposition of interests, which ought never to arise—but could be fully secured by mutual understanding between them. A physician has only to express his wish that a prescription of his shall only be dispensed on his own order, and our faith in the moral rectitude of nine-tenths of the druggists of Ontario at least, is such, that we believe such recommendation will have as much weight as

any legislation possible, in spite of the innuendoes of the *Medical Record* as to the mercenary natures of druggists. Many cases have occurred in which such a course has been taken, and with the utmost satisfaction.

A physician may do himself more harm than he is aware of by placing undue restrictions on his prescriptions; but with this we, as druggists, have nothing to do.

These remarks on this subject may, perhaps, seem premature in this country; but as the question is occupying so much attention on the other side of the line, it is quite possible that the agitation may extend to Canada.

A Glance at German Teaching.

It is possible to exaggerate the value of laboratories, but it is also clear that fine work cannot be obtained by coarse machinery. A friend tells us that the finest—*i. e.*, most practical—laboratory he ever saw was in a kind of shed built by Dr. Boswell Reid, in Edinburgh, but we know how the Scots admire their own. To us it seemed that it was Liebeg's new laboratory that took us fairly out of the habits of the alchemistic age. Even after it was built Heidelberg had its chemist, a man of the highest celebrity in his department, working in a spot so furnished with black furnaces, heavy hoods, crucibles, and other fire machinery that students from the newer building scarcely could imagine what work could be there done; and if they had read poetry and romance it was, at first sight, Faust, Auerbach's Keller, and necromancy that came more readily into their minds than chemical apparatus. But if they approached the study, these distant times soon disappeared. The master sat in a clear and bright well-ordered apartment; ask him a question on any subject connected with chemistry, and before answering he goes to one of the numerous pigeon-holes on the wall and takes out loose leaves, each containing extracts from the latest publications. He himself sat as judge on all the chemical world studied. Gmelin was a fine type of German diligence in the study. Liebig showed a rarer set of qualities; he wrote, he worked, and he stimulated. With Gmelin in the hands of every student, and the example of Liebig driving them forward, the later impulses to study chemistry began, and have continued without ceasing. This is said in full appreciation of the brilliant chemists which France then had, and we may say has always had since the science began, as well as of the fact that Berzelius was alive. But there was a force at that time, as there is still, peculiarly advancing in German action as well as thought. And even when her ideas did not lead, there was a vigor in her system of education which turned all eyes towards her. We may therefore be excused for taking her as our chief standard of comparison for our present purpose. On hastily reviewing the growth of laboratories of late, it seemed as if England were always stepping forward, although keeping behind Germany, and this even when we did not take the numbers into consideration. Few men have visited all the universities of Germany, and none, probably, have seen all her higher schools where science is taught; but many persons have seen several of these, and none have seen them without wonder. The political division of Germany has produced many peculiarities, amongst others the many centres of education. The cause lay partly in the extent of the country, united with the slow and difficult travelling. The desire for political union, the new impetus to the study of science, and the beginning of railways seem to have acted on the nation simultaneously, and there arose the love of wealth and a determination to do at least as much as England had done.

The wealth of Germany thirty years ago was very slightly developed; even twenty years ago the people were not out of the traditions of the middle ages in great towns, and even now in small towns one may almost live as in the times of Luther. But within ten years there has been a growth of manufacturing industry sufficient to have altered the features of many places, and the natives do not require to visit Birmingham for chimneys, or even the black country for dreariness. The wealth of the country is wonderfully increased, and liberty, political and personal, has followed education. Some politicians will reverse the order—and such may have been to some extent the case in our country; but it is also very clear that without education no liberty can be complete.

The change has been preparing for a long time. The preparation has been made by attending most minutely to all details of management. The government has been like a kind but strong-willed father, that was determined to bring up every child well, but was ready also to lay his hand heavy upon him if he diverged from the prescribed route. The consequence was a certain sameness and littleness if we looked at few parts, but the extent was great. The mode of education suited the national mind, which was always attentive to small objects, even when attempting great. We find in their old books as much formality as in the present bureaus of the officials.

One sees it at the first moment of entering a hotel, where literal exactness is visible, and you are written down. If you enter a university you must undergo still more; you must have your certificate of birth and of confirmation, sometimes your certificate of vaccination and passport; and the German who leaves his home goes carefully preserving them through all the world, as if by a kind of witchcraft he died with his description. The amount of writing everywhere done is strange to behold. If we enter still further and see his inner thoughts as displayed in his books, we find an attention to detail that surpasses the comprehension of most of us. In describing a scene, we can imagine him describing each object separately if time would permit; but he is obliged to be content with every species and variety, giving a fullness to his work which makes it a mine of wealth to those who search for detail. How far can we imitate him? We shall never do exactly as he does; but for a nation like ourselves, rather apt to rush to ends without making a beginning, an imitation to a large extent would be a fine training for our youths. Germany has been a slave to its details—why shall we be the same? If it has been a slave it has been for the good of mankind. It is the intellectual miser among nations—and what a glorious run we can have amongst their wealth—which they have sup-

plied in amounts greater than we have been able to squander.

Let us try another illustration. The German intellect is farthest removed from the Irish—the first is conscious of every step in reasoning; the second leaps over a dozen and often misses its way. The power of leaping and flying are glorious powers. One may go direct to the top of the mountain without touching the sloughs below. The German crawls through the sloughs, but he leaves behind him a good substantial road, which only requires to be illuminated to become the much desired object—a king's highway to learning. It would be exceedingly pleasant to follow this out into the history of science, and to observe what flashes of light have gone from various nations; but it would equally surprise us to see that the German will not be behind even if he have nothing to collect for his fire but brushwood; he will heap it up until it becomes grand by quantity.

And how shall we apply these remarks to ourselves? If we differ from the Germans, why should we imitate their modes of education? There is a mode of training every animal, but not one mode for all. Some will say, then, if the German is so fond of details, let him be fed upon them; if we like conclusions, let us have them, and waste no time. But this conclusion is too hasty. It is the weakness of the German to be so fond of detail, and it is his strength to be so well acquainted with detail; it is our weakness to dislike it, and it is our strength to overleap it. Among these apparent contradictions it seems hard to steer our course, but we may begin thus: A trained man can be depended upon so far; an untrained man may do better, if he has genius; and who can tell what he may have? We cannot train men to be marvels, and if they were they must still submit to some extent, and the only resource left to us is to yield to the influence of plodding in education, caring, however, to observe if any of the young thinking machines that we are polishing shew any peculiar movement which shall be indicative of progress beyond the teacher's intention. These spasmodic wilful movements may take place amongst our youths more rapidly than among the Germans; but it no less becomes us to look for fundamental training in the direction where it has been most successful. If our youth become weary sooner, it is well that we should seize on them as early as possible. It is from our Teuton friends that we have received models of careful teaching from their kindergarten upwards. These infant schools were a step beyond ours—introducing practical lessons; their laboratories are the same idea carried out. Let a man touch and handle if he will learn. Let our youth be taught natural laws by seeing them in action, not as abstractions only.

The first thing that will occur to many people is: "This is exactly the method of the practical English nation; the opposite has been the custom of the dreamy Germans." True we sent boys into practical life to pick up principles at random; and those who thought enough made systems for themselves. This apprenticeship method was good when principles were on the surface; but when they are so deeply sunk that generations have been required to find them, and when the phenomena themselves are not superficial, the method falls to the ground. No man can learn his duties in a chemical work by apprenticeship, or by the imitation of the action of others.

The rapid development of the teaching of physical sciences in Germany was the result of previous training, and the rapid development of manufactures followed immediately.

But we must take the privilege of Englishmen, and rush through intermediate stages to a conclusion. It seems to be that in Germany the army of labour is organized as carefully as that for fighting. The unanimity is complete, and the determination to invade our markets is strong. Every chemical work has at least one trained chemist, and the training is careful. With us it is frequently considered needless to have one for large works, as they can go by themselves, and small works cannot afford one. We know very well that this is not universal, but some of the exceptions are more apparent than real, and at any rate we shall defer speaking on that point.—*Chemical News.*

On the removal of Odorous Compounds from Alcohol by Permanganates.

BY GEO. F. H. MARKOE, OF BOSTON.

QUERY 22.—What are the practical reactions between the permanganates and alcohol of various strengths and degrees of cleanliness; and how far can such reactions be made available for producing deodorized alcohol, cologne spirit, or clean alcohol, upon a small scale, with special reference to the alcohol recovered from fluid extracts, and other Galenical preparations?

It is a well known fact that the permanganates are among the most powerful oxidizing agents at the command of the chemist; and the ease with which they furnish nascent oxygen when merely placed in contact with organic matter, has led to their extensive employment as disenfectants and deodorants. The power they possess of destroying disagreeable odors suggested their employment in the purification of alcohol, and some years ago a patent was granted to Mr. Atwood for a process in which permanganate of potassa was the agent used in producing a deodorized or cologne spirit, which is well known to pharmacists as Atwood's alcohol. The article used by Atwood as a purifier is not the true permanganate of potassa (KO,Mn_2O_7), but the so-called commercial permnganate of potassa, which is in reality manganate of potassa (KO,MnO_3), a much less effective oxidizing agent than the permanganate of potassa.

In the following experiments, the writer, in every instance but one, used the officinal permanganate of potassa; and the materials worked upon were unclean alcohols of various strengths, obtained in concentrating the percolates in the preparation of some fluid extracts and syrups. Many more experiments were performed than those detailed in this paper, but it is deemed sufficient to give the results of nine experiments, together with samples of the products. One of Neynaber's Pharmaceutical Steam Stills, of one gallon capacity, was employed for the distillations, and five pints of unclean alcohol were used in each rectification, with 100 grs. of permanganate of potassa.

Exp. 1—Five pints of alcohol were obtained in following the officinal process for the preparation of comp. syrup of sarsaparilla. By the accidental passage of a small part of the

contents of the still during the last part of the distillation, the distillate was rendered quite unclean and tinged with a brown color; it contained 70 per cent. of alcohol, and was strongly contaminated with the mingled odors of Rio Negro sarsaparilla, guaicum wood, rose, Alexandria senna and licorice root.

Exp. 2.—The five pints of impure alcohol obtained in Exp. 1 were re-distilled with 100 grs. of permanganate of potassa; the distillation was stopped when four and one-half pints of distillate had collected in the receiver. This distillate contained 84 per cent. of alcohol, was clear, colorless, and possessed a faint odor of the sassaparilla compound.—It certainly was clean enough to be used in many Galenical preparations. The writer has often seen poorer samples of alcohol in the market.

Exp. 3.—Five pints of impure alcohol were obtained, half from fl. ext. senna, half from fl. ext. senega. The mixture contained 85 per cent. (Tralles) of alcohol; had a very decided odor of senna.

Exp. 4.—The above mixture was re-distilled with 100 grs. of permaganate of potassa, previously dissolved in ℥i of water. The distillation was stopped when four and three-fourths parts of distillate were obtained; this was clear, colorless, contained 84 per cent. of alcohol, and was to a very great extent deprived of the odor of senna; more clean than No. 2.

Exp. 5.—Five pints of unclean alcohol of 67 per cent. proof, from fl. ext. scullcap; odor strong of scullcap.

Exp. 6.—No. 5, with 100 grs. of permanganate of potassa, was re-distilled, and distillation stopped when four pints of distillate had been obtained. This was clear, bright, 77 per cent. alcohol, and much improved by the treatment with permanganate.

Exp. 7.—Five pints of alcohol from fl. ext. wild cherry with 100 grs. permanganate of potassa. Product very clean.

Exp. 8.—Four fluid-ounces of tincture buchu were treated with 200 grs. of permaganate of potassa, dissolved in water and filtered. By this treatment it was in a great measure deprived of odor and also of color, as may be seen by comparing the samples of the tincture before and after the treatment with permanganate.

Exp. 9.—Three pints of impure alcohol recovered from the tincture of buchu used in No. 8 were re-distilled with 500 grs. of manganate of potassa (common permaganate of commerce) and two and one-half pints of distillate obtained. This smelled of the buchu nearly as much as the tincture that was simply treated with permanganate without distillation.

From these experments the writer concludes that the rectification of unclean alcohol with small quantities of permanganate of potassa is clearly an advantage, as in nearly every case it partially removes the objectionable odor, and in quite a number of instances gives an alcohol clean enough for very many pharmaceutical purposes. None of the experiments made by the writer gave anything like a fine deodorized alcohol suitable for use in perfumery or for delicate preparations, nor does he think that such an alcohol can be produced on the small scale, with the apparatus at the command of the pharmacist, and our present knowledge of the subject.

The reaction of permanganates with organic matter is due to the decomposition of the permanganic acid (Mn^2O^7), which is resolved into hydrated binoxide of manganese, and oxygen,—$Mn_2O^7 = 2(MnO_2) + 3O$. The oxygen being in a nascent state, instantly combines with the organic matters present and destroys them. In the case of unclean alcohol, the permanganic acid seems first to destroy the odorous principles present, and, if in sufficient excess, to then destroy the alcohol.—*Proc. Amer. Pharm. Assoc.*, 1868, *in Amer. Jour. of Pharmacy.*

CHEMICAL INVENTION.

In looking over the large number of patent cases which pass through our office, we are impressed with the meagre number of those relating to improvements in chemical processes. There is a wide field here, "white and ready for harvest," but the laborers are few. The earnest workers in the chemical field of discovery are, for the most part, professional men, who, having fixed incomes from the positions which they occupy, and apparatus and leisure for extended research, mostly devote their time in searching for new facts, rather than industrial applications of those already found. Notwithstanding this, many valuable chemical patents are taken out, and in some cases men have suddenly found wealth flowing into their coffers as the result of chemical discoveries which at first seemed of little value.

In other cases discoveries have been made which, patented, would have largely benefited the discoverer, as they have the world at large; yet have been suffered to pass into general and profitable use, while he, to whose labors such results are due, remains pecuniarily unrewarded.

Not only is the field a rich one, but its resources are constantly being augmented.—The discovery of the method of manufacturing cheap oxygen, opens the door to improvement in many departments of chemical manufacture. Of course experiment can only show how such improvements can be made, but *possible* improvements, seem numerous. It appears to us that in the manufacture of acids, the preparation of oils for painting, the purification of oils, the manufacture of vinegar, etc., the use of uncombined and undiluted oxygen, may, in the future, be found to be preferable to its use as mixed with nitrogen in the atmosphere or combined in the salts of which it is a component.

Nothing illustrates the possibilities of chemical discovery better than the department of alloys. Here the combinations are absolutely infinite. Take up any work you can find upon the subject, and see how many of these combinations have been examined, and see further how many of those already examined are extensively used in the arts, and then calculate the chances of the successful discovery of other useful combinations. Let a man to-day invent an alloy that could be manufactured at a good profit, and substituted for brass, at three cents less per pound, and his patent for such an invention would be worth more than the product of any paying gold mine in the known world during its term.

We believe that a man who, first posting himself thoroughly upon the nature and chemistry of alloys, would set himself to a life-work of systematic experiment, recording the results of his experiments in tables, and preserving specimens of all alloys possessing any useful quality, and patenting such as prove applicable to special purposes, could not fail of success and fame.

What is true of alloys is also true of other chemical compounds and their applications. The patents issued for processes in the manufacture of substances having india-rubber as their chief constituent, form a class, the value of which has never been exceeded by any other, in proportion to the number of patents granted.

No greater amount of preparation is needed to enter upon chemical investigations than any other department of invention embracing the fundamental principles of mechanics. It is true that men can invent mouse-traps who are ignorant of the laws of falling bodies, the nature of, and mode in which the radiant and undulatory forces act, and other principles of mechanical science. But such men do not invent electric telegraphs, or solar microscopes, or steam engines. To be a thorough mechanic requires study, as well as to be a thorough chemist; and we maintain that chemistry, as a science, is not difficult to ordinary minds. Few departments of science can be pursued more easily without instruction, and certainly no other affords more pleasure in its acquisition.

Here, then, is a field so wide that its full extent is scarcely appreciable, even to experts, with boundaries constantly enlarging, inviting all who seek either highest pleasure or profit to enter and work.—*Scientific American.*

Chloroform.

Chr. Rump, of Hanover, has made a series of experiments, and arrived at the result that pure chloroform exposed to sunlight undergoes decomposition; chlorine is evolved and soon hydrochloric acid is formed; diffused daylight has apparently no influence, but it is better to keep it in the dark. The best means of preservation is an addition of half to one per cent. of absolute alcohol; such a chloroform remains comparatively unaffected by direct sunlight. Commercial chloroform has had this addition for many years, and no bad effects have been observed in consequence thereof. For medicinal chloroform the specific gravity of 1·480—1·485 is recommended.

The expansion of pure chloroform, according to the author's experiments, is about ·002 for every degree centesimal; we give from his table the spec. gravity at the following temperatures only: 0° C. 1.525, 5° C. 1·518, 10° C. 1·510, 15° C. 1·500, 20° C. 1·491, 25° C. 1·481.—*Amer. Journal of Pharmacy.*

Improvement in Gas Light.

In a recent lecture on light, delivered by Prof. Doremus before the American Institute, New York, he alluded to the new and cheap method of making oxygen gas by passing super-heated steam over manganate of soda, and of the great improvement this will effect in lighting our streets, public buildings and light-houses. He said that the improvement would effect a saving of 30 to 40 per cent., and would not render the air impure by burning up its oxygen or filling it with noxious gases, and by its harmonious blending of the different colors, would furnish a more beautiful and perfect light resembling that of the sun. It is already used in Paris and soon will be in New York, some of our heaviest capitalists having taken it in hand. With 18 burners lighted in this way, the professor illuminated the entire hall most brilliantly, the large number of common gas burners paling before it into a sickly yellow light.

PUBLISHERS' NOTICE.

The CANADIAN PHARMACEUTICAL JOURNAL *is issued monthly from the office of publication on the Fifteenth of every month. It will always contain information invaluable to Druggists, Chemists and others interested and connected with the sale, compounding, and dispensing of drugs and medicines. The present number will be sent to every druggist in the Dominion, all of whom, it is hoped, will show their appreciation of the enterprise by giving it substantial support. Members of the Canadian Pharmaceutical Association will receive the paper free as of right.*

To Advertisers this Journal offers the best and indeed the only medium of reaching by a single advertisement every Druggist in Canada. Our rates, published on the first page, will be found low, and will be strictly adhered to in all cases. Advertisements in order to secure insertion should be in the publisher's hands not later than the end of the month preceding each issue.

The Journal will be under the control of the following Committee, who will be responsible for the due performance of all advertising contracts:

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Toronto.

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 "

The JOURNAL *is furnished* FREE *to all members.*

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.*

THE CANADIAN
Pharmaceutical Journal.

TORONTO, ONT., FEB., 1869.

THE PROPOSED PHARMACY ACT.

Owing to the great press of business before the Legislative Assembly, towards the close of the Session, the second reading of this Bill did not take place as anticipated. In common with a number of others, it was laid aside, for the present, in order to make room for Government business which had to be pushed through before adjournment. Of course, it will be one of the first on the list for next Session, and we shall have to be content with the fact, that it has at least advanced one step—the ice has been broken, and the bill is now fairly before the country.

After all, the delay may prove advantageous, as time will be allowed for improvement and amendation. Suggestions are already coming in from all quarters, and they will receive due attention from the Legislative Committee. The framers of the British Bill are congratulating themselves on the degree of perfection to which their task has been brought, and in alluding to the fabled "coach and four," which is supposed to find its way through legal documents in general, and Acts of Parliament in particular, say that the Pharmacy Act of Great Britain does not even admit of the passage of a single horseman. Now, our Bill is based on that of Great Britain, and even a great part of the phraseology is retained; but we have no doubt that a charioteering public will endeavour to establish a highway through it, and is better that they make the attempt before a final decision is arrived at, so that these avenues—if any be found—may be effectually closed.

The agitation regarding the sale of poisons, and the adequate qualification of those persons vending them, seems to have extended to our neighbors across the lines. The frequent recurrence of accidental poisoning, arising from the carelessness of druggists, has very justly, aroused the public ire. The *Scientific American*, in an editorial, devoted to the subject, speaks very lightly of the competency of American druggists, and urges compulsatory examination as to fitness. Not only must the knowledge of the chemist extend to the ordinary run of drugs and chemicals, but to all articles in which he deals, including, of course, patent medicines, cosmetics and the like. Allusion is made to a case mentioned by Dr. Sayre, in a recent address, in which an unfortunate lady came well nigh losing her life and beauty at one fell swoop, by the use of a certain cosmetic containing lead, which she had innocently applied for the purpose of imparting the bloom of youth to a somewhat faded complexion. According to the *Scientific American*, the druggist should be held responsible for this mishap in not warning his purchaser that there was poison in the cup. We imagine that if this course was pursued, a material diminution would be apparent in the sale of these compounds, and think the burden should rest on the manufacturer, and not the vendor. Nor could the druggist be expected to be acquainted with the composition of articles, the formulæ for which are kept secret, as an amount of time and skill would be implied, for which no remuneration could be reaped. It should be the duty of inspectors, appointed and paid by the Government, to examine these preparations and forbid their manufacture or importation, if found detrimental to the public health.

Pharmaceutical Legislation.

The St. Catherines *Times*, in speaking of the proposed Pharmacy Bill, says:

The intention of the Act, to establish a higher status for druggists and chemists, by compelling them to pass a suitable examination before the Pharmaceutical Council, is in the highest degree commendable. The duties of a dispensing chemist are of the most responsible character. Therefore a suitable guarantee of his proficiency ought to be given to the public before he is allowed to assume such responsibility. The life of many a patient and the reputation of his physician have often been imperilled by the incompetency of a dispensing chemist. Too efficient means, therefore, cannot be adopted to secure a maximum of certainty that a physician's prescriptions have been put up in their intended form.

The tendency of the Act to curtail the practice of counter prescribing, now too prevalent among druggists, will no doubt seem objectionable to them; still, we think on the whole they will be benefitted by its operation. Whether this part of its action will diminish their receipts or not, is beside the real question, however. It is the welfare of the public that is at issue, and the parties engaged in an occupation which, by the operation of this Act, will be elevated almost, if not quite, to the standard of a learned profession, should not allow motives of a pecuniary nature to influence their action in a question involving the lives and health of the public.

There is one clause in the Act we especially desire to see amended. We mean the one which exempts the making and dealing in secret remedies, called in popular *parlance* "patent medicines," from its action. The unrestricted sale of such articles (we cannot bring ourselves to call them medicines) has so grown from year to year as to have gained an extent at present of the magnitude of which no one not engaged in the trade can have an adequate conception. We utter no fiction when we say that the Canadian public have attained the unenviable distinction of

being a patent medicine eating and drinking people. In the priceless interest of their own health, in the name of common sense, in behalf of our common humanity, we think it time to ask them to pause and reflect upon what they are doing. * * * *

In the interests of the public, we think the above mentioned clause ought to be elided, and the sale of all secret remedies forbidden; or in other words, that no proprietary mixtuous pills or outward applications should be sold by any druggist until he is placed in possession of the prescription for the same.

CANADIAN PHARMACEUTICAL SOCIETY.

The regular monthly meeting was held on Wednesday evening 3rd inst., at the usual place; the President in the chair. After reading and adoption of minutes, the following new members were elected:

PRINCIPALS.

Arthur Boyle, St. Catharines.
C. McCallum, St. Mary's.
C. H. Kermott, Bell Ewart.

ASSISTANT.

J. F. Hopkins, Dunnville.

With regard to the progress made towards legislation, the President said that Dr. McGill had used every endeavour to obtain the passage of the proposed Act, but not being a Government measure, he had only obtained its first reading; it would, however, come on for an early discussion next Session The President said that though we might regret the delay, still it would enable us to obtain a wider opinion on the Bill from all our own members, and if required, to make improvements in it.

Mr. Henderson then gave the following notice of motion:—"That on account of the delay in the passage of the proposed Pharmacy Bill, the Third Article of the Constitution be suspended until such time as the Society is incorporated."

The Corresponding Secretary, in giving the notice said that at present we were contravening the Constitution in admitting members without examination, and as it would be inadvisable to appoint examiners before the incorporation of the Society, he gave the notice of motion.

The Secretary called the attention of the members to the advisability of encouraging the junior non-resident members in studying, and thought that the offer of prizes by the Society for suitable essays on Pharmaceutical subjects would be useful for that object. The matter was left for the consideration of the members.

Meeting adjourned.

HENRY J. ROSE,
Secretary.

Communications.

The Proposed Pharmacy Act.

LINDSAY, Jan. 23, 1869.

To the Editor of the Canadian Pharmaceutical Journal.

DEAR SIR,—I send the following, perhaps, useless remarks upon what I conceive to be some imperfections in the proposed Pharmacy Bill.

It seems to me that section 3 compels the druggist to label all the articles in Schedule A with the name of such artice, the address of the establishment, and, in addition, the word "Poison."

Would not this be very awkward in the case of a box of blue pills? If sold on prescription of an M. D., would not the patient be needlessly frightened, and the Dr. offended at the character "POISON" being given to his medicine? Also, it is not always convenient to put "E. Gregory, Druggist, Lindsay," at the top of a dram pill-box. You may say that blue pills are not "poison"—but the law provides that they shall be so deemed.

Would it not be be better to make a more careful distinction between the restrictions under which Parts 1 and 2 of Schedule A may be sold?—perhaps calling one section "poisons," and the other "poisonous."

Should not the Act settle the question as to whether poisons may be sold to women or children? Some druggists are much more careless than others in this respect. Would it not be better, in view of the frequent attempts to procure abortion, now so frequently recurring in Canada, to prohibit entirely the sale of Ergot, and some other articles, except to medical men, or on their prescription?

If these suggestions appear to be valuable, I shall be pleased; if not, the "waste basket" is the proper place for them.

Yours truly,

E. GREGORY.

We think our correspondent is mistaken regarding section 3 applying to physicians, as a subsequent clause provides that nothing in the Act shall interfere with physicians supplying their patients with the proper medicines, nor are the rights, at present enjoyed by the faculty, to be in any wise interfered with.—[ED.

CHEMICAL CLEANLINESS.

(From Chambers' Journal.)

One of the most active-minded and ingenious experimentalists in physics, Mr. Chas. Tomlinson, has recently called attention to the importance of a chemically clean surface in the performance of many experiments, and to the influence of dirt in modifying their results. His views were discussed in the Chemical Section of the British Association, at the late Norwich meeting, and led to an amusing conversation as to what *dirt* really is; and the conclusion the philosophers arrived at was, that they could not do better than indorse Lord Palmerston's petty and comprehensive definition, that "Dirt is matter in the wrong place." Butter, for example, as one of our leading chemists observed, is matter, and very good matter too, in its proper place—namely, a piece of bread; but butter at the end of one's beard is matter in the wrong place, and consequently falls under the category of dirt. In his most recent article on this subject, Mr. Tomlinson defines a chemically unclean surface as "anything that is exposed to the products of respiration, or of combustion, or to the touch, or to the motes and dust of the air, and so becomes covered with a film more or less organic."—One of the most important discoveries is, that the supersaturated solutions of a number of salts contained in chemically cleaned vessels can be kept for a long time without crystallising, and be even reduced to temperatures much below the freezing point of water, provided they are protected from the motes and dust of the air and other chemically unclean bodies, by closing the mouth of the vessel with cotton wool, which filters the air. Any of our readers can easily repeat the experiment with sulphate of magnesia (Epsom salts), sulphate of soda, or phosphate of ammonia.

The extreme facility with which a chemically clean glass on a water surface may become chemically unclean, is illustrated by the following experiment with the camphor test, which may be thus described: If a few fragments of camphor be scraped from a fresh cut surface, and be allowed to fall upon water, they rotate with extreme velocity, and sweep over the surface, if the water be chemically clean; but if not, the fragments lie perfectly motionless. On a bright and sunny morning, with a dry air, "conditions highly favorable to the camphor motions, which depend as much on evaporation as on solution," Mr. Tomlinson filled four shallow, clean vessels, A, B, C, D, with water from the cistern tap. Camphor was very active on all four surfaces. He put his finger into A, and his tongue into B. Fresh fragments were motionless on A, but as active as before on B—showing that the finger was unclean, and that the tongue, instead of depositing a film, absorbed water and any possible film with it. The water was emptied from C, which was refilled from a so-called clean jug from the kitchen, filled from the same cistern tap; but the camphor fragments thrown on C were now motionless, showing that the jug had imparted an impurity to the water now in C. The water from D was also thrown away, and the glass rubbed and polished with a so-called clean glass-cloth. On again filling D from the tap, and throwing in fragments of camphor, there was no motion, the cloth having imparted a film to the water.

After these appalling revelations regarding the universal presence of dirt in apparently the cleanest of the vessels from which we eat and drink, it is with great satisfaction that we learn that some liquids (as ether and absolute alcohol) carry with them certain purifying influence of their own, and impart them to the water and the vessel; and strong wine (in consequence of the alcohol and vinic ether which it contains) thus possesses the property of making the wineglass into which it is poured chemically clean. If we take off about

a third of the wine, the part of the glass between the original and the reduced levels remains completely wetted, and the phenomenon known as "weeping of the wine," or "tears in the cup," may be observed, which, as our author thinks, was referred to by the wisest of men when he wrote of the wine that "moveth itself aright" in the cup. The supply of liquid in the glass between the two levels is kept up for a considerable time by a twofold action, which Mr. Tomlinson describes as follows; In the spaces between the tears will be seen an ascending wavy current of liquid, rising (1) by the adhesive action of capillary (there being strong capillary action between the reduced level and the plane of liquid left in the glass), and (2) by the formation of a back current, in consequence of the downward flow of the tears, just as a back-water is formed at a place where two currents of a river meet; and this action in a glass of wine will be rendered more apparent if there are any specks or floating particles moving on the surface to show its direction.

In some cases, Mr. Tomlinson finds that tears are due to the evaporation and condensation of the liquid in the glass. This effect may be shown by filling a long tube with spirits of wine, and then nearly emptying it, so as to clean the surface. If the tube be now fixed vertically, and the flame of a spirit lamp applied below for a short time, tears will form at different heights.

Another phenomenon connected with a glass of wine is readily explained by the doctrine of chemically clean surfaces; but in this case we must take a sparkling wine, supersaturated with gas—champagne, for example. (Soda water will do, if champagne is not at hand.) If a sparkling wine or other fluid supersaturated with gas, "be poured into a chemically clean glass, no bubbles of gas will form on the sides, because the adhesion between the sides and the solution is perfect, and the sides may be regarded as a continuation of the liquid itself." If a clean glass rod is immersed in the glass of wine, no bubbles will form around it, for it merely acts as an additional portion of clean side would do. If, however, the rod be dirty, "there will be little or no adhesion between the water of the solution and the dirty surface; but there will be an adhesion between the gas of the solution and the unclean surface, and hence there will be a liberation of gas." Here we have the explanation of the well known fact, that by dropping a bit of bread into a glass of champagne that has ceased to effervesce, we excite a fresh evolution of gas. All bodies that have been exposed to the touch of what society would deem clean fingers, become chemically unclean, as has been shown by the camphor experiments which we have already described. They become covered with an organic film, and act as nuclei in liberating gas, like, and for the same reason as, the dirt on the unclean glass rod.

The importance of the presence of solid nuclei of some sort or other (even a speck of dust will suffice) in setting up the process of crystallization in saline solution, is known to every smatterer in school-room chemistry. In connection with this subject, Mr. Tomlinson was told the curious fact, that in crystallizing saline solutions on a large scale in chemical manufactories, the workmen stretch clean white strings across the large vessels into which the solution is to be poured; and they find practically that the strings act best as nuclei when they draw them through their hands, which, as he was informed, "are *not particularly clean.*" How little do we think, in admiring a splendid mass of georgeously tinted crystals, that so magnificent a structure may have been started into existence by a pair of extra-dirty hands!

Mr. Tomlinson has shown us that we and all our surroundings are unclean; that our fingers, on whose cleanliness we relied, are so dirty as to defile the water they come in contact with, and our snow-white linen is as filthy rags." Has so great a philosopher no concluding words of consolation? He has told us of our impurities; cannot he also tell us how to become clean? Alas, no! If we were "flasks or other apparatus," which we don't suppose we are, although old Buchan, in his *Domestic Medicine*, tells us that "a young baby is a bundle of delicate pipes," our surfaces might be chemically cleaned by washing them "with a strong sulphuric acid, or with a strong solution of caustic potash, and then rinsing with water." This, we are told, "is generally sufficient. Should any of our readers, over-enthusiastic in the cause of cleanliness, venture to try these appliances on their own surfaces, they would find them more than "sufficient." The sulphuric acid would convert the skin into a black charred matter, while the potash would be scarcely less destructive.

Manganese—Its Useful Applications in the Arts.

BY DR. L. FEUCHTWANGER.

This mineral substance was known in ancient times under the name of "glass-maker's soap," and was considered a species of iron ore. In the year 1740 it was ascertained to be an oxide of a separate metal, and in 1774, Gahn obtained the pure metal from the native carbonate, exposing the same to intense heat for several hours, or by subjecting chloride of manganese to electrolysis. Boerhaave does not appear to have known the metal. In my English edition of 1753 he speaks of it in the following words: "Take the frit and set it in melting pots in a working furnace, adding in each pot a proper quantity of a blackish stone not unlike loadstone, and called manganese, which serves to purge off that greenish cast natural to all glass and to make it clear." Scheele, Bergman, Chevreul, Berthier and Berzelius, have in modern times investigated the physical and chemical characters of manganese. The ore is widely distributed over our globe; it accompanies many iron ores, particularly the hematites, also the franklinite of New Jersey. It has been detected as a constituent of meteoric iron in the ashes of most vegetable and many animal substances, is the coloring principle of many fossils in a dendritic form in the chalcedony which is called the "mocha stone," and in the same form on sand pebbles of which I found plenty in Stanislaus River in California. It also occurs combined with sulphur, carbonic acid, silica, water and with many atomic proportions of oxygen, such as protoxide, sesquioxide, binoxide, manganic acid and permanganic acid, becoming thereby sometimes a base and sometimes an acid. The principal varieties of manganese found in nature are of the following descriptions:

1st. Hausmannite has the form of a four-sided pyramidal crystal, with hardness 5, and a specific gravity 4.7.

2nd. Braunite is an anhydrous sesquioxide, crystallises in an octahedron, is much harder than the last, and has a higher specific gravity.

3rd. Psilomelane, generally called the compact gray oxide, occurs in botryoidal and stalactitic shapes.

4th. Manganite is a hydrous sesquioxide, crystallizes in right rhombic prisms.

5th. Pyrolusite, the most useful and abundant ore of manganese, derives its name from two Greek words signifying "fire" and "to wash," in allusion to its property of discharging the brown and green tints of glass; it crystallizes in small rectangular prisms, or is fibrous, radiated and divergent; of iron black color and grayish streak, has a specific gravity of 4.94, and is composed of 37 per cent manganese. This ore is generally called binoxide, deutoxide, or peroxide, is a good conductor of electricty, and strongly electro-negative in the voltaic circuit. When heated to redness it readily parts with its excess of oxygen as it gives off one third of it. When heated with sulphuric acid one-half of its oxygen escapes. Owing to this property it is more employed in the arts than any other oxide; it is called in trade the "black oxide of manganese." Its commercial value is dependant on the proportion of oxygen which it contains in excess of that which is necessary to its existence as sesquioxide. A convenient method of estimating this excess of oxygen is founded upon the circumstance, that the black oxide of manganese is decomposed in the presence of oxalic acid, and from sulphuric acid proto-sulphate of manganese is formed, and all the excess of oxygen reacts upon the oxalic acid and converts it into carbonic acid which passes off with effervescence. If the mixture be weighed before the decomposition has been effected, and again after it has been completed, the loss will indicate the amount of carbonic acid; each equivalent of peroxide of manganese gives two equivalents of its own weight of carbonic acid.

Manganic acid is known under the name of chameleon mineral, is obtained artificially by fusing the peroxide of manganese with equal weights of caustic potash, which when dissolved in a small quantity of water has a green color, but when largely diluted becomes purple and ultimately claret color; for this property it has been employed for many years in the arts.

Permanganic acid is artificially obtained by mixing intimately four parts of finely powdered peroxide of manganese with three and one-half parts of chlorate of potash, while five parts of hydrate of potash are dissolved in a small quantity of water and added to the above mixture, the whole is evaporated and reduced to powder, then heated to dull redness for an hour in an earthen crucible, and when cold the mass is treated with water and filtered through a funnel plugged with asbestos; the solution after being neutralized with sulphuric acid yields on evaporation beautiful red acicular crystals of permanganate of potash. This preparation of later years has become an important vehicle for disinfection. Among the other native oxides of manganese may be mentioned the *mineral wad* which is also very abundant but not valuable enough to produce gas. It is amorphous, soft, black, or brown and purple; when mixed with linseed oil it produces spontaneous combustion. It is supposed to be the coloring ingredient of the dendritic delineations upon many substances, such as steatite and others mentioned elsewhere. The localities of manganese are very prolific; pyrolusite has been mined very

extensively in Europe; psilomelan in England, France, Belgium and the United States; manganate in Bohemia, Saxony and England. Much of the latter is consumed in the bleacheries of those countries. The United States and the Provinces have inexhaustible deposits of the oxides of manganese. From Vermont, the eastern limit, to Georgia, the southern limit, large supplies were formerly furnished, but in late years West Virginia, North Carolina and California have supplied us to a large extent but not of a high grade of oxidation. While the binoxide of manganese suitable for the manufacturers ought to yield from 80 to 90 per cent of oxygen gas, the product of the last mentioned States has not exceeded 50 to 77 per cent oxygen. The Provinces of New Brunswick and Nova Scotia have produced within a few years very superior oxides of manganese, and the specimens I possess in my cabinet excel in richness and beauty those from Ilmuran in Thuringen and Ihlefeld in the Hartz mountains of days gone by. The manufacturers of bleaching powders in England have for the last twenty years been supplied by the little Principality of Nassau to the amount of fifty thousand tons per annum, while the United States with all its inexhaustible resources has not exported any, and it is hoped that before long the export of manganese may prove lucrative. The quality of the Nova Scotia manganese is, according to Howe, of high per centage, some from 82.4 to 89.8 of sesquioxide, and that from Tennycape as high as 97.04. The international manganese mine of New Brunswick contains from 80 to 85 per cent of sesquioxide. We find manganese in the State of Missouri containing much cobalt, while the Vermont manganese is associated with much iron. We also find in California, in the red hill of the bay facing the city of San Francisco, containing millions of tons of psilomelade or compact manganese yielding from 40 to 50 per cent sesquioxide. We also know manganese to be abundant in Canada. A vein of 50 to 60 feet wide is said to exist at Bachawanning Bay on Lake Superior.

The geological position of manganese is not quite accurately known. In Germany it traverses porphyry and is associated with calcspar and baryta. In Vermont, in the United States, it is found among crystalline rocks; in Canada it is accompanied by dolomite, and in Nova Scotia it exists in a gray limestone, quartzite, and conglomerite, and it unquestionably belongs to the new red sandstone formation. My manganese mines at Pembroke are situated close to the gypsum deposits, which would range them with the upper silurian system.

I will now enumerate the many useful applications in the arts.

1st. Manganese is employed for producing oxygen gas in the chemical laboratory, the material of the compound blow pipe and drummond light, for the production of alkaline manganate in order to procure a good and cheap light in combination with coal gas.

2nd. Manganese is most extensively used in the manufacture of chlorine so as to prepare a bleaching liquid or powder, the consumption of which by the paper and cotton manufacturers is unlimited.

3rd. Next in importance is the manganese largely employed in the green flint glass works in precipitating the iron, and when added in excess to produce an amythyst color in flint glass.

4th. Steel manufacturers require manganese for producing a hard and tough product; a half pound to fifty of iron will have the effect.

5th. Linseed oil is rendered more siccative by the addition of manganese, and is called a patent dryer for paints and varnishes.

6th. A permanent black on earthenware and pottery is obtained by exposure to heat.

7th. A black enamel used in ornaments by jewelers is likewise produced with manganese.

8th. The manufacture of permanganates, a powerful disinfectant, and the main material in the new oxygen light is obtained from the same.

9th. The quality of spirits, with or without distillation, is obtained by the use of manganese.

10th. The chameleon mineral use in sugar refining is prepared with manganese.

The consumption of manganese for the manufacture of the new gas light about to be introduced in this country, forms a new epoch in this direction. It is to be converted first into the alkaline manganate, which acting as a sponge alternately absorbing the oxygen of the air and again releasing it, must require, if successful, not less than one hundred thousand tons of manganese in order to produce a million of cubic feet of oxygen gas, and I gather the following particulars from the programme issued by the inventors, Messrs. Tessie de Motay and Marechal of Metz: "The manganates are decomposed at a temperature of 600 deg. Fah., by the action of a jet of ordinary steam which liberates the oxygen and leaves a residuum composed of sesquioxide of manganese and the alkaline base contained in the combination. The manganate is regenerated by submitting the above mentioned solid residue to the action of a current of air at the same temperature as used in the decomposition, and all these operations are conducted in a series of retorts placed in a furnace where the manganates, after being raised to a temperature of 600 deg. Fah., are alternately submitted to the action of a jet of steam and current of air which restores to the mass the oxygen has lost. The oxygen is disengaged by the steam from retorts; this steam is liquified by pressing into a condenser, and the pure oxide is collected into a gasometer. When applied for the production of light, oxygen in combination with common coal gas permits a reduction in the consumption of the latter, but at the same time giving an equal quantity of light in the proportion of 16 to 1.

The permanganate of potash or Condy's disinfectant is recommended as a powerful agent in obtaining pure drinking water and in epidemic diseases. But by far the largest amount of manganese is consumed by the manufacturer of bleaching powders. England alone consumes 80,000 tons for that purpose per annum, and as soon as the United States becomes independent of the English imported chloride of lime for bleaching the cottons and the papers, not less than one-half million tons will be consumed for the desired object, for on examining the report of the director of the bureau of statistics, I find that 12,682 tons of bleaching powder have been imported the first five months of the year at the value of $324,066.—*Scientific American.*

No Accounting for Tastes. — A correspondent informs us that in Stratford, the other day, a customer wanted an ounce of assafœtida to fry with beefsteak.—[*Note*—In Paris, it is very customary among *gourmets* to have the plate for beefsteak, when warmed, rubbed with assafœtida, which has a flavour very similar to onions, but much stronger. We were not aware, however, that Canada had arrived at such a refined taste.]

The Manufacture of Bronze Powders.

The waste material of the beating of metals (an art which took its rise in the fourteenth century, in Nuremberg, Germany) was thrown away till 1750. In that year a mason in Fuerth, by the name of Huber, conceived the fortunate idea to grind this material called "Schabig" on a stone; and to sell the metallic powder thus obtained as a color. The gold-beater Martin Holzinger succeeded subsequently in imparting to the powder various lusters by exposing it to different degrees of heat; and in 1781, Courrier, a Frenchman, discovered the mode of preparing gold bronze from leaves, consisting of an alloy of zinc and copper. Although this bronze powder was offered for one florin (fifty-one cents currency) per pound, it was but little in demand; but since the preparation of various colors, from red down to nearly white, is no longer a secret, the manufacture of bronze powders has attained considerable importance, and is now practiced in several towns in Bavaria and Westphalia, and in the capitals of France and England. The refuse of goldbeating no longer sufficient, special alloys are flattened. When in Fuerth, Bavaria, in 1864, we counted not less than fourteen bronze powder establishments. In Munich and Nuremberg the value of this article is said to reach yearly $225,000 in currency.

The process of flattening metals for the purpose of reducing them into powder is carried on in a manner similar to that of goldbeating. When obtained in a thickness so as to permit the transmission of the rays of light, the leaves are rubbed through an iron sieve of exceedingly small holes by means of a wire brush, the powder thus produced is then allowed to pass through a mill under addition of some oil, and finally it is heated to a certain degree, according to the color desired.

Prof. Wagner, a chemist well known in this country, has ascertained that all bronze powders consist chiefly of a fatty matter, oxygen, copper, and iron. The composition used for light shades consists of 83 per cent. of copper and 13 per cent. zinc; for deep ones, of 94 to 80 copper, and 6 to 10 zinc; for copper red, pure copper is used. The amount of copper in various colors was found to be the following:

In French copper red, 97·32 per cent.; orange, 94·44 per cent.; light yellow, 81·29 per cent.

In English orange, 90·82 per cent.; deep yellow, 82·37 per cent.; pale yellow, 81·55 per cent.

In German copper red, 98·92 per cent.; violet, 98·81 per cent.; orange, 95·30 per cent.; lemon, 82·34 per cent.

Recently various methods have been suggested in order to avoid the dividing of the metal leaves by means of a brush. They are partly founded on mechanical, partly on chemical principles. It was, for instance, attempted to prepare the powder by means of files, but it was discovered to be angular and without luster. When, however, passed through rollers, it gained its original luster

again. In Germany, this method has not met with any approval, but it is said to be employed in England.

In 1850, Rostaing proposed to divide metals in their melted state by means of a centrifugal machine, and Fuchs announced that he succeeded in preparing bronze powder by amalgamation. The highly injurious effects of mercury vapors do, however, not allow the introduction of this latter method.

Copper powder may be prepared chemically in various ways which results in forming, with one single exception, crystalline and brittle products, which, in crushing, are converted into a dull powder. In reducing oxide of copper with rhigoline and gasoline, the two lightest products of the distillation of petroleum, Prof. Wagner, for the first time, obtained copper in minute scales. In conducting the process, it is necessary that the metal be left to cool in the vapors of these hydrocarbons. The bronze color is thus obtained is somewhat dark, but may, perhaps, be changed into brighter hues, by passing vapors of zinc or cadmium over them. In one instance where gasoline containing sulphur was used, the copper bronze exhibited a fine iridescent appearance.

It is only within the last decade that various substitutes for the above described bronze powders have been brought to the notice of consumers. We mention:

1. *The Tungsten bronzes.* Of these the "tungstate of oxide of tungsten and soda" is the most important. It forms beautiful crystals of a golden-yellow color and gold luster. The potassa salt, discovered by Laurent, forms violet needles with copper lusters, and possesses great similarity with sublimed indigo. The lithian salt appears in prismatic scales and leaves of the color of slightly tempered steel. In glowing the potassa salt, a brilliant dark blue steel color may be obtained. The tungsten, or wolframium bronzes first appeared at the World's Fair in London, in 1862, and they then attracted considerable attention. The soda compound appeared under the denomination of saffron bronze, the potassa compound under that of magenta bronze. At the exhibition at Paris, in 1867, these bronzes were only present in small quantities. The reason for this fact is stated by Prof. A. W. Hofman, as follows:

"It appears, that in order to cover well, and reflect the light with intensity, it is necessary that the smallest particles of the bronze powders should possess the property to split in lamellæ. If their crystaline structure shows this glimmer-like character, their covering capacity remains the same when reduced to a finer state. If these bodies, however, crystalline in cubes, they are in being crushed, not reduced into lamellæ but again in cubes. A certain quantity of such a powder covers a much smaller surface, than an equal weight of bronzes consisting of scales. They also reflect the light not in the same degree as purely metallic bronzes."

2. *The Tin Bronze, or Magic Gold.* This variety may, as regards brilliancy, well compete with the lighter bronze colors. It is also more durable. Kletzinski proposes to prepare it, by subliming the amorphous sulphide of tin, which is obtained in boiling a tin salt solution with dilute oil of vitriol and saturating the liquid with the gas of burning sulphur. The sulphid of titanium also deserves attention; it forms scales of a brass color.

3. *Chromium bronze*, or chloride of chromium, forms brilliant violet folie, which, in transmitted light appear blood red. It may be rubbed into the skin like all bronzes.

4. *Crystalized iodide of Lead*, a beautiful yellow substance, is proposed for decorative purposes; gold-inks, shell-colors, as a mass for pencils, for the painting of fabrics, wall paper, for filling glass pearls, etc.

5. *Organic bronze colors.* To these belong the derivates of the haematoxylin, already extensively employed in the manufacture of bronze paper, the numerous tar-pigments, of which the corallin is one of the most recent discoveries, the murexide and the green hydrochinon.—*Scientific American.*

Preparation and Properties of Tar Water.

M. J. Lefort, read at the Academie de Médecine on June 9th, 1868, an elaborate paper on tar water, now so much in vogue in Paris as a therapeutic agent. The following conclusions were arrived at:

1st. Norway tar and that of France yield to water equal quantities of soluble matter.

2d. That medicinal tar water may be prepared with either exotic or indigenous tar.

3. The semifluid tar is preferable to that that is thicker for the preparations of which this substance is the base.

4th. That tar water prepared hot, in close vessels, represents better the natural principles of tar, and is more constant in its composition than when made cold and followed by long maceration in contact with air.

5th. That tar water made with heat contains a mean of about 2 parts in 1000 of fixed and volatile principles.

6th. That tar water contains principally pyrogenous oil of turpentine, creasote, volatile resinoid principles, one or more isomeric acids natural to turpentine, and lastly acetic and oxyphenic acids.

7th. That tar water dissolves from 5½ to 7 grains of iodine to the pint, and that the resulting liquid retains its physical properties containing iodized phenic and oxyphenic acids.

8th. That iodized tar water gives no indications to reagents of the characters belonging to free iodine or the iodides.—*Jour. de Pharm., Sept.*, 1868, in *American Journal of Pharmacy.*

Poisonous Anilin Dyes.

Several statements have appeared in the *London Times* tending to prove that some of the brilliant dyes derived from anilin are poisonous to the skin. So long as these colors were used only for dress goods this was not discovered, but recently socks and stockings have been dyed with them and worn to the detriment of some individuals. A report by Dr. Farrel to the *Times*, in May last, in the case of a Mr. M———, states:

"The question now rises, how fuschine, which has been used largely in dyeing for ten years past, has never been discovered to possess any poisonous property. The reply would be, that up to the present time it has been used only for articles of dress not coming in direct contact with the skin. The present is the first case in which I have met with fuschine used for stockings. The stocking is of all others the article of dress brought most in contact with the skin, around which it is, moreover, compressed tightly by the shoe. I must remark also that fuschine is soluble in weak acids. Perspiration is acid, and is nowhere more profuse than in the feet, where confined within the shoe it is absorbed by the tissue of the socks."

It was thought possible that arsenic was concerned in the poisoning, as magenta (arseniate of rosein) contained it largely; but Mr. Crooks states that arsenic has nothing to do with it, as for several years they have ceased to use arsenic in anilin colors, but that all the injurious compound dyes contain *anilin orange*, which is the poisonous substance, having acid properties and rendered soluble by an alkaline solution; and directly contrary to Dr. Farrel, Mr. Crooks thinks that where the perspiration is acid in its normal state no danger exists; but that when the perspiration is alkaline, as in certain abnormal conditions, the dye would be absorbed and become active.—*Pharmaceutical Journal*, Nov. 1868.

Etherized Cod-Liver Oil.

In a paper recently published in the 'British Medical Journal,' by Dr. Balthazer A. Foster, there are certain results of his investigation and observation stated, on the advantage of combining ether with cod-liver oil, which, although in the main, for the consideration of the physician, may not be uninteresting, nor perhaps unimportant, to the pharmaceutist. Taking it as an established fact, that the difficulty of assimilating fat is a constant characteristic of the dyspepsia of phthisis, and further, that a marked improvement in such patients is observed when the ability to digest fatty matter is restored. Dr. Foster has set himself to work to determine the best means of "augmenting the secretions which are specially devoted to the digestion of fatty matters," and has determined to his own satisfaction that, "ether not only obtains for us the secretions required to digest fats, but promotes the absorption of these fats when digested." In some cases the ether has been given in water alone before the oil; but the favourite method seems to be to combine the two, in the proportion of from ten to twenty minims of ether purus, P.B., to two drachms of oil. One advantage of the combination seems to be the power of the former to mask the unpleasant properties of the latter. Dr. Foster recites many cases to prove that where cod-liver oil by itself had failed to produce improvement and to arrest the wasting, the addition of ether has been eminently successful in allaying nausea, and producing a decided increase in the weight of the patient.

Carrageen: Something new about it.

The uses of carrageen (Irish moss) in manufactures make it an article of some importance; and the present high price of glue and isinglass, for which it is an excellent substitute, have created a demand for it heretofore unknown. It is also cheaper than eggs for clearing coffee. Up to about the year 1848 all the carragreen used in this country was imported from Ireland. It was collected on the southern and western shores of that island. In 1849 several parties commenced making a business of gathering and curing *Chondrus crispus* at Scituate, Plymouth county, Massachusetts, and produced the first considerable quantity of the domestic

WHOLESALE PRICES CURRENT.—FEB., 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 04½	0 07
" Tartaric, pulv.	0 40	0 45
Ammon., carb. casks	0 16	0 18
" " 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 22	0 25
" Sulphuric	0 48	0 55
Antim. Crude, pulv.	0 10	0 12
" Tart. "	0 55	0 60
Alcohol, 95%	1 72½	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 65	0 75
" 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	6 00	7 50
Bismuth, Alb.	6 20	6 40
" Carb.	6 20	6 40
Camphor, Crude	0 46	0 50
" Refined	0 67	0 75
Cantharides	0 82	0 90
" Powdered	0 90	1 00
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	0 65	0 75
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 32	0 37
" " " pow'd	0 50	0 60
" " com. Gedda	0 13	0 16
" Assafœtida	0 25	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 00	—
" " Virg. "	14 50	—
" Shellac, orange	0 25	0 30

Drugs, Medicines, &c. *Continued.*	$ c.	$ c.
Gum, Shellac, liver	0 24 @	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 35	0 40
" Vienna	0 40	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
" " Saccharated	0 40	0 45
" Citrate Ammon.	0 90	1 00
" " & Quinine oz.	0 45	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
" " Tinnevilly	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.	20 00	—
" Canton	1 75	2 00
Oil, Almonds, sweet	0 48	0 55
" " bitter	14 00	15 00
" Aniseed	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 60	2 00
" Cloves, Ang.	1 00	1 10
" Cod Liver	1 40	1 50
" Croton	2 80	3 00
" Geranium, pure, oz.	2 00	2 20
" Juniper Wood	0 90	1 00
" " Berries	6 00	7 00
" Lavand, Ang.	20 00	22 00
" " Exot.	1 40	1 60
" Lemon, super.	3 20	3 60
" " ord.	2 70	2 80
" Orange	3 00	3 20
" Origanum	0 65	0 75
" Peppermint, Ang.	16 00	17 00
" " Amer.	4 80	5 50
" Rose, virgin	6 50	6 80
" " 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	14 00	—
" " pulv	16 00	—
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 75	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	—	—
" Howard's	1 55	1 70
" " 100 oz. 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 14	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 40	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 10	3 00
" Fenugreek, grd.	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 02½	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 15	0 20
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 25 @	0 45
Analine, Magenta, cryst	Variable.	
" " liquid	2 25	—
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	0 95	1 00
" 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 11	12
" " 1lb box	0 13½	—
" " ½lb "	0 14½	—
Madder, best Dutch	0 17	0 18
" " French	2 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 10½	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 07½	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 03½	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 50	—
White Zinc, Snow	3 00	3 50

Naval Stores.		
Black Pitch	4 50 @	5 50
Rosin, Strained	3 75	4 50
" Clear, pale	6 50	10 00
Spirits Turpentine	0 55	0 65
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 63	1 67
" Salad	1 95	2 30
" " Pints, cases	4 25	4 50
" " Quarts	3 60	3 75
Seal Oil, Pale	0 75	0 80
" " Straw	0 70	0 75
Sesame Salad	1 60	1 75
Sperm, genuine	2 40	—
Whale, refined	0 85	90 0

article ever sold in Boston. This is still the only point in the United States where any noticeable amount is collected, and the annual crop is not far from 500,000 pounds, equal to about 6,000 barrels.

Its most important use is as sizing, it being used in the manufacture of cloth, paper and felt and straw hats. The poorer qualities are bought up for size. The hand-pulled moss, however, contains more starchy matter than the variety which is never exposed to the air. The second quality of moss is sold to the brewers. All beers, when well brewed and sound, after a certain repose, become transparent. When, however, beer is sent out very new it is necessary to "fine" it, or impart to it that transparency. This is done by means of finings. In Europe isinglass is used for this purpose, and a lenghty formula is given for its preparation; but in this country Irish moss performs the same service without any preparation other than that given it by the curer.—*Am. Exch. & Review.*

Turpentine an antidote to Phosphorus.

M. Vigla states that, in a certain lucifer factory, the workmen who dip the matches wear on their chest a little vessel containing essence of turpentine, which is said to preserve the operators from the evil effects of the phosphorous vapours. It is well known that the vapour of turpentine, and many other hydrocarbons completely extinguishes the phosphorescent light which phosphorous ordinarily emits when in contact with air, and apparently prevents the slow combustion from taking place. Its influence in protecting the workmen may be due to this property.

Dr. Andant relates in the 'Bulletin Général de Thérapeutique,' a curious case to show the influence of turpentine in phosphorus poisoning. A workman, sixty-three years old, wishing to commit suicide, masticated the tipped ends of a boxful of wax matches. Immediately afterwards, thinking to assist the action of the poison, he swallowed about half an ounce of essence of turpentine mixed with a pint of water. After some time, finding the poison did not act, he chewed the ends of two more boxfuls of the matches, and then lay down, as he thought, to die.—He suffered from severe thirst, some pains in the bowels, accompanied by constipation, but nothing more. He had taken the phosphorous contained on about a hundred and fifty matches, but, thanks to the turpentine, he recovered, enduring no ill effects, and with no medical treatment beyond a dose of castor oil.—*Pharmaceutical Journal, Eng.*

Syrup of Iodide of Iron and its Preservation.

M. Scanneal, taking advantage of the power glucose possesses to reduce a persalt of iron at ordinary temperature, recommends the following formula for the preparation of a solution of iodide of iron which shall remain unchanged by exposure to the air.

Iodine	8·2 parts.
Iron filings	4·0 "
Distilled water	20·0 "
Honey	70·0 "
Tartaric acid	0.5 "

Mix the iodine, iron, and water, in a flask, and when combination is complete, filter the green solution, and add the honey and tartaric acid. The product will contain 10 per cent. of iodide of iron. This preparation, after remaining exposed to the air in a phial simply closed with paper for two months, was still bright and free from colour. It contained no free iodine, or ferric salt.

M. Jeannel has observed that the addition of one five-thousandth part of tartaric acid to syrup of iodide of iron, which has become bad, renders it clear and, at the same time, notably diminishes its inky taste.—*Pharmaceutical Journal, Eng.*

Enameling of Iron Vessels.

The enameling of saucepans and other articles in wrought or cast iron has long been practical, a very fusible enamel reduced to powder being sprinkled over the surface of the iron when heated to redness; but as the mixtures employed consist of highly alkaline silicates, the enamel is not very durable, and will not withstand acids or even salt liquids. An improved process has been introduced in France. The metallic surface is brought in contact with the ingredients of ordinary white glass, and heated to vitrification: the iron is said to oxidize by combination with silicic acid, and the glass thus forms one compact body with the metal. The coating of enamel may be laid on as thinly or as thickly as desired, but a thin coating is better as regards the effect of expansion or dilatation. Experiments are being made in coating the armor plates for ships in the manner above indicated.—*Scientific American.*

An apology for Latin.

The last number of the *Pharmaceutical Journal* of England, contains an article under the above caption, which will be easily recognised as coming from the pen of Mr. Ince. We extract a part of it for the benefit of our Latin despising apprentices.

The subject here presented is of the deepest and most urgent importance. I implore those who have under their care apprentices, or others who may hereafter seek a living by what is called Pharmacy, not to be led astray respecting this matter.

It is not intended, because special stress is laid upon one point, to disparage the usual branches of a liberal education. We are Englishmen, and must learn to read and write correctly the language which we speak, as well as to be conversant with the works of those who have made us proud of our nationality; but it is my object to demonstrate the evil consequences entailed by the neglect of a particular study. Recent examinations and the confession of many who are anxious to prepare themselves, have shown how incalculable is the help to be derived from an early moderate acquaintance with the classics, due not only to positive knowledge gained, but to an enviable facility of concentrating mental power. I have no wish (save for the marvellous pleasure of the thing, and its gilding of the monotony of life) to recommend the study of Virgil, Horace, Livy and Cicero; still less to become romantic and utopian in praise of Greek; but it cannot be denied that such studies form a mental training which men with easy fortunes may neglect, but the loss of which we, as pharmacists, who have to gain a living, cannot possibly afford.

Why is Latin thus prominently introduced? It is sought by a trick of literature, or by an affectation of profound scholarship, to write sensational sentences!

A new existence opens out for pharmacy, higher and better than the past; a career for which we may prepare our sons without sense of social degradation. But excelsior status can only, though secured officially, be supported by corresponding fitness.

Now Latin strikes at the root of the superficial—its teachings cannot be guessed at, in itself as a commencing study, it is utterly unattractive. Every word means something, no one noun or adjective can be substituted for another. *Vir* is man, and so is *homo*, in English, not in Latin. To grasp its elementary principles nothing but close attention and thoroughness of labor will avail. A youth scarcely fledged—given a certain amount of cleverness and self-sufficiency, can soon theorise and discourse in a popular manner about most other things; the mysteries of religion are explained on Sunday afternoons by young gentlemen in the Regent's Park, to an admiring family audience and one London Member of Council, whilst the novice easily becomes familiar with the run of scientific experiments in a manner which (unhappily for himself) may astound the listener as much as the Fellows of the Royal. But Latin is imperative in its demands: a page of Ovid or of Sallust is a battle-field which must be conquered, and nothing can avail the combatant to work. The truer the work, the greater the success.

This earnest strife is in itself the foundation of future excellence. When hexameters and pentameters are forgotten, when it is no longer of the smallest consequence whether the first or second Punic wars are hopelessly confused, when Julius Cæsar may, with impunity, be mistaken for Augustus, when the fourth Georgic may have ceased to charm, and the Eclogues are as little remembered as the Sic te Diva, still the result remains—one for which the student, especially the Pharmacist, may thank God every day of his after life. There is left the gift of accurate, minute investigation; the contempt for clap-trap and superficiality; the longing for and realization of the possession of abstract knowledge; the capability at a given instant of directing trained energy in any desirable direction.

There is, moreover, a release from the tyranny of desultory endeavour; from the waste of time and plodding spent in praiseworthy but mistaken approach to work in hand. Finally, to a mind thus exercised there is the dowry of that innate command of thought and consequent action which eventually will prove the surest hold upon the reins of business, and will at least rob our examinations of their last trace of terror.

CANTHARIDES.—An Austrian apothecary Jul. Nentiorch writes to the *Gazette of the Austrian Apoth. Union.* "This summer (1867) I had some good opportunities for observing several large swarms of cantharides. Experiments which I instituted with the smallest of the younger insect, showed them to be altogether devoid of vesicating properties, the application of a fresh cataplasm to the inner surface of the arm for eight hours failing to produce even reddening of the skin. Those of medium size proved similarly innocuous, and it seems as if the active principle cantharidin forms only subsequent to copulation, for vesication certainly results only from the full-grown insect."

CARBOLIC ACID IN SNAKE BITES.—From a letter received by F. C. Calvert, & Co. from Australia, it would appear that the internal administration of carbolic acid in the bites of poisonous reptiles, has been attended with the best results. A lad bitten by a tiger snake—one of the most deadly—was tried with ten drops of the pure acid, every few minutes, in brandy and water; under the treatment his recovery was rapid.

Trade Report.

Respecting business generally and prices of drugs, chemicals, oils, &c., for the past month, we have but few remarks to make.

The drug business, though not so much affected by general dullness as others—it being to some extent a trade in articles of absolute necessity—yet is largely affected by influences common to all others; hence for the past month there has been a considerable stagnation. This is accounted for, mainly, by the operation of four causes—the want of sleighing to enable the farmers to bring out their produce; the low price of wheat indisposing the farmer to sell; the ascertained shortness of the wheat crop in some localities, and the want of snow in the woods to enable lumberers to carry on their operations. The second cause will be only temporary in its operation, and the first and last may yet, in part be remedied, as. not unfrequently, we have abundant falls of snow in February and March. There is, therefore, ground to hope that what is deficient in business activity now, may be made up later in the season.

We may remark on drugs and chemicals in general, that it is probable, on account of long continued dullness of trade in the principal emporiums of these goods, that some re-action will take place, partly owing to revival of business, and partly in consequence of lessened production. Indications of this kind are developing in the following: Citric, tartaric and sulphuric acids, quinine, saltpeter. American saffron, opium, morphine, and all preparations of opium, have had the former advances fully confirmed, and somewhat increased in the past month, and are getting very scarce in our own Canadian market, so that $14 for first quality opium and $8 for morphine, are the ruling rates. Sulphur is much advanced at the place of principal production in consequence of the flooding of the mines, and is held very firmly at higher rates. Cream of tartar, too, is decidedly higher at place of production, and carries with it red and grey tartars and tartaric acid.

"Butter and honey" seemed long ago to have had a pretty close connection, if not in relative prices, as two pretty good articles of food, and just now the price of the latter, in Ontario at any rate, has been materially advanced by the high price of the former.

Old stocks of essential oils, imported previous to the addition of fifteen per cent. duty, being about exhausted, this class of articles must now be held for enhanced prices, unless in cases where reduction of original price may counteract the duty.

Dyes generally, from various causes, are higher. Aniline dyes, owing to production not keeping pace with consumption, are in some cases almost double what they were a few weeks ago. Indigo is also much higher. Lac dye, logwood, and madder are in short supply.

From the number of items we have noted as being higher or firmer, our readers may suppose we have pleasure in giving unwelcome intelligence, for we know that most traders feel that higher prices mean lower profits, this is especially true with the wholesale merchant, so much so, that when goods get very high he has, from various causes, to dispense with profit altogether.

We now conclude our remarks by noting some items which tend to favor buyers—Oxalic acid, alcohol, cantharides, chamomile flowers, gamboge, oil sweet almonds, oil bergamot, and ipecac root.

WITHOUT SLEEP.—Five young men in Berlin lately made an agreement, for a wager, to see who of them could keep awake for a whole week. They all held out for about five days and a half, by drinking largely of strong coffee, and keeping up a constant round of active exercises and exciting amusements. At the end of that time two of them yielded to drowsiness; a third soon fell asleep while riding, tumbled from his saddle and broke his arm; a fourth was attacked by severe sickness, and compelled to retire from the list; the fifth held out to the end, but lost twenty-five pounds of flesh in winning the wager. Long ago, Frederick the Great and Voltaire made a similar experiment, making use of the same stimulant of strong coffee, but they did not succeed in driving away sleep for more than four days.—*Scientific American.*

UTILIZATION OF THE REFUSE LIME OF THE GAS WORKS FOR THE MANUFACTURE OF SAL AMMONIAC AND PRUSSIAN BLUE.—The lime used in the gas works for the purification of the gas becomes charged chiefly with two products of the destructive distillation of coal—results of the combination of its nascent nitrogen, viz., ammonia NH_3 and cyanogen NC^2. When steam is passed over such lime the ammonia escapes and may be passed through sulphuric acid, when sulphate of ammonia is obtained. By treating this with common salt (chloride of sodium) is easily decomposed into sulphate of soda and chloride of ammonium or sal ammoniac. The remaining lime, freed from the ammonia, contains the soluble ferro-cyanide of calcium; this is extracted by solution in water, and after filtration the clear solution is mixed with a solution of sulphate of iron, when the ferro-cyanide of iron or Prussian blue is precipitated. This is collected, washed and dried.—*Scientific American.*

A PHYSICIAN writes to the Dublin *Journal of Medicine* in support of the old notion of that people sleep better with their heads to the north. He has tried the experiment in the case of sick persons with marked effect, and insists that there are known to exist great electrical currents, always crossing in one direction around the earth, and that our nervous systems are in some mysterious way connected with this electricical agent. Let the beds all head towards the north pole.

A MILD WINTER has been felt in Europe as well as in this country. The Paris journals in their endeavors to console those who enjoy the ice and chill of winter, state that in 1822, 1807, and, further back, in 1791, the temperature was as unusually warm as it is this year; that in 1692 the Germans never lighted their stoves; that 1617, 1612, 1607 were likewise wonderfully mild; that in 1538 the gardens were full of flowers in the month of January; that in January, 1421, cherries ripened, and grapes in May; and that in 1172 the trees were covered with leaves, flowers bloomed, and birds built their nests, while the little ones fledged in the month of February.—*Scientific American.*

CANADIAN MEDICINAL PLANTS.

PRIZES.

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.*

2D PRIZE—TEN DOLLARS—a copy of *Wood's Class-Book of Botany.*

3D PRIZE—FIVE DOLLARS—a copy of *Wood's Class-Book of Botany*, and *Certificate.*

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 numbe of specimens, condition, correctness of naming, and general excellence; quantity a secondary consideration.*

Collections to which Prizes are awarded will 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.*

CAMPHOR A PREVENTIVE OF OXIDATION.—Mr. George Wellborn, according to the *Journal of Applied Chemistry*, finds that a small lump of camphor placed in a bottle of recently crystallized protosulphate of iron preserves it from oxidation, the salt affording a transparent solution after it had been kept three months. If the odor of camphor acquired by the salt is objectionable, it may be exposed awhile before using, or it may be removed by alcoholic washing and dried.—*American Journal of Pharmacy.*

Useful Receipts.

Lavender Water.

Take Oil lavender, (Eng.)...	1 oz.
Oil bergamot.....	½ oz.
Oil santal.....	½ dram.
Tincture orris.....	4 oz.
Ess. ambergris.....	2 oz.
Rectified spirit.....	2½ pts.
Rose water	½ pt.—Mix.

If a cheaper article is required, French oil of lavender may be used.

Musk Lavender Water.

Take oil lavender (Eng.)....	½ oz.
" lemon.....	½ oz.
" patchouly.....	5 drops.
Rectified spirit.....	1 pt.
Pure musk.....	20 grs.
Bicarb. soda.....	10 grs.
Water.....	2 oz.

Rub the musk and soda in a mortar with the water (hot), and add them to the other ingredients previously mixed.

Notes and Queries.

Chemicus.—ARTIFICIAL OIL OF BITTER ALMONDS, or *Oil Myrbane*, cannot be made from ordinary petroleum benzole, although a decided odor of almonds is developed by distilling it with strong nitric acid. It is commonly procured by bringing coal tar benzole in contact with nitric acid, the liquids being poured in separate streams into a worm or other convenient apparatus, when nitrobenzole is the result.

NON POISONOUS OIL OF BITTER ALMONDS can be prepared, according to Watts, by fractional distillation, the acid coming over first; but a method was suggested by Gmelin, and subsequently brought forward by Mr. Broughton, which is said to give more satisfactory results. It is substantially as follows:—Agitate the oil with an equal bulk of a strong solution of bisulphite of potash, the mixture becomes warm and a crystalline mass is formed, which must be well drained and dried. Dissolve in sufficient water and add carbonate of soda, on distilling the mixture the pure hydride of benzoyl passes over and is perfectly free from all traces of prussic acid. It has been found, however, that this pure product will not retain its pleasant odor for a great length of time, but rapidly oxidizes to benzoic acid. If immediately dissolved in spirit and converted into essence, it is quite

likely that this result might not take place, but on this point we are not certain.

Botanist.—SKELETON LEAVES.—The plan proposed by Church some years ago yields fine specimens, and will answer your purpose perfectly. Boil the leaves for two or three minutes, then immerse in a strong solution of permanganate of potash for two hours, applying a gentle heat, at the end end of this time the laxer tissue can be easily picked off or removed with a soft tooth-brush. The skeletons may be bleached by a solution of chloride of lime or sulphurous acid.

If the fingers should become stained with the permanganate solution it may be removed by washing with dilute sulphuric acid.

R. W.—TARNISHED SILVER is cleaned by washing with a strong solution of cyanide of potassium; as soon as the color is restored the articles must be well washed with water.

H. J., Toronto.—CRYSTALLINE POMADE.—The particular art in making this preparation is to give time for the spermaceti to assume large crystals in cooling. The pots into which it is poured should be warm, and should cool very slowly, the slower the better. The following mixture will answer well:—Ol. Amygdala dulc, 5 parts; Cetaceum, 1 part. Perfume according to taste.

Queen Street.—PIL COCHIA:

Take of Aloes Capen.
Aloes Socot:
Gambogia aa..... 4 oz
Pulv. Colocynth..... 3 oz
Sapo Hisp:..... 2 oz
Potas Sulph..... 1 oz
Ol Caryoph:..... ½ oz

Make a mass and divide into 5 grain pills.

We append the form for bed bug poison:

Hydrarg: Bichlor..... 4 oz.
Ol Lini..... 1 pint.
Ol Terebinth..... 1 "
Alcohol..... 4 "

J. M. L., Port Rowan.—We agree with you regarding the desirability of a general act, but it will have to come through the legitimate channel, and may be a long time in doing so. You labor under a misapprehension as to the Pharmacy Act, and possibly through the term "discharged" being applied to it in the public prints. It has been read a first time, and on the next meeting of Parliament will be proceeded with without delay.

R. H. Appleton, Stratford.—We will forward the missing June number, and presume that your not receiving that issue is owing to the Post Office, as our mailing is done with all possible care.

Subscriber.—The article termed QUININE ALE may be made by dissolving one grain of sulphate of quinine in an imperial pint of bitter ale (about six and a half grains to the wine gallon).

The Daily Telegraph Printing House, Bay St. corner of King, Toronto.